Interventions early in school

as a means to improve higher education outcomes for disadvantaged students

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Trevor Gale
Robert Hattam
Barbara Comber
Deborah Tranter
Dianne Bills
Sam Sellar
Stephen Parker



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National Centre for Student Equity in Higher Education (NCSEHE)
University of South Australia
20 Arthur Lemon Ave
Underdale SA 5032

Postal address:
National Centre for Student Equity in Higher Education
University of South Australia
GPO Box 2471
Adelaide SA 5001

The NCSEHE website can be found at *www.equity101.info/content/national-centre-student-equity-higher-education*

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Foreward

This report brings together in one volume and in hard copy the four staged reports on the research project *Interventions early in school as a means to improve higher education outcomes for disadvantaged (particularly low SES) students*, commissioned by the Australian Government Department of Education, Employment and Workplace Relations (DEEWR) and conducted in late 2008 and early 2009. The first major research project completed by Australia's National Centre for Student Equity in Higher Education since its inception, the report makes a significant contribution to the Centre's research program.

The research and this volume come at a time of renewed interest by Australian governments and universities in encouraging and enabling people from disadvantaged groups—particularly Australians from low socioeconomic status backgrounds—to access and participate in higher education. In the wake of the *Review of Australian Higher Education* (2008) and the Australian Government's response—*Transforming Australia's Higher Education System* (2009)—it is clear that increasing the representation in higher education of people from low socioeconomic status backgrounds will require 'a more sophisticated approach' (Bradley et al. 2008: 37, 39) than what has been attempted in the past.

This research report outlines such an approach. It draws on an extensive review of the international research literature on higher education systems and programs from OECD nations and on a national survey of Australian university programs focused on pre-Year 11 students, which were used to identify and elaborate case studies of good practice. Informed by a meta-analysis of these three research outcomes, the report develops a Design and Evaluation Matrix (DEMO) for university outreach programs that are highly likely to increase the number of disadvantaged students enrolling in higher education than otherwise would have been the case.

The authors wish to thank all those who contributed to the research, in completing the survey and participating in case study interviews. The interviews in particular involved substantial commitments of time, which reflected the participants' genuine commitment to advancing student equity in Australian higher education. We would also like to thank Janette Hancock, Jeannie Daniels, Lyn Kerkham, Sarah Adams and Chris Welsh who worked as research assistants on various aspects of the project. Thank you also to Kate Leeson who edited this final volume and Scott Wright who completed the type-setting and publication design. Finally, we gratefully acknowledge the support of DEEWR in funding the research.

Professor Trevor Gale

Founding Director, National Centre for Student Equity in Higher Education

Founded in 2008, the National Centre for Student Equity in Higher Education is a research centre funded by the Australian Government, Department of Education Employment and Workplace Relations and hosted by the University of South Australia.
Its research program is informed by three themes:
Aspiration Mobility Voice

1 Synopsis

1.1 Executive summary

This section performs two functions. It provides a synopsis or abridged version of the research, *Interventions early in school as a means to improve higher education outcomes for disadvantaged (particularly low SES) students*, with emphasis on reviewing its major findings. It also provides an extension to the research—reported in the sections that follow—extrapolating from it through a meta-analysis of the data to conceive of a matrix for designing and evaluating early interventions.

The research was funded by the Australian Government Department of Education, Employment and Workplace Relations (DEEWR) and undertaken from August 2008 to July 2009 by the Australian National Centre for Student Equity in Higher Education (NCSEHE). The research was prompted by concerns about the long-term under-representation of some population groups (particularly those of low socioeconomic status) within Australian higher education and by a growing conviction that, if they are to be successful, interventions to redress this situation need to be implemented earlier in schooling rather than later.

The focus of the research was on early interventions by universities in schools, with 'early' defined as pre-Year 11 and 'interventions' defined as organised and strategic outreach programs 'purposely designed to manoeuvre a population in particular directions' (Alloway & Gilbert et al. 2004: 218).

While the research was unable to provide precise guidance on 'how early is early', an important characteristic of effective programs identified in the research was that they tended to be long term. Typically, this included programs that began at least with middle school students—those enrolled in the years from the upper end of primary school to the lower end of secondary school—whereas the academic literature suggests that programs could usefully begin even earlier. As Heckman and Rubinstein (2001) note, the best 'pay-offs' for investment in education are when academic and aspirational support for students begins as early as possible and is continued for as long as possible.

The project was initially conceived in three stages. The first involved an analysis of literature describing pre–Year 11 outreach programs operating primarily in Australia but also in Canada, the United States, the United Kingdom and New Zealand. The second stage involved a survey of Australian universities to identify the nature and extent of their interventions or outreach programs targeting pre–Year 11 students. And stage three involved case studies of seven effective pre–Year 11 outreach programs operating in Australia, which were identified through the literature review and the survey. A fourth stage, reported in this document, provides a synopsis of the research and an extension to it, leading to the development of a matrix for designing and evaluating university outreach programs.

Among a number of findings, the research identified 10 characteristics, four strategies and an equity orientation comprising three perspectives associated with effective pre–Year 11 outreach programs. These characteristics, strategies and perspectives form the basis of the meta-analysis, which extends the research reported in the project's three stages. The Design and Evaluation Matrix for Outreach (DEMO) derived from the meta-analysis suggests that effective programs are those that exhibit at least five characteristics, three strategies and two perspectives. These are the programs that are more likely to increase the number of disadvantaged students going on to higher education than otherwise would have been the case.

1.2 Review of the Australian and international literature

The first stage of the study employed Anderson and Vervoorn's (1983) four conditions of entry to university—availability, accessibility, achievement and aspiration (the 4As)—as a framework through which to examine the literature on university pre–Year 11 outreach programs operating in Australia, Canada, the United States, the United Kingdom and New Zealand.

The 4As framework provides a way to move beyond deficit understandings of student entry into higher education, which are often expressed in terms of 'barriers' (what students cannot do, do not have, are too far from, etc). Within the literature, 'barriers' tend to locate the entry problem within students—effectively 'blaming the victim'—and do not take into account how barriers are also constructed by institutions, governments and systems.

The literature review is prefaced by a historical account of student entry policy in Australian higher education. Each of the four sections of the review—organised according to the 4As—also includes an account of contemporary policy and conceptual debates, with reference to the particular entry condition. The review is then followed by an account of the international context, of policy and programs, with particular reference to Canada, the United States, the United Kingdom and New Zealand. This second framing of the literature enables connections to be made between situational and program particulars, and contextual and policy parameters.

Programs described in the review are located within one or more of the 4As. Analysis of these programs includes identifying and naming program types within each entry condition. Programs are categorised first according to one of the 4As they seek to address and then, within these, according to the way in which the program seeks to address the condition of entry, as follows:

- *Availability program types*: the bond (guaranteeing availability); the pledge (committing to availability); the sponsored (reserving availability)
- *Accessibility program types*: access via philanthropy; access via example
- *Achievement program types*: targeting the talented; targeting the academic middle; targeting areas of national priority; targeting particular under-represented groups; targeting pedagogy (how we think about teaching); targeting the middle years (how we think about schooling)
- *Aspiration program types*: the exposé (aspiration inspired by knowledge); the taster (aspiration inspired by experience); the combo (aspiration inspired within collaborative networks).

In addition to identifying program types, nine characteristics of effective programs emerged from the literature review. (A 10th characteristic was identified during the analysis of the survey data.) The program characteristics are outlined below, organised within four program strategies: assembling resources, engaging learners, working together, and building confidence. (The strategies are an extension of the research and are discussed in more detail later in this document.) The following listing is intended to suggest that particular strategies tend to lead to programs with particular characteristics and, equally, that particular characteristics are indicative of particular strategies.

Assembling resources

- People-rich: an approach that requires the development of ongoing relationships between young people and those in a position to offer them ongoing guidance which relates to their situation and capacities.
- Financial support and/or incentives: addressed to particular economic constraints of different cohorts, and which combine with other support strategies.
- Early, long-term, sustained: an approach to intervention that is designed to work with students in earlier phases of schooling, ideally the primary years, and to continue as they make the transition through the middle years into senior secondary schooling.

Engaging learners

- Recognition of difference: premised on the perspective that disadvantaged students bring a range of knowledge and learning capacities to formal education that should be recognised and valued as assets.
- Enhanced academic curriculum: (including pedagogy) designed to sustain the ongoing quality of everyday lessons throughout schooling and to prepare students for further or higher education.
- Research-driven interventions: that engage the research capacities of the university to inform program design, implementation and evaluation, and to support the production and dissemination of knowledge about effective intervention strategies (this characteristic is identified in Section 3).

Working together

- Collaboration: between stakeholders across different sectors and agencies at all stages of program development and enactment.
- Cohort-based: an approach that engages with whole classes, or even larger cohorts of young people in a school or region, to change peer cultures as well as supporting individuals.

Building confidence

- Communication and information: about university life and how to get there, using a variety of digital media technologies as well as more traditional means such as brochures or school visits.
- Familiarisation/site experiences: through a schedule of university visits designed to both inspire and familiarise young people with higher education and what it means to be a student in that context.
- Discussion of the relationships between program characteristics and strategies is taken up further in the program design and evaluation section and in the technical notes (Appendix B). In particular, strongly composed programs have a depth of character within a broad strategic approach. Conversely, weakly composed programs are shallow in character and strategically narrow.

1.3 Survey of the nature and extent of Australian university outreach activities

The literature review was followed by a survey of all (Table A) Australian universities, aimed at identifying the nature and extent of pre–Year 11 outreach programs operated by universities. Typically, these are programs designed to encourage and enable disadvantaged (particularly low SES) school students to consider higher education.

The survey requested information about program origins, annual budgets, aims, target groups, outcomes, and if and how these were evaluated. Responses were received from 26 universities reporting on 59 programs.

Quantitative data generated by the survey are represented in the report figures, organised in terms of institutional and programmatic issues. (Appendix A includes figures extracted from Section 3, which are referenced in this document.) A third part of Section 3 includes an account of the qualitative data provided by some respondents throughout the survey. This qualitative element provided insight into and, in some cases, an expansion on the quantitative responses.

Analysis of the survey data indicates a number of commonalities across existing university outreach programs. At the time of the survey (December 2008) these included:

Scale

- The largest group (39 per cent) of surveyed programs involved more than 20 schools, while 27 per cent involved 6–10 schools.
- Programs that involved large numbers of students (201 to 500 students each year) accounted for 31 per cent of programs reported.

Origins and budgets

- University equity units drive and fund a large proportion of the early interventions. Nearly 40 per cent of the programs in this survey were reported to be based in equity units. The majority of programs reported were both initiated and funded by universities.
- Universities generally received funding of between $10 001 and $50 000 per program per year, with most being funded for more than five years.

Aims and targets

- The most significant target group were students from low SES backgrounds, followed by Indigenous students and then students from rural and remote locations.[6]
- Most of the interventions reported were aimed at Year 10 students.
- The largest group of these Year 10 programs aimed at building student aspirations to attend university, while financial assistance for students was the least commonly reported aim.
- Many of the interventions were one-off events that aimed to provide students with a taste of university, although extended programs of on-campus visits by school students, and school visits by university staff and students, were also reported.

Outcomes and evaluation

- The most frequently reported program outcome was a change in aspirations towards higher education. Also commonly reported was an increase in students' understanding of university enrolment and procedures.
- Most respondents reported that their programs are evaluated, predominantly on the basis of participant feedback.

As far as possible, the survey data was also analysed in terms of the nine characteristics of effective programs identified in the literature review. The findings of the analysis are summarised below.

[6] While it is acknowledged that the term 'regional and remote' is now used by government, the term 'rural and remote' was used in the survey and hence is used throughout this report.

People-rich

Some programs surveyed are engaged in the kind of people-rich activities that create specific opportunities for students to engage with others in extended conversations (see Figure 17, Appendix A). For example, several programs report that students are involved in extended university visits and in community or school projects with university staff; or are being mentored or tutored by university students. However, the one-off event remains a common outreach activity, with either university staff or students visiting schools or teachers and students visiting universities.

Financial support and/or incentives

Among the reported early interventions in schooling, only 4 per cent of surveyed programs make scholarships and grants available to pre–Year 11 students (Figure 17, Appendix A).

Early, long-term and sustained

The idea that programs should be long term is reflected in expectations that the majority of the programs surveyed will last for more than five years (Figure 9.1, Appendix A). Similarly, more programs are reported to be funded for five or more years than for periods of less than five years (Figure 13, Appendix A). However, it is important to note that there is a mismatch between expected program duration and anticipated funding, particularly for programs in the 'greater than five years' category, with expected durations exceeding anticipated funding. The data also illustrates that the school year level targeted most frequently is Year 10 or its equivalent, with each pre–Year 10 target group dropping in frequency so that junior primary and pre-school levels receive the least attention. So while many programs may be sustained over time, they are rarely targeting students much earlier than senior secondary school.

Recognition of difference

It is not clear from the survey data whether equity groups targeted by early intervention programs are valued for what they potentially bring to higher education (in the form of linguistic diversity, cultural knowledge, etc). What is clear is that early intervention programs tend to target students from low socioeconomic backgrounds and that most of these are offered when low SES students are in Year 10. It is also clear (in Figure 16.1, Appendix A) that a significant number of Year 10 programs aim to build students' aspirations for university. That is, there appears to be an assumption that low SES students lack aspiration. While this is not indicated in the data, it is not uncommon in the higher education sector for aspiration to be equated with a desire to go to university while those who desire other futures are regarded as lacking aspiration. How aspiration is understood (and how low SES students are valued) in university outreach programs needs to be the subject of further qualitative research.

Enhanced academic curriculum

The literature suggests that enhanced academic curricula and pedagogy lead to improved student retention and achievement and hence improved access to university. However, improving students' academic achievement is well down the list of most surveyed program aims (Figure 15, Appendix A). And while improved student retention, achievement and completion rates are claimed as program outcomes (Figure 20, Appendix A), there is little concrete evidence about the accuracy of these claims.

Collaboration

Large numbers of schools (and students) are involved with universities in the programs reported in the survey (Figure 14, Appendix A), although this in itself does not reveal the extent of these schools' involvement. A better indication of this is the low level of involvement of schools and departments of education in initiating programs (Figure 10, Appendix A) and in their evaluation (Figure 19, Appendix A). However, these too are imperfect proxies for collaboration.

Cohort-based

Like people-rich activities, the important feature of a cohort is its relational aspects. In part, such relations are influenced by a cohort's size: how many schools and how many students are involved. In the programs reported it is evident that there are many that are large scale, operating in more than 20 schools, and some of these have an operational footprint that is state-wide (Figure 14, Appendix A). However, it is difficult to imagine that programs of this size are able to contribute to changing peer group attitudes towards university participation, even if (and especially when) one individual per school is targeted across many schools. Programs that operate in just one school but target large numbers in the school equally exhibit a counter-cohort orientation. Getting the size right is part of the equation, as some programs demonstrated (targeting clusters of schools and clusters of students). However, more needs to be known about the qualitative aspects of these groupings to be able to make judgments about whether they constitute legitimate cohorts of peers.

Communication and information

The move towards more contemporary (particularly online) forms of communication and dissemination of information noted in the literature review is reflected in some outreach activities reported by universities (recorded as 'other' in Figure 17, Appendix A). The simplest programs provide information online, including university information, notices of events and learning materials for downloading. More interactive web 2.0 technology is also employed by a few outreach programs, which establish social networking sites, wikis, blogs, etc. Programs use this technology to form online communities, such as 'CareerShop', which keep students up to date with the latest career and university information. More could be done to generalise these forms of communication and information sharing with pre–Year 11 students.

Familiarisation/site experiences

Programs that aim to familiarise students with university are common among those reported in the survey (Figure 17, Appendix A). As noted above, the better forms are those that involve extended interactions with universities and university staff and students. These are evident in the programs surveyed, but so are one-off visits.

As well as being able to map the results of the survey against the characteristics identified in the literature review, analysis of the survey data revealed an additional characteristic emerging from practice that was underemphasised in the literature. *Research-driven* programs engage the research capacities of the university to inform program design, implementation and evaluation, and to support the production and dissemination of knowledge about effective intervention strategies.

1.4 Case studies of selected Australian university outreach activities

The third stage of the research involved seven case studies of leading Australian university outreach programs that were identified through the survey. The cases illustrate a range of outreach approaches tailored to the needs of different groups and contexts, and are operated by a variety of university types. Programs selected for the case were:

- Access and Success Project (Victoria University)
- Uni-Reach Program (Griffith University)
- Uni Connections Program (Wollongong University, Shoalhaven Campus)
- Koori Express Program (RMIT University)
- Make it Reel Program (University of Technology, Sydney)
- YuMi Deadly Maths Program (Queensland University of Technology)
- Regional Schools Outreach Program (Ballarat University).

Data was gathered from semi-structured interviews and focus groups with a range of participants, including university equity staff and academics, university student mentors, school students, teachers and parents. Print and web-based materials describing the programs and their contexts were also consulted.

The case studies confirm the 10 characteristics of effective programs identified in the first two stages of the research and provide rich descriptions of how the characteristics differ between contexts. At least half of the characteristics were evident in each case, although these were not necessarily the same ones in every case, suggesting their value emerges through combination rather than in a particular priority order.

The case studies also highlight a common equity orientation informed by three equity perspectives: unsettling deficit views; researching 'local knowledge' and negotiating local interventions; and building capacity in communities, schools and universities. These are described in the following terms:

Unsettling deficit views. Working with, rather than on, others requires strategies based on positive understanding of historically disadvantaged schools, students and their communities. This means widening university catchments to include working with the most disengaged, hard-to-reach students, rather than simply targeting high-potential candidates or those already proven to be outstanding. However, it does not mean watering down the curriculum. While programs should present university as attainable for disadvantaged students, and position these students as intelligent and capable learners, they also need to maintain an in-depth, intensive and long-term focus on rigorous and rewarding learning to build academic disposition (for example, Make it Reel, Deadly Maths). Programs aimed at improving achievement and aspirations should be sensitive to alternative cosmologies and epistemologies. They should also present opportunities for learning that involve high intellectual challenge, high expectations of students producing high-quality products (artefacts of learning), and high-motivation projects and events.

Researching 'local knowledge' and negotiating local interventions. Given the importance of context in addressing inequalities, research about 'local knowledge' is a key feature of interventions and university equity policy. This necessarily involves building viable relationships with specific schools and their communities and learning about their understanding of the 'problem' as a preliminary step to designing interventions (for example, Access and Success). This may include community consultations, for example, or hiring or working with staff that have local knowledge. There also needs to be scope to negotiate between universities, schools and their communities over imagined interventions. Encouraging genuine reciprocal alliances and collectively investigating long-term effects on a range of factors will help to build an evidence base particular to specific contexts and groups (for example, university–community links; Gutiérrez et al. 2009), and to make the interface between school and university more permeable.

Building capacity in communities, schools and universities. Achieving improved outcomes for disadvantaged students requires building increased capacity in communities, schools and universities, including increased funding for programs from sources such as state and federal governments and further supplementary funding from individual universities. Capacity-building programs that aim to familiarise students and their parents with university are about developing cultures of possibility. These programs need to begin early in schooling, particularly with primary schools in areas of high disadvantage, in order to generate cultural and dispositional shifts in students, families and teachers in relation to achievement and aspiration (for example, Koori Express, Deadly Maths). Change models that involve the whole school are preferable to individual classroom projects. Further, programs may be strengthened by engaging in the development of curriculum materials, working with school leadership and developing school–community partnerships. Implementing such programs requires professional development of university staff and teachers through participatory action research methodologies, which involve negotiating theory and practice in specific interventions and have the potential to link with teacher professional learning in credentialed programs provided by the university.

Findings from the case studies suggest that a combination of program characteristics—supported by a coherent institution- or department-wide equity orientation toward policy and practice—hold the strongest promise for designing and implementing effective early interventions.

1.5 Outreach program design and evaluation[2]

This section builds on the research described above, extrapolating from it through a meta-analysis of the data, to conceive of a matrix for designing and evaluating early interventions. The Design and Evaluation Matrix for Outreach (DEMO) enables the program composition and likely effectiveness of programs to be discussed and evaluated.

Program depth and breadth

The research outlined above described 10 characteristics that are typical of effective programs. While it is not appropriate to organise these characteristics into a hierarchy of relative importance, it is possible to identify four program strategies related to particular character subsets. These four strategies and their associated characteristics are set out in Figure 1.

[2] See Appendix B for a more technical discussion of the instruments described in this section.

Assembling resources	Engaging learners	Working together	Building confidence
People-rich	Recognition of difference	Collaboration	Communication and information
Financial support and/or incentives	Enhanced academic curriculum	Cohort-based	Familiarisation/site experiences
Early, long-term, sustained	Research-driven		

Figure 1: Four strategies and 10 characteristics of outreach programs

The characteristics associated with each strategy share a common logic:

- *Assembling resources* involves committing human resources (people-rich), financial resources (financial support and/or incentives) and time resources (early, long-term, sustained) to support and implement outreach programs and activities.
- *Engaging learners* involves learning and teaching of various orders: learning about programs, their effects and intervention strategies more generally (research-driven), high-quality and rigorous student learning driven by quality teaching (enhanced academic curriculum), and learning from and valuing the knowledge of others (recognition of difference).
- *Working together* involves cooperation and partnership at the level of program design and implementation (collaboration) and in terms of engaging student communities through programs, rather than just targeting individuals (cohort-based).
- *Building confidence* involves strengthening students' awareness of university structures, pathways and opportunities (communication and information) and increasing students' familiarity with university contexts and lifestyles (familiarisation and/or site experiences) in order to promote the view that access to and participation in higher education is for everybody.

Grouping the 10 characteristics into four strategies enables the total number of characteristics combined in a given program to be referenced against the balance of strategies from which these characteristics are drawn. Extending the analysis provided by the research, effective programs are not guaranteed simply by combining five or more characteristics from a homogenous group of 10. Their combination also needs to represent a balance of strategies.

For example, a program that combined financial support (assembling resources), enhanced academic curriculum (engaging learners), collaboration (working together) and familiarisation/site experiences (building confidence) would be stronger than a program that combined financial support (assembling resources), people-rich (assembling resources), communication and information (building confidence) and familiarisation/site experiences (building confidence). The first example has four characteristics drawn from across each of the four strategies, while the second combines four characteristics drawn from just two strategies.

Program composition, then, is assessed in terms of a balance between the total number of program characteristics (depth) and the number of program strategies from which they are drawn (breadth). Figure 2 illustrates how these two measures—characteristics and strategies—can be referenced with each other.

[2] See Appendix B for a more technical discussion of the instruments described in this section.

Program Depth (Characteristics)					
	10				VS
	9				VS
	8			S	VS
	7			S	VS
	6		M	S	VS
	5		M	S	VS
	4		M	S	S
	3	W	M	M	
	2	W	W		
	1	W			
		1	*2*	*3*	*4*
		Program breadth (strategies)			

W=Weak M=Moderate S=Strong VS=Very strong

Figure 2 Program composition

Both axes of the figure measure the *number* of characteristics (1–10) or strategies (1–4) rather than *particular* characteristics or strategies (for example, '4' on the x-axis refers to four total strategies, not the 'fourth' strategy of building confidence). The strength of a program's composition increases from weak, through moderate and strong, to very strong as its depth and breadth increases.

The program composition can be read from characteristics to strategies or from strategies to characteristics. The first approach enables the identification of strategies associated with particular characteristics, whereas the second approach enables identification of the characteristics associated with particular strategies. Both approaches reveal that programs improve in composition across a number of thresholds:[3]

- Weak programs comprise three or fewer characteristics drawn from just one strategy, or two characteristics drawn from two strategies.
- Moderate programs comprise three or more characteristics drawn from at least two strategies.
- Strong programs comprise four or more characteristics drawn from at least three strategies.
- Very strong programs comprise five or more characteristics drawn from across all four strategies.

To illustrate what this means for particular programs, consider an outreach program that:

- focuses on improving the educational outcomes of middle-year students
- engages teachers in researching their students' out-of-school knowledge
- seeks to engage this knowledge as a valued learning resource in the classroom
- brings middle-year students onto a university campus to experience a (modified) university teaching experience, which draws on their lifeworld knowledge (for example, in health, law, journalism, media studies).

[3] See Appendix B for further discussion of thresholds between degrees of program strength.

Such a program might involve the following characteristics: early, long-term, sustained (assembling resources), recognition of difference (engaging learners), enhanced academic curriculum (engaging learners), research-driven (engaging learners), collaboration (working together), cohort-based (working together), and familiarisation/site experience (building confidence). In terms of its composition, the program would be considered very strong because it comprises seven characteristics drawn from all four strategies.

Likely program effectiveness

The composition of a program, as indicated by Figure 2, provides one criterion used in the Design and Evaluation Matrix for Outreach to assess the overall likelihood of program effectiveness. The second criterion is a program's equity orientation. The overall likely effectiveness of a program—for increasing the number of disadvantaged students participating in higher education—depends on its strength *and* the degree to which it is supported by an equity orientation toward policy and practice.

As indicated in the third stage of the research, a comprehensive equity orientation includes the three equity perspectives set out in Figure 4.

Equity orientation		
Unsettling deficit views	Researching 'local knowledge' and negotiating local interventions	Building capacity in communities, schools and universities

Figure 4 Three perspectives of an equity orientation

The DEMO (see Figure 5 opposite) references program strength with the number of equity perspectives evident in the sponsoring institution, department or the program itself. As with Figure 2, the x-axis measures the number of equity perspectives rather than the particular equity perspectives that are present (for example, '3' on the x-axis refers to three total perspectives, not the 'third' perspective of building capacity in communities, schools and universities).

Different measures of likely effectiveness are provided for each possible combination of the values on each axis. The optimum is very strong programs combined with all three equity perspectives. These programs are very likely to be effective. Whereas, programs that are weak and/or have no equity perspective, are generally unlikely to be effective.

A number of cells on the matrix have an ambivalent value. This ambivalence reflects the possibility that programs with a maximum rating on one of the criteria—program strength or equity orientation—may have an increased likelihood of being effective due to their comprehensive satisfaction of this criterion. In this sense, a very strong character and strategy or a strong equity orientation matters. For example, a very strong program with no equity orientation may still be likely to be effective and similarly a weak program with a strong equity orientation may still be likely to be effective. In each instance when the likely effectiveness of a program falls within an ambivalent cell, judgment is necessary to determine whether its particular combination of depth, breadth and equity orientation warrants the lower or higher rating. This judgment will require a careful consideration of contextual factors.

	VS	U-L	L QL	QL VL	VL
	S	U	L	QL	QL-VL
	M	U	L	L	L QL
	W	U	U	U	U-L
		0	**1**	**2**	**3**
		Number of equity perspectives			

U=Unlikely L=Likely QL=Quite likely VL=Very likely

Figure 5 Design and Evaluation Matrix for Outreach

As with program characteristics, it is not appropriate to organise the equity perspectives into a hierarchy of relative importance. However, it is important to note that an approach that unsettles deficit views is particularly significant, especially in combination with the other two perspectives to ensure that they represent an equity perspective. For example, the task of researching local knowledge could be pursued from a deficit perspective that simply approached this knowledge as requiring remediation, rather than having value that needs to be recognised and better connected with school curricula and pedagogies.

In this sense, programs that include a single equity perspective of unsettling deficit views may be considered stronger than if they included just one of the other perspectives. Further, programs that include unsettling deficit views as one of two perspectives can be considered stronger than programs that include just the other two perspectives. For example, a program of moderate strength with one equity perspective would be Unlikely to be effective. However, if that single equity perspective involved unsettling deficit views then it could be considered likely to be effective.

The DEMO: designing and evaluating outreach programs

The routine and rigorous evaluation of outreach programs conducted by Australian universities is an area that could be improved. The Design and Evaluation Matrix for Outreach provides a valuable resource for strengthening this dimension of outreach work, and potentially the effectiveness of programs in the future. It foregrounds program conceptualisation and design as a significant factor contributing to the likelihood of programs making a difference for disadvantaged students.

The overall effectiveness of a program—understood in terms of its likelihood of increasing the number of disadvantaged students going on to higher education than would have otherwise been the case—will depend on the combination of depth (number of characteristics), breadth (number of strategies), and equity orientation (number of equity perspectives). While acknowledging that there have been effective outreach programs conducted by Australian universities, Bradley et al. (2008) call for a more sophisticated approach to outreach that is designed to increase participation for disadvantaged groups, especially low SES, rural and remote, and Indigenous students:

> The success of various initiatives undertaken by the public universities has been varied, particularly in relation to low socio-economic status, rural and Indigenous students. There have been some very effective programs but the next phase of activity requires a more sophisticated approach. (p. 37)

The DEMO takes account of the key features of the effective programs identified in this research, and provides a conceptualisation of the relationship between these features. It is provided as a resource to support the design and implementation of more sophisticated outreach initiatives.

Outreach programs and activities may be designed from the ground up and the DEMO may be used to inform this process. It can also be used to redesign programs during their implementation through a participatory action research process. In addition, it is also possible that programs or parts of programs may be 'borrowed' from other contexts. Such 'program borrowing' also demands redesign work in order to ensure that borrowed programs or program elements address the needs of the new contexts in which they will be implemented. It is important to note that programs that appear successful in one context may not necessarily meet the needs of other contexts, and that their success may be measured and reported against criteria that do not support the pursuit of equitable educational outcomes for disadvantaged students.

In these instances, importing a successful program into a new context, based on its demonstrated effectiveness elsewhere, does not guarantee that it will produce the desired outcomes. Further, evaluating a program in terms of its reported outcomes, without also considering its depth, breadth and underlying orientation, is likely to result in a narrow assessment. The DEMO is intended to support evaluation and redesign of existing programs, which will potentially inform the development and implementation of outreach work in other contexts.

The DEMO provides indicative guidance for the analysis of programs in terms of their effectiveness, including the dynamics produced by different combinations of characteristics and strategies (their composition), and equity perspectives. It can be used independently, especially when designing programs and evaluating prospective programs in order to make funding decisions. It can also be used in conjunction with other qualitative and quantitative measures to provide a rigorous evaluation of existing programs.

In all instances it is important to consider the *context* of the program being designed or evaluated. While the matrix provides relatively clear qualitative measures of likely program effectiveness, these measures should be informed by an analysis of contextual factors that place specific demands on programs and may impact on the effectiveness and appropriateness of different approaches.

For example, the rating of a program that appears likely to be effective according to the matrix, but which does not include a particular characteristic that is known to be important for success in the context addressed by the program, should be subject to discussion and possible revision. While assessments produced using the DEMO are relatively distinct, it is important to note that in practice there will be some overlap between them and this should be taken into account to ensure nuanced and balanced use of the instrument.

The DEMO emphasises the importance and value of combining characteristics and draws attention to the strengthening of programs that results from synergistic relationships between different characteristics and strategies. Programs are very likely to be effective once at least half of the 10 characteristics are combined (and which necessarily involves at least two strategies). In this sense, the strength of a program depends more on the *combination* of program characteristics, in response to the particular needs of different contexts,

than on the *specific* characteristics that are combined. Therefore, two programs comprising quite different sets of characteristics could be equally effective.

Further, the DEMO separates measures of program composition from assessment of program equity orientation, which is a significant contributor to the measure of likely overall program effectiveness. A program with a large number of characteristics is unlikely to make a difference for disadvantaged students if it is not supported by a strong equity orientation at the level of the institution or organisation, or at least the department that is responsible for its development and implementation.[4] In this sense, two programs of different composition may be equally likely to produce desirable outcomes if they are both supported by a strong equity orientation.

The combination of characteristics and strategies with the orientation of the program provides a better abstract indicator of likely effectiveness than specifications of required program structures or checklists of required features.

For evaluation purposes, it is recommended that the program composition be identified first, before referencing this against the presence of equity perspectives in order to determine overall likelihood of program effectiveness. Contextual factors and demonstrated program outcomes should also be combined with the measure of likely effectiveness to ensure a comprehensive and balanced evaluation.

For design purposes, including the evaluation of prospective programs to inform funding and policy decisions, it is recommended that the equity orientation be identified first. For example, program design is likely to benefit from early and substantive discussion, between program staff and others across the university and other collaborating institutions, about how the equity perspectives can support the design and how they can be implemented in a given context. This discussion would then inform a consideration of how the four program strategies can be drawn on and which program characteristics should be included, given contextual requirements and budget limitations.

There can be no simple formula for a sophisticated approach to outreach activities. The DEMO should not be used as the final arbiter of a program's merit. Instead, it is intended to be used to promote discussion and debate, to inform design and to strengthen evaluations that also draw on a range of other data. The sophistication and effectiveness of the next phase of outreach activity will benefit from the rich discussions and complex design work that the DEMO is intended to support.

[4] The exception is in instances where particularly high numbers of characteristics and strategies suggest potential effectiveness despite a lack of equity perspectives. See Appendix B for further discussion of this point.

2 A review of the Australian and international literature

2.1 Executive summary

This review identifies early interventions in schooling aimed at increasing students' participation in higher education after completing school. The review constitutes *A review of the Australian and international literature* of the DEEWR funded research project *Interventions early in school as a means to improve higher education outcomes for disadvantaged (particularly low SES) students.*

For the purposes of this review, 'early' refers to the school years up to Years 11 and 12; that is, before the last two years of post-compulsory or senior secondary schooling. 'Interventions' refers to organised and strategic programs 'purposely designed to manoeuvre a population in particular directions' (Alloway, Gilbert et al. 2004: 218). While early interventions in Australia are of particular interest, these are complemented by information about and analysis of interventions in other OECD nations (including the United States, Canada, the United Kingdom and New Zealand).

The review is prefaced by a brief overview of the policy environment informing access and participation in Australian higher education, from immediately following the Second World War up until late 2007. It traces the shifts over time in thinking about equity in this context, including shifts in what constitutes Australian higher education. Emphasis is given to issues related to students from low SES backgrounds.

The review identifies four major barriers to student participation in higher education: (i) the restrictions of distance and time; (ii) the cost of higher education; (iii) non-completion of schooling and low academic achievement; and (iv) student expectations, motivations and aspirations. These barriers are directly correlated in the review with Anderson and Vervoorn's (1983) four conditions of entry to university: availability, accessibility, achievement and aspiration.

The review identifies the approaches that are likely to make a positive difference for disadvantaged students, particularly for low SES background students. Specifically, it concludes that interventions which foster higher participation are characteristically: (i) collaborative; (ii) early, long-term and sustained; (iii) people-rich; (iv) cohort-based; (v) communicative and informative; (vi) experiential (familiarising students with university sites and how they operate); (vii) cognisant of difference; (viii) academically challenging; and (ix) financially supportive.

Analysis of these characteristics and of the literature gives rise to three main questions for future consideration: (i) In what ways might higher education institutions and schools collaborate on sustainable equity initiatives? (ii) How might a program of longitudinal research studies be designed to provide evidence of impact of various strategies and initiatives? (iii) How might the best practices of specific interventions be implemented in ongoing infrastructure and policy?

2.2 Introduction

This review identifies early interventions in schooling aimed at increasing students' participation in higher education after completing school. 'Early' refers to the school years up to Years 11 and 12; that is, before the last two years of post-compulsory or senior secondary schooling. Until recently, most Australian interventions aimed at increasing student participation in university have focused on the senior secondary school. 'Interventions' refers to organised and strategic programs 'purposely designed to manoeuvre a population in particular directions' (Alloway, Gilbert et al. 2004: 218).

In this review, early interventions designed to improve school outcomes are used as proxies for early interventions specifically focused on university entry, given that academic achievement is a key predictor of participation in higher education. Interest in school interventions is informed by persistent data indicating that particular groups of people tend to be under-represented in university student populations and that these 'imbalances in higher education participation reflect endemic educational disadvantage that begins in the earliest years of schooling' (CSHE 2008: 3).

While early interventions in Australia are of particular interest, these are complemented with information about and analysis of interventions in other OECD nations (including the United States, Canada, the United Kingdom and New Zealand). This is because the literature suggests that student equity is also a concern overseas, with students from the lowest SES groups particularly under-represented. Given the similarities in these issues across national borders, international literature, data and policy responses are included throughout this review.

Current imbalances in higher education participation

In 1990, the Australian government policy statement, *A fair chance for all* (Department of Employment, Education and Training 1990), identified six groups that were under-represented in Australian higher education: women in non-traditional areas, people from non-English-speaking backgrounds, people with a disability, Indigenous peoples, those living in regional and remote areas of Australia, and people from low socioeconomic backgrounds. While there is evidence of improvement in the access and participation of some of these groups, the latest review of these issues commissioned by Universities Australia (CSHE 2008) indicates that three groups in particular continue to be significantly under-represented: people from low socioeconomic status backgrounds; people from regional and remote areas; and Indigenous people.

People from low socioeconomic status backgrounds

Despite a significant increase in student numbers in recent years, people from low socioeconomic status (SES) backgrounds continue to be under-represented in higher education. While 25 per cent of the Australian population can be defined as low SES (according to the ABS Index of Education and Occupation in the Socio-economic Indexes for Areas (SEIFA) suite), this group continues to represent just under 15 per cent of Australian university students. This under-representation is more acute in courses with high demand and in prestigious universities. For example, the proportion of low SES students in the Group of Eight universities is currently around 11 per cent. Similarly, people from low SES backgrounds are particularly under-represented in prestigious and competitive courses such as 'medicine, law and architecture but are less under-represented in teacher education and agriculture' (CSHE 2008: 25).

The distribution of students from low SES backgrounds across courses is also imbalanced. In the period between 1992 and 2002, these students comprised the largest group at the pre-degree level but only 8.6 per cent of undergraduate students and an even smaller proportion of research (masters and doctoral) degree students.

In short, at various levels of student engagement with higher education, students from low SES backgrounds are disadvantaged in relation to higher SES students. In particular, recent research by the Centre for the Study of Higher Education (CSHE) (2008) notes that:

- In 2006, Year 12 completion rates were significantly lower for low SES students (at 59 per cent, as opposed to 78 per cent for high SES students).
- Low SES students are more likely to aspire to and adopt a non-higher education pathway after leaving secondary schooling, including vocational education and training (VET) or entry into the labour market.
- Poor academic achievement increases the likelihood of early withdrawal from secondary school and thus non-entry into higher education.

People from regional and remote areas

A second and often overlapping group under-represented in higher education is from regional and remote areas. These students are less likely to complete Year 12, and thus go on to higher education, than their metropolitan counterparts, which is indicative of the barriers to higher education experienced by non-metropolitan students.

People from regional and remote areas are also more likely to enter into non-higher education pathways after secondary school completion. They are more likely to view VET as a more appropriate pathway, and have more positive attitudes towards VET than students from cities (Alloway, Dalley et al. 2004: viii). The alternative aspirations of non-metropolitan students are linked to a lack of encouraging factors that make higher education appear attractive, attainable and appropriate.

Indigenous peoples

Indigenous peoples are significantly under-represented in Australian universities, with similar although perhaps more acute circumstances to others from regional and remote areas, and from low SES backgrounds. While Indigenous peoples constitute about 2.4 per cent of the Australian population (according to the 2006 census), they comprise only 1.25 per cent of commencing domestic students. This participation rate has remained more or less constant since 2001. Providing some explanation, a disproportionately large number of Indigenous secondary students do not complete Year 12. In particular, Indigenous participation in secondary education drops markedly between Years 10 and 11 with a corresponding increase in VET participation. The difference in secondary school retention rates between Indigenous and non-Indigenous students is significant, and this gap widens during the latter years of high school.

Issues worth noting in the CSHE (2008) research include the following:

- While 30 per cent of Indigenous students obtain a high school certificate, only one-sixth of these

students continue on into higher education. This contrasts with the national average of approximately 50 per cent of completing Year 12 students continuing on into higher education.

- Indigenous students obtain lower levels of academic achievement and are less informed about higher education opportunities than non-Indigenous students.
- Indigenous people are more likely to choose non-higher education pathways in post-secondary schooling.

Lack of confidence in their own academic ability is also said to be a major impediment to Indigenous students' education success (Craven et al. 2005; Ferrari 2006). According to the Centre for the Study of Higher Education:

> As a result of the educational disadvantage experienced, many Indigenous students have 'low academic self-concepts'. Consequently, Indigenous students often lack the adaptive and striving behaviour associated with higher academic self-concepts that enables individuals to try harder when confronted with the possibility of not achieving their goals. Anecdotal evidence that teachers have low expectations of academic potential and educational prospects of Indigenous students, perhaps unconsciously, compounds the low aspirations and decision not to pursue higher education (2008: 48).

Such comments suggest that the most formidable barrier to overcome in the process of increasing student equity may be located outside the influence of students themselves.

The international experience

As discussed in more detail later in this review, the literature demonstrates similar trends in accessing higher education internationally (see, for example, Gorard et al. 2007). In most OECD countries, 'social class is a reliable indicator of the likelihood that individuals will participate in higher education at some stage of their lives' (CSHE 2008: 71). In the United Kingdom, for example, young people from the highest social groupings are five to six times more likely to attend university than those from the most disadvantaged backgrounds (Higher Education Funding Council for England 2006). In 2005–06, low SES students in the United Kingdom represented 29.1 per cent of higher education students while comprising approximately 50 per cent of the total population. Prestigious UK universities enrolled an even lower proportion of low SES students, with the Oxford student body consisting of 11.4 per cent low SES students and St Andrew's consisting of 15.2 per cent.

The experience of Indigenous Canadians is somewhat similar to that of Indigenous Australians. Non-Indigenous Canadians are much more likely to have completed or be in higher education by the age of 20 (60 per cent as opposed to 28 per cent). Overall, only 65 per cent of young Indigenous Canadians graduate from high school, compared with 80 per cent of non-Indigenous youth. The rate of non-completion of secondary school is particularly high among First Nations Indigenous Canadians living on reservations. This equity gap is thought to be widening and is a primary cause of the low representation of First Nations Peoples in higher education.

Inequitable access to the more prestigious universities, a problem identified in Australia and in the United

Test results in Years 6 and 9 indicate that this difference in measurable achievement is exacerbated as students move through school. In other words, the 'under-representation [in university] of people from low SES backgrounds is the result of patterns of social and educational disadvantage that are experienced well before people reach the point of considering whether or not university is possible or relevant for them' (CSHE 2008: 7).

There is a clear need to consider the complexity of under-representation by students from low SES backgrounds and address the issues earlier in schooling rather than later.

This review of early interventions is framed by Anderson's conception (Anderson et al. 1980; Anderson & Vervoorn 1983) of the 'four conditions [that] must be met for a student to enter higher education:

- an adequate number of places must be *available*
- the institution must be *accessible* to the student, both geographically and financially
- the student must have the necessary scholastic attainment (or academic *achievement*) to qualify for entry
- the student must want to enter [*aspiration*]' (Anderson & Vervoorn 1983: 3; emphasis added).

While Anderson's conception of the issues has been in circulation for some time, it continues to dominate research, policy and practice in the field. Often framed negatively as barriers to higher education participation, as outlined above, the conditions governing entry to university have remained constant for at least the last thirty years and probably longer. At the same time, our review of early school interventions brings new understandings to Anderson's university entry conditions, which are expressed in the review's characterisation of these interventions.

This 'reworking' of entry conditions, albeit constrained, is necessary for at least two reasons. First, while the Anderson model is cognisant of 'the education system as a whole ... [operating] as a series of filters' (Anderson & Vervoorn 1983: 2), its conditions of entry to higher education were originally conceived with the post-compulsory school years only in mind. Secondly, the four conditions for entry are closely interrelated. As Anderson and Vervoorn assert, all 'four conditions must be met for a student to enter higher education' (1983: 3). For example, simply increasing the number of places, improving affordability through the removal of fees or the addition of scholarships, or even increasing attainment with the help of adjustments to university entrance scores, will not necessarily lead to increases in participation if aspirations are not addressed. Similarly, there seems little point in increasing aspirations if there are no places available, the places are not physically accessible or affordable, or the attainment levels required are too high.

The main body of this review is organised according to Anderson's four conditions of entry. Where intervention intentions are primarily characterised by one condition more than another, the intervention is described under that heading and referenced under other conditions where appropriate. Each of the sections begins by naming and describing early interventions relevant to the condition under consideration. These are accompanied by an account of the broader issues influencing the particular condition, including contemporary socio-cultural, political and economic understandings.

Preceding this review of early interventions is a brief overview of the policy environment informing access to and participation in Australian higher education. It traces the shifts over time in thinking about equity in this context, including shifts in what constitutes Australian higher education. Emphasis is given to issues related to students from low SES backgrounds.

2.3 Equity policy and Australian higher education

The Centre for the Study of Higher Education notes that 'internationally, Australia has been a leader in establishing an equity policy framework' (CSHE 2008: 13). The reference is primarily to the Australian government's 1990 policy statement *A fair chance for all*, and to the take-up of its conception of student equity in higher education by governments overseas. From an Australian government perspective, the current commitment to equity is informed by the belief that university student populations should reflect the composition of the wider national population.

In 1990, six population groups were identified as under-represented in Australian universities. Since then, at least three of these groups—regional and remote (originally rural and isolated) students, Indigenous students, and students from low SES backgrounds—have shown little or no improvement in their representation in higher education. Other nations vary in terms of which groups are under-represented in their higher education systems. They also vary in the success they have had in redressing these imbalances (CSHE 2008).

Nevertheless, shared among most nations is the low participation of students from low socioeconomic backgrounds: 'internationally, social class is a reliable predictor of the likelihood that individuals will participate in higher education at some stage in their lives'. In developed nations, 'people from low SES backgrounds who do reach higher education are less likely to find places in the most prestigious institutions and fields of study' (CSHE 2008: 71). These international comparisons are constrained by the differences and difficulties relating to how low SES is measured and how higher education is conceived (Gorard 2008; CSHE 2008).

The difficulties in making equity comparisons across nations are also evident across time. Equity and higher education have not always been defined in Australia as they are now. There seems to have been little regard for the social background of Australian university students before the Second World War (Anderson & Vervoorn 1983). After the war, as Australia entered a new period of nation building, access to higher education emerged as an issue when the Australian government sought to enable suitable returning servicemen to gain entry to it. At the same time, there was a massive expansion of secondary schooling accompanying the 'baby boom', informed by a university-led competitive academic curriculum (Gale 1994).

By 1964, Australia recognised the need to increase the qualifications profile of its population and public expectations of the right to access education at all levels became prevalent: 'in Australia it is widely accepted that higher education should be available to all citizens according to their inclination and capacity' (Martin 1964: 1). In these circumstances, equity meant that there should be places available to accommodate these citizens.

The 1964 Martin Report paved the way for the creation of these extra places, albeit through establishing a binary system of higher education (universities and colleges of advanced education (CAEs)). As a result, from 1965 to 1973 student enrolment in higher education more than tripled to 273,000 (100,000 in CAEs) (Marginson 1997), including enrolments in the new interdisciplinary universities of Murdoch, Flinders, La Trobe, Macquarie and Griffith, which in part were established to accommodate an expanded 'baby boomer' population. Higher education had become differently conceived, with the introduction of a stratified system and a potential diluting of equity in accessing university (the more elite form of higher education) and particular universities (the more elite ones established before 1964).

In 1972, the incoming Whitlam government was of the view that 'education is the key to equality of opportunity' (Whitlam policy speech, in Marginson 1997: 17). At that time, two hurdles were thought to stand in the way of this opportunity for Australians wanting to access higher education:

- tuition fees (affordability)
- limited availability of places.

The abolition of fees and the introduction of a means-tested allowance (the Tertiary Education Assistance Allowance) in 1974 were directed at the first hurdle, particularly for people from low SES backgrounds. The second, availability of places, was addressed when the federal government assumed full financial responsibility for Australia's higher education sector and increased its funding by almost 176 per cent in its first two budgets.

At the same time, on the recommendation of the 1973 Karmel Report, the Australian government introduced the Disadvantaged Schools Program (outlined below) to improve the standard of schooling received by students from low SES backgrounds and increase these students' retention rates to Year 12. (In 1978, retention rates in government schools were 30 per cent while in non-Catholic independent schools they were 86 per cent.) Among other things, schooling was now understood as a significant factor in the production of inequities in higher education.

Towards the end of the Whitlam government, the prevailing view of political economics began to shift:

- from *Keynesianism*: responding to public demand with increased supply funded from future income
- to *economic rationalism*: responding to public demand with a more efficient supply funded from current income and/or redirecting demand into other, less costly, areas.

This shift was to have a profound effect on equity in higher education, in particular on how equity and higher education were conceived.

From the mid 1970s to the early 1980s, the growth in the education system required to meet the needs of the 'baby boom' had slowed, unemployment was growing and government policy had begun to focus more on how schools could better serve industry rather than how to improve equality of opportunity. Retention to Year 12 fell between 1975 and 1980, and school leaver demand for higher education decreased. The Fraser government moved to reduce demand for higher education further by increasing the provision of technical and further education (TAFE), where costs per student were about one-third of those in higher education.

During these years, federal funding of TAFE increased by 80 per cent and enrolments increased by a third (Marginson 1997).

While data from the period is not available, one could surmise that low SES students were over-represented in TAFE, as is the case in the Australian vocational education and training sector today (Foley 2007). Conversely, a 1980 study revealed that, despite the Whitlam government's abolition of higher education fees, 'the social composition of students in higher education appears to have changed little over time ... the higher status social groups ... are consistently over represented' (Anderson et al. 1980: 197).

Whereas the creation of a binary system of higher education had the effect of *diluting* equity, the redirection of demand for higher education into TAFE had the effect of *displacing* equity. Indeed, an Australian government inquiry at the time (Williams 1979) expressed the view that the structural causes of under-representation of particular groups in higher education were more appropriately dealt with outside the sector, before students were admitted.

During the mid to late 1980s, retention to Year 12 and unmet demand for university entry began to build again and 'the need for a better educated and more highly skilled population was clearly recognised and widely accepted' (Dawkins 1988: 4). A new Australian government chose to respond with a more efficient method of supplying university places. Through a series of institutional mergers and amalgamations it upgraded CAEs to university status and created a unified national system of around 37 universities with a significant net gain in university places.

In order to defray the cost of funding these increased places, the government also introduced a user-pays system of tuition fees (the Higher Education Contribution Scheme, or HECS) collected through the taxation system and able to be deferred until a student earned a threshold income level. The introduction of HECS also served to remove the 'middle-class welfare' associated with free university tuition—given that the wealthy were more likely to attend university than the poor—without being a deterrent to entry for the poor because of the deferred nature of the scheme.

In this reconception of higher education, equity (particularly for those from under-represented groups) was reassigned as a university responsibility:

The larger and more diverse is the pool from which we draw our skilled workforce, the greater is our capacity to take advantage of opportunities as they emerge. The current barriers to the participation of financially and other disadvantaged groups limit our capacity to develop the highest skilled workforce possible and are a source of economic inefficiency (Dawkins 1988: 7).

In championing equity, Dawkins' White Paper foregrounded the development of 'a statement of national equity objectives [to] form the basis for further negotiations between the Commonwealth and institutions on the development and funding of their equity proposals' (Dawkins 1988: 55). *A fair chance for all* (Department of Employment, Education and Training 1990) established the national framework discussed above. It required universities to:

- develop strategic plans and targets to achieve equity (with separate Indigenous education strategies and targets)

- report on progress towards these as part of their annual educational profile submissions to government.

The ability of the sector to meet these requirements was enhanced by the development of a set of equity indicators that could be used by an institution to measure its performance against its own targets and those of the sector as a whole (Martin 1994). Martin also established for the first time a set of system-wide definitions of equity groups named in *A fair chance for all.* By then equity as strategy had reached a level of considerable sophistication.

Early in 1995, the Australian government asked the Higher Education Council (HEC) of the National Board of Employment, Education and Training (NBEET) to review progress in relation to Australian university equity objectives. The review found that there had been improved outcomes for some equity groups but little or no progress for students from rural, isolated or low socioeconomic backgrounds. The review also signalled a shift from focusing on particular student deficits to a new 'recognition that the academic and administrative culture of the sector contributes to the patterns of access and success of different groups in society' (NBEET/HEC 1996: 74). The review's recommendations were delivered to a new government in 1996 but they were never endorsed as policy.

These changes in thinking about equity in higher education were complemented by and related to similar moves in schooling. Between 1973 and 1996, school policy underwent substantial reform, especially in terms of social justice. Of some significance during that period was the Disadvantaged School Program, a 'poverty and education' program that provided the impetus for significant changes to:

- the way that the problem of educational inequality was understood
- post-compulsory curriculum and credentialling arrangements in many Australian states
- debates about a socially just curriculum and pedagogy more generally.

The program heralded a substantial shift in thinking, from deficit views of low SES students to an understanding that 'schooling *reproduces* the structure of inequality itself' (Connell et al. 1982: 27). During the twenty years or so of the program, the logic of local school interventions shifted from compensatory programs for low SES students to significant curriculum and pedagogical reforms; from blaming the victim to fixing up the curriculum. This shift in thinking led to a political struggle over how curriculum was designed and credentialled, especially in the post-compulsory years (Commonwealth Schools Commission 1987) and hence to a series of reviews and shifts in policy in these areas (for example, Gilding 1988, 1989; Blackburn 1985).

During this period the idea of inequality was expanded to include the education of girls, Aboriginal and Torres Strait Islander students, students with disabilities, and students from non-English-speaking backgrounds. This development led to serious debate about appropriate funding models for such a range of equity programs.

The imperative to reform the school curriculum and pedagogy was not focused only on the post-compulsory years. Curriculum reform for social justice was seen to be a matter for the entire school, giving rise to a range of policy interventions, including:

- the development of the idea of the 'core curriculum' (Curriculum Development Centre 1980)
- national statements and profiles
- a more general national curriculum movement.

The middle schooling movement developed in this context, with a range of changes, mainly at the local level, to school organisation, school culture and pedagogy.

The Disadvantaged School Program morphed into the Commonwealth Literacy Project in the early 1990s, partly because of the success of the 'critical literacy' movement, which had made a convincing case for the link between improving literacy and school achievement for 'disadvantaged' groups. However, equity programs of this type were disbanded in the late 1990s by the Howard government. Indigenous education policy was mainstreamed, the education of boys was put back on the agenda in reaction to gains for the education of girls, and schooling policy shifted to foregrounding the imperatives of devolution and 'choice'.

While the incoming Howard government maintained the broad equity standards for universities established in *A fair chance for all*, it did so through a neo-liberal understanding of equity and higher education. In its first budget (1996), HECS levels were increased and the income threshold for their repayment lowered; this was justified on the basis that students rather than the public were the primary beneficiaries of their higher education. Informed by this logic, Minister Vanstone also introduced discipline-related and differentiated upper limits on students' HECS obligations, determined partly on the basis of teaching costs but also on the anticipated long-term financial returns to students. For example, the low-cost law discipline attracted the highest rate of HECS along with more costly medicine and engineering disciplines, whereas the social sciences and humanities generally attracted lower HECS rates.

This increased emphasis on the user-pays principle was also central to the West Review of Higher Education (West 1998), which 'placed economic choice at the centre of decision-making' (Marginson & Considine 2000: 36). Following the West Review, Minister Nelson's *Crossroads* paper (2002) and *Backing Australia's future* (2003) moved higher education increasingly towards a demand-driven funding model, introducing the concept of fee-paying undergraduate places for domestic students who could afford to pay their way into prestigious courses. Nelson also permitted institutions to make their own judgments about how close to discipline-related HECS limits they should set their own students' contributions.

At the same time, the government placed a freeze on universities' raising students' HECS obligations in areas of national significance (teaching and nursing), fields in which low SES students have been traditionally more heavily concentrated and in which males are now increasingly under-represented (James et al. 2004). This freeze further differentiated between discipline areas within higher education, starving areas of national significance of much-needed funds.

This marketisation of higher education was not without regulation. The differentiation of and limits on HECS is one example. Another is the restriction placed on institutions to offer full fee-paying places to domestic students only after their Commonwealth Supported Places (as HECS places became known) were filled.

Backing Australia's future (Nelson 2003) also introduced Commonwealth Learning Scholarships (for education and accommodation), allocated on the basis of financial need, and required universities to offer their own equity scholarships in order to qualify for funds from the Higher Education Equity Support Program. A significant increase in funds was channelled through this program to finance outreach and student support activities for low SES students (including those from rural and regional areas). Specific scholarships for Indigenous students were subsequently introduced by Minister Bishop, along with a significant growth in other equity-based Commonwealth scholarships.

Despite these regulatory measures, equity continues to operate at the margins of most university activity. The creation of a market in higher education has 'redefined [students] as individual consumers of competitive public services' (Peters & McDonough 2007). The overriding logic of the market requires universities not only to be more efficient in their expenditure of government funds, adopting the management approaches of corporations, but also to generate their own funds to further their operations. During the Howard government's 12 years in office, government funding of universities decreased in relation to the number of students enrolled and by comparison with other OECD nations (Marginson 2007).

Throughout this history, inequality in higher education has been a persistent problem, not only in Australia but globally. The problem seems to have been resistant to various policy therapies, which suggests:

- a poor conception of the problem
- a lack of political will and/or
- poor implementation of policy.

Late in 2007, the Rudd government was elected to office with a mandate to embark on an 'education revolution'. The creation of a new Ministry of Social Inclusion co-located with the Department of Education, Employment and Workplace Relations gave an early signal about where equity was to feature in this revolution. As outlined above, the history of Australian higher education has been characterised by a shift in the way equity is viewed—from a social issue to an economic issue. As far as equity and education are concerned, the Rudd government 'revolution' appears to be positioning them as the concern of both social and economic policy. As Stephen Smith, then Shadow Minister for Education, asserted a few months before the 2007 election, 'not only is education a key driver of social justice and personal enrichment, it is also a vital instrument of economic policy' (2007: 2).

Suggestions of this changed relationship between 'society' and 'economy', and the implications for education and equity, can be seen in the introduction to the *Review of Australian higher education discussion paper* (Bradley 2008: 1). The challenge ahead is how to achieve this in the context of a knowledge economy that requires a system of universal higher education in order to remain globally competitive (Trow 1973, cited in 2006; James 2007), juxtaposed with a supply of potential domestic applicants that is about to peak and then fall away (Bradley 2008).

2.4 Conditions of entry to higher education

Equity in accessing and participating in higher education means different things to different people, across time and place. Nevertheless, Anderson suggests that these differences share a common set of building

blocks or conditions: availability, accessibility, achievement and aspiration (Anderson & Vervoorn 1983). They provide a common language to describe and evaluate equity interventions, in this case those focused on schooling up to Year 11. Each condition is considered in turn, beginning with a description and analysis of particular interventions and followed by the particular context informing them.

Availability

There are few interventions in schooling up to Year 11 that have the strategic intent of improving the availability of university places for students. In part, this is because place availability is often seen to be an issue in the post-compulsory years and even then as the responsibility of governments rather than universities. However, the marketisation of higher education discussed above and recent imperatives to expand the system (see below, 'Supply versus demand') have challenged these assumptions. Universities now exercise far more flexibility about how many places and which programs they offer, and from where they source their students. Three types of interventions involving these issues of place availability tend to operate in schools up to Year 11: the bond, the pledge and sponsorship.

The bond: guaranteeing availability

Bond interventions tend to be directed at gaining advanced commitment by very capable students to take up university places. Even when the interventions target particular equity groups, the main intent is to attract students with a record of high academic achievement. Elite universities tend to be most effective at this, leveraging off their prestige. Often the strategy involves some kind of scholarship, which among other things acts like a guarantee of a university place for the students involved, provided certain conditions are met. The bond also serves institutions, which are guaranteed high-achieving future university students. The Kwong Lee Dow Young Scholars Program (see below) is an example of the kind of bonding involved, although in large part the focus is on the transition years (Years 11 and 12) with some initial contact in Year 10.

INTERVENTION: Kwong Lee Dow Young Scholars Program (AUS)

The Kwong Lee Dow Young Scholars Program at the University of Melbourne (Australia) is named after a former Professor of Education. It commenced in 2005, targeting Year 10 students moving into Year 11 in 2006 and is an academic enrichment program designed to support high-achieving secondary students during Years 11 and 12.

Each school in the state of Victoria (and some over the border), including the most disadvantaged schools in the state, is invited to nominate their most outstanding Year 10 students. The university selects at least one student from each school on the basis of a recommendation from the school and the student's academic performance and leadership skills. Up to 700 students participate in the program during their studies in Years 11 and 12.

Young scholars are provided with exclusive access to study skills sessions; tailored on-campus events including academic and social activities; dedicated functions during key events such as Open Day; a dedicated portal on the university website, including information on further study opportunities; student blogs and social activities; and access to the University of Melbourne's library.

Upon enrolment at the University of Melbourne, Kwong Lee Dow Young Scholars are guaranteed a place in the degree of their choice conditional upon meeting any course prerequisites and

achievement of a tertiary entry rank (TER) of 95 (or 90 if from an under-represented school). [99.9 is the highest possible TER.] Rural or interstate students are provided with a A$2500 allowance to assist with settling-in costs in Melbourne.

During their first year of enrolment at the university all scholars participate in the Kwong Lee Dow First Year Program, which aims to enhance development of academic and leadership potential. Scholars are also eligible for a A$2500 Study Abroad Scholarship in their second or third year to enable participation in an international mobility program during their studies at the University of Melbourne.

www.futurestudents.unimelb.edu.au/courses/kwongleedow.html

The pledge: committing to availability

The pledge tends to focus on making students 'place ready'. Often this is part of a program focused on improving students' academic achievement, but the student pledge includes behavioural standards consistent with those of students who normally progress to university. Students are required to make a pledge or commitment in order to be included in a program. Institutions commit to making places available but this is not a commitment to particular students, who still need to meet specific entry requirements. The Twenty-First Century Scholar's Program (described below) provides one example. Students are required to pledge to the program early and do not receive financial assistance during their secondary schooling. Hence, the program tends to retain students already intent on attending college.

The industry parallel is beginning to emerge in the Australian mining sector. Companies desperate to attract workers and often located in geographically isolated areas (such as One Steel in Whyalla and Fortescue Metals in the Kimberley), are offering onsite training to the long-term unemployed and other disadvantaged groups in their region who agree to certain behavioural standards during their training. There is a commitment from the company that jobs will be available at the end of the training but employment is subject to applicants meeting minimum standards covered in their training.

INTERVENTION: Twenty-First Century Scholar's Program (US)

The Twenty-first Century Scholar's Program (State of Indiana, United States) was initiated by the Indiana Career and Postsecondary Advancement Centre in 1990 as part of the state's multi-pronged approach to address its relatively low rates of college graduation. It is funded primarily by the state with the assistance of a substantial grant from federal GEAR UP funds.

The program promises low-income middle-school (Years 7 and 8) students a scholarship up to the cost of four years' tuition at participating Indiana colleges or universities on the condition that they pledge to graduate from school with a reasonable grade point average, take the college preparation curriculum, enrol full time in a post-secondary institution within two years of high school graduation, refrain from using illegal drugs and alcohol and refrain from committing a crime. The program has a comprehensive support system for scholars, including tutoring, mentoring, career counselling, college visits and activities for parents, which is provided by staff at regional service centres and volunteers. It also has a service learning component.

A 2003 report (Cunningham et al. 2003) states that since the program's inception over 50 000 students have taken the Twenty-First Century Scholars Pledge. Of the first cohort of 5757 students, 46 per cent met the conditions of the scholarship by the end of high school and

of those 54 per cent attended college in the first year. Data from subsequent years has been similar. A number of studies have shown a positive effect on the rate of college participation in Indiana, particularly for minority students, with an increase in high school to college participation from 38 per cent in 1986 to 61 per cent in 1998 (Cunningham et al. 2003; St John et al. 2004). With controls for student background and academic preparation, scholars are more likely than non-scholars to attend college. The studies also note an increase across the state in college preparatory coursework and advanced placement courses.

www.ed.gov/programs/gearup/index.html

The sponsored: reserving availability

Sponsorship, a third type of intervention directed at increasing place availability for under-represented groups, blends elements of the bond and the pledge. While sponsorship programs select students with particular backgrounds and circumstances who are able to meet certain entry standards and hurdle requirements for continuation, students are not obligated to enrol in a particular university course or university or even to attend university at all. Nevertheless, institutions still reserve a number of places for students who pass through the program. More importantly, the institutional commitment is to sponsoring students into an academic culture and to the formation of an academic disposition, which necessarily includes activities related to achievement and aspiration (see the discussion of these entry conditions in the following sections).

INTERVENTION: Sheffield's Outreach and Access to Medicine Scheme (UK)

The School of Medicine and Biomedical Sciences at the University of Sheffield (United Kingdom) has been awarded 20 additional places in its medical degree for students who have the ability to become good doctors, but who would not normally consider this as a serious option. The University of Sheffield's Outreach and Access to Medicine Scheme (SOAMS) commenced as a two-year pilot program and was approved as a five-year program in 2001.

SOAMS provides support and guidance to local Year 9–13 students with an interest in medicine or science, through programs and activities aimed at raising awareness, aspirations and levels of achievement. To be selected Year 9 students must be the first generation in their family unit to enter higher education, have the need to study locally for personal, cultural or financial reasons, and 'have personal circumstances which may limit aspirations, expectations and awareness'.

SOAMS has two main phases:

- Phase One (Years 9–11) involves raising awareness about the medical profession and science in general. Students are introduced to work experience and encouraged to think seriously about post-secondary qualifications and subject choices. Visiting museums and interactive exhibitions is an integral part of this phase.
- Phase Two (Years 12–13) includes advice and guidance about university and career options. Students attend a residential summer school to enhance the study of science subjects, practise clinical skills, experience mock interviews, visit hospital departments and so forth. Students undertake relevant work experience and are given advice on completing their University and Colleges Admissions Service applications. Students are also offered mentoring support from university medical students through an online mentoring scheme.

> Students who have completed the scheme are eligible for a guaranteed interview at Sheffield's medical school. Successful applicants are then considered for one of the 20 'ring-fenced' places.
>
> One hundred students join the scheme at the beginning of Year 9. At the end of Year 11 the students completing Phase One are invited to apply for one of the 30 places on Phase Two. Selection is based on demonstrated attitude and aptitude, academic results and an interview.
>
> Although there are direct benefits of applying to Sheffield, such as a guaranteed interview, students can apply to any institution. Students who do register at the medical school are able to apply for a SOAMS bursary of £1000 per year of study (means tested).
>
> Towards the end of SOAMS students are offered post-application support, which includes preparation for the transition from school to university. Students who are unsuccessful, or who choose to study a subject other than medicine, will be offered additional advice and guidance.
>
> The first group of SOAMS students admitted to the degree graduated in July 2008. All five graduates were the first in their family to graduate from university and had participated in the initial two-year SOAMS pilot.
>
> *www.shef.ac.uk/schools/soams*

Little systematic evaluation has been done on the effectiveness of these interventions. However, there is a growing critique that they tend to benefit those who least need them (Slack 2003; Hatt et al. 2005; Ward 2006; Archer 2007). Certainly, bond interventions seem to be focused on identifying students very similar to those already on track to higher education, who differ only in their access to financial resources, while pledge interventions seem to be focused on socialising students into the higher education track. As noted above, sponsorship interventions combine elements of both. Reserving specific places for students from under-represented groups and sponsoring them into these places can enable students to meet existing university entry criteria at the same time as the intervention challenges those criteria. Whether sponsorship interventions tend to benefit those who least need them largely depends on the extent to which such interventions are able to rework place availability.

Supply versus demand

The broader context in which these interventions are located is in the changing dynamics of university student supply and demand. At the time Anderson was writing, in the late 1970s and early 1980s, there had been significant expansion in the number of university places available in Australia. However, this growth had done little more than keep up with population growth and participation rates in higher education had remained generally constant (Anderson & Vervoorn 1983).

Since that time the number of university places has continued to grow: from 1991 to 2007 the proportion of the population with a bachelor's degree or above more than doubled, to one of the highest rates in the OECD (in 2007, 29.2 per cent of all 25- to 34-year-olds compared with an average 33 per cent for the OECD top six) (Bradley 2008). A decline in the school leaver population and a strong labour market mean that Australia is now at a stage where demand for university places has been largely met, with record low levels of unmet demand at a national level (Bradley 2008; Wells 2008).

While some regions are still experiencing unmet demand, at a national level the availability of places is

no longer a significant barrier to university participation. This fall in demand is of increasing concern to Australia's policy makers, who fear that the local student market may not be able to keep up with the economy's need for graduates. Wells demonstrates how a continuing decline in the school leaver age group, a rapidly ageing workforce and an increasingly knowledge-based economy mean Australia is heading for a major skills crisis, particularly in relation to graduates. She notes that, in Victoria alone, current trends suggest that there will be 40 000 fewer higher education graduates than required by 2020.

Wells (2008) highlights that the economic imperative to broaden higher education participation is stark, providing powerful reinforcement for the social and moral imperatives to increase the participation of under-represented groups, including older workers who may have missed out on educational opportunities when they were younger. Bradley also notes the intertwining of arguments for increased higher education participation 'both for the benefit it brings to the individual and for the long-term social and economic benefits in terms of workforce participation and a more socially inclusive society' (2008: 28). Writing in the *Australian Financial Review* in 2007, Slattery (2007) strongly argued the business case for greater equity in both school and university education, citing a recent report by the Business Council of Australia.

It could be argued, therefore, that economic necessity rather than a commitment to social justice is driving the renewed focus on student equity in higher education and the current focus on social inclusion. The economic arguments for increasing and widening participation in higher education are echoed across the globe (Berger 2008; Cunningham et al. 2003), and were a significant driver of the United Kingdom's 'Widening Participation' policy goal to increase the higher education participation of people aged 18 to 30 to 50 per cent by 2010 (Leathwood & Hayton 2002). As Leathwood and Hayton note, New Labour's social inclusion agenda is 'about being economically and socially included' (2002: 140).

What kind of higher education?

There is increasing recognition internationally that the jobs required in a knowledge economy will demand a significant expansion in the number of university graduates. The growth of higher education across the developed world from elite to mass and even approaching universal provision in some countries (Trow 2006) has been largely about meeting the changing labour force needs of the developed and developing world.

However, this expansion has not been accompanied by increased equality of access. On the contrary, the 'massification' of higher education has tended to produce increased diversification and stratification of the sector (Archer et al. 2003; Marginson 2004a; Pugsley 2004; Brennan 2005a; Reay et al. 2005; David 2007; CSHE 2008). As the number of people accessing universities and qualifying for a degree has increased, the overall positional value of an undergraduate degree has declined (Marginson 2004a, 2004b, 2006) to the extent that the upper and middle classes must ensure their positional advantage through the status of higher-prestige universities and disciplines. In this way 'elite university education becomes continuous with independent private schooling at secondary level' (Marginson 2004a: 14), while students from low socioeconomic backgrounds and most public schools are 'channelled' into lower-status institutions and disciplines (David 2007).

A growing polarisation has developed between universities attended by the elite and those attended

by students from low SES backgrounds and from ethnic, and particularly Indigenous, minorities. This is particularly so in the United States and the United Kingdom, where students from the lowest socioeconomic quartile can be up to five times less likely to attend an elite university than those from the highest socioeconomic quartile. Instead, low SES students are highly represented at post-1992 universities and polytechnics in the United Kingdom and community colleges in the United States (Archer 2007; CSHE 2008).

While Australia is one of the few OECD countries that has a notionally unitary system of higher education, David (2007), Marginson (2006) and the Centre for the Study of Higher Education (2008) highlight the increasing differentiation within that system. It is a differentiation strongly encouraged by the rhetoric of diversity and choice of the Nelson reforms (Nelson 2002, 2003). As in the United Kingdom and the United States, the representation of people from low SES backgrounds at Group of Eight universities is well below the national average; it is at its highest in regional and post-Dawkins universities (CSHE 2008).

Most students want to attend prestigious universities, hence the competition to attend them is high. Prestigious universities are therefore able to maintain their status position by selecting the 'best' students—those with the highest entry scores. In most cases these are students who have already experienced a privileged secondary education. Rarely are they from low socioeconomic backgrounds (Teese & Polesel 2003). Over time status becomes circular in its effects. The prestigious institutions attract higher numbers of applications and require higher entry scores, 'making places scarcer; and the scarcity of places enhances the value of access and reproduces the prestige of the institution' (Marginson 2004b: 2). Places in prestigious or elite universities are therefore seldom available for people from low SES backgrounds, who rarely achieve the required entry scores.

Accessibility

Accessibility, as a condition for entering university, is often defined in terms of 'finance and geography' (Anderson & Vervoorn 1983), which are then equated with students of low SES, and regional and remote (or rural and isolated) students respectively. Both are defined by the Australian government in terms of their location:

- Socioeconomic status is 'based on a ranking of postcodes according to the educational and occupational characteristics of residents using the SEIFA (Socioeconomic Indexes for Areas) index' (CSHE 2008: 17).
- Regional and remote areas are defined in terms of *community context*, 'using the ABS postcode classification of geographical areas' (James et al. 1999: 14), and, for the purposes of participation in higher education, in combination with *physical access*: 'the distance from home to a university campus' (Western et al. 1998; in James et al. 1999: 14).

The inaccessibility of higher education for Australia's Indigenous population is often explained as a combination of both:

- There are 'marked differences in the financial circumstances of Indigenous students compared with non-Indigenous students' (CSHE 2008: 52), and the former are more often associated with low socioeconomic status.

- 'In 2006, only 31 per cent of Indigenous Australians lived in major cities while the rest of the Indigenous population was distributed across inner regional (22 per cent), outer regional (23 per cent) and remote/very remote areas of Australia (24 per cent)' (CSHE 2008: 52).

This combination (of 'lower socioeconomic background, rurality and distance from a campus') produces a 'cumulative effect' for many Indigenous and other regional students in terms of their access to higher education (James et al. 1999: 10), so that they are 'doubly disadvantaged'. However, defining disadvantage in this way means that other issues, such as disability and coming from a non-English-speaking background, are not necessarily seen as inhibiting students' access to and participation in higher education.

Access via philanthropy

While the problem is conceived in terms of geography, the solution is often imagined as a matter of finances. Hence, interventions aimed at increasing access to higher education for under-represented groups tend to concentrate on the allocation of funds. Often this involves the creation of scholarships although, unlike bond interventions that target place availability (see discussion in earlier section), philanthropic interventions do not usually involve merit criteria but look for a desire by potential recipients to pursue further education. The Commonwealth Learning Scholarships and matching institutional equity scholarships (discussed in an earlier section) are of this order.

However, some examples of philanthropy go beyond providing simple financial solutions to increasing access to higher education. They incorporate supportive programs and activities aimed at raising students' achievement and building their knowledge and understanding of possible futures. The Learning for Life program initiated by the Smith Family is such an intervention aimed particularly at students from low SES backgrounds. It adopts a model similar to the child sponsorship programs of international aid organisations (for example, World Vision), whereby a disadvantaged child is sponsored by a financial donor who receives regular updates of the child's progress.

INTERVENTION: Learning for Life (AUS)

Learning for Life is the major program of the Smith Family, an Australian, independent, non-profit organisation that 'supports children and families living in financial disadvantage to unlock opportunities to participate more fully in society, using education as the key'. Donations are invited to 'sponsor' a child through the Learning for Life program and donors are provided with (non-identifying) progress reports on their sponsored child/young adult.

Learning for Life commenced in 1988 and has assisted more than 40 000 disadvantaged students, providing financially disadvantaged students from primary school through to tertiary study with support through scholarships to assist with education expenses such as uniforms, books and excursions. Scholarships are offered to students whose families meet the Smith Family eligibility criteria of low income and commitment to their children's education and are not based on academic merit. The scholarship provides financial support—between A$250 and A$2000 per student per annum, depending on year of study at school or university—and educational support from staff.

Learning for Life also provides students with access to programs in personal support, to improve students' academic skills through mentoring, locally based learning clubs and tutoring; personal

development, to develop students' informal learning through extra-curricular activities such as sports and the arts; and literacy skills development, which aims to build comprehension as well as financial and technological literacy. A new initiative is the online mentoring service, i-Track Youth Mentoring, which focuses on the school to work transition. Students develop online mentoring relationships with supportive adults other than a teacher or parent to assist with information about workplace, study and career opportunities so as to enhance their school to work transition.

The goal of Learning for Life is to help individual young people from financially disadvantaged backgrounds discover their strengths and fulfil their potential, providing them with the support and guidance they need to successfully complete school and negotiate career choices, which may or may not involve university.

Partnerships have been developed with most of the larger Australian universities, usually in relation to supporting Learning for Life students at university. A more comprehensive model has been recently launched with the University of Technology Sydney, where the university promotes fund-raising and volunteering opportunities to staff and students, provides free access to its centrally located facilities, and investigates opportunities for research.

The Smith Family is highly research-based, conducting regular research into its program and the progress of its Learning for Life students. Some findings of the last two reports are outlined below.

On track? Students choosing a career (Beavis 2006) is the fourth in a series of reports on post-school plans of young people and includes responses to questions about the factors that shape students' plans for attending university. The report indicates that these young people were planning a future shaped by their interests, perceived ability and their families. Plans for university seem to be influenced by students' self-perceptions of ability but many students were unclear about the educational requirements of occupations, with only 40 per cent of the Learning for Life students matching their planned educational level and the level needed for their preferred job.

The most recent report, *Australian young people: their stories, their families and post-school plans* (Bryce et al. 2007), focused on a small number of 'achievers', students who were on their way to achieving their post-secondary goal, and followed up the influence of families on students' plans. The report found that the financial support of scholarships is important, but not enough. The mentoring provided by Learning for Life, as well as by significant teachers, is critical because it can supply information that some families may not have due to uncertainty about the confusing range of options available. However, these students were not generally constrained by family expectations and had a predisposition to tertiary study. The young 'achievers' in the study tended to show high achievement, a love of learning, persistence and 'a remarkable sense of future' (p. 5) from early secondary school, but often buckled under the pressure of Year 12 exams.

The report suggests that a sense of personal agency, in which the young person is guided and encouraged to be able to make informed choices about their future, is significant and

recommends an 'opportunity rich' environment in which institutions work together to equip young people for meaningful decision making.

www.thesmithfamily.com.au/site/page.cfm

Similar philanthropic interventions aimed at increasing students' access to higher education operate in regional and remote areas of Australia. The Country Education Foundation is one example. Its *modus operandi* has more similarities with a micro-credit model than with the child sponsorship of Learning for Life.

INTERVENTION: Country Education Foundation (AUS)

The Country Education Foundation of Australia is a not-for-profit organisation that assists rural communities around the country to establish local education foundations. With start-up financial support and advice from the Australian foundation, local foundations raise scholarship funds to help school leavers who continue on to further, technical or higher education. From 1994, when the first foundation was begun in the Boorowa community in New South Wales, the number of local foundations has risen to a total of 30 across New South Wales, Queensland and South Australia. To date, more than 800 grants have been received by rural youth amounting to almost A$800 000 in financial support.

A number of universities have partnered with the foundation to provide extra financial support for students who are the recipients of local education grants. This support is given mainly for the first year of study in an undergraduate degree and usually matches the local grant on a dollar-for-dollar basis. While the Country Education Foundation and the national and the local education foundations target school leavers, it is not just Year 12 students who receive assistance and the scholarships are given for broad study options. Thus students in Years 10 and 11 are eligible for assistance if they are leaving school to access diverse post-school training options, such as apprenticeships, traineeships and cadetships.

The Country Education Foundation actively links local foundations with organisations like the Foundation for Rural and Regional Renewal that provide grants assistance. At least two small rural communities have introduced university familiarisation programs. In 2003 Nannup Youth Advisory Council in Western Australia took a group of Years 8, 9 and 10 students from Nannup District High School on an excursion to Bunbury. Among cultural experiences such as seeing a stage show and visiting an art gallery, the students participated in what may, for many of them, have been an even less familiar cultural experience: sitting in on a lecture at university. In 2008, a small group of Year 12 students from Eudunda Area School in South Australia experienced a lecture at the Mawson Lakes campus of the University of South Australia. The one-day orientation experience included a long lunch in discussion with ex-students from Eudunda who were attending the university. Writing in the school newsletter, one of the students described the day as 'a fantastic learning experience ... it let our nerves rest knowing that there are a lot of friendly people who can help us through the transition'.

While the Country Education Foundation and local foundations target school leavers, their community-based activities can also assist younger students. Promoting the benefits of higher education to school leavers helps inspire other students to raise their aspirations. Scholarship recipients are celebrated at local events and in local media and they become role models for other students. Students receive the message from their community that education is important because they and their futures are important. Students

who go on to further education leave the area knowing the community supports their endeavour and in many instances students visit their local school to mentor and motivate other students. Parents whose life experience has not included higher education are persuaded to consider university study as a realistic option for their children. In many communities the local foundation thus provides an immersion in educational conversations that may go some way towards changing the discouraging effects of parental attitudes on students' aspirations towards further education (James et al. 1999).

Access via example

A second intervention type aimed at increasing students' access to higher education moves beyond the narrow definitions described above. While access is acknowledged as having a material component (that is, geography and finance), it is also understood as a socio-cultural issue. Hence, there are similarities with 'exposé' and 'taster' interventions (see discussion of 'aspirations' below) which share a message that university is a place for people who differ from current higher education population norms. However, example interventions differ in that the message addresses the specific concerns raised by prospective students with responses drawn from the experiences of current and graduate students like themselves. The project u DVD is a good example of such an intervention.

INTERVENTION: project u (AUS)

In 2005, the Queensland University of Technology developed project u, a high-quality DVD aimed at high school students from particular population groups (Indigenous students, regional and rural students, students from low-income and non-English-speaking backgrounds). The aim of project u is to encourage students from disadvantaged backgrounds to consider university as one of their post-school options.

In the development phase of the project u DVD, high school students from Years 10, 11 and 12 were surveyed about why they doubted that university was within their reach. University students were then asked about how they overcame those obstacles on their path to higher education and how they handled the key decision-making milestones.

project u shares this information with current high school students through an interactive DVD available to all high school students free of charge. It is supported by a website linking students, parents and careers advisers to a range of resources. The DVD is not university-specific, and has become a popular student-centred resource for other universities.

www.projectu.com.au

The question of cost

Whether the costs of attending university are a significant barrier to higher education for people from low socioeconomic backgrounds has been one of the longest-running debates in the field of higher education. The impact of the abolition of fees by the Whitlam Australian government was the impetus behind Anderson's initial research (Anderson et al. 1980) and has since been pursued by numerous researchers in Australia and overseas (Andrews 1999; Hesketh 1999; Archer & Hutchings 2000; Birrell et al. 2000; Borland et al. 2000; Aungles et al. 2002; James 2002; Greig et al. 2003; Zappala 2003; Chapman & Ryan 2005; Marginson 2005; Reay et al. 2005; Argy 2006; Cardak & Ryan 2006; Rasmussen 2006; Godden 2007; Universities Australia 2007; Callender 2008; CSHE 2008).

Many Australian researchers have concluded that the cost of attending university is not a significant deterrent and that changes to fee regimes over time have not made any real difference to the social composition of universities (Anderson et al. 1980; Aungles et al. 2002; Chapman & Ryan 2005; Cardak & Ryan 2006). Despite this, a large proportion of policy interventions developed to increase the participation of people from low socioeconomic backgrounds, both in Australia and elsewhere, have focused on financial matters. This is particularly so in the United States but is also the case in Australia, especially since the 1996 budget increases to HECS.

A more nuanced reading of the literature suggests that the financial considerations of university study have a greater effect on where and possibly how students participate, rather than on whether they do or do not. For example, Foskett et al. (2006) claim that Australian, New Zealand and UK students cope by taking on part-time work. Callender and Jackson's UK study supports this view. They confirm that the financial impact of higher education is greater on lower SES students and is also 'associated with perceptions of the benefits of going to university' (Callender & Jackson 2008: 426); the opportunity costs.

Understandably, perceptions of debt are more pronounced in poorer students, particularly because they are 'more likely to leave university with a larger debt' than their wealthier peers (Bowers-Brown 2006: 62). For example, in the United Kingdom low SES students are more likely to attend a university close to home rather than accrue the extra cost of relocating to study at a university they may prefer (Reay et al. 2005; Callender & Jackson 2008). With income support increasingly difficult to obtain in Australia, low and middle-income regional and remote families face considerably higher costs educating dependent children than urban families of equivalent socioeconomic status. Regional students report extreme financial difficulties associated with working part-time (and sometimes full-time) while studying. There are also declining levels of subsequent enrolment among those who defer in order to work and qualify for income support. Living expenses can double the cost of a higher degree for regional and remote students who cannot continue to live at home (Godden 2007).

A Canadian program, developed collaboratively between two low-participation provinces and the Canadian Millennium Scholarship Foundation, combines a financial incentive scheme with career education and some mentoring. The financial incentive component is targeted to low-income students only.

INTERVENTION: Future to Discover Pilot Project (CAN)

The Future to Discover Pilot Project is funded by the Canadian Millennium Scholarship Foundation, in partnership with the provinces of Manitoba and New Brunswick, to determine which approaches work best to increase access to post-secondary education. While aiming to assist all secondary school students it has a particular focus on low-income students whose families have little or no post-secondary experience. The pilot project tests two interventions, Explore your Horizons and Learning Accounts, both separately and in combination, and commenced with cohorts of students in Year 9 in 2003.

Explore your Horizons is a career education program offering 'career focusing' workshops to help secondary students in Years 10 and 11 explore career options and develop educational and career plans. These are followed in Year 12 by further workshops aimed at helping students manage transitions and build resilience to overcome challenges. In each of the three years there

are also two sessions with current post-secondary education students and participants are able to access the members-only 'Future to Discover' website and magazine.

Learning Accounts is a financial incentive scheme for students from families with income below the provincial median. It includes a guarantee of a grant worth Can$8000 that is conditional on completing high school and participating in post-secondary education. Instalments of Can$2000 are added to students' learning accounts at the satisfactory completion of Years 10 and 11 and a final instalment of Can$4000 is added upon high school graduation. Participants must complete at least two years of one or more recognised post-secondary education programs in order to redeem their account.

For the pilot, Year 9 students from the two provinces were randomly recruited to participate and assigned to either one or both programs or a control group. A total of 5429 students were recruited for the first cohort. The initial report on the pilot (Currie et al. 2007) provides a comprehensive account of the first year of the intervention. At this early stage it suggests that the combination of Explore your Horizons and Learning Accounts is more effective in engaging students than Explore your Horizons on its own. Of those students recruited to the Learning Accounts pilot, over 90 per cent received an instalment at the end of the first year, upon completing Year 10.

The question of location

As noted above, educational disadvantage for rural and regional students is often equated with being 'geographically challenged' and as aggravating the disadvantage experienced by Indigenous peoples and people with low SES backgrounds. Moreover, often 'regional', 'rural', 'remote' and 'isolated' are conflated to suggest a social, cultural and geographic homogeneity that does not exist. As a consequence, the complex social, cultural and economic factors affecting the participation of diverse groups of rural and regional people in higher education are invisible.

For many students living outside Australia's cities, participating in higher education can demand significant social and cultural re-adjustment as they move from small schools, towns and communities to an urban environment where little can be taken for granted. Catching public transport, living independently, negotiating large, intimidating and unfamiliar institutions, creating new social lives, can all be strange and daunting experiences. There are additional unsettling effects of losing contact with family and longstanding community support and social networks. These social and cultural adaptations are typical of any resettlement. They will be experienced differently by individuals and also by different groups; for example, by regional compared with other rural groups, by Indigenous peoples, people with disabilities, and differentially informed by gender and SES status. They constitute both anticipated difficulties and the lived experiences of rural and regional people. Indeed, regional students with local access to higher education often report that not having to leave home is an important factor in the decision to continue education.

These issues pose difficulties in the transition to higher education and often deter people from making the ultimate decision to continue. Additional and less visible factors affecting under-represented groups are those that have an impact on educational aspirations and achievement from a very young age. Parental

encouragement, the perceived relevance of higher education, fewer adult and peer role models, lack of information about career options, restricted curricula in small schools, pathways that diverge too early, lack of confidence, restricted exposure to multiple social and cultural opportunities: these are social, cultural and intellectual barriers to accessing higher education that interrelate in complex and little understood ways for under-represented groups.

Achievement

Australian equity policy in higher education is based on the assumption 'that basic scholastic ability of the sort demanded for higher study is evenly distributed throughout society' (Anderson & Vervoorn 1983: 2) and, hence, that there should be proportional representation of all groups of people within university student populations.

In fact there is not, at least not for some groups: most notably, Indigenous students, students from low SES backgrounds, students with disabilities (although there have been some improvements in representation in recent years), and students from regional and isolated areas. For example, while low SES people are under-represented, high SES people are over-represented.

The obvious explanation for this discrepancy is that students from different socioeconomic backgrounds are differentially prepared by schooling for entry into university. The nationwide literacy and numeracy tests conducted in schools in Years 3, 5, 7 and 9 demonstrate this very point. As Alloway and Gilbert (1997) argue, the very clear challenge for the Australian schooling sector relates to which students are performing below the benchmarks in literacy. It is the relationship between gender, class and ethnicity that is salient, with class being the strongest predictor of low achievement. The effect of schooling over time is to increasingly associate students' academic achievement in school with their socioeconomic status. Put simply, 'schooling *reproduces* the structure of inequality itself' (Connell et al. 1982: 27).

Understandably, governments, schools and universities are disturbed by such outcomes and over time have variously intervened in schools and systems to:

- *compensate* students for the effects of schooling (for example, some universities grant extra university entrance score points to students from particular groups; others construct alternative entry mechanisms and pathways)
- help students *overcome* the effects of schooling (for example, various programs are implemented to help students raise their academic achievements)
- *change* education systems so that they deliver more equitable quality outcomes (for example, rethinking school structures and how they can better engage students). The new thinking is about how 'schools can be the vehicle for significant *changes* in established social relationships' (Connell et al. 1982: 190).

Given that scholastic ability is evenly distributed in the general population, interventions aimed at redressing the relatively high correlation between students' academic achievement in school and their SES serve to improve quality outcomes rather than undermine them. Such interventions include targeting the talented, the 'academic middle', areas of national priority, particular under-represented groups, how we

think about teaching (pedagogy), and how we think about schooling (middle schooling). Each of these targeted interventions is discussed in turn below.

Targeting the talented

The College Success Foundation, funded by the Bill & Melinda Gates Foundation, targets 'talented, low income students who have overcome difficult circumstances and are motivated to attend college' (Fouts & Associates 2003: 5). In such programs, academic preparation and study skills are offered to school students, often in the final year of high school (for example, pre-college programs) or as early as 6th grade (Bergin et al. 2007: 729).

Targeting the academic middle

Another intervention that is more cognisant of the effects of schooling on disadvantaged students targets the 'academic middle', where talented students from under-represented groups are typically located. One of the significant interventions of this type is the Upward Bound program, described in more detail in the section below on national interventions. Upward Bound provides a policy framework and funding for over 700 programs under the TRIO umbrella (also described in the national interventions section below). The East Tennessee State University program provides one Upward Bound example.

INTERVENTION: Upward Bound (US)

The Upward Bound program operating at East Tennessee State University supports around 145 students from 14 local high schools who must meet at least one of the eligibility criteria of low family income and/or lack of a degree from a four-year college by either parent. Students commence the three- to four-year program in the beginning of their freshman or sophomore year and remain in the program until they leave school.

During the school year, members of the university's Upward Bound staff visit each school for one session a week and once a month students visit the university campus for a half-day Saturday session. These sessions help prepare students in English and maths to take the Student Aptitude Test, and provide seminar classes geared towards each grade level. Transportation is provided by East Tennessee State University.

During the summer, students participate in a six-week residential program on the campus of the university. They attend classes in mathematics, science, communications and foreign languages in the morning; the afternoon schedule offers a variety of classes such as computer, art, crafts, music and physical fitness activities. Participants also attend several educational and cultural activities throughout the year.

Following high school graduation, students enrol in two summer college classes that Upward Bound funds. Students earn six hours of college credit and are referred to as 'bridge' students. Students are not required to attend East Tennessee State University, although many do.

There is no cost to the student or the family for being in the Upward Bound program. The program pays all of the costs for the participants. During the academic year students earn money for every session they attend and every school visit they attend. During the summer, the students receive a small weekly stipend that can be used on anything the student wishes.

Parents are encouraged to become involved through family-based activities and parent

meetings and are kept informed through the program's website and regular newsletters. Parents are provided with advice about pre-college requirements such as subject prerequisites, college admissions procedures and student aid applications.

www.etsu.edu/ub/

In response to critiques of Upward Bound, GEAR UP (outlined below) was established by the Clinton government in 1998 to promote increased knowledge, expectations and preparation for post-secondary education among low-income students and their families. It joined TRIO as a major federally funded program to enhance educational outcomes for low-income and minority students. It goes some way towards filling the gaps of Upward Bound and the other TRIO programs by aiming to influence district-wide education policies. GEAR UP differs from TRIO in targeting cohorts of students, not individuals, from no later than Year 7 through to graduation, and in mandating collaboration between educational and community agencies (Swail 2000).

INTERVENTION: Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP) (US)

GEAR UP is coordinated by a non-profit organisation, the National Council for Community and Education Partnerships; each project is led by a local coordinator. By 2006, GEAR UP was serving over 1.2 million students across 168 partnership programs and 40 state programs. Grants allocated ranged from US$100 000 to US$7 million for partnership programs and from US$500,000 to US$3 million for state programs. In 2006, the US federal government allocated over US$306 million to GEAR UP programs.

Taking a more collaborative approach to increasing participation, GEAR UP allocates grants to partnerships that provide in-school interventions in high-poverty schools. These partnerships must involve schools, universities and community organisations. GEAR UP grants are also provided to states, on a matched basis that must provide both an early intervention program and a scholarship guarantee component.

The GEAR UP approach is to examine the reasons for students' underperformance and to provide academic models and financial incentives to improve the performance of the schools and their students. GEAR UP requires the elimination of academic tracking and the introduction of a rigorous academic curriculum with high expectations for students as well as additional after-school and summer activities. Programs must provide advice on financial aid and college application processes, admission test preparation, and long-term mentoring, tutoring and counselling, as well as parent involvement and professional development for teachers to enhance the quality of teaching.

Through the integration of challenging academics and innovative programming, GEAR UP seeks to improve students' overall school performance by assisting students in the following:

- developing requisite skills for optimal school performance
- increasing self-esteem and sense of self-efficacy in mastering academic tasks
- improving educational engagement
- strengthening bonding to school and peers

- increasing knowledge and awareness of college
- heightening educational aspirations.

Much of this is achieved through the development of relationships between participants and undergraduate and graduate students from established universities who provide ongoing support and advice.

GEAR UP has been enthusiastically received by parents, teachers and students alike and appears to be positively affecting students' college awareness and aspirations as well as their engagement in the academic curriculum. The program is considered as offering a 'promising approach to affect positive achievement outcomes for disadvantaged and minority students through a model of systemic school reform' (Ward 2006: 67). The quantitative impact on student achievement levels is still unclear, with little statistical evaluation available because most GEAR UP projects are still too recent to show long-term results. A recently released evaluation (US Department of Education 2008) indicated that attending a GEAR UP school, as measured near the end of 8th grade, was positively associated with:

- parents' knowledge of opportunities and benefits of post-secondary education for their children
- students' knowledge concerning post-secondary education opportunities available to them
- parents' involvement in the school and their children's education
- students taking above-grade-level science courses in middle school
- parents' having higher academic expectations for their children
- for African-American students, the number of rigorous (or above-grade-level) courses taken during middle school. African-American students from GEAR UP schools averaged one (1.0) rigorous course as compared with 0.5 of a course among African-American students from non-GEAR UP schools.

However, there was no evidence of an association between attending a GEAR UP school and the strength of student intentions to attend college, expectations for post-secondary education or overall orientation toward college. There was also no evidence of an association with students' grades or school behaviour, such as attendance or disciplinary problems.

Advancement via Individual Determination (AVID) is an 'untracking' program designed to help underachieving students from Years 6 to 12 in the 'academic middle' (C grade students) prepare for entrance to four-year colleges and universities. (AVID has also commenced an elementary program for grades 4 to 6.) The AVID approach to untracking takes previously underachieving students (primarily from low-income and ethnic minority backgrounds) out of unchallenging courses and places them in academically rigorous college preparation programs. The approach is based on research suggesting that low-performing students do better when they are given accelerated learning opportunities and that all students can learn challenging material if the right types of support are provided.

INTERVENTION: Advancement via Individual Determination (US)

AVID was initiated in a school in San Diego (United States) in 1980 and taken up by the Californian Department of Education, administered through the AVID Center. By 2008, AVID had spread to more than 3500 high schools and middle schools in 45 states and, through the US Defence Force, across the world (AVID 2008).

AVID is typically funded at the school-site level by school district, state, federal or grant monies. A program coordinator is appointed from existing school staff and is trained in the program's methodologies; tutors are recruited from local colleges and universities and paid for their services. Schools pay for the program coordinator, staff development and curriculum materials. The cost for one classroom of 30 students is usually less than US$10 000 per year. The curriculum is typically taught two or three days a week and provides a system of supports to assist students in making the transition from low-track to high-track high school classes.

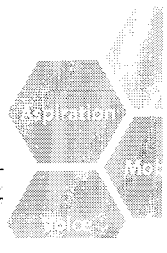
A key feature is the AVID elective course, with a sequential curriculum that focuses on writing, inquiry and collaboration as methods to accelerate student progress. For one class a day, students learn organisational and study skills, work on critical thinking and writing, and participate in enrichment and motivational activities that make college seem attainable. Two school days are designated as tutorial days. On these days, students work in subject-specific groups, probing material deeply through a variety of inquiry methods, with the assistance of specially trained college students who work as tutors and role models.

The AVID elective course is led by the program coordinator, a teacher on the school staff who has been trained in the program's methodologies. This coordinator is encouraged to establish a 'school site team' of other teachers and support staff who can help extend the model throughout the school.

AVID has been researched widely. For example, evaluation of the program's first three years in 10 Texas schools (1999–2002) found that AVID students were outperforming their classmates on various standardised tests and had higher attendance rates at school. Findings indicate that enrolment into the advanced placement course is increasing and that more under-represented students were better prepared for college. Those students that had completed two years of the AVID program in middle school, for example, were more likely to complete preparatory requirements in high school. In San Diego, 93 per cent of AVID high school graduates enrolled in four-year colleges and universities (Watt et al. 2004).

Almost all AVID students who participate for at least three years graduate from high school (99 per cent compared to 82 per cent nationally) and are accepted to college, with roughly three-quarters getting into four-year universities, almost three times the national average (AVID, 2008).

Most AVID students come from under-represented minorities; around 50 per cent are Latinos and 20 per cent African-Americans. AVID is particularly successful in assisting the academic achievement of Latino and African-American students. Of the Latino students who have participated in AVID for three years, 43 per cent enrol in four-year colleges. This rate compares favourably to the national average of 29 per cent. Of the African-American students who have participated in AVID for three years, 55 per cent enrol in four-year colleges, compared to a national average of 33 per cent (Cunningham et al. 2003).



Targeting areas of national priority

A third intervention type seeks to raise student attainment in literacy, numeracy, science and technology. Many of these programs begin as responses to discipline-related concerns in universities but evolve to include some form of active outreach to regional, rural and remote areas or seek to intervene against gender stereotyping (such as women in engineering or men in junior primary teaching). Such interventions can have other significant benefits, such as increasing knowledge and awareness of career opportunities and inspiring interest in new areas of knowledge. Many such programs use mentoring and interaction with 'experts', from which improvements in communication skills and self-esteem are often observed. One such program in Australia involves collaboration between the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the school sector.

INTERVENTION: Scientists in Schools (AUS)

The Scientists in Schools program is funded by the Australian Government Department of Education, Employment and Workplace Relations, under its Quality Outcomes Program, to support the Commonwealth Scientific and Industrial Research Organisation (CSIRO) improve science teaching and learning in all schools. A pilot program involves students from either primary or secondary schools working with a 'real' scientist who mentors or otherwise inspires students to become interested in science. The program aims to inspire teachers and students to strengthen their knowledge and interest in science and science-related careers and to increase scientists' engagement with the broader community (Howitt & Rennie 2008). Partnership activities range from demonstrations and presentations (the most common) through to sustained mentoring programs and, in some instances, collaborative research. The program encourages flexibility in the kinds of relationships established and includes partnerships supported by face-to-face interaction and electronic communication. Communicating at a distance has assisted the involvement of rural and remote students and teachers. The Scientists in Schools website showcases many examples of projects, with the following examples involving rural schools:

- Rolland Plains Upper Public School, New South Wales:
  www.scientistsinschools.edu.au/showcase/parker-rowland.htm
- Hamilton Island State School, Queensland:
  www.scientistsinschools.edu.au/showcase/lockwood-alexandridis.htm
- St Joseph's School, Barcaldine, Queensland:
  www.scientistsinschools.edu.au/showcase/specogna-leemon.htm

External evaluation of the pilot program, undertaken by Howitt and Rennie (2008) from Curtin University of Technology, was positive in its initial findings and recommended the program continue. Although 500 partnerships had been established by the end of 2007, many were not planned to begin until 2008, making follow-up evaluation important in the future. One aspect identified as most promising was the flexibility of the partnership arrangements, allowing projects to be initiated at different levels of schooling, in diverse disciplines, focused on issues distinctive to particular communities and assisting the involvement of rural schools. The evaluation considered that, even in such a short time, the students had benefited from an increased understanding of science and a greater awareness of science-related careers. The researchers did note, however, that while approximately 56 per cent of the partnerships were

established in primary schools, this was less than desirable given that the ratio of primary to secondary schools in Australia is more than 4:1. This raises questions not only about how 'early' an intervention could or should take place, but also about the need to access a larger number of primary schools if the intervention is to be equitable across age groups.

Alternatively, interventions of this kind can be designed and implemented by universities.

INTERVENTION: Robotics Peer Mentoring Program (AUS)

Following a pilot study in 2003, the University of South Australia was awarded a grant from the Premier's Science and Research Council to establish and implement the Robotics Peer Mentoring Program in 2004–06, in collaboration with Flinders University of South Australia, Adelaide University, TafeSA, the Australian Science and Mathematics School and eLabtronics. With strong industry support and interest, an important objective of the program was to develop school students' level of skills in electronics and in the science and mathematics used in electronic applications, as well as heightening their interest in electronics careers. The program continued in 2007 with the assistance of a grant from the Australian School Innovation in Science, Technology and Mathematics program and is currently funded until 2010 by the South Australian Department of Trade and Economic Development and the federal Department of Education, Employment and Workplace Relations in partnership with the Northern Advanced Manufacturing Industry Group.

The program is dynamic and has developed continuously in response to funding incentives and the interests and needs of its multiple industry, university and school stakeholders. The program uses undergraduate students to work as peer mentors with secondary students and their teachers. The program provides Year 9 and 10 students with a core robotics program and progresses to a range of engineering curriculum activities (http://asistm.gotdns.org/~asistm/) and industry projects (for example, http://eieproject.serveftp.org/~proj2007h/documents/docs/BlimpOnHorizon.pdf). At the highest level, it delivers a South Australian Certificate of Education stage 1 engineering unit at Year 10. (The certificate is undertaken mainly in the final two years of secondary school—Years 11 and 12—but also offers some courses in Year 10.)

The 2007 evaluation report indicates that the program as a whole has been very successful, partly due to the extended time the program has been running in some of the schools. In 2007 alone, 637 students were involved in the program, 504 students in the core robotics program, 33 in the industry projects and approximately 100 students in the curriculum projects under the Australian School Innovation in Science, Technology and Mathematics grant. The program is committed to extension into regional and rural areas and in 2007 included six country schools in its outreach to a total of 30 schools. The use of video-conferencing is being developed to support the regional development of the project.

Multiple benefits of the program have been recorded. In some schools there have been significant increases in science and mathematics enrolments in Years 11 and 12 and an increase in students considering engineering or an electrical trade as a career. While it has not been possible to track the post-school pathways of all students, records show that of the students engaged in one of the advanced industry projects (total 30), two-thirds have chosen engineering or a related area of study at university or TAFE or have entered a related trade. Development of curriculum resources and teacher professional development are additional important outcomes. Under

the Australian Technology Networks Engineering program, funded by the Collaboration and Structural Reform fund, a program of Engineering in Schools has commenced in 15 schools across five states. A number of the elements of this program are based on the work of the Robotics Peer Mentoring Program.

While still focused on a national priority area, Deadly Maths Consortium has been developed specifically to build mathematics education capacity in Indigenous communities (see also discussion below on targeting particular under-represented groups).

INTERVENTION: Deadly Maths Consortium (AUS)

Since 2001, academic staff from the Queensland University of Technology and Griffith University have established the Deadly Maths research group and have travelled to 33 rural communities and Indigenous schools to help Indigenous students enjoy and learn mathematics. Starting from an initial aim to increase Indigenous students' knowledge of basic mathematics (for example, numbers and operations up to three digits), Deadly Maths programs have expanded to include middle and senior high school mathematics and vocational mathematics, with the aim of increasing Indigenous participation in tertiary education and employment.

In collaboration with other staff members from the Australian Catholic University and Queensland University of Technology, Deadly Maths has constructed a web presence under the title Building Mathematics Education Capacity. The website contains reports and resources relating to projects undertaken across Queensland, mainly in Indigenous communities, to enhance mathematics education. Projects include numerous student learning projects targeting Years R–12, professional learning for Indigenous teacher aides and for Indigenous parents, and mathematics learning for vocational students, as well as associated projects.

With respect to increasing Indigenous students' attendance and success at university, Deadly Maths has encouraged Indigenous teacher aides to enrol in teacher-training courses and provided frameworks for learning that enable Indigenous school students to undertake university-entrance mathematics subjects in Years 11 and 12. Also, through its Deadly Degrees program, Deadly Maths is employing Indigenous undergraduates as research assistants, encouraging Indigenous graduates to enrol in higher degrees, and supporting non-Indigenous staff of Indigenous schools to study their interactions with their Indigenous students through undertaking higher degrees.

http://bmec.oz-teachernet.edu.au/home

Targeting particular under-represented groups

A further group of interventions designed to raise students' academic achievement targets particular under-represented groups. In Australia, several of these are focused (directly and indirectly) on improving the participation of Indigenous students in higher education. A recent review of such interventions (Doyle & Hill 2007) outlined the following list of possibilities, which draw attention to the need for cultural and contextual relevance and capability appropriateness:

- *Holistic schooling approach*: the adoption of a holistic approach to schooling, which delivers curriculum that relates students' learning to their life experience. Such schooling approaches incorporate program

elements that address the full range of student needs (including their basic material needs, travel to and from school, health and nutrition, and personal and learning support requirements). They provide a highly supportive school environment and engage students' parents, family and community in the design and delivery of day-to-day schooling.

- *Tailored curriculum*: the development and dissemination of curriculum that is tailored to the needs of Indigenous students and teaching tools to support Indigenous student learning.
- *Appropriate staff training*: the development and delivery of pre- and in-service training for principals, teachers and teaching support staff that includes skills relating to the design and delivery of curricula as well as the establishment and management of supportive teacher–student relationships.
- *Holistic student support*: the delivery of school- and non-school-based programs that specifically seek to meet students' individual needs by assisting them to access and engage in school, including material, personal and learning support requirements, and to promote parental and family support for student education and learning.
- *Student and parental engagement*: the delivery of school- and non-school-based programs that specifically seek to engage students with school and learning. They encourage school attendance, attachment and retention by promoting parental and family support for student education, connecting parents with school and helping parents to support their children to learn.
- *Intensive learning support*: school- and non-school-based programs that seek to provide intensive learning support including remedial literacy and numeracy programs, general curriculum-based learning support or tutoring, extension learning and homework support.
- *School-based vocational training and development*: includes career planning, school-based apprenticeships and TAFE programs, etc.
- *Scholarships*: the provision of scholarships to support Indigenous student access to education.

Below are some examples that illustrate some of these approaches. From the school sector there are interventions that involve whole-school change (for example, the Cherbourg School) and the development of a culturally relevant school curriculum, especially one that involves Aboriginal perspectives across it. From the higher education sector, the most significant intervention appears to be the ongoing development of Indigenous education centres in Australian universities. (See also the New Zealand case for a national approach to improving outcomes for Māori students.)

The Cherbourg School. Under the leadership of Chris Sarra (2007), the Cherbourg School developed a 'Strong and Smart' philosophy, which challenges 'teachers and children who were colluding with and reinforcing the notion that Aboriginal children were to be feared or despised, or at best, helpless and pitiable'. In the recent successes of the Cherbourg School, Sarra emphasises the importance of including Aboriginal studies as an integral part of curriculum programming and hence of ensuring spaces for valuing Aboriginal identity.

Aboriginal Perspectives across the Curriculum. Many state education departments have developed 'Aboriginal Perspectives across the Curriculum' resources. (See the *Racism No Way* website for a review of some of these: *www.racismnoway.com.au/strategies/programs/sa/index-Training.html*)

Indigenous education centres in Australian universities. Indigenous education centres in Australian universities are important to Aboriginal communities and juggle their obligations and priorities for:

- including the urgent need to sustain Indigenous knowledges inter-generationally (against the colonial history of the university)
- countering the under-representation of Aboriginal peoples attending university in Australia
- sustaining sites for cultural translation, in both directions
- shifting the work of such centres from learning and student support across the university to sites for teaching, research, and building community engagement and community capacity.

Of special interest are the ways in which Indigenous education centres contribute to teacher training. Such involvement contributes to the formation of teachers and hence to the possibilities of improved curriculum and pedagogy for Indigenous students. A model of this work has been described by Gulsen et al. (2008), in which they outline a 'resistance model' of teaching (Education for Social Justice Research Group 1994) in a Bachelor of Education program at the University of South Australia involving 'Reconciling History and Education (Raising Consciousness)', 'Reconciling Self (Making Contact)', 'Reconciling Australia (Taking Action)'.

Targeting pedagogy: how we think about teaching

In recent years there has been increased research interest in 'school effectiveness' research, which emphasises the importance of teaching quality as one of the keys to improving student learning outcomes (Hattie 2003). In some cases, the rhetoric has shifted from 'teachers can make a significant difference' or 'teachers are the main difference' to 'teachers are *the* difference' (Gale 2006).

School systems (state departments of education and the Catholic education system) in Australia all have in place policies that advocate reform of mainstream curriculum and pedagogy to improve the educational achievement of disadvantaged groups. There are a number of prominent case studies in Australia that focus on pedagogical innovation which are worthy of mention, including Productive Pedagogies (Queensland), Quality Teaching (New South Wales), Principles of Learning and Teaching (Victoria) and the Redesigning Pedagogies in the North Project (South Australia).

The Queensland School Reform Longitudinal Study (QSRLS), from which Productive Pedagogies is derived, began as a government-funded evaluation of Queensland's foray into school-based management. However, the University of Queensland research team took the view that the most significant reform in schools was related to what happened in classrooms, specifically pedagogy. Early in their observations of and interviews with teachers:

> It became clear that a shift in focus was needed (teachers had rated intellectual demand as their lowest priority and assessment tasks were usually low in cognitive demand, not connected to the world, and not challenging intellectually), a shift towards the

> sustained higher-order thinking needed for future success. The QSRLS team coined the term 'Productive Pedagogies' for the teaching approaches that were needed to drive that shift (Department of Education and the Arts 2004: 3).

The model of Productive Pedagogies was informed by a meta-analysis of research conducted by Newman and Associates in the United States that argues for 'authentic pedagogy'. This research reported a demonstrable improvement in educational outcomes that was directly related to authentic pedagogy and, importantly, also 'to have similar effects on students from a range of different social backgrounds'. The analysis strongly suggested that 'authentic pedagogy offers a means to gain both increased school effectiveness and equity' (Ladwig 2007: 59).

From their analysis of the literature and their observations of teachers, the QSRLS team identified 24 elements of good teaching that were then aggregated under four dimensions:

- *Recognition of difference*: Teachers use these pedagogies to ensure that students know about and value a range of cultures, create positive human relationships, respect individuals, and help to create a sense of community.
- *Connectedness*: Teachers use these pedagogies to ensure that students engage with real, practical or hypothetical problems which connect to the world beyond the classroom, which are not restricted by subject boundaries and which are linked to their prior knowledge.
- *Intellectual quality*: Teachers use these pedagogies to ensure that students manipulate information and ideas in ways that transform their meaning and implications, understand that knowledge is not a fixed body of information, and can coherently communicate ideas, concepts, arguments and explanations with rich detail.
- *Supportive classroom environment*: Teachers use these pedagogies to ensure that students influence the nature of the activities they undertake, engage seriously in their study, regulate their behaviour, and know of the explicit criteria and high expectations of what they are to achieve.

Productive Pedagogies is now embedded in Queensland's education policy and has also been taken up (with some modifications) by New South Wales under the nomenclature of Quality Teaching. To a lesser extent, Productive Pedagogies has also influenced the policy positions of other state departments of education (for example, Victoria's Principles of Learning and Teaching). With such wide take-up, it has the potential to have a significant impact on the practice of a large number of Australian teachers.

To be effective, pedagogical reform needs to be taken up by teachers themselves. A recent Linkage project funded by the Australian Research Council provides a model of an intervention at a more local level.

> INTERVENTION: Redesigning Pedagogies in the North (AUS)
>
> Redesigning Pedagogies in the North (University of South Australia) focused on redesigning pedagogy in schools as a means of realising the aspirations for middle schooling. The focus has been on striking a balance between the lifeworld knowledge and practice that diverse students bring to school and the knowledge, skills and understandings necessary for success in

mainstream schooling. The pedagogical challenge is about finding ways to integrate lifeworld and subject discipline knowledges in ways that that do not trivialise either.

The project recommends the following principles for redesigning pedagogy:

- Develop and sustain a professional learning community that enables teacher inquiry into redesigning curriculum and pedagogy in the middle years. ('Professional learning community' in this case means a group of willing teachers who meet regularly to discuss, share ideas and plan projects that involve designing curriculum units or working on developing pedagogical practice.)
- Support teachers to research their students as people and as learners. (Knowing the students as learners is essential, but students are learners in and outside of school. The aim is researching your students' lifeworlds as a resource for planning curriculum/pedagogy.)
- Support teachers to be involved in projects that aim for substantial improvements in the quality and quantity of student schoolwork. (As a starting point, use these curriculum design principles: (a) set meaningful, challenging learning task(s); (b) establish 'strong' connection to student lifeworlds; (c) set performative expectations for student learning.)
- Provide a range of resources (including planning time, critical friends, curriculum materials, expertise) to assist in the success of research projects and curriculum work.

Targeting the middle years: how we think about schooling

One final intervention involves schools and systems rethinking what schooling means. In Australia, this has found expression in a movement known as 'middle schooling'. Middle schooling is a key site for improving achievement as a significant precursor to improving higher education outcomes for students from disadvantaged backgrounds. It can be understood as a space in which 'good' practice for schooling in the middle years is being debated, experimented and researched.

Middle schooling is often understood in terms of a philosophy about schooling that can be characterised by certain features:

- separation of the middle years from the rest of the school
- teaching teams and sub-school groups to enhance teacher–student relationships
- an integrated, negotiated curriculum
- 'authentic assessment' of 'rich' learning tasks.

A continuum of 'weak' to 'strong' approaches is evident including:

- adopting some middle schooling philosophy within conventional schools
- sub-schools inside conventional schools
- dedicated middle schools
- alternative schools.

Luke et al. (2003) argue that middle schooling is not a passing fad but 'a sustainable, profound set of educational ideas and reforms' with 'unfinished business' (p. 4), including 'a need to go beyond the conceptualisation of middle schooling that is currently dominant in both policy and practice' (p. 2).

In Australia, we can map the middle schooling movement in various literatures, including: government reports (Eyers et al. 1992; Luke et al. 2003; Schools Council 1993); reports from professional associations such as the Australian Curriculum Studies Association (Cormack 1996; Cumming 1996; National Advisory Committee for the Student Alienation During the Middle Years of Schooling Project 1996); and a range of academic writing (Carrington 2006; Thomson 2002; Smyth & Hattam 2004; Smyth & McInerney 2007; Smyth et al. 2003).

Various factors have been emphasised as warrants for middle schooling reforms including:

- that the middle years have largely been 'forgotten' in past reform agendas
- the significance of these years in dramatically falling retention rates, with increasing youth alienation (Smyth et al. 2003)
- the need to improve the transition from primary to secondary school (Hill & Crevola 1997); and the emergence of new literacies and media-saturated youth identities (Sefton-Green 1998).

Underlying all of these factors is the desire to improve academic achievement of those groups who have traditionally not been served well by schooling. Advocates of middle schooling argue that the need for innovation is especially urgent in the middle years, when many students begin to self-select out of schooling—partly because the curriculum becomes more compartmentalised and content-driven, and assessment more competitive as well as disconnected from many students' lives (even those who 'win' academically). Reinvigorating curriculum and pedagogy in the middle years could (re)engage students in schooling and hence go some way towards addressing issues such as declining retention rates, poor completion rates and weakened social connectivity.

What do we know about student achievement? What works and what doesn't?

Existing middle schooling philosophy advocates changing school structures and culture as the key condition for improvements to pedagogy and achievement. It focuses on an ethics of care and provision of socially supportive and integrated learning environments. Research suggests this to be valid up to a point, but without necessarily translating into changes in curriculum and pedagogy that can yield improvements in student learning (Lipsitz et al. 1997). Recent data, more rigorous and systemic, does not demonstrate significant improvements in achievement levels for major targeted groups (Teese & Polesel 2003).

Improved student achievement is noted when whole school approaches are enacted and supported by leadership with a clear learning philosophy built around a strong pedagogic and curricular focus. Critics suggest that dominant models for middle schooling 'innovation' suffer from low expectations and watered-down curriculum (Haycock & Ames 2000), and from assuming that improved student learning can emerge merely from changing structures and culture—that is, without explicit focus on viable pedagogical change, which simply evolves from supportive environments.

In contrast, Luke et al. (2003: 39) map key pedagogical practices that the literature suggests are likely to foster high levels of student engagement:

- goal-oriented teaching where students are clear about the goals of instruction
- real-world connections in lessons to community problems and issues
- support for student autonomy and choice in lesson design
- strategic instruction designed to foster metacognitive skills
- collaboration and small group projects
- giving praise and rewards for successful engagement in literacy practice
- ongoing evaluation of students' performance that includes both external and student-centred evaluation (for example, tests and task/project exhibitions).

Such a pedagogical approach moves beyond a psychology of adolescence and 'the deficit model of young people' (Dimitriadis & Weis 2001: 225), to a set of practices that engages young people's lifeworlds and the concerns of the communities in which they live. The meta-analysis by Luke et al. (2003) highlights the need for a middle schooling pedagogy that explicitly addresses the more difficult economic and social conditions that are emerging. Research suggests that such attention to context is part and parcel of pedagogy and curriculum that validates the culture and experience of students' families as worthy of inquiry (Smith 2002).

The need for more work in this area is made all the more imperative by early school leaving research identifying the middle years as a key site for reform to improve school retention rates (Holden & Dwyer 1992; Marks & Fleming 1999; Smyth & Hattam 2004; Smyth et al. 2000).

What about challenging the higher education curriculum?

Numerous studies have demonstrated that school attainment is closely correlated to a student's socioeconomic status. Whatever the theoretical framing of the research, time and again school outcomes have been shown to reflect socioeconomic status, with the gap between high and low socioeconomic students beginning in the earliest years and generally widening as students proceed through school (Collins et al. 2000; Smyth et al. 2000; Forsyth & Furlong 2001; Zappala & Considine 2001; Birrell et al. 2002; Fullarton 2002; Thomson 2002; Teese & Polesel 2003; Alloway, Dalley et al. 2004; Brennan 2005b; Di Bartolo 2005; Dobson & Skuja 2005; Lupton 2005; Argy 2006; Cardak & Ryan 2006; Crafter et al. 2006; Marks 2006; McGaw 2006; Reay 2006; Bardsley 2007).

When selection to higher education is based on relative merit, young people who have been able to accumulate educational advantage all their life—from family, school and community—will generally perform better in a ranking system. However once students from low socioeconomic status, rural and isolated backgrounds enrol at university their performance is usually strong. As an example, at the University of South Australia retention and success rates of such students are close to or better than those for other students. Initial data analysis at the University of South Australia supports other Australian research that

suggests a significant value-adding effect for students admitted from disadvantaged backgrounds, often with low university entrance scores, who perform well when they do gain admittance (Dobson & Skuja 2005; Tickell & Smyrnios 2005; Win & Miller 2005).

These interventions assume that it is possible to improve equity in higher education through improving the achievement at school of those groups that have been traditionally under-represented. The interventions variously involve:

- leaving the school curriculum and credentialling arrangements intact and (i) working with those students who show potential but are underperforming and (ii) working to attract students to specific course offerings such as maths and science
- working to transform the credentialling arrangements at the post-compulsory level to alleviate the sorting and selecting distortions on secondary schools
- working to transform the mainstream school curriculum and pedagogical practices up to post-compulsory schooling in ways that undermine the reproductive functioning of schooling.

Aspiration

Early interventions in schooling that seek to increase students' participation in higher education, particularly students from under-represented groups, often have a focus on raising student aspirations. Interventions vary in how they approach this task, characterised below as the *exposé*, the *taster* and the *combo*. As evident in other sections, interventions are rarely of just one kind, even the ones typecast below. Similarly, interventions directed at raising student aspirations are rarely focused on this aim alone. Often other conditions of university entry, particularly 'achievement' (discussed above), are also incorporated. Separating out these intentions and identifying those that dominate particular interventions are useful for analytical purposes. The review below also draws attention to the ways in which these interventions interrelate.

The exposé: aspiration inspired by knowledge

The classic intervention strategy aimed at raising aspirations for higher education is to expose students to information about universities and their courses as well as about vocations that require a university qualification. The assumption is that students cannot aspire to things they know nothing or very little about. A related assumption is that exposure to this knowledge will generate aspirations for higher education. Interventions can range from employing career counsellors, career nights or an expo in schools to more elaborate programs such as Up for It (described below), which reward participants with various benefits, in a similar vein to consumer loyalty programs (see also Future to Discover, in accessibility section above). At their worst such interventions are little more than marketing exercises for specific universities. At their best they are educative programs designed to encourage students to believe in the possibility and benefits of higher education more generally.

INTERVENTION: Up for It (UK)

Up for It is a membership scheme run by the University of Portsmouth for 11- to 16-year-olds. It aims to inform young people from under-represented groups about further and higher education in a fun and informative manner to increase awareness of the range of course and

career opportunities. Up for It is a web-based relationship-building scheme that incrementally increases awareness, understanding and enthusiasm for the opportunities that higher education offers. It was launched in January 2002 and has seen 5000 members join from both the local area and other areas of the United Kingdom. It is funded by the University of Portsmouth and is free to join but is not an institutional recruitment activity. Information is provided about the full range of post-secondary opportunities available.

The scheme has a dedicated interactive website with information, games and competitions. Students can submit their own contributions to share with other members and visitors to the site.

Members sign up online and are provided with a membership card that can be used in the scheme's 12 commercial partners to obtain exclusive offers and discounts. They are also sent a quarterly magazine that features articles on courses and careers along with student and course profiles.

The Schools Liaison team designs special workshops on a variety of subjects aimed to meet the national curriculum. The Up for It team also attends careers days, parent evenings and community events. Special Up for It presentations are provided to school assemblies. They organise academic enrichment activities and course and career information.

While no formal evaluation of the scheme was able to be identified, the scheme has received much support from the Local Education Authority, schools, careers advisers and community groups. In April 2003 the scheme won a gold award in the Widening Participation category from the United Kingdom's Higher Education Information Services Trust.

www.upforitclub.org.uk/aboutus/

Increasingly, interventions aimed at exposing students to information about higher education are going online. While Up for It has a web presence as part of the intervention, Talk about Uni (described below) is almost entirely offered via the web, although related outreach programs are in planning (aimed at earlier year levels). In this environment, information about higher education can be accessed by and have impact on students from a range of year levels, not simply those at the point of transition to university (Years 11 and 12). It also provides access to and for students' teachers, parents, families and friends, who are seen to play a significant role in helping to form student aspirations.

INTERVENTION: Talk about Uni (AUS)

The University of Melbourne has developed an accessible and extraordinarily comprehensive online resource for students, parents, carers and teachers. The resource aims to encourage high school students to consider university as a post-school option and, more importantly, to believe in the possibility and benefits of going to university.

Based on the philosophy that students take advice from a range of significant people in their lives, the resources are designed to develop links with parents, families, teachers and community groups. Notable are the many links to a range of government, educational and equity sites and the encouragement for prospective students to think carefully about which program and which university might best suit their particular interests and needs. The Victorian context is well covered in the information, but there are excellent generic resources related to applying for

university entrance, accessing special entry schemes, understanding Youth Allowance, finding accommodation and managing finances.

For parents, and in particular for those unfamiliar with higher education, there is also information about university life, teaching, learning and assessment issues and advice on how parents can best assist and encourage students. Inspirational case studies of current university students from disadvantaged groups relate attitude-changing events and help to promote the belief that university study is a more accessible and realistic choice than many young people believe.

Information-rich resources are useful for engaging students who are already considering university as an option. On their own, however, they are unlikely to attract those students who have rejected university as an option. On the agenda now for many universities is the implementation of intervention programs that will target younger students from traditionally under-represented groups.

Designed to demystify university and raise aspirations, a school outreach program building on the Talk about Uni concept is in the planning stages at the University of Melbourne. A pilot program targeting Year 9 and 10 students in disadvantaged schools will include school visits, workshops and other activities designed to increase students' knowledge about study at university. It is anticipated that both metropolitan and rural schools will participate. Teachers will collaborate in the planning and the pilot project will be carefully evaluated to inform future programs.

The taster: aspiration inspired by experience

A second and related intervention aimed at building students' aspirations provides a small taste or sample of what it is like to attend university. The emphasis is on experiences with high levels of activity and interest. Experiential knowledge gained from these interventions is often idiosyncratic, even though efforts are made to provide a snapshot of the full range of university student activity in intensified periods. The experiential nature of these encounters also tends to emphasise university as a destination.

INTERVENTION: Aim for Adelaide Program (AUS)

A particular focus at the University of Adelaide for 2007 and 2008 was the expansion of strategies to raise the educational aspirations of students from low SES backgrounds. This has involved the launch of the Aim for Adelaide program, which invites students from Years 9 and 10 from more than 30 educationally disadvantaged 'Fairway' schools onto campus for university 'taster days'. The students participate in hands-on inspirational activities within academic faculties and have the opportunity to talk with current students over a BBQ lunch. The Aim for Adelaide program also has a second phase where Year 11 students from the same school are invited back the following year to talk with University of Adelaide engineering students about their final year group projects.

Evaluation of the program shows that students most appreciate having a look at the university's features and the subjects offered, suggesting that familiarisation with the environment and the receipt of up-to-date information about academic programs is an important outcome of such experiences. The evaluation shows a slight increase (from 74 per cent to 77 per cent) in the percentage of students who were considering studying at university after participation in the program.

Such small increases in students aspiring to attend university raise the question of whether these kinds of taster interventions are simply 'preaching to the converted'. As well, there is the more general question of the value of these interventions, irrespective of the participants. From their comparison of urban and rural secondary school students, James et al. note that while most 'agree that they think they would have a good time at university ... very few consider this an important factor in determining their futures' (1999: 58).

This is not the same as saying that the absence of experiential knowledge about higher education is not important in making decisions about attending university. For instance, some regional secondary school students have expressed 'a sense of fear and of apprehension in taking up their lives in unfamiliar circumstances, in untried locations' (Alloway, Gilbert et al. 2004: 249) as barriers to their participation in higher education. From this perspective, taster interventions perform an important role for school students from groups under-represented in universities.

A variation of the taster intervention involves school students in more sustained and meaningful university activities. While they retain a representative character, the activities are self-contained and more connected to students' current experiences. The Student Action Research for University Access (SARUA) is a good example of this more substantive taste of higher education.

INTERVENTION: Student Action Research for University Access (SARUA) (AUS)

Student Action Research for University Access was initiated in 1992 by the Faculty of Education at the Queensland University of Technology to increase the participation of under-represented groups in higher education. It has also been implemented by Curtin University in Western Australia.

SARUA works collaboratively with a group of schools in low socioeconomic areas with low rates of transition to university. It has worked with nearly 30 schools since its inception, on a range of 'students as researchers' projects. Two or three projects are conducted a year. Student researchers are encouraged to examine their own school communities to identify potential barriers to tertiary education and to develop strategies to overcome these barriers.

Students, typically in Year 10 and often at risk of disengagement with school, work with teachers and staff from the university, using action research methods to investigate factors preventing students from participating in higher education. They plan, conduct and evaluate activities needed to bridge the gap between their schools and higher education. A typical project involves:

- training and planning: two- to three-day workshop on the university campus
- research and/or action conducted in the schools through weekly meetings between students and their supervisory teachers
- reflection and documentation, normally conducted over two days at the university.

Examples of projects conducted include the creation of an Indigenous students' room at one school; the establishment of a homework centre at another (and later an investigation into its use); an investigation into the relevance and importance of school awards; the establishment of Year 12 or senior school study centres; and the production of an award-winning DVD to assist

secondary students' understanding of university options and to encourage university participation.

SARUA provides opportunities for marginalised students to spend time on a university campus as a researcher, to develop enhanced academic and critical reflection skills, and to gain increased knowledge about university as a viable option (Bland 2008). Participating students are expected to disseminate information about university to other students in the school with the aim of transforming perceptions of the wider school population.

The intervention is a longstanding, though small, project conducted from an academic department as a participatory action research project. No data on outcomes appears to be maintained but a number of papers have been presented at conferences and published in journals.

The combo: aspiration inspired within collaborative networks

A third intervention aimed at raising students' aspirations for participation in higher education is 'the combo'. Combo interventions incorporate elements of both the exposé and the taster, providing students with knowledge of careers, courses and experiences available through higher education. They frequently include a focus on raising students' levels of academic achievement as well. These interventions also combine the efforts of different interest groups in collaborative networks of universities, schools, communities, local councils, governments, industry, business and so on. Even in regional areas where distance between groups can be substantial, there is evidence of 'institutional networking ... [which operates] to support student expectations and aspirations' (Alloway & Gilbert et al. 2004: 227) for further education. Given these networks, the combo tends to be an intervention of scale and frequently finds its way into the mainstream activities of schools. The University Orientation Program provides a localised example.

INTERVENTION: University Orientation Program (AUS)

The University Orientation Program is offered by the University of South Australia to secondary schools in the highly disadvantaged northern suburbs of Adelaide as part of the university's Northern Adelaide Partnerships. The program evolved from a trial Tertiary Preparation Program developed in 2003 by the school counsellor at what is probably South Australia's most disadvantaged secondary school. A semester-length Year 11 subject was developed under the personal development curriculum framework of the South Australian Certificate of Education. Students learned life skills, with a focus on goal setting in relation to further education. It addressed obstacles experienced by low SES students when making decisions about tertiary study, including advice on careers available, financial, health and welfare support, and what to expect at university. A key component was the involvement of mentors from the university who provided support in the classroom and assistance with campus visits.

With the support of a grant from the federal government's Sustainable Regions funding, this trial was expanded in 2004 to become the University Orientation Program, coordinated by UniSA's northern Adelaide campus and offered to Year 11 students from all secondary schools in the region. Presented over several weeks, the program combines much of the original Tertiary Preparation Program with a series of on-campus lecture and tutorial sessions in a range of disciplines to introduce students to university study. Sessions are taken by academic

staff and supported by services staff and student mentors form the University of South Australia who assist students with a number of reflective activities and a small research project for presentation.

Numbers participating have varied between 120 and 160 students a year, with between eight and 14 schools participating for between six and nine weeks, split over two terms. Some schools have chosen to incorporate the program into their curricula as a Year 11 subject, adding extra assessment requirements, while others have kept it as a component of work experience or career planning. Increasingly the trend has been for students to participate at Year 10 level as part of their planning for senior secondary and post-school pathways.

During 2008 the university worked with the state government to incorporate the program into its First Generation School to Work Innovation Program, as part of its planning for the new senior school certificate. Targeting the same group of schools, the revised program is being integrated into the Personal Learning Plan component of the future certificate, assisting first-generation Year 10 students to plan a pathway to future university study.

The response from the schools and participants has been overwhelmingly positive. An evaluation of the first group of 2008 participants found that, after completing the program, 65 per cent of respondents reported that they were more likely to go to university; 35 per cent remained the same or were unsure; and only one student was less likely to go.

Nearly half of the participants stated that initially university seemed inaccessible to them, primarily because of the cost, study expectations ('too hard') or family pressures. After completing this program many gained information that had changed this perception; 62 per cent of responses indicated a positive change of attitude towards attending university.

There is a strong belief in the region that students need the reinforcement of programs such as this to provide them with knowledge about university and the confidence that higher education is an option for them. The collaborative nature of the program, with the schools and the university working together to best meet the needs of the students, and strong support within the schools and from the community have ensured its viability.

Aimhigher, another example of a combo intervention primarily aimed at raising students' aspirations, is the major initiative for widening participation in England, funded by the Higher Education Funding Council for England (HEFCE). The majority of interventions identified in the United Kingdom come under this umbrella, which is discussed more fully in the following section on national interventions. In brief, Aimhigher functions through collaborations between universities, schools, colleges, local councils and communities. The principal targets of Aimhigher are 14- to 19-year-olds from social groupings that are under-represented in higher education, including those whose parents did not attend higher education (although the scope of the initiative is now expanding to include mature-age and vocational access). Funded projects can involve mentoring schemes, 'taster' visits to universities, outreach programs within schools and sixth form colleges, master classes and pre-entry support and information strategies (Higher Education Funding Council for England 2008). Progression Partnerships is an example of an Aimhigher intervention with aspirational intentions.

INTERVENTION: Progression Partnerships (UNITED KINGDOM)

Within the framework of Aimhigher, Nottingham Trent University has developed a Progression Partnerships model to deliver and develop the university's Widening Participation strategy. Based on a 'continual presence strategy' (Wheatcroft & Snodin 2004), the concept of university studies is progressively introduced to primary school students and is continued through well-defined routes to university entry. The program, which began in January 1996, received HEFCE funding until July 1999. Since then funding has been through the 'postcode premium', which has substantially increased the funding available. Progression Partnerships is based in the Faculty of Education under the responsibility of the Dean and from 2002 has been coordinated by a manager and five staff. The model has multiple components that define its shape as continuous and collaborative:

Schools and Colleges Work aims to raise awareness of the opportunities higher education can offer both in terms of personal development and career prospects. A standard program of events is offered each year to primary schools (24), secondary schools (48) and sixth form colleges (51) in the region (figures for 2004). University-initiated activities are negotiated according to student needs, and a program is developed based around talks, displays, activities and university visits for primary school students. There are more structured activities for secondary students, including workshops, career sessions, parent sessions, exam preparation and revision sessions, and a summer school for students in Year 11. These sessions culminate in Years 12 and 13 with more formal workshops on admissions, student finances and support and the option of a further summer school. The aim is that every few weeks there will be an activity in a particular school that has a connection with the university, thereby contributing to a culture change in which aspirations and achievement are raised and motivation and progression rates improved (Wheatcroft & Snodin 2004).

Most activities are assisted by undergraduates who provide role models and mentoring for the younger students, supporting secondary students to raise their aspirations and achievement levels.

The Admissions Compact Scheme is a supported entry route that guarantees students an offer or interview for a place at their local university if they are predicted to achieve the necessary grades. Students' confidence is boosted significantly due to the security of knowing they cannot be rejected if they meet the criteria. The Admissions Compact Scheme has developed significantly over the course of the program, from 87 students applying (46 enrolled) in 1998 to 427 in 2004 (257 enrolled). Secondary students receive financial advice and support, selection and enrolment advice and information sessions that include the students' families. They may also use university resources (such as the library) in their final high school year, a strategy that further eases the transition for those who have no family background in higher education. The scheme offers a complete package of support, including a non-repayable bursary for students who take on the role of 'ambassador' or mentor for the scheme through activities such as:

- Students in Classrooms: 'compact' students work in a variety of roles in local schools by mentoring and/or helping to develop other Aimhigher projects
- Active in Communities Project: staff and students work together within the community on various projects that further enhance the continual presence aspect of the program

- Information and Guidance: events that are held regularly, and aimed at pre- and post-16 year-olds, their parents and families, and school staff.

A report published in 2002 claims that this initiative 'has clearly gone from strength to strength', demonstrating 'a very significant increase in applications to university from its target schools' (Woodrow et al. 2002: 132). One development since the program's inception has been to strengthen the university's role in 'increasing attainment as well as awareness' (Woodrow et al. 2002: 133). This has been achieved in a number of ways, including strengthening links with student support services, emphasising attainment in schools and increasing pre-entry support. Within the university itself the trend has been to spread widening participation activities across the faculties, embedding the concept into the general university culture, and so drawing broad support from within.

The project team believes that projects such as Progression Partnerships must be collaborative in order to succeed, and partnerships are being developed with a large further education institution. This institution is working in collaboration with the university to offer widening participation activities and services to disadvantaged students who may go on to either higher education or vocational study.

This program is now seen as 'central to the university's strategic development' (Woodrow et al. 2002) and as such is subject to ongoing monitoring and evaluation.

Whose aspirations?

Aspiration to participate in higher education does not necessarily preclude other aspirations. Yet a necessary condition of entry to university remains that 'the student must want to enter' (Anderson & Vervoorn 1983: 3). There are at least three reasons why people from under-represented groups might not want to do so, as follows.

Aspirations are constrained by what students know

As noted above, school students do not always have access to knowledge about higher education, which might inform their aspirations. This is particularly the case for student groups who are under-represented at university. The expectations of schools and teachers play an important role in building students' aspirations, including the range of subjects offered, the counselling advice provided, the resources available and the academic expectations and outcomes (Teese & Polesel 2003; Pugsley 2004; Reay et al. 2005; Tranter 2005; Edwards 2007).

Some suggest that lower aspirations for higher education among Indigenous students might be 'associated with the career strategies used by schools, which sometimes rely on students approaching the career advisor for advice' (CSHE 2008: 49). The same could be said of the experience of students from low SES backgrounds. For example, in the James et al. study, 'only 44 per cent of lower SES students believed their teachers were encouraging them to think of higher education, compared with 58 per cent of higher SES students' (1999: 61). Other schools and teachers, however, make it their business to 'transport students into different contexts as a deliberate strategy for expanding, as well as supporting, student visions of how their lives might evolve ... allowing them the opportunity to re-vision their futures, based on fuller understandings of the kinds of lives that were possible' (Alloway, Gilbert et al. 2004: 227).

The influence of family expectations on the aspirations of young people from low socioeconomic status, rural and Indigenous backgrounds is also critical, perhaps even stronger than class (Maras 2007: 70). Students whose parents have been to university are far more likely to consider a university pathway than those whose parents have no experience of higher education (Western et al. 1998; Birrell et al. 2000; Gayle et al. 2002; Alloway, Gilbert et al. 2004; Beavis et al. 2004; Watt et al. 2004; Reay et al. 2005). According to Watson, '[Widening participation] *is* about parental expectations' (2006: 8; emphasis original).

For students whose families have had little or no experience of higher education, university can seem an alien and impossible option (James 2002; Tranter 2003). This is borne out in a study of Australian regional and urban students and their higher education choices. Comparing low access/lower SES students with urban (high access)/higher SES students, 'the proportions of students who believe their parents want them to go on to higher education are 38 per cent and 69 per cent respectively' (James et al. 1999: 61).

It is not just a matter of knowing about higher education and what it has to offer, which one might access from a careers expo, a university open day or a dedicated website. Reay et al. (2005) describe information of this kind as 'cold' and differentially available to students according to their socioeconomic status. Further:

> middle-class students not only have more hard information [cold knowledge] about universities and university courses, they also have access to hot knowledge that has a far higher currency and exchange value than the [cold] knowledge of their working-class counterparts (Reay et al. 2005: 157).

Hot knowledge is a kind of 'street savvy' that allows students 'to buffer rejections by investigating alternative routes to their desired outcomes ... [including] "backdoor" entry to courses' (Alloway & Gilbert et al. 2004: 124). For example, 'articulated pathways between TAFE colleges and universities that ... allow them to start their study at TAFE and progress to a degree programme at a University ... [provide students with] "backdoor" entries to high-status courses for which they might not be eligible in the first instance' (Alloway, Gilbert et al. 2004: 125–6).

It is significant to note that exposé interventions aimed at raising students' aspirations for higher education typically focus on cold rather than hot knowledge. They also tend to target students in Years 11 and 12, after aspirations for attending (or not attending) higher education have largely been formed (James et al. 1999: 57).

Aspirations are informed by what students value

School students have their own reasons for aspiring or not aspiring to higher education, which are not always taken into account by early interventions and are not always the aspirations that universities ascribe to them. According to one study, school students are most attracted to university study because of their belief that it will 'improve their chances of getting a job, and will also offer the chance of an interesting and rewarding career' (James et al. 1999: 58). A university qualification offers 'a competitive edge over other options' (p. 58) in this regard. By comparison, school students seem less interested in higher 'education for its own sake' or because they believe they will 'have a good time at university' (p. 58).

On all of these measures (except one), rural and isolated students and students from low SES backgrounds

are less sanguine (James et al. 1999: 59). James et al. (1999) put this down to a 'location effect', although it is probably more accurately explained in terms of social and cultural differences. The differences in aspirations for higher education by male and female students from rural and isolated areas is revealing of this socio-cultural dimension:

> The common belief that rural communities symbolise male spaces—a belief held by boys and by girls ...—may ultimately explain why more rural girls than rural boys see their futures inscribed in tertiary studies—oftentimes outside of the communities—and more rural boys than rural girls see the inscriptions of their futures in local offerings of trades and apprenticeships (Alloway, Gilbert et al. 2004: 248).

This is particularly the case in rural areas where there is ready employment (in mining and farming, for example) (James et al. 1999: 63). In other rural areas with fewer employment prospects, particularly for girls, students' 'aspirations were driven by pragmatic considerations of how they could escape from what they perceived to be restrictive futures within their communities ... [for them, entry to university] represented a "ticket out of town", without which their horizons would be severely limited' (Alloway, Gilbert et al. 2004: 123).

Early interventions that reduce the problems associated with regional and isolated students to matters of 'distance' and those of low SES students to 'finance', have in view only a very small part of the picture. The research suggests that 'the community context (the "rural culture" factor) is more influential than physical distance to a university campus' (James et al. 1999: 62). Similarly, socio-cultural issues feature more strongly than the lack of finances in shaping low SES student aspirations.

The implication is that many early interventions need to broaden their understanding of students' aspirations generally and for higher education specifically. Teachers of students from under-represented groups have suggested that 'education systems should begin profiling student skills and accomplishments as an additional strategy that would help sustain student expectations and aspirations for their futures' (Alloway, Gilbert et al. 2004: 223). If universities valued these skills and accomplishments differently (in entry requirements and in courses) then under-represented students would be more likely to value and aspire to higher education.

At present, fewer students from regional and low SES backgrounds have much interest in the kind of higher education on offer (James et al. 1999: 58–9). It is not simply a question of taste. Also involved are the upfront and opportunity costs; the fear that drives students to and away from higher education; its perceived irrelevance to and devaluing of personal and community histories; cultural expectations; and issues of identity and hybridity (Archer 2007; Leathwood & Hayton 2002; Walkerdine et al. 2001; Lucey & Walkerdine 2003; Thomson et al. 2003; Burke 2005; McGonigal et al. 2007).

Aspirations are adjusted to match what students see as possible

A third explanation for why students from under-represented groups might not aspire to participate in higher education can be located in what they imagine to be possible. When students believe that one or more of the other conditions of entry to university (availability, accessibility and achievement) cannot be met, they tend to adjust their aspirations accordingly. To illustrate:

- *Availability*: Slack makes the point that 'to raise aspirations and not increase opportunities *realistically* available is both demoralizing and unfair' (2003: 333; emphasis original). Students are often adept at reading the signs relating to supply and demand and adjust their aspirations to avoid laying themselves bare to such disappointments. By contrast, an increase in supply can also increase demand.
- *Accessibility*: For regional students, there is a 'positive effect on student aspirations and expectations of having a [nearby regional] university campus' (Alloway, Gilbert et al. 2004: 230). The converse is also true: fewer 'rural school students with low access to a university plan on participating in higher education than other (higher access) rural and urban students' (James et al. 1999: 54).
- *Achievement*: In considering their options after school, 'some [rural and low SES] students were realistic enough [about their achievements] to have a second preference ready to pursue rather than give up hope of advancing their prospects' (Alloway, Gilbert et al. 2004: 124).

The Centre for the Study of Higher Education (2008) makes the point that decisions about participating in higher education are made earlier rather than later, particularly by students from higher SES backgrounds. It also highlights the importance of 'building possibilities' for young people from low SES backgrounds, where family and school expectations do not include higher education participation. As noted above, this has been the focus of the Aimhigher program in the United Kingdom, which targets students from the ages of 13 to 19. As well, most programs in the United States target middle school students or earlier (Cunningham et al. 2003). However, many of the current interventions aimed at raising aspirations for Australian higher education target students in Years 11 and 12. By this stage, the majority of students from low SES and rural backgrounds have already been excluded by subject choice or poor results. Accordingly, it is crucial for universities to work with schools to increase awareness and aspirations from a younger age.

Building possibilities is about developing 'a system designed to support and nurture the expectations and aspirations of its students' (Alloway, Gilbert et al. 2004: 226), not simply the expectations and aspirations of universities. Examples of what is possible include:

- *Availability*: Interventions that restructure schooling to accommodate students' aspirations; for example, introducing a Year 13 for 'students with high aspirations who had not met their own targets for academic success. Year 13 offered all of these students a second chance at realising their aspirations' (Alloway, Gilbert et al. 2004: 219).
- *Accessibility*: Interventions that find alternative means to achieve the same ends, for example, introducing specialist subjects by distance education 'to improve student access to programmes of study and to sustain student expectations and aspirations for their futures' (Alloway, Gilbert et al. 2004: 224).
- *Achievement*: Interventions that rethink schooling (and higher education) and what can be achieved; for example, adopting 'philosophical and pedagogical positions ... that sought to "read" students positively, to work with their strengths, to keep them at school, and to deliberately and explicitly sustain student expectations of what they might achieve from life ... [particularly] those who do not fit the mould' (Alloway, Gilbert et al. 2004: 225–6).

2.5 National interventions towards enhancing equity in student participation in higher education

Some interventions aimed at increasing the participation in higher education of students from under-represented groups are of such *scope* (addressing multiple conditions of entry to higher education) and *scale* (covering large populations, often at a national level) that they warrant consideration in their entirety. Below are reviews of interventions (largely initiated by government) that dominate the approaches of Canada, the United States, the United Kingdom and New Zealand. Common themes include:

- the desire (and need) to increase the participation of under-represented groups in their higher education systems at the same time that they are teetering on the brink of declining school-age populations reaching the point of transition to university
- a different valuing of people from under-represented groups, not just because of their numbers but also because of their potential contributions to higher education
- a growing awareness and practice of intervening earlier in schooling in order to enable more students from under-represented backgrounds to participate in higher education
- the need for education sectors to work together on a holistic approach to education that transcends sectors.

Canada

Canada has the highest level of tertiary attainment in the OECD at 46 per cent of all 25- to 64-year-olds (OECD 2006). Like the United States it has an essentially binary system of post-secondary education with universities offering degree-level qualifications while colleges provide diploma or certificate qualifications. The Acumen Research Group (2008) reports that 28 per cent of Canadian 25- to 34-year-olds had university qualifications in 2000 and 21 per cent had college diplomas. However, this participation is not evenly distributed across social groupings, with people from low socioeconomic backgrounds much more likely to study at the college level than at university (CSHE 2008). In the university sector high-income students are represented at almost twice the rate of those from the lowest income quartile: 46.4 per cent compared to 25.4 per cent of 19-year-olds in 2003 (Berger 2008).

A report by Canada's Learning Policy Directorate (2004) describes a very high aspirational secondary student body, with almost all Canadian youth wanting to proceed to post-secondary education and most to university. The report notes that these high aspirations are at least partly explained by the relatively open and undifferentiated schooling system (compared to Europe), with little tracking into academic versus vocational streams. It notes that within an open system parental encouragement, closely associated with whether parents have attended post-secondary education themselves, plays a far greater role in influencing access to post-secondary education than parental socioeconomic resources. The significant impact of parents' educational background on students' aspirations and attainment levels has been confirmed by a number of more recent studies (Currie et al. 2007; Frenette 2007; Finnie & Mueller 2008).

With an already high rate of participation in post-secondary education, Canada is experiencing relatively slow growth in tertiary enrolments. The OECD notes only a 4 per cent increase in Canadian tertiary

students between 1995 and 2002, compared with an OECD average of 49 per cent (OECD 2006). It appears that the growth that is occurring is primarily at the university level. The Acumen Research Group (2008) cites Statistics Canada figures reporting a 20 per cent increase in university enrolments between 1998 and 2004. Growth in demand for post-secondary education is expected to continue in the immediate future as the 18- to 24-year-old population peaks over the next five years, putting considerable pressure on institutional capacity in the short term, but this is projected to fall significantly from 2013 with major implications for Canada's labour force needs (CSHE 2008).

Combined with a declining working age population, Canada is facing a labour force crisis with an increasing need for advanced education and training levels to meet the needs of the global economy. There is also the pull of the 'hot labour market in Western Canada that appears to be luring high school graduates away from postsecondary education' (Berger 2008: 5). With students from high-income families possibly approaching saturation point (Currie et al. 2007; Berger 2008), these combined factors have added impetus to efforts to widen the participation of under-represented groups in post-secondary education: 'a growth in the participation rate must occur if Canada is to produce the type of educated and skilled workforce needed to remain competitive and prosperous in the global knowledge economy' (Berger 2008: 3).

Indigenous people in particular remain persistently under-represented in post-secondary education, despite high aspirations (Canadian Millennium Scholarship Foundation 2005). In 2006, only 9 per cent of Indigenous people had completed a university degree, compared to 23 per cent of the non-Indigenous population, although 39 per cent had graduated from post-secondary education in general (Canadian Millennium Scholarship Foundation 2005). Students living in rural and northern regions of Canada are also significantly under-represented (Ontario Undergraduate Student Alliance 2004).

Until recently the dominant strategy in Canada for improving access to post-secondary education for disadvantaged students, within a fee-paying regime, has focused on the provision of financial support. The Canada Student Loans Program provides a complex system of up to 100 different combinations of loans and grants in 10 of Canada's 13 jurisdictions, under a single national legislative framework (CSHE 2008). Each year the Canadian Millennium Scholarship Foundation provides Can$340 million in bursaries and scholarships to improve access to post-secondary education for all students, but especially for those facing socioeconomic disadvantage.

Yet there is an increased understanding that it is not just financial considerations that act as a disincentive for students aspiring to post-secondary education (Frenette 2007; Finnie & Mueller 2008). High school achievement and parental influence also have a strong influence (Learning Policy Directorate 2004; Currie et al. 2007) as does distance from a university or college town (OUSA 2004). Young people with lower levels of reading proficiency are more likely to drop out or still be in high school at age 19 (Statistics Canada 2006; Finnie & Mueller 2008). Yet some students with high reading achievement scores at age 15 also fail to complete high school, for a complex range of reasons associated with peer and family influence and social and cultural capital (Thiessen 2007).

Even where access to financial assistance is important, Indigenous youth often fail to use post-secondary student financial assistance programs because they lack an understanding and awareness of funding options,

make uninformed decisions, do not explore alternative funding options or do not have the confidence in their own ability to qualify for scholarships (Canadian Millennium Scholarship Foundation 2008).

The dominance of financial support in widening participation strategies in Canada has been accompanied by dominance in the research in the field, to the detriment of studies into other important barriers such as parental education levels and academic achievement (Usher 2008). However, the tide appears to be turning, with several recent studies focusing on longer-term factors associated with family background and making recommendations to introduce earlier interventions, up to the age of 14 or 15, to address both aspirations and academic preparation for university (Finnie & Mueller 2008). Strategies recommended include:

- support for academic achievement
- improved dissemination of information, particularly to parents
- mentoring that supports achievement, motivation and social skills
- better career education and planning in secondary schools.

One intervention that began in Toronto, with the assistance of philanthropic funds, and has spread to other provinces is the Pathways Canada program. It has been so successful that it is now being considered for national government support (Usher 2008).

INTERVENTION: Pathways to Education (Pathways Canada) (CAN)

The Pathways to Education program (referred to as Pathways Canada) is run by the charitable organisation Pathways to Education Canada. The program commenced in 2001 in the socioeconomically disadvantaged community of Regent Park, Toronto in response to school dropout rates that were twice the city average.

Pathways Canada supports students through academic, social and financial support and advocacy. Students are provided with:

- tutoring in five core subjects, four nights a week
- group mentoring for grades 9 and 10, specialty and career mentoring for grades 11 and 12
- financial support such as free bus tickets tied to attendance and a bursary for post-secondary education (up to Can$4000 per student in the program)
- advocacy through student-parent support workers connecting teens, parents, school administration, teachers and community agencies.

An evaluation of the program at Regent Park in 2007 by the Boston Consulting Group identified the following successful outcomes.

For students engaged in the pathways program, absentee rates halved, dropout rates dropped from 56 per cent to 10 per cent, the percentage of academically at-risk students dropped by 60 per cent and post-secondary enrolment rose from 20 to 80 per cent, shared equally between college and university. There was a considerable reduction in crime and youth violence and lower teenage pregnancy rates. Furthermore, in a 60 per cent immigrant population, 85 per cent of Pathways' post-secondary enrolments were first generation immigrants. In addition,

over 90 per cent of college/university enrolments were the first in their families to attend post-secondary institutions.

The Boston Consulting Group report attributes the success of the program to five key factors:

- a contract between Pathways students and parents, supported by Pathways' student–parent support workers
- a holistic, community-based support network that involves mentoring, tutoring and other activities
- alignment with a community hub agency that has local credibility
- short and long-term incentives
- long-term commitment from key stakeholders.

As a result of what is perceived as dramatic success, the program is being expanded to other locations in Toronto and nationally into other Canadian provinces.

http://pathwaystoeducation.ca/results.html

A range of interventions has been introduced specifically aimed at improving the participation of Canada's Indigenous or First Nation people. The major cause of low post-secondary education for Indigenous people is non-completion of secondary education. For example, up to 58 per cent of 20- to 24-year-old Canadian Indigenous people living on reservations do not complete high school (Berger et al. 2007, in CSHE 2008). One such intervention has been the creation of the First Nations' University of Canada in Saskatchewan (the Saskatchewan Indian Federated College until 2003). The university's mission is 'to serve the academic, cultural and spiritual needs of First Nations' students'. It enrols more than 1200 students from every Canadian province and territory in a range of undergraduate and postgraduate degrees in both First Nation and 'standard' areas of study (see *www.firstnationsuniversity.ca*).

Indigenous secondary schools have also been established. The following intervention is an example of an outreach program run collaboratively between a mainstream university and an Indigenous high school using university student mentors to build post-secondary education aspirations and improve secondary school achievement.

INTERVENTION: Carleton University High School Outreach (CAN)

Carleton University in Ottawa runs a high school outreach program as a joint venture between the Centre for Initiatives in Education and the Centre for Aboriginal Culture and Education. The program hires Carleton University students to mentor and tutor Aboriginal high school students, paying them an hourly rate for about four contact hours per week and their associated meeting and training sessions. Mentors relate their own experiences to students, provide information and encourage students to aspire to post-secondary education. The program's first site is the Odawa Aboriginal Alternative High School, located in the Odawa Friendship Centre in Ottawa. The school has an inspiring teacher who guides the university student mentors in their role. The university is working to expand the program to public high schools and it is anticipated that the program will begin soon at Rideau High School, which has a high population of Aboriginal students. The long-term goal is to extend the program into

elementary and intermediate schools, with assistance from the university's Aboriginal Cultural Liaison Officer and consultation with participating school teachers.

Informal evaluation at the Odawa Aboriginal Alternative High School has revealed the academic achievement of participating students has risen significantly, due to a number of interrelated factors but strongly related to the presence of the mentors/tutors.

United States

The United States has an extremely large and diverse system of universities and colleges run largely by its states. The 2007 edition of the OECD's *Education at a glance* shows the United States with the third highest tertiary-educated population in the world, after Canada and Japan (OECD 2007). It is also the highest funding country with respect to tertiary education, although well over half of this comes from private funds, with public investment low relative to national wealth (Marginson 2007). The US system is highly stratified with high-fee, private, four-year universities (including the 'Ivy League') at the top of the hierarchy, followed by public, research-led, four-year universities. At the bottom are the state-run, two-year community colleges that are generally open access and offer courses from short certificate programs to two-year diplomas. Many community colleges provide preparation programs and incorporate transition and articulation arrangements for universities.

The socioeconomic profiles of these institutions reflect their position in the hierarchy. Low-income and minority students are concentrated in the community college sector while the highly selective and extremely expensive Ivy League institutions are dominated by students from wealthy backgrounds. Access to post-secondary education is strongly aligned with the interconnected factors of parent education levels, race and income, inextricably linked to 'the profound effect of poverty on school achievement outcomes and educational attainment' (Ward 2006: 51). In 2006, 90 per cent of high school graduates in the highest income quintile enrolled in college compared to only 50 per cent of graduates from the lowest two quintiles (Baum & Ma, in CSHE 2008).

Until recently, much of the focus on educational inequality in the United States focused on race or ethnicity, with African Americans and Hispanics particularly under-represented. More recently, interest appears to be shifting to the broader range of socioeconomic factors and their interrelationship with each other and with educational outcomes (Swail 2000). Researchers are also investigating not only access to college and university but also graduation rates. For example, Ward (2006) notes an increase in minority high school graduates enrolling in and completing college but the gap between the graduation rate of Caucasian students and African Americans and Hispanics has widened (in the case of Hispanics by 24 per cent).

The United States has led the world in developing programs to improve equity of access to post-secondary education. Even the introduction of the Student Aptitude Test in the 1930s was designed to open up entry to Harvard University based on aptitude rather than wealth. This test is now the standard tool for selecting US school leavers for entry to university but has been heavily criticised for being reliant on linguistic and cultural background and for perpetuating inequalities in higher education selection (CSHE 2008). Criticism has also been directed at schools for teaching to the test; indeed, many of the interventions to widen participation include components of test preparation.

An enormous array of outreach, access, academic preparation and financial aid programs operate across the United States, mostly independently of each other, targeting millions of potential students and costing the nation billions of dollars (Cunningham et al. 2003). AVID, ACHIEVE, CROP, GEAR UP, PREP, Twenty-first Century Scholars and Upward Bound, some of which have already been described above, are just some of the larger programs available. These programs target different groups within a wide range of under-representation and with a wide range of different interventions. Most still include a financial incentive, whether as a direct grant, a scholarship guarantee once at college, or advice on the complex financial aid regime in the United States.

College preparation classes and summer schools, mentoring and campus visits are other common interventions, usually targeting selected low-income or minority students who have shown some talent or potential. For example, TRIO's Educational Talent Search provides middle and high school students from disadvantaged backgrounds who have the potential to succeed at college with academic, career and financial aid counselling. More recently, programs are beginning to work with whole cohorts of students (for example, GEAR UP) or are attempting to change the culture and curriculum within disadvantaged schools (for example, AVID). The vast majority of these programs are targeted at students in middle school or beyond, despite growing literature that interventions should be occurring earlier in students' lives (Swail 2000; Cunningham et al. 2003). Despite the massive funding going into these programs, 'few have been subjected to rigorous evaluation' (Myers et al. 2004: 2).

The longest-standing college preparation program in the United States is Upward Bound. Introduced in response to President Johnson's 'War on Poverty' (the *Economic Opportunity Act* of 1964) with the aim of encouraging low-income and minority students to complete high school and progress to college, the program is one of a cluster of programs referred to as TRIO. TRIO is funded by the Federal Higher Education Act and is implemented and monitored by the United States Department of Education. It originally consisted of three programs (hence TRIO):

- Upward Bound
- Educational Talent Search (offering support, advice and information to disadvantaged individuals, including early school leavers)
- Student Support Services (aimed at increasing retention and successful completion once students are enrolled in tertiary institutions).

TRIO has since been extended to incorporate Upward Bound (sometimes now referred to as Regular or Classic Upward Bound), Veterans' Upward Bound, Talent Search, Student Support Services, Ronald McNair Post-Baccalaureate Program and Upward Bound Math and Science. All these programs are aimed at encouraging and supporting disadvantaged students and students from backgrounds with low participation rates in higher education, to enrol and achieve in tertiary study.

INTERVENTION: Upward Bound (US)

Upward Bound is the largest and longest-running college preparation program in the United States, and probably the world, with well over 700 programs currently offered. Colleges and

universities as well as community organisations apply for grants on a competitive basis to administer programs in their local area. These programs typically provide services for between 50 and 100 students annually. Grants are allocated for four or five years. In 2007, almost US$266 million was awarded to 761 grantees, serving 56 450 students, an average of around US$4700 per student, with the most common award providing US$250 000 per grantee.

To be eligible to participate, students must have completed eighth grade and must be from low-income backgrounds and/or be potential first-generation college students. Typically students enter the program in ninth or tenth grade and continue to high school graduation.

Most Upward Bound projects emphasise academic preparation for attending and completing college and combine two approaches:

- a summer program where high school students take college preparation classes and earn work experience at a college campus for six weeks
- weekly follow up and possibly tutoring with students during the school year.

All projects must include instruction in mathematics, laboratory science, composition, literature and a foreign language to help students acquire academic proficiencies in challenging college preparation courses. Almost all projects provide students with tutoring for high school coursework and help them to prepare for college entrance exams and financial aid applications. Students are also given the opportunity to attend plays, visit museums and tour college campuses.

Upward Bound is one of the few US programs that has been longitudinally evaluated, the focus being on program implementation and student outcomes (Myers et al. 2004). This evaluation reports that:

- Upward Bound increased the number of high school maths credits earned by participants.
- There was little effect on other high school grades for average students but increased high school credits earned by *students with lower educational expectations.*
- There was no effect on overall enrolment at post-secondary institutions but a possible increase in enrolment in four-year postsecondary institutions, especially for students with lower educational expectations, although the report suggests that this finding is not conclusive.
- Staying in Upward Bound for longer periods of time is associated with better student outcomes.

Critics of TRIO programs such as Upward Bound claim they are limited in their ability to meet the complexity of issues affecting educational under-achievement. They are university-managed, tend to target students who have already demonstrated the ability to succeed academically and are implemented at too late a stage to make a difference to the students at most risk (Ward 2006). They are also at the periphery of schooling, 'fingers in the dyke' which 'fill the holes where students flow out of the (education) system' (Swail 2000: 88) and do little if anything to reform what is going on in schools. Researchers in the United States emphasise that systemic school reform is required in order to bring about sustained improvement in educational outcomes and obviate the need for the current plethora of stop-gap strategies (Swail 2000; Ward 2006).

United Kingdom

Higher education in the United Kingdom has been associated traditionally with the upper classes in a highly stratified society. Young people from the highest social groupings are five to six times more likely to attend university than those from the most disadvantaged backgrounds (Higher Education Funding Council for England 2006; CSHE 2008).

The higher education system has seen dramatic growth from an elite 12 per cent of 18- and 19-year-olds in 1978 to a participation rate of around 35 per cent of 18- and 19-year-olds in 2002 or 40 per cent of 17- to 30-year-olds in 2006 (National Audit Office 2008). In part, this has been brought about by the creation of new universities in the early 1990s (post-1992 universities) and by concerted efforts by the UK government to increase participation to a much cited 50 per cent of 18- to 30-year-olds by 2010. By 2006, the United Kingdom's Universities and Colleges Admissions Service accepted applications to 333 institutions of higher education, including universities, colleges of higher education and further education colleges that offer higher education courses (Bowers-Brown 2006).

Despite significant efforts and funding being committed to widening participation initiatives, this growth has not been accompanied by any marked increase in equality of participation (Thomas et al. 2005; Gorard 2008). Middle-class young people have benefited from much of the growth and, while the participation rate of low-income students has increased substantially, the gap between high and low socioeconomic groups has persisted. White males from low socioeconomic backgrounds, in particular, continue to be under-represented (Gorard 2008; National Audit Office 2008). A number of commentators have asserted that there has actually been 'a deepening of educational and social stratification and the emergence of new forms of inequality' (Reay et al. 2005: vii), as equality becomes more a question of 'which university?' in an increasingly stratified system (Archer 2007; David 2007). The newer 'post-1992' universities have enrolled the majority of students from lower socioeconomic backgrounds, despite the strong policy imperative on all universities.

The widening participation policy framework was established by the Blair government in response to the Dearing *Committee of Inquiry into Higher Education* (1997) with the publication of *Widening Participation in Higher Education: Funding Proposals* by the Higher Education Funding Council for England in 1999 (Higher Education Funding Council for England 2006). Nearly £150 million was allocated for the 1999–2000 academic year to support the policy objective, to be allocated to universities and colleges to support young people with disabilities and from disadvantaged backgrounds to gain access to higher education. It has been estimated that the UK government has now spent at least £2 billion on widening participation (Gorard 2008).

In 1998, the UK government introduced a means-tested, upfront tuition fee requiring students to contribute £1000 at the beginning of their undergraduate degree (Bowers-Brown 2006). (Scotland abolished upfront fees in 2000, replacing them with a graduate repayment scheme once students had reached a certain threshold of income.) The upfront fee was replaced in 2006 by the introduction of a deferred, variable fees scheme in England, similar to Australia's Higher Education Contribution Scheme, with fees capped at £3000. A loans scheme for maintenance was also introduced, along with a means-tested Higher Education

Maintenance Grant designed to ensure equitable access to university for students from low-income backgrounds. The Office for Fair Access was established to ensure that England's new fee regime will not negatively affect widening participation. All institutions are now required to submit access agreements to this office instead of the participation strategies previously required by the Higher Education Funding Council for England. It is too early to determine the impact of the new fee regime on participation but concern has been expressed about the potential deterrent effect for low-income students (Bowers-Brown 2006; Callender & Jackson 2008).

In *England*, the strategies introduced to widen participation have focused on raising educational attainment, raising aspirations, communicating the benefits of higher education and ensuring fair admissions (Thomas et al. 2005). Funds are provided directly to institutions by the Higher Education Funding Council for England to establish access initiatives; institutions also receive a 'widening participation premium' to assist with supporting students from low socioeconomic backgrounds and ensure equitable retention and success. In 2005–06, for example, £51 million was allocated for institutional access initiatives, and £221 million for retention and success. A further £12 million was allocated to support students with disabilities. In addition, £102 million was allocated to Aimhigher partnerships (discussed below).

Other countries within the United Kingdom have developed different approaches to widening participation, which are funded separately by their governments. Approaches are similar, with a focus on collaboration between higher education institutions and schools, and further education and funding to support access, retention and success.

In *Scotland*, the Scottish Higher Education Funding Council provides formula-based grants to institutions to support the access and retention of students from low-participation neighbourhoods. Scotland is notable for not charging fess and for the emphasis placed on the role of further education colleges in providing higher education and comprehensive credit transfer arrangements between the sectors. The council encourages cross-sectoral partnerships between schools and higher and further education institutions through four regional forums such as the West of Scotland Wider Access Forum. A wide range of interventions are in operation, aimed at increasing educational opportunities for diverse under-represented groups, including older adults, ethnic minorities, school leavers, students at risk of leaving school early and students in the earlier years of schooling.

In *Wales*, premium funding aimed at widening access is allocated to institutions based on their success in recruiting students from low-participation neighbourhoods and lower socioeconomic groupings. The Reaching Higher Reaching Wider initiative supports four regional partnerships to increase the participation of ethnic minorities, students from lower socioeconomic backgrounds and students with disabilities, and to support Welsh language provision. From 2007–08 Welsh higher education institutions were given the flexibility to charge variable fees (again with a £3000 pound cap). Welsh students choosing to study at a Welsh institution are eligible for a fee grant to offset the additional cost.

In *Northern Ireland* widening participation is mainly delivered through institutional outreach activities along with an Aimhigher Roadshow that tours Northern Ireland to provide information on higher education to

schools. A widening access premium is provided to higher education institutions to support the retention and success of low-income students. Variable fees were introduced in 2006 with institutions required to provide access bursaries to students from low-income families.

Aimhigher is the major initiative for widening participation in England. The majority of programs identified in the UK literature fall under this umbrella. Aimhigher was introduced by the Higher Education Funding Council for England in 2001 as an outreach program to increase higher education awareness, aspirations and attainment. The principal targets of Aimhigher are 13- to 19-year-olds from social groupings that are under-represented in higher education, including those whose parents did not attend higher education and students in care. An increasing focus is on students on vocational pathways and also on those in the earlier years of schooling. Aimhigher also works with parents, teachers and others who influence the decisions of young people about future pathways, providing extensive professional development activities for staff involved in the delivery of programs.

Funded projects can involve mentoring schemes, 'taster' visits to universities, outreach programmes within schools, summer holiday programs, master classes and pre-entry support and information strategies. Most projects involve some contact with university student mentors or student ambassadors. A recent audit (National Audit Office 2008) estimated that around 30 per cent of primary schools have participated in widening participation activities in response to growing recognition of the need to engage students early. They provide the example of an Aimhigher 'Professor Fluffy' project developed by the University of Liverpool (www.ahgtm.ac.uk/projects/?mode=movenav&page_id=691).

Aimhigher operates through collaborations between universities, schools, colleges, local councils and communities, with most funding going to the 45 area and nine regional partnerships. It enables the development of coherent transition arrangements that span the different education sectors, managed by area Aimhigher managers and informed by area steering groups that comprise representatives from all education sectors, local authorities and community stakeholders.

Higher education providers in the local area work collaboratively together with other sectors, sharing good practice and avoiding competition and duplication of effort. Aimhigher regional forums bring area representatives together with other stakeholders to discuss strategic developments in regional and area level partnerships. Regional partnership boards provide regional level governance and oversee both regional and area plans, reporting to the high-level National Partnerships Board. Advice and support is provided by the national Widening Participation support team, Action on Access, through a team of regional advisers.

The Aimhigher infrastructure has facilitated the development of a number of national initiatives. For example, the Aimhigher health care strand provides opportunities for participants to explore a range of career opportunities in health care. A national communications strategy has also been developed including a website, student portal and the Aimhigher Roadshow, which in 2005–06 held more than 750 events across England and Northern Ireland (Higher Education Funding Council for England 2006).

The infrastructure also aims to ensure that projects are monitored and evaluated appropriately. The Higher Education Funding Council for England (2006) reports on three national research studies, which found:

- higher than expected attainment levels among participants, including improved performance in mathematics at Key Stage 3 and some improved performance in General Certificate of Secondary Education points
- a 3.9 per cent increase in Year 11 students intending to progress to higher education
- general agreement that the most effective activities in increasing progression to higher education were residential schools, including summer schools, campus visits, mentoring, subject-related taster events and master classes (both away from school and at school), and information, advice and guidance.

This research also found that effective partnerships were developing a systematic and progressive arrangement for the delivery of interventions, commencing with activities which raise awareness and aspirations and moving to those that aim to raise attainment levels and preparation for higher education.

Other research (Hatt et al. 2005, 2008; Thomas et al. 2005) has found that targeting students for widening participation interventions such as Aimhigher can be problematic. A perceived strength of Aimhigher is that it works with groups of students and avoids stigmatising individuals. However, at the same time, there are concerns that the program may not always be targeting those most in need of assistance; that is, the students being selected may be the ones who least need the intervention. This was exacerbated in the South West of England study (Hatt et al. 2008) by some teachers' discomfort at focusing on excluded groups only and a desire to extend the benefits to all students. Teachers also noted the difficulties associated with targeting students to meet all of Aimhigher's criteria:

> It has been difficult to identify the WP [widening participation] cohort in a school with few ethnic minorities or disabled students. Economic background is difficult to identify in an area where no-one seems to be short of designer labels and mobile phones but they all seem to be on benefits (Hatt et al. 2008: 135).

Nevertheless, nearly all the teachers in the study believed that Aimhigher had increased awareness of higher education and encouraged aspirations. They also believed the program had increased students' self-confidence and self-esteem, and had a positive effect on student motivation and learner identities, suggesting a longer term impact that may contribute further to higher education aspirations and the achievement of those aspirations. Teachers also linked Aimhigher with improved student achievement and performance, and with increased progression to both post-compulsory and higher education.

The concerns with targeting widening participation activities in general were taken up in the recent report of the National Audit Office (2008: 26) which recommends targeting strategies more appropriately by clarifying criteria for target groups through a three-stage process:

- stage 1: area level targeting (schools, colleges, communities)
- stage 2: learner level targeting
- stage 3: monitoring the effectiveness of targeting.

New Zealand

New Zealand is a small country of only four million people. About 75 per cent of its population identify as European, some 15 per cent identify as Māori, 9 per cent as Pasifika and 7 per cent as Asian (Goedegebuure et al. 2008). The population is projected to grow by around 12 per cent over the next 20 years, with this growth particularly concentrated in the Māori and Pasifika populations because of their greater fertility, and in Asian populations because of migration. This will result in a more ethnically diverse population, with significant implications for the education system. Up to now educational outcomes for Māori and Pasifika people have been below average.

New Zealand has a high demand for skilled labour, with low unemployment and strong demand for tertiary education. It has embraced the notion of the 'knowledge economy' and, with it, the notion that access to education is a major determinant of social and economic development at both the national and the individual level. The overall levels of participation in tertiary education are among the highest within the OECD. In 2003, about 80 per cent of the population could expect to enter some level of tertiary education at one point during their lives.

The tertiary education sector in New Zealand incorporates more than 900 highly diverse institutions catering for some half a million, predominantly domestic, students. It includes all post-secondary education, from adult literacy and second chance education for those with limited schooling through to certificates, diplomas, bachelors and postgraduate qualifications. It also includes industry training, apprenticeships and adult and community education.

The sector comprises public tertiary education institutions, private training establishments, other tertiary education providers, industry training organisations, and adult and community education providers. The publicly funded tertiary institutions include eight universities, twenty institutes of technology and polytechnics, two colleges of education and three Wānanga, or Māori centres of tertiary education. The vast bulk of tertiary education institutions are the nearly 900 private training establishments that are mostly small to very small niche-based institutions.

Of the half million students enrolled, 68 per cent study at sub-degree certificate and diploma level, 26 per cent at bachelor level and a small proportion (6.4 per cent) at the postgraduate level. The largest body of students can be found in the institutes of technology and polytechnics (42 per cent), followed by universities (33 per cent), and the private training establishments and Wānanga (14 per cent) (Goedegebuure et al. 2008). The share of government-funded places has shifted substantially in recent years, away from universities to ITPs and Wānanga, as outlined in Table 1.

Public expenditure on tertiary education is high (the highest in the OECD in 2002 at 5.2 per cent of total public expenditure) and is distributed between subsidies to institutions (approximately 51 per cent), student loans (27 per cent), student allowances (10 per cent), and other expenses (Goedegebuure et al. 2008). New Zealand also has a high private expenditure on tertiary education with tuition fees charged across the system. In 2004, the average domestic annual tuition fee varied between NZ$4000 in universities, NZ$2250 in institutes of technology and polytechnics, and a much smaller NZ$405 in Wānanga (Goedegebuure et al. 2008). Since 1999, fee increases have been controlled with limits to the extent institutions can raise their fees.

Table 1: Distribution of government-funded tertiary education places, 2000–04

Institution type	2000	2004
Universities	55%	41%
Institutes of technology and polytechnics	29%	33%
Wānanga	1.6%	14%
Private training establishments	8.8%	8.3%
Colleges of education	4.7%	3.0%
Other	0.5%	0.7%

Student financial aid is provided through a combination of a loan scheme and a means-tested student allowance scheme. Any domestic student enrolled in an approved program is able to borrow the full amount of the fees charged by the institution, a fixed amount to cover course-related costs and a weekly amount to cover living costs. Repayment is contingent on income following completion of studies. In 2004, 53 per cent of eligible students took out a student loan and the median amount borrowed was NZ$5424 (Goedegebuure et al. 2008).

The means-tested Student Allowances Scheme is targeted at promoting the participation of full-time students from lower socioeconomic backgrounds. In 2004, 16 per cent of all domestic students received assistance through this scheme. Students who receive student allowances may also take up student loans, with the living-costs entitlement decreasing by the amount of the allowance. In 2004, 80 per cent of student allowance recipients also took out a student loan (Goedegebuure et al. 2008).

The government also funds a range of other support schemes for specific purposes such as the Training Incentive Allowance to encourage people on state assistance to prepare for the workforce, scholarships targeted at improving the participation of Māori and Pasifika peoples, and funding targeted at encouraging priority disciplines (for example, science, technology, teaching and health).

The student finance system is an important means of facilitating access and participation. The combination of allowances and loans assists students in covering living costs and promotes the participation of those with greater financial need who may be particularly vulnerable to debt aversion. The income-contingent nature of the loans system means that low earners make low or no repayments.

The NZ tertiary education system has seen continual change since the late 1980s. As the NZ economy shifted from a highly regulated and protected economy to a liberalised market economy, the tertiary education sector moved from an elite university system to a mass tertiary system characterised by competition, diversity and user-pays principles. From 2000, the NZ government has aimed to more closely align tertiary education with New Zealand's socioeconomic development, with the development of the 2002–2007 Tertiary Education Strategy. The strategy incorporates six substrategies:

1. strengthen system capability and quality for our knowledge society
2. te rautaki mātauranga Māori—contribute to the achievement of Māori development aspirations
3. raise foundation skills to allow participation in the knowledge society

[5] A revised Tertiary Education Strategy 2008–2012 was released in December 2007, continuing much of the 2002–2007 strategy but with some changes in focus. In particular, the 2008–2012 strategy introduces a new approach to planning, funding, quality assurance and monitoring in the tertiary education system that will promote a stronger focus on quality and relevance of education and research outcomes.

4. develop the skills needed for a knowledge society
5. educate for Pacific people's development and success
6. strengthen the research knowledge creation and uptake function (New Zealand Ministry of Education 2002).

Responsibility to develop all learners to their fullest capacity through education and training is mandated, with equity and access clearly articulated within at least substrategies 1, 2, 3 and 5. Attention is focused on learners who may have previously experienced educational disadvantage: Māori and Pasifika peoples, people from low socioeconomic backgrounds and people with a disability. The strategy responds to both demographic and economic imperatives 'to generate economic growth and improve social outcomes' (New Zealand Ministry of Education 2007b: 31). It also acknowledges the unique position of New Zealand's obligations under the Treaty of Waitangi.

Historically, Māori and Pasifika peoples have been significantly under-represented in tertiary education, although this has changed markedly in recent years. Since 2002, Māori students have had the highest participation rate of any ethnic group in New Zealand (New Zealand Ministry of Education 2006). Participation by Pasifika peoples has also increased significantly, though not to the same extent as Māori. Despite the overall increase in participation, Māori and Pasifika students are still concentrated at the lower levels of the qualifications framework with both groups remaining significantly under-represented at degree and post-degree levels. They also have a higher proportion of students who leave school without qualifications.

New Zealand has been a leader in its approach to the provision of Māori education and meeting the obligations of the Treaty of Waitangi through the recognition of Māori knowledge and ways of doing, including the development of the Māori-led Wānanga. A case study on New Zealand's successful approach to Maori education is detailed below.

The primary focus for educational equity strategies in New Zealand tertiary education has centred on the significant disparities for Māori and Pasifika peoples. However, the Tertiary Education Strategy also recognises the under-representation of people from low-income backgrounds, as well as people with disabilities. The goal of improving the participation of people from low-income backgrounds is complicated by the lack of any reliable measure (New Zealand Ministry of Education 2006). Until recently there has been little research on the impact of socioeconomic status alone on tertiary participation in New Zealand (Goedegebuure et al. 2008), although it has been observed that a smaller proportion of students at schools located in areas of disadvantage move directly from school to tertiary education, especially to degree-level studies (New Zealand Ministry of Education 2006; Tumen et al. 2008).

The Ministry of Education notes that the key determinant for participation in degree-level study does not appear to be socioeconomic status in itself, but the level of academic attainment at secondary school (New Zealand Ministry of Education 2006). As is the case elsewhere, socioeconomic and ethnic disparities in tertiary education are closely interrelated and have their roots in educational inequalities within the schooling sector.

Two programs are offered through the school sector to provide pathways for senior secondary school students who are at risk of leaving school with low or no qualifications. The Secondary–Tertiary Alignment Resource (STAR) and Gateway programs enable students to study for tertiary-level courses while still at school to help prepare for work and/or further education. Whereas STAR does not target any particular group of senior students, Gateway is specifically aimed at assisting senior students in low socioeconomic secondary schools. Evaluations suggest that both these programs appear to have been reasonably effective at promoting transition to further training or employment and are held in high regard by the secondary sector (New Zealand Ministry of Education 2006).

The University of Auckland, in partnership with the NZ government, has commenced a longitudinal study into the impact of socioeconomic status on educational achievement in schools. Studying a number of cohorts of students from local primary schools through to tertiary education, the project aims to provide a comprehensive understanding of educational underachievement and to develop a toolkit of initiatives to improve the outcomes for Māori, Pasifika and low-income school students.

INTERVENTION: Starpath (NEW ZEALAND)

Starpath is a 'Partnership for Excellence' led by the University of Auckland in collaboration with the NZ government. It is a research-based project investigating the impacts of socioeconomic status on educational attainment and aims to address the comparatively high rates of educational under-achievement, compared with their peers, of Māori, Pacific Islanders and students from low socioeconomic backgrounds. The overarching aim is to deliver a toolkit of proven initiatives and strategies that will transform current patterns of educational underachievement in New Zealand.

The five-year project was announced in August 2004 and is piloting its approach in a limited number of Auckland schools and tertiary institutions, studying up to 14 consecutive cohorts of students from primary to tertiary education. The first extension to other regions of New Zealand commenced in 2008. Over the five years Starpath aims to collate and analyse 20 years of educational data, using a longitudinal methodology that focuses on understanding and transforming the pathways for different groups of students in these cohorts as they pass through the education system. The project aims to identify the critical transition points at which different groups of students either progress to the next level of achievement, or fail to progress.

Starpath researchers are identifying:

- a detailed understanding of educational dynamics in New Zealand
- a toolkit of proven initiatives and approaches for schools
- a strategic, evidence-based approach to enhancing educational achievement
- improved methods of collecting and understanding data in schools
- initiatives in schools and tertiary institutions that will address barriers to tertiary study.

They aim to ensure that such initiatives, both within individual institutions and at a system-wide level in New Zealand, are strategic (rather than scatter-gun), evidence-based and efficient in their use of resources, and achieve the desired objectives.

> A number of publications have been produced by the research team to date but most are not yet publicly available. Those that are available focus on the methodological approach or the performance of different cohorts of students once at university.

There are a number of strategies already in place to improve the participation of low-income students in tertiary education, including the system of financial aid discussed above. The relatively open admissions for most tertiary education providers also contribute to this goal by improving connections and pathways between foundation and higher levels of learning. New Zealand's focus on education at the certificate and diploma level helps provide the foundation education that many people miss in the schooling sector.

Māori education: a case study

This case study has been included specifically in order to show the interventions that have been made to improve Māori educational outcomes, and especially their higher education outcomes. New Zealand has adopted a national approach that has distinctive features and also connections to the global problem of improving Indigenous peoples' and First Nations' educational outcomes. Settler colonial nations, such as Australia, have serious policy challenges in this area given that Indigenous peoples' educational outcomes have been historically poor.

The New Zealand government has implemented a national strategy for improving Māori students' educational outcomes and recently launched *Ka Hikitia—Managing for Success: The Draft Māori Education Strategy 2008–2012* (see *http//kahikitia.minedu.govt.nz*). This strategy has four main focus areas: foundation years; young people engaged in learning; Māori language education; and organisational success.

> The draft strategy's overarching strategic outcome, Māori enjoying success as Māori, relies on a system that enable Māori to live and succeed within the Māori world, wider New Zealand society—as well as on the global stage (New Zealand Ministry of Education 2007a: 39).

Under this overarching goal there are other strategic goals including 'to help increase the participation of family and community in the education system at all levels' (p. 18). Perhaps most significant, though, is the aim to strengthen Māori language education:

> The Māori language education sector emerged in its current form in the 1980s, as the language revitalisation movement gained momentum. In a little over 25 years, the sector has grown extensively, increasing the number of te reo Māori speakers and providing learners (young and old) with an important opportunity to speak te reo Māori and more fully participate and succeed in Māori society, both on the national and international stage (New Zealand Ministry of Education 2007a: 38).

Research has confirmed the value of this language education strategy, especially if students start early, have at least six years of sustained schooling, and are taught by high-quality teachers. There are three strategies for advancing the Māori language education sector:

> ... there is a 10 year early childhood education, strategic plan, *Pathways to the future: Nga Huarahi Arataki*; there is a school strategy, *Schooling strategy, making a big difference for all students, 2005–2010*; there's a tertiary education strategy, *The tertiary education strategy, 2002–2007* (New Zealand Ministry of Education 2007a: 39).

Kura Kaupapa Māori

Given the significance of the aim to strengthen Māori language education for the New Zealand national strategy, it is appropriate to examine this theme in more depth. Historically this initiative began in the 1970s with a Māori social movement, kura kaupapa Māori, that was a reaction to poor educational outcomes for Māori and the near demise of Māori language. During the 1980s, Māori communities 'were so concerned with the loss of Māori language, knowledge and culture that they took matters into their own hands and set up their own learning institutions at pre-school, elementary school, secondary school and tertiary levels' (Smith 2003: 6–7). Māori activists established their own schools outside the government system. In response, the government supported the development of an alternative schooling model—kura kaupapa Māori—that would better meet the aspirations of Māori communities.

The kura kaupapa Māori education movement emerged out of a 'shift in mindset of large numbers of Māori people' (Smith 2003: 2). Taking a more proactive stand in the field of education meant struggling to have the state support the maintenance of Māori language, epistemology, cosmology and culture as a central tenet of education policy. This initiative led to the development of kaupapa Māori theory and pedagogy (Smith 1999). In terms of schooling, this model foregrounds 'pedagogical decolonization' (Kēpa & Manu'atu 2008). Out of this movement kura kaupapa Māori Elementary Schools (Māori immersion philosophy and practice), kura tuarua (Māori immersion secondary school options) and Whare Wānanga (Māori tertiary options) were established (Smith 2003: 7).

As an example, the Te Kura Kaupapa Māori o Te Kotuku in Te Atatu, Auckland was established by parents in 1993 and was officially recognised as a state elementary school in 2002. Kura kaupapa Māori schools are based on a number of key principles initially identified by Graham Hingangaroa Smith (1990), within the context of educational intervention and research. These elements and principles have since been expanded by other Kaupapa Māori theorists such as Linda Smith (1999), Leonie Pihama (2001) and Taina Pohatu (2004). The key principles of Kaupapa Māori research are:

- Tino Rangatiratanga: the principle of self-determination
- Taonga Tuku Iho: the principle of cultural aspiration
- Ako Māori: the principle of culturally preferred pedagogy
- Kia piki ake i ngā raruraru o te kainga: the principle of socioeconomic mediation
- Whānau: the principle of extended family structure
- Kaupapa: the principle of collective philosophy
- Te Tiriti o Waitangi: the principle of the Treaty of Waitangi
- Ata: the principle of growing respectful relationships.

A kura kaupapa Māori school is a state school where teaching is in the Māori language. Such schools are established as an initiative by a community that wants to become a kura kaupapa Māori. Its establishment is through preparing a business case that must formally receive ministerial approval. During their establishment, such schools are referred to as kura teina, that is 'attached' to and mentored by an established high-performing kura kaupapa Māori school (referred to as the kura tuakana).

From 1992 to 2007, the number of kura kaupapa Māori and kura teina has increased from 13 to 73 and the number of students in kura kaupapa Māori and kura teina has increased by 16 per cent, from 5428 in 2002 to 6272 in 2006. This compares with a 7.5 per cent increase in the total Māori school student population over the same period.

Some of the indicators of success for the New Zealand approach include the following.

- Attendance of children in Māori immersion schools has increased.
- Students attending Māori language schools are achieving higher scores in the National Certificate of Educational Achievement (at Year 11) than their peers attending English language schools.
- Māori enrolments in formal tertiary education courses have nearly doubled since 2001 and there has been a dramatic increase in the proportion of registered Māori early childhood teachers since 2004 (23 per cent to 45 per cent).
- There have been significant and gradual increases in the number of Māori students who are successful in the National Certificate of Educational Achievement at Year 12 level and gradual increases in numbers with university entrance qualifications.
- Participation of Māori in formal tertiary education has remained higher than that of other populations, despite a 5.4 per cent decline in 2006.
- Completion rates in tertiary programs for all Māori was 47 per cent compared to 44 per cent for all other students (New Zealand Ministry of Education 2007a).

This approach to improving educational outcomes for Māori has also been taken up in the tertiary education sector, in the form of the Whare Wānanga (House of Higher Learning).

Te Whare Wānanga o Awanuiārangi

The Whare Wānanga (House of Higher Learning) was established under the *Education Act* 1989. As a Crown entity, it must comply with the many statutes that regulate the operations of public institutions. The Whare Wānanga provides tertiary-level education and research as described under the *Education Act*:

> A Wānanga is characterised by teaching and research that maintains, advances and disseminates knowledge and develops intellectual independence and assists the application of knowledge regarding ahuatanga Māori (Māori tradition) according to tikanga Māori (Māori custom).

As an example, the Te Whare Wānanga o Awanuiārangi is a Mataatua-based tribal university, situated in Whakatane. It was established in 1992 but did not receive Wānanga status until 1997. The term 'Whare' in

the title invokes the original founding aspiration to provide high-calibre educational opportunities for Māori at all levels within the tertiary sector. The Whare Wānanga provides community-based learning programs up to graduate programs at masters and doctoral levels. These programs focus on Māori development and advancement and also reference international Indigenous research activity.

Of special interest for this review is the Bachelor of Māori Education, Bachelor of Teaching and Learning and the PhD program in Teacher Education, programs that provide for the training of teachers in Māori approaches and hence support the ongoing development of the kura kaupapa Māori intervention outlined above. These programs are 'underpinned by a kaupapa Māori philosophy whereby traditional Māori values associated with knowledge are implicitly sanctioned and reinforced. The aim of this programme is to produce competent and confident educational practitioners. It is offered as an option that contributes towards the revitalisation of Māori knowledge and language' (Williams 2003: 2).

The success of the New Zealand model of intervention for improving learning for Māori is also evident in the outcomes of Ngā Pae o te Māramatanga, New Zealand's Māori Centre of Research Excellence. Nga Pae o te Maramatanga, or the National Institute of Research Excellence for Māori Development and Advancement, is one of New Zealand's seven officially recognised Centres of Research Excellence and presently supports more that 500 Māori doctoral students through mentoring programs, networking and fellowships.

In terms of improving higher education outcomes for Māori, the New Zealand case provides a few lessons for Australia. The highly successful national strategy brings together the following features:

- a national strategy for all levels of schooling with policy coherence about core ideas
- national education policy that works to advance the nation's aspirations for decolonisation through recognition of difference that is not another version of assimilation
- national policy that collaborates with Māori advocates
- development of a university model that provides a process for credentialling Māori knowledge and epistemology and economic interests.

2.6 Concluding comments

In Australia, while there is limited research and evaluation that specifically focuses on the relationship between early school intervention and student participation in higher education, the work that has been done consistently indicates that a number of approaches are likely to make a positive difference, particularly for low SES background students. Indeed we can conceive of a repertoire of strategic interventions that together enhance availability, access, achievement and aspirations. Strategic interventions that foster higher participation typically include programs with many of the following characteristics:

- collaboration
- early, long-term and sustained
- people-rich

- cohort-based
- communication and information
- familiarisation/site experiences
- recognition of difference
- enhanced academic curriculum
- financial supports and/or incentives.

Many initiatives include several of these characteristics, in order to simultaneously address availability, access, affordability, achievement and aspirations; others are particularly focused on only one particular characteristic.

Collaboration

Making a concerted difference requires collaboration across the sectors: schools, tertiary institutions, non-government organisations, regional authorities, families and communities. The trend in large-scale international programs is towards the involvement of all stakeholder groups in designing and delivering interventions. This ensures that programs are not built around false assumptions about what assists students to aspire to higher education and how they can be supported to make successful transitions and achieve a sustained level of high performance. Collaboration at all stages of program development and enactment means that processes of reciprocal feedback are likely to improve the quality of the intervention and its outcomes.

Early, long-term and sustained

A clear message that emerges from many of the studies is that earlier interventions are more likely to be successful and that it is too late in the last two years of schooling to maximise the effects of an intervention. By then academic achievement patterns are harder to turn around, aspirations are likely to be well established and students may have already selected or been counselled into subject selections and tracks that do not allow them access to the higher education trajectory they may have otherwise taken. Further, studies of the development of human skills show that early and continued support for children is likely to have the greatest long-term payoffs (Heckman & Rubinstein 2001). Hence programs that are designed to work with primary school children and then continue as they transition into the middle years and on into high school would seem ideal.

People-rich

Most successful programs incorporate mentoring of one kind or another. In other words they require the development of ongoing relationships between young people and those in a position to offer them specific guidance that relates to their situation and capacities. Mentors may include inspiring individuals in a discipline area (for example, scientists in schools), but mentors are equally likely to be graduates who come with similar life histories (for example, Indigenous people, working-class, women in non-traditional areas), or people who are at university qualifying for the targeted profession (for example, medicine, teaching, nursing, technology). Mentoring programs take a great deal of time to organise and support and need to

be properly resourced in terms of training, travel costs and time commitment. Identifying key people or a single person in an institution whose position is dedicated to fostering higher education pathways and connections is also a productive strategy. The important point here is that programs that make a difference need to allow for ongoing conversations, advice and counselling rather than one-off events or products of a generic nature.

Cohort-based

Another trend in the research was a move towards cohort approaches in intervention programs. This is not to suggest that programs that have targeted high-potential individuals should be discontinued. Rather that a supplementary strategy that looks promising focuses on working with classes or even larger cohorts of young people in a school or region. Such an approach works to change peer cultures at the same time as it supports individuals. Primary school students, for example, begin their experience with a university alongside their peers through a range of shared experiences which may include a series of visits to campuses, meetings with mentors and career counselling.

Communication and information

A growing number of universities are using a variety of digital media technologies to produce high-quality, engaging materials and online sites for young people about university life and how to get there. Again, this is not to suggest that earlier strategies such as circulating brochures, school visits and so on are not effective; simply that there are other ways of supplementing that work which may be valuable to explore. Many studies, however, suggest that information and one-off communication sessions about universities may be less effective if they are not backed up with specific assistance in interpreting forms and making choices.

Familiarisation/site experiences

Physically experiencing a university through a schedule of site visits designed both to inspire and familiarise young people have proven effective in many cases where they are combined with ongoing conversations about different options for study. In cases where young people would otherwise be unlikely to visit a university such opportunities can be significant in debunking fears and also in awakening the desire to attend. They get to see first hand what the university looks like, how it operates and what it means to be a student in that context. Such concrete familiarity can be particularly reassuring for students from regional and remote communities, for Indigenous students, and for students from non-English-speaking backgrounds when the visits enable conversations with community peers and/or elders.

Recognition of difference

Historically, many programs specifically targeting low SES populations have tended to be designed in a compensatory fashion to make up for perceived or assessed educational gaps and deficits. Some of the interventions we highlight in this review start from the perspective that low SES communities have assets that should be recognised and valued as assets (for example, linguistic diversity, specific cultural knowledge). Some universities offer different entry pathways for young people where they are able to build a portfolio of evidence which may be considered in the application process.

Enhanced academic curriculum

Studies that suggest that early intervention, followed by sustained support, have long-lasting payoffs also emphasise enhancing the quality of curriculum and pedagogy throughout schooling. In other words, it is not only sustained supplemental instruction and tutoring provided to children that counts, but the ongoing quality of everyday lessons. Across a range of national and international studies it is now clear that a quality curriculum emphasises deep knowledge and intellectual engagement; meaningful authentic task design and aligned systems of assessment; high expectations for all students; and supportive learning environments with well-qualified and well-rewarded teachers.

Provide financial supports and/or incentives

Despite questions about how significant financial barriers actually are to low SES students' participation in higher education, most interventions in one way or another provide financial support or incentives and, when combined with other supports, financial contributions of various kinds do make a difference. Some promising studies indicate that investment needs to be considered in terms of the cohort's or individual's particular economic constraints, for example the specific financial needs of regional and remote students, or those of students whose part-time income may be essential to the family.

The characteristics of the interventions summarised above take time to put in place. Effecting change in educational institutions and communities is complex and relational. Increasingly providing and embedding infrastructure requires cooperation and long-term planning. As researchers and advocates for educational social justice, we have witnessed a range of excellent programs come and go over the decades. It is now time to build into institutional structures and funding mechanisms ongoing resources with an explicit equity target. Too many worthwhile equity innovations need to be re-invented annually or every few years according to the demands of short-term funding cycles.

In addition to identifying factors that have a positive impact on participation of low SES students in higher education, this review raises some questions about assumptions that have underpinned the field and that may need to be addressed in order for equity outcomes to be improved.

In closing, several questions for future research and policy development are posed.

- In what ways might higher education institutions and the school sectors collaborate on sustainable equity initiatives?
- How might a program of longitudinal research studies be designed to provide evidence of the impact of various strategies and initiatives?
- How might the best practices of specific interventions be implemented in ongoing infrastructure and policy?

These questions are complex and addressing them will require concerted action to develop reliable and comprehensive databases, and the corresponding research evidence, of programs and practices that make a difference. To bring about significant change will require new forms of collaboration and alliances that consider students' educational trajectories across the lifespan.

3 A survey of the nature and extent of outreach activities conducted by Australian higher education providers

3.1 Executive summary

This section of the report presents the analysis of survey data collected in late 2008 on the nature and extent of programs, interventions and outreach activities targeting pre–Year 11 students, and operated by Australian universities. It constitutes Component B of the DEEWR-funded research project *Interventions early in school as a means to improve higher education outcomes for disadvantaged (particularly low SES) students.* All Australian public universities were invited to participate. Responses were received from 26 universities reporting on 59 programs. The survey asked respondents to answer questions relating to the type of interventions provided by universities to encourage low socioeconomic status (SES) school students to consider higher education. Basic data was requested, including target groups, annual budgets and the origin of the programs. Other questions asked about how programs were evaluated, about program aims and what outcomes had been identified.

Survey results

Key data from the survey indicates the following:

- Most of the interventions reported were aimed at Year 10 students.
- The largest group of these Year 10 programs aimed at building student aspirations to attend university, while financial assistance for students was the least commonly reported aim.
- Many of the interventions were one-off events that aimed to provide students with a taste of university, although extended programs of on-campus visits by school students, and school visits by university staff and students, were also reported.
- University equity units drive and fund a large proportion of the early interventions. Nearly 40 per cent of the programs in this survey were reported to be based in equity units. The majority of programs reported were both initiated and funded by universities.
- Universities generally received funding of between $10 001 and $50 000 per program per year, with most being funded for more than five years.
- The largest group (39 per cent) of programs included in this survey involves more than 20 schools, while 27 per cent involve 6 to 10 schools.
- Programs that involve large numbers of students (201 to 500 students each year) accounted for 31 per cent of programs reported.
- Students from low SES backgrounds represent the most significant target group, followed by Indigenous students and then students from rural and remote locations.
- Most respondents reported that their programs are evaluated, predominantly on the basis of participant feedback.
- The most frequently reported program outcome was a change in aspirations towards higher education. Also commonly reported was an increase in students' understanding of university enrolment and procedures.

[5] While it is acknowledged that the term 'regional and remote' is now used by government, the term 'rural and remote' was used in the survey and hence is used throughout this report.

Implications

This section identifies issues for further research, including the following:

- Investigation of the ways in which equity policies are developed, implemented and evaluated in the sector
- Issues pertaining to best practices of interventions and their implementation
- Investigation into the extent to which equity policy is quarantined or mainstreamed in universities
- Exploration of the effect on equity policy of the imperative to market the university
- Research into the level and nature of collaboration between universities and schools
- Further investigation of the relationships between aspirations and achievement
- Evaluating the long-term effects of interventions through a range of longitudinal research studies
- Conducting research-driven interventions to improve equity policy processes in universities.

Analysis of the data also has implications for policy. Given the generally limited nature and extent of interventions currently in operation, more funds would seem to be needed for outreach activities that target school students before they enter the post-compulsory years, in the primary and middle years of schooling. In particular, government funding needs to be introduced in ways that drive universities' outreach activities in particular directions and sustain interventions over longer periods of time.

Funds need to be made available to universities according to certain priorities and conditions. For example, applications for program funding from government could be required to demonstrate how they are informed by the characteristics of good programs derived from the project's literature review (see Section 2).

Universities in receipt of funding could be encouraged to target particular school year levels or year level groupings (for example, middle school, junior primary) and design intervention aims most relevant to those year levels (for example, increasing aspiration, achievement, accessibility). They could also be given incentives to submit applications in partnership with other universities and/or education institutions, to stimulate collaboration and diminish the potential negative effects of a marketing orientation. Finally, sufficient consideration and funding needs to be built into the design of programs that allow for their appropriate evaluation, ideally undertaken by individuals and organisations external to a program's operation.

3.2 Introduction

This section presents the analysis of survey data on the nature and extent of programs,[7] interventions, and outreach activities targeting pre–Year 11 students, and operated by Australian higher education (Table A) providers. All Australian public universities were invited to participate, initially through their Pro/Deputy Vice-Chancellors (Academic) and later through their equity practitioners. The online survey was open to receive responses for a period of approximately two months in late 2008. After the online survey closed, additional invitations were made directly to equity practitioners by way of reminder to institutions that had not yet responded. Subsequent survey responses from some institutions were submitted directly to the National Centre for Student Equity in Higher Education in MS Word format for processing. A copy of the survey can be found in Appendix C. Appendix D provides a list of universities that responded and their reported programs.

Fifty-nine completed surveys were returned from 26 universities (70 per cent of all Table A higher education providers). Responses were received from all states and territories except for Tasmania and the Northern Territory. Several institutions provided multiple responses in an effort to reflect the number of equity programs they operate. Other institutions provided aggregate responses that combined several programs into one survey response. In part, this reflects the different ways in which outreach activities are perceived within institutions, whether as a number of programs that originate from disparate parts of the university and are potentially unrelated, or as a coherent collection of activities that share a common purpose and a coordinated approach.

Analysis of the survey data is divided into three sections: *Part A: Institutional issues* (items 1–9) that reflect the internal concerns and workings of universities (for example, funding levels, program duration, location); *Part B: Programmatic issues* (items 10–15) that reflect the internal concerns and workings of the programs themselves (for example, main target groups, program aims, initiatives); and *Part C: Qualitative data* (various items) that reflects the additional and alternative qualitative comments provided by some respondents. The quantitative data is represented in graphs, charts and tables, which are accompanied by a brief discussion and analysis of their most salient features. In some instances, data from several survey questions has been combined in order to generate greater insight into the nature and extent of universities' outreach activities targeting pre–Year 11 students. The qualitative data is presented in a narrative format. A discussion follows the presentation of the data, which reads the results of this survey through the set of characteristics for intervention programs identified in the literature review (Section 2).

There are a few limitations to the survey that are worth drawing attention to at the outset. These tend to be highlighted throughout where they are most relevant although there are two general limitations worth noting here, both of which speak to the completeness of the data.

While 70 per cent is a high survey return rate, it is not possible to claim that the data represents all possible responses. For example, not returning a survey does not necessarily mean that the university does not conduct outreach programs of the kind canvassed in the survey. Similarly, respondents did not all respond to each survey question, but such non-response cannot be interpreted as a university having

[7] Throughout, 'program' is used to mean an overall approach by an institution whereas 'interventions' refer to strategies within a program. 'Outreach activities' is a more general term but is commonly used to mean 'interventions'.

no relevant or legitimate response to a particular question. However, a 70 per cent overall return rate does provide a healthy representative sample from which we are able to make some generalisations about programs operating in the sector.

The second general limitation concerns the ways in which respondents may have interpreted the terms 'interventions', 'outreach activities' and/or 'programs'. A common understanding of these terms may have generated a larger or smaller number of responses. However, the more general point is that the interpretation of survey questions plays a role in the ways in which responses are elicited. Surveys do not easily allow respondents to develop a shared meaning for terms, either with researchers or with each other.

Having noted these limitations, it is nonetheless possible from this survey to discern patterns and trends that are indicative of current practice. The survey shows what the university sector is doing in relation to early interventions. In terms of the project's research priorities, the following can be noted:

- *Early interventions*
  Most of the interventions reported were aimed at Year 10 students, with only a few targeting students in the primary or junior primary years.
- *Low SES and other target groups*
  Students from low SES backgrounds represent the most significant target group, followed by Indigenous students and then students from rural and remote locations. A second group of interventions targeted students with disabilities, those with specific regional issues, and recent immigrants. A third, less prominent, grouping included men and women in non-traditional roles.
- *Nature of the interventions*
  The interventions generally received funding of between $10 001 and $50 000 per year, with most being funded for more than five years. Analysis of the qualitative data suggests that such funding may not be sufficient to undertake relevant programs and that there is a degree of uncertainty regarding funding sources. Early interventions mostly aimed to build aspirations for going to university; programs that familiarise students with university were also frequently reported. Notably, financial assistance was the least common intervention aim. Many of the interventions were one-off events that aimed to provide target students with a taste of university, although extended programs of on-campus visits by school students were also reported.

  Most respondents reported that their programs are evaluated, with perception-based criteria informing the majority of these evaluations. University equity units drive a large proportion of the early interventions. Nearly 40 per cent of the programs in this survey were reported to be based in equity units, almost twice as many as the next most frequent which were programs based in faculties, schools or departments.
- *Schools*
  The largest group (39 per cent) of programs included in this survey involves more than 20 schools, while 27 per cent involve 6 to 10 schools. Similarly, 31 per cent of programs include between 201 and 500 students each year.

3.3 Part A: Institutional issues

This section of the report begins by identifying the universities that responded to the survey and noting their outreach activity by state. It then identifies the program initiators within universities, and the institutional units that currently have responsibility for those programs. Information is also provided on when the programs commenced, whether they are still operating and the programs' expected end dates. A further dataset provides information on annual budgets, funding sources and the anticipated years of funding available. As a bridge to what follows, the section ends with analysis of the students and schools targeted by these institutions' early intervention strategies. The data is organised under questions derived from the survey.

1. Which universities operate outreach activities that target pre–Year 11 students?

Twenty-six Australian universities submitted responses to the survey and reported on 59 'programs' targeting pre–Year 11 students, as depicted in Figure 6 below. As for the institutions that did not respond to the survey, it is not known whether this was because they do not operate the kinds of outreach activities surveyed or whether they chose not to respond for other reasons. Half (13) of the institutions that completed the survey reported on only one program while two (both in South Australia) reported operating six relevant programs each. No response was received from Tasmania or the Northern Territory—each of which has a single university.

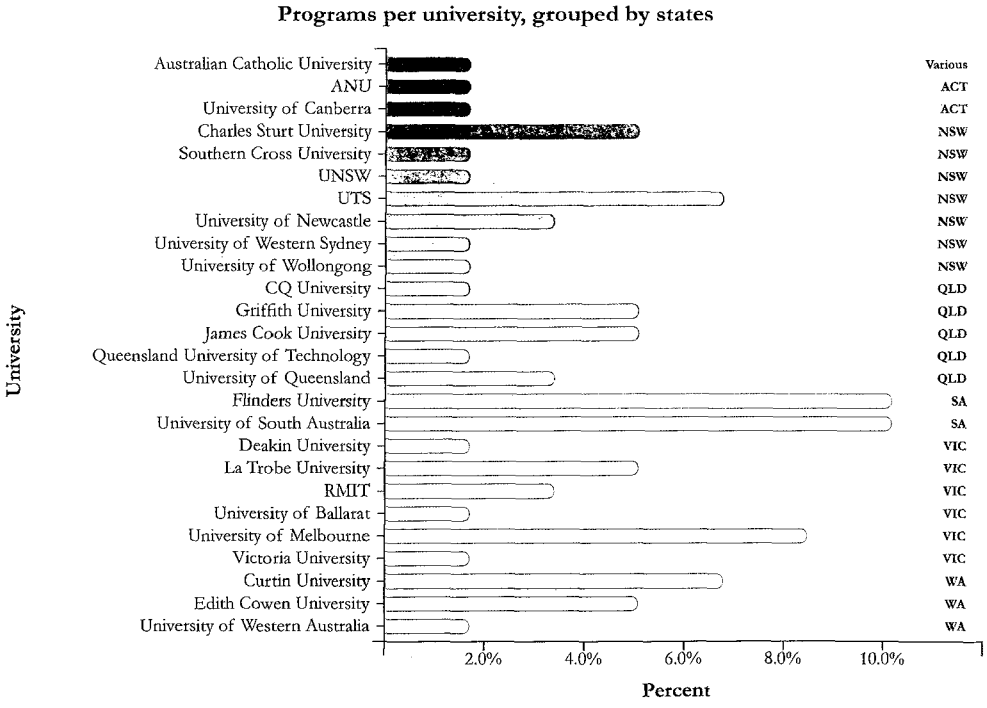


Figure 6: Programs per university, grouped by states

2. In which state or territory do the programs operate?

Twenty-two per cent of all reported programs operate in Victoria and almost half operate in New South Wales and Victoria (more than half if the Australian Capital Territory is included), which reflects the size of their populations relative to Australia as a whole (see Figure 7). However, despite the smaller population, South Australian institutions offer 20 per cent of all reported programs (equal to the number reported for New South Wales) and a greater proportion of relevant programs per head of population than all other states and territories. These differences may be due to (i) the particular South Australian demographic that may require more of these programs (for example, 40 per cent of the South Australian population is considered of low socioeconomic status), (ii) greater appreciation for the issues and how they can be addressed, (iii) better relations with schools and the school sector, or (iv) more access to or mobilisation of resources. Alternatively, these differences may indicate some under-reporting of interventions by some universities in other states.

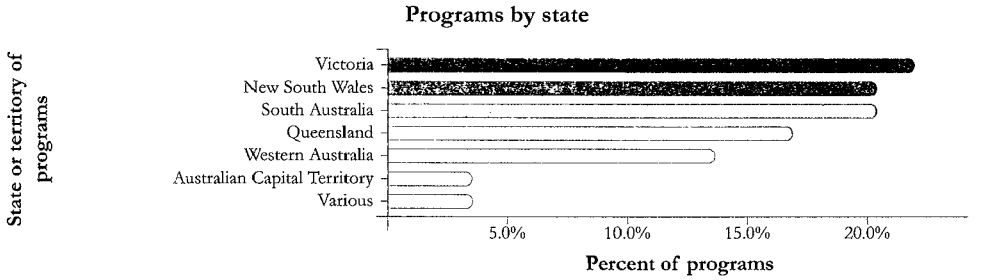


Figure 7: Programs by state

3. Which part of the university is responsible for these programs?

As shown in Figure 8, many of the reported programs (36 per cent) are identified as being the direct responsibility of equity units (see question 5, Appendix C). These units also play a leading role in partnering with other parts of the university to operate programs. For example, of those institutions that responded 'other' to the question (12 per cent), some indicated collaborative responsibility between the equity unit and an academic organisational unit (i.e. faculty, school, department). In addition, three programs (5 per cent) were identified as being the direct responsibility of the institution's Indigenous unit. In short, approximately half of all reported programs are operated by equity-related units or with significant equity unit involvement. Academic organisational units are also significant drivers of these programs within universities, particularly faculties, schools and departments of education. A much smaller proportion of all programs are said to be 'university wide' (10 per cent) or embedded within the institution's teaching and learning (3 per cent). Marketing units have responsibility for approximately 12 per cent of all programs.

Responses to this question reflect the fact that equity policy in universities is often invested in an equity practitioner model (that is, equity policy is developed and implemented by the equity unit). This model is often criticised within the sector for being separated from the university's senior management and academic communities and hence undermining the structural, cultural and pedagogical reforms required for long-term improvements in equity in higher education. However, there are significant interventions reported

that are conducted by other parts of universities (other than equity units). For instance, programs such as the Deadly Maths Consortium (Queensland University of Technology), Siemens Science Experience (University of Queensland), and the Cineliteracy Summer School (University of Technology Sydney) provide models of interventions driven by academic concerns related to equity.

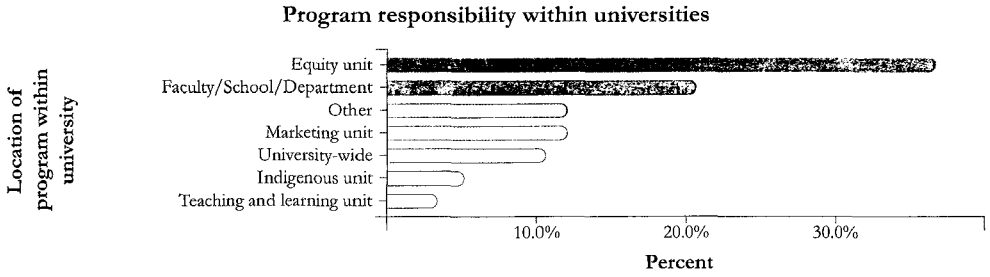


Figure 8: Program responsibility within universities

Further research into early interventions might attend to the possibility of different understandings of equity being held by different parts of the university. For instance, marketing units operate from a logic of '*this* university is the place for you' versus a more general 'university is the place for you'. The success or otherwise of different logics of improving university participation of equity groups is unclear. And the ways in which these different logics work on the internal reforms of universities also require further attention.

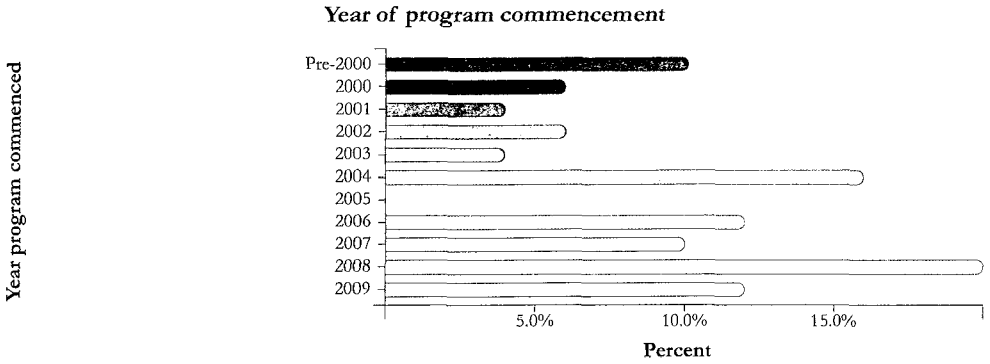


Figure 9: Year of program commencement

4. When did the program commence? Is it still operating? How long is it expected to operate?

Seventy percent of all programs targeting pre–Year 11 students reported in the survey commenced after 2003. Twenty per cent commenced in 2008 and 12 percent had an anticipated commencement date in 2009 (Figure 9). The survey does not offer a clear explanation for this surge in interest in early intervention programs since 2004 (with 2005 being a notable exception). It should not necessarily be taken to mean that universities have only more recently introduced programs targeting pre–Year 11 students. For example, five (9 per cent) of the 59 programs reported commenced prior to 2000: two in 1990, one in 1995 and two others in unspecified years prior to 2000. And programs introduced from 2000 may not be the first such

programs in their institutions. Nevertheless, given more recent government policy intentions favouring earlier interventions in schooling, it is distinctly possible that universities have only recently instituted programs targeting pre–Year 11 students. In this context, the reporting of programs to commence in 2009 is perhaps indicative of the recommendations of the Bradley review, concerning the need for earlier and more sophisticated outreach activities, which were anticipated at the time of the survey.

Is the program still operating?	Frequency	Percent
Yes	49	83.1
No	5	8.5
No response	5	8.5
Total	*59*	*100.0*

Expected program length?*	Frequency	Percent
Less than a year	1	2.0
1–2 years	6	12.2
3–5 years	7	14.3
>5 years	35	71.4
Total	*49*	*100.0*

**Of those who indicated that the program is still running*

Figure 9.1: Current programs and their duration

Programs reported as not being in operation at the time of the survey (i.e. discontinued prior to 2008) constituted only a small proportion (8.5 per cent) of all programs, although an equally small percentage (8.5 per cent) of institutions chose not to respond to this question, perhaps because the programs were due to commence in 2009 (see Figure 9.1 above). Nevertheless, the vast majority (83 per cent) of programs reported by institutions were in operation at the time of the survey. Of these, most (71 per cent) were expected to have an operational life longer than five years whereas very few programs (2 per cent) were reported as operating for less than a year. A quarter of all programs (27 per cent) were reported as operating between one and five years.

5. Who initiated the program?

Figure 10 (page over) shows the proportions of programs initiated by various categories of organisations. The majority (65 per cent) of responses reported for this question indicated that programs were university initiated.[8] Other program initiatives came from schools (10 per cent of reported initiators), state and federal government departments of education (8 per cent), other government departments (5 per cent), community organisations (4 per cent) and philanthropic organisations (1 per cent). Given that only universities were invited to participate in the survey, it is reasonable to assume that these results do not represent the complete story. That is, interventions initiated by schools (and other groups) are most likely under-represented in this dataset.

[8] Respondents could select up to 8 different program initiators for this question (see question 8, Appendix A). Therefore the percentages reported here are of all initiators of programs indicated in the survey.

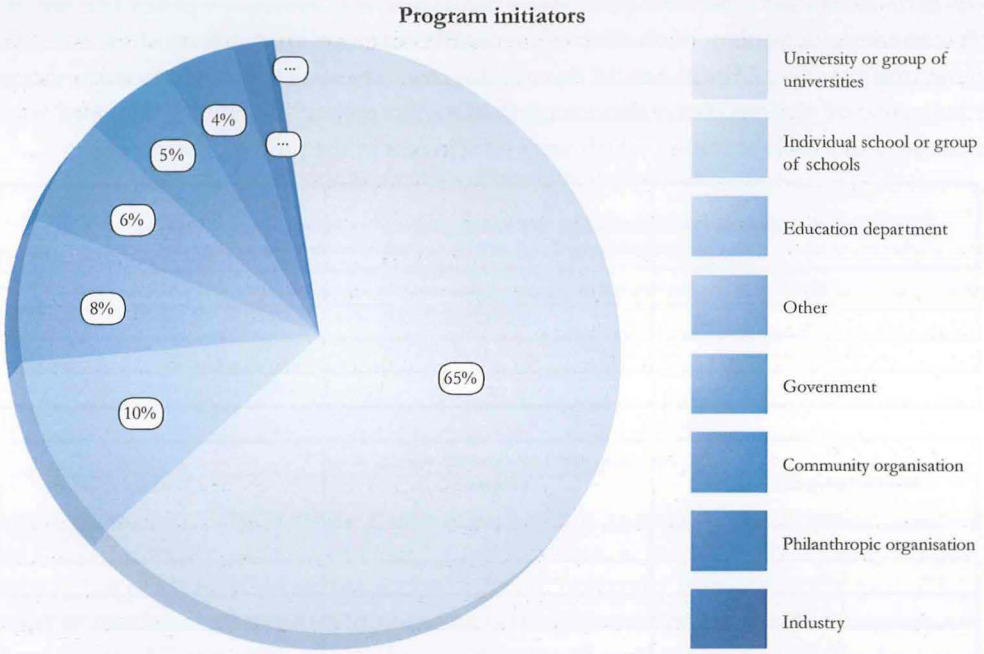


Figure 10: Program initiators

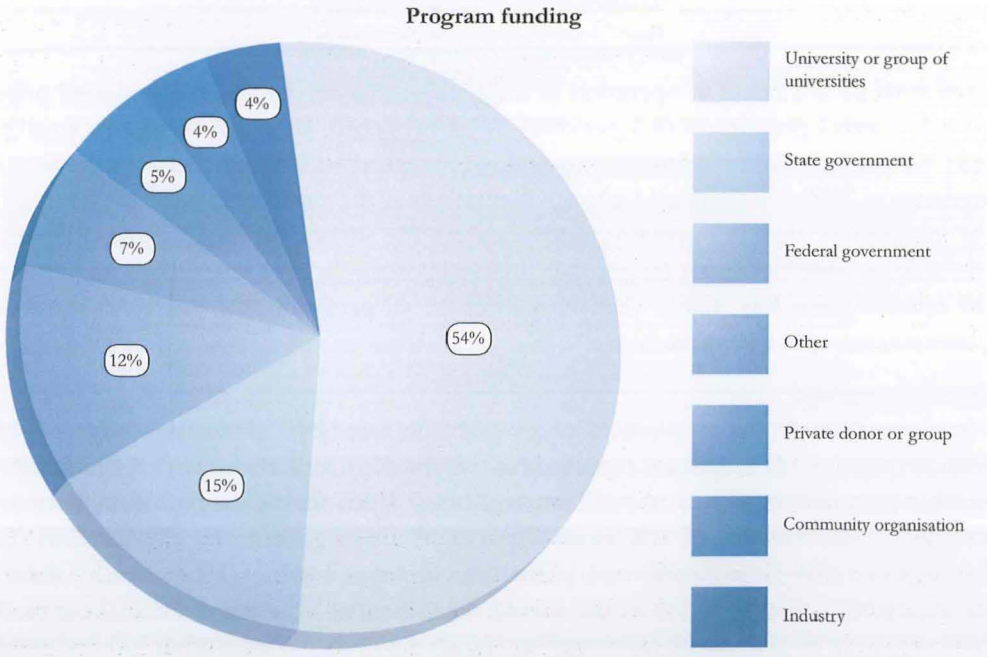


Figure 11: Program funding

6. Who funds the program?

As well as being the primary initiators of programs, universities are the primary sources (54 per cent of reported funding bodies) of their funding although state government (12 per cent) and federal government (15 per cent) combined provide about a quarter of all program funding (Figure 11, left).[9] However, the interpretation of this data is difficult because it is not clear how participants interpreted 'university' funding as opposed to 'government' funding. For example, given the increase in funding for universities from non-government sources (such as community organisations, private donors and industry, which now account for 60 per cent of university funds) in the last decade, it is possible that universities are directing their non-government funds to equity programs of their own design. On the other hand, those programs identified as being funded by the federal government or state governments may in fact be equity programs designed by government. In short, the issue of funding sources of equity programs operated by universities requires more detailed research.

7. Who within the university provides the funding?

Within universities, equity units are reported as the largest source of funding for these programs (Figure 12).[10] This finding matches the data discussed above—that is, that equity units hold more responsibility for programs than does any other organisational unit within universities. Faculties, departments and schools (particularly schools of Education) and marketing units are also well represented in terms of funding programs, again matching the findings on program responsibility (see Item 3 above). Indigenous units account for the funding of only one of the programs reported. Other sources that, together, provide a significant amount of funding (around 20 per cent) for programs include: admissions, prospective students and registrar offices, careers and employment liaison centres, academic and student support services, the student union, and disability support services. Some respondents also mentioned the provision of in-kind support from university staff.

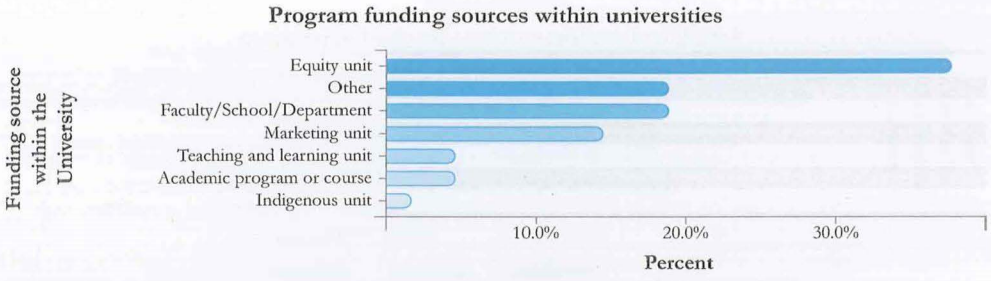


Figure 12: Program funding sources within universities

8. For how many years is funding available? What is the program's total annual budget?

Twenty-two percent of respondents did not indicate how many years of funding were available to their programs and 12 per cent did not indicate the level of funding available to the program each year (Figure 13). This may be because of a lack of information available to respondents as much as respondents not wishing to divulge information about the programs' financial details. Those who did respond reported that 22 per cent of programs have funding available for one year, 39 per cent have funding for two to five years,

[9] This question allowed respondents to select up to 7 sources of funding, and the results here are a percentage of all funding bodies reported (see question 9, Appendix A).

[10] Again, respondents had the option of identifying multiple funding sources within their university (up to 6; see question 10, Appendix A).

and 39 per cent have available funding for more than five years. Just over half (56 per cent) of all programs on which respondents reported receive funding in the range of $10 001 to $100 000 per year. Comparing this data with that in Figure 9.1 above, the survey suggests that, while there may be a certain expectation of a program's duration, this is not always accompanied by an equivalent period of secured funding. This seems particularly the case with programs of more than five years' duration. In addition to this quantitative data, 17 qualitative responses were provided in relation to insufficient and/or insecure program funding. Discussion of these comments can be found in Part C below.

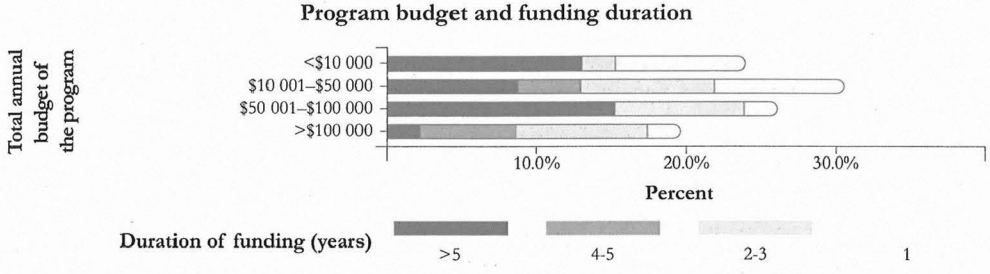


Figure 13: Program budget and funding duration

9. Where are the programs made available? How many schools are involved? How many students are involved in the programs each year?

The survey data indicates that 34 per cent of programs are offered statewide, 21 per cent are available within a particular region, 35 per cent are available within a particular group of schools, and 5 per cent are available within a single school. 'Other' forms of program availability account for a further 5 per cent and include a combination of regional and metropolitan areas, and internet-based materials (see question 7, Appendix C).

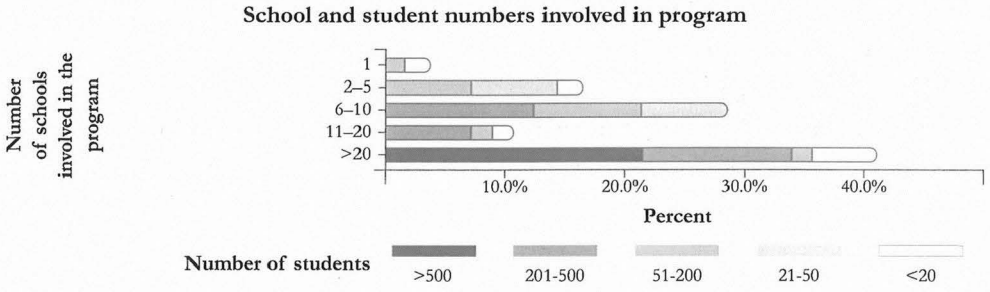


Figure 14: School and student numbers involved in program

The largest single group of programs involves large numbers of schools (>20). These programs also tend to involve large numbers of students (>500). This suggests that they include most students in one or more school year levels. However, the majority of programs (55 per cent) involve between 2 and 20 schools (in regions and school clusters). This represents a more targeted approach, even though large numbers of students (between 201 and 500) may be involved (particularly in programs involving 6 to 20 schools).

Few programs target small numbers of students (<20). Interestingly, the largest number of programs involving small student groups (<20) span large school numbers (>20). These tend to be programs in which small numbers of students from each school receive a scholarship (see Figure 14, left).

3.4 Part B: Programmatic issues

Analysis of the numbers of students and schools involved in university outreach activities and the availability of these activities (above) is closely related to this second section of the report, which is presented in two parts. The first part identifies program aims, including which 'equity groups' the programs target and which level of schooling. The second part focuses on program evaluation, including what (if any) method of evaluation is employed, who conducted the evaluation and what outcomes were achieved. As in the first section, the data is organised under questions derived from the survey.

10. What are the aims of the program?

As Figure 15 (below) indicates, raising students' aspirations for university study tends to dominate program aims. It was the most (19 per cent) reported aim by programs and it was also implied in those that seek to familiarise students with university (17 per cent).[11] Although they tend to be aimed more at accessibility, even information programs—which seek to provide guidance on career planning (13 per cent), promote interest in specific fields of study (10 per cent), and provide information on application processes, finances and accommodation (12 per cent)—have an aspiration-building quality about them. In other words, approximately 70 per cent of programs focus in one way or another on building aspirations in students to attend university later in their lives. If the accessibility elements of this are separated out, 36 per cent of programs are focused on building aspirations while 38 per cent are aimed at providing students with access to university (including 3 per cent aiming to assist with students' financial circumstances).

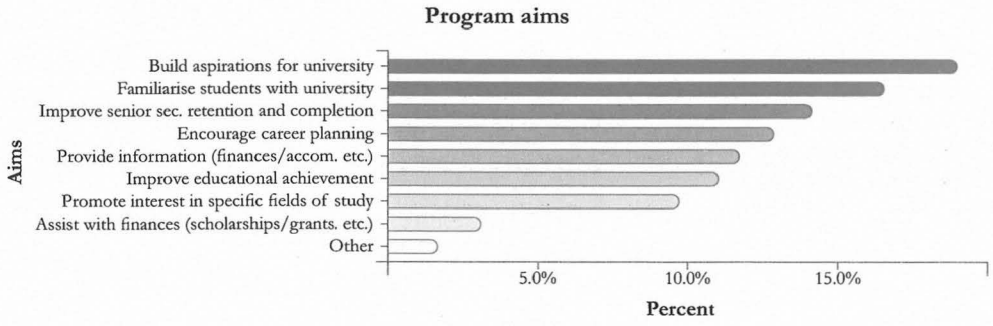


Figure 15: Program aims

The other significant cluster (25 per cent) of program aims is focused on improving students' educational achievement (11 per cent) and contributing to senior-secondary school retention and completion (14 per cent), assuming that retention and completion are predicated on improving achievement prior to Year 11. Similarly, the data did not provide a clear view on the perceived relationship between achievement and aspiration (and accessibility), whether achievement followed aspiration or whether aspiration followed achievement.

[11] This question allowed respondents to select up to 9 program aims. The data presented here are a proportion of the total aims reported (see question 24, Appendix A).

Few seem to make the connection at all. However, there were some implied moves in this direction. The Victoria University Access and Auccess program provides a model with features that have potential to make a significant contribution. Importantly, this program involves collaborations with schools (for example, Metacognition Mentors at Box Forest Secondary College) and develops interventions through action research projects. Other examples include Siemens Science Experience at the University of Queensland and Maths+Science+Girls = Choices Summer School at the University of New South Wales.

11. What equity groups does the program target and at what level of schooling?

As Figure 16 indicates, the most significant target group reported is composed of students from low SES backgrounds, followed by Indigenous students and then students from rural and remote locations.[12] There is a distinct break between these three groups—which are particularly emphasised in the recent Bradley review of Australian higher education—and other targeted groups. There were also significant numbers of interventions that targeted students with disabilities, with specific regional issues, recent immigrants, and men and women in non-traditional roles (such as women in engineering and men in junior primary teaching).

The data also indicates that universities' early intervention programs mostly target Year 10 students, and then students at the middle or junior secondary school level. There are few programs that target students in primary school and even fewer targeting the junior primary years. For those young people who live in families with no experience of university, having access to earlier experiences of university life might be more significant than waiting until secondary school or, specifically, Year 10.

Other student groups targeted by university outreach activities but not specified in Figure 16 include: students from non–English–speaking backgrounds, young people under the guardianship of the Minister, and Year 10 students of Pacific Islander descent. Other year levels targeted by university outreach activities but not specified in Figure 16 include: adult re-entries in the TAFE sector, mature-age students who left school early, students in Years 11 and 12, young children aged 0–5, and parents or carers of young children.

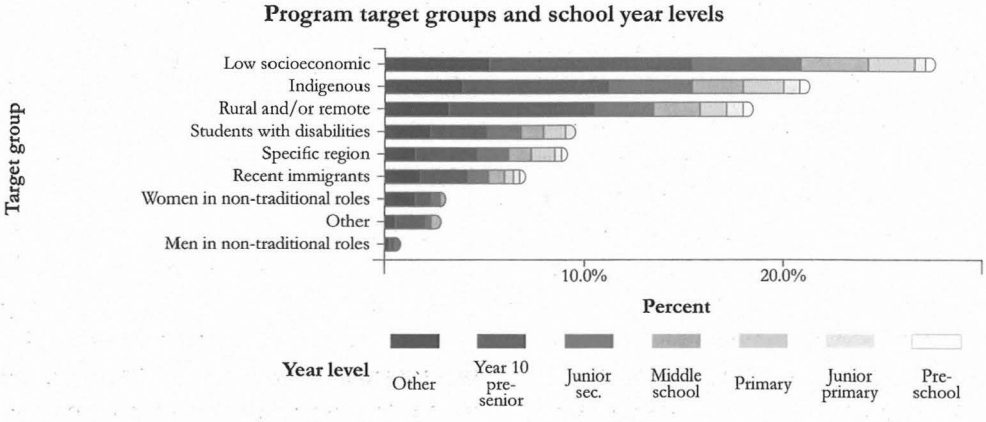


Figure 16: Program target groups and school levels

[12] For this question, respondents were able to select up to 9 target groups. The numbers here are a proportion of all target groups reported (see question 8, Appendix A).

Figure 16.1 below compares program aims (Item 10) with the level of schooling targeted (Item 11). It shows not only that the largest target group of pre–Year 11 programs consists of those aimed at Year 10 but also that, as programs move through the year levels, the number focused on building aspiration for university study and familiarisation with university increases. Furthermore, while there is also an increase in the number of programs focused on student achievement, this increase occurs at a lower rate than the increase in programs addressing aspiration and familiarisation. A related observation is that accessibility has a greater relative importance compared with aspiration and achievement in programs that target the earlier levels of schooling. This would seem counter-intuitive given these students' distance (in years) from being able to access university and the greater accessibility of schooling at these lower levels.

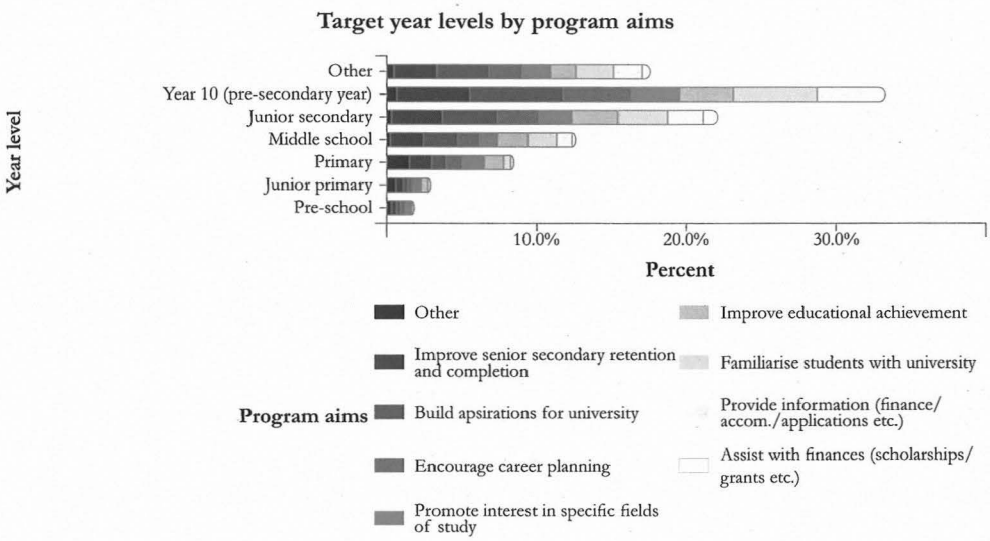


Figure 16.1: Program target groups and school levels

Comparing Figures 16 and 16.1, it is apparent that low SES students constitute the largest target group for Year 10 programs (and also the largest cohort of students targeted across all school levels) and that the most prevalent aim in these programs is to build these students' aspiration for, and familiarisation with, university.

12. What is the nature of the intervention initiative?

In indicating the nature of their programs, respondents were able to nominate more than one type of intervention strategy used. Figure 17 indicates that the most common program type involves visits to schools by either university staff or university students. Some of these interventions involve tutoring and mentoring school students and working with parents. Other interventions are engaged in projects at school/community levels. Interventions that entailed visits to the university by students are also very common, especially the single visit to a university campus for a brief introduction. More extensive programs were also reported; these included short courses, holiday programs and various forms of mentoring. A few programs involved scholarships and grants. 'Other' responses (just over 4 per cent) included resources for teachers and students (often available online), camping programs, and the involvement of students in viewing drama presentations.

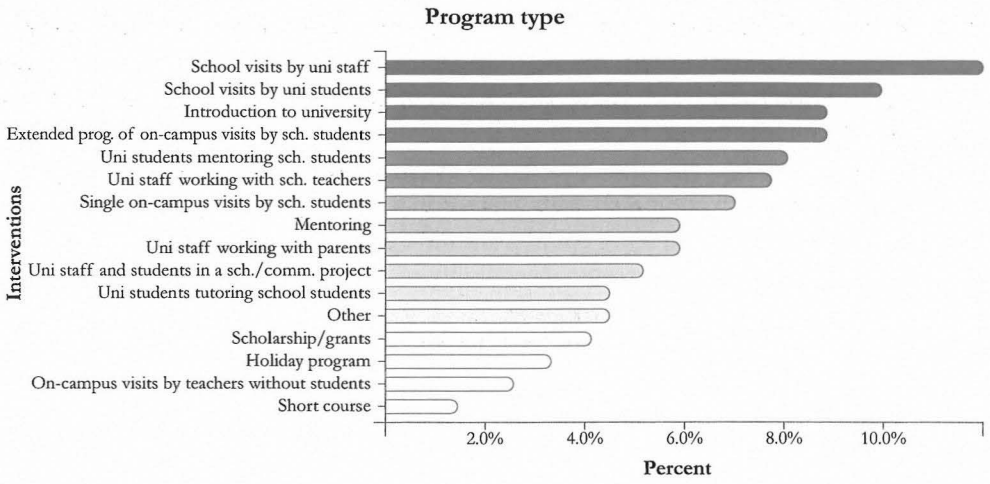


Figure 17: Program type

13. How was the program evaluated?

Some (3 per cent) respondents did not indicate whether their program had been evaluated. Others (14 per cent) reported that their outreach activities targeting pre-Year 11 had not been evaluated. Of the total number of programs reported in the survey, most (83 per cent) included some form of evaluation. Of those that were evaluated, 71 per cent of the evaluations relied on the perceptions of various participants while only 8 per cent evaluated program success in terms of program aims (see Figure 18).[13] Where program evaluations had occurred, the survey provided respondents with an opportunity to indicate whether and where evaluation reports could be accessed. Follow-up on these revealed that very few programs have publicly available evaluation reports and that most reports are scant in content and narrow in scope. One example of good program evaluation is of Victoria University's Access and Success program, which includes a series of published papers (*www.vu.edu.au/About_VU/Making_VU/Access_and_Success/Research/index.aspx*).

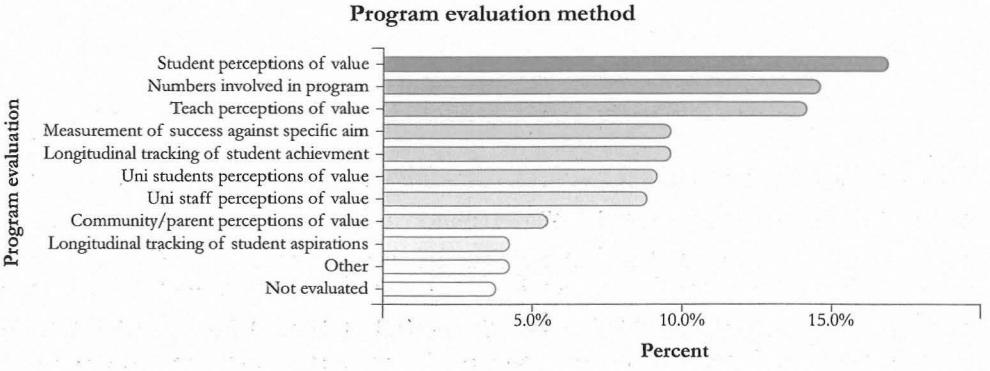


Figure 18: Program evaluation method

[13] Respondents were able to select up to 11 different criteria for used for the evaluation of each program (see question 27, Appendix A).

14. Who evaluated the program?

Of those programs evaluated, most evaluations[14] (58 per cent) were undertaken by university staff. A further group (33 per cent) was evaluated by program partners (22 per cent of evaluations by participating schools) from outside the university. Only 9 per cent of program evaluations were conducted by an external evaluator (i.e. other than program partners). Typically (in 71 per cent of cases), the method employed in these external evaluations involved measuring success in terms of program aims (Figure 19). These shortcomings in independence and design call into question the validity and reliability of most program evaluations.

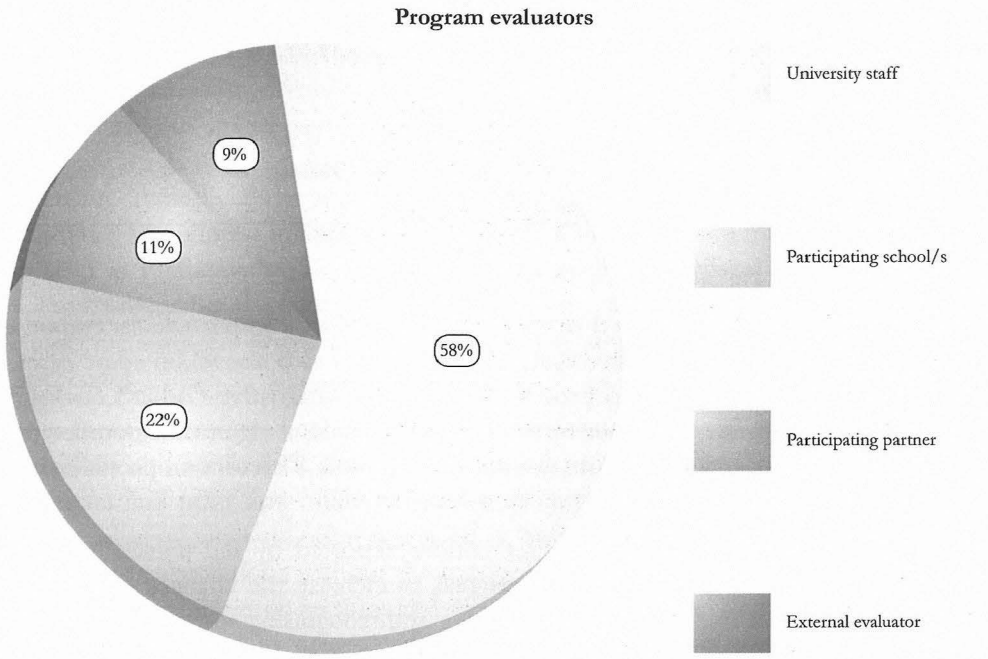


Figure 19: Program evaluators

15. What program outcomes have been identified?

Even though respondents reported a range of program outcomes (selected from a list), it is difficult to place too much confidence in these results given the methods universities used to determine them and the scant program evaluation reports available. The most significant outcome reported[15] (approximately 16 per cent) was changed aspirations towards higher education, which could indicate that more students aspired to university than before but could equally indicate that fewer aspired, since the question simply asked for an indication of a change in aspirations. However, considering that an increased demand for the intervention itself was reported (just under 16 per cent of identified outcomes), it can be assumed that students did enjoy the programs and that this encouraged more students to aspire to university after engaging in the program. An increased understanding of the university and its procedures was a frequently cited outcome and would be likely to have a similar effect on student aspirations. Some respondents

[14] Respondents were able to indicate up to four types of evaluation for each program (see question 29, Appendix A).

[15] Again, respondents were able to select up to 12 identified outcomes (see question 28, Appendix A).

(approximately 8 per cent of stated outcomes) also indicated improved student retention and achievement but, again, these claims are mostly unsubstantiated (see Figure 20, below).

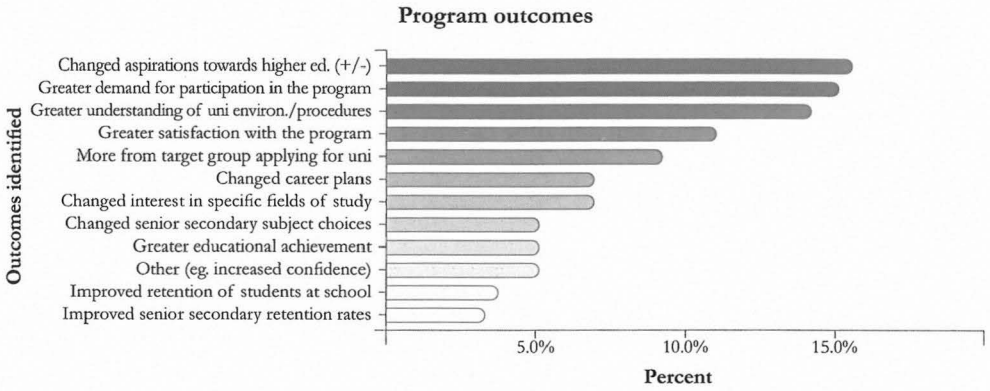


Figure 20: Program outcomes

3.5 Part C: Qualitative data

As well as inviting respondents to indicate their agreement or otherwise with particular responses supplied on the survey (presented in the quantitative analyses of parts A and B above), in some cases the survey also gave respondents the opportunity to provide additional or alternative ('other') qualitative answers (see Appendix C). Although not all respondents chose to do this, a significant number did, with the number of qualitative responses varying from question to question. This section provides a summary of the qualitative data that was provided.

The titles and program descriptions of the interventions reported by the university sector highlight a range of themes, activities and relationships designed to increase the chances of low SES students attending university. Repeated themes include enhancing and recognising student academic achievement and school completion, building student and parent aspirations and increasing connections between school students, teachers, families and universities. Programs typically include either the facilitation of on-campus university experiences or engagement of students and teachers in a program of school visits, and some programs incorporate both in-school and on-campus elements. Extended programs aim to build long-term relationships with schools in specific socioeconomically disadvantaged regions, both urban and regional, and focus on developing 'productive links between schools and community bodies for optimising student engagement'. Many programs also target specific groups of low SES students/schools, most frequently Indigenous and rural students and those who would be the first in their immediate family to attend university. Less common are programs targeting particular groups such as students with disabilities, girls in science or Indigenous students in mathematics.

Key strategies include mentoring by university staff and students, including those with a similar social background. Often mentors are university students who have attended a school involved in the program or one in the same region and who are known to the school students. Student mentors assist in varied

ways, sometimes offering academic assistance through subject tutoring but more commonly providing information and acting as role models.

> 'By being immersed in the classroom as a co-learner or as peers, the mentors bring their own study skills, knowledge, passion and interest in their subject area to the student mentees.'
>
> 'Mentors are well positioned to act as positive role models and will lead by example.'
>
> 'Mentors help students realise that going to university is within their reach.'
>
> 'Peer mentors act as a role model for the students, inspiring them to raise their aspirations and achieve their potential in science and mathematics.'

Reciprocal visits of various lengths (including special days, inspirational speakers, residential weekends and summer schools) and hands-on discipline-specific 'master' classes, workshops and excursions are aimed at promoting an interest in young people in particular subject/discipline areas and persuading them that attending university is a real option for them, even if they may be the first in their families to continue to higher education. Typically, these activities are 'motivational and inspirational', focused on increasing students' confidence and interest in improving achievement in literacy and numeracy, as well as in various subject areas such as mathematics, science and technology, law and visual and performing arts. Some respondents commented that the success of such programs relies on the significant support of faculty staff. Where there are sufficient resources (including staffing) to support such initiatives, they appear more likely to be successful.

Other strategies focus on improved communication and information about career options, costs of higher education, university and admissions processes, living independently and other relevant aspects, through face-to-face contact and print and online resources. A common element of on-campus and in-school visits was the provision of what are often described as 'taster' activities, designed to introduce students to university culture and expectations without the immersion approach possible in the extended programs described above. These information sessions and one-off workshops and lectures are seen as opportunities to 'demystify tertiary education', to 'provide information about what is required for university entry', 'learn about university life', 'dispel myths about courses and who goes to university' and 'experience the physical setting of a university campus'. Such visits are often planned as an additional activity within more extended programs, although some respondents commented on the expense of travel for large groups of students who come from more distant locations. There were also persistent difficulties for schools needing to free school staff to accompany students on excursions and cover their absence in school. In these instances, school visits were viewed as a way of spreading the benefits more widely among students, rather than limiting involvement to those who already expressed some interest in post-school education.

Respondents who provided qualitative answers indicated a very strong commitment to the importance of this work, excitement about the response, and frustration about how difficult these programs are to sustain, which is discussed further below. While many programs focused on Year 10 or above, many qualitative responses expressed the desire to begin to target primary school students, and a number of pilot studies including this age range were reported.

Respondents who provided qualitative responses indicated that key barriers to the successful and sustainable implementation of their interventions are a lack of funding and constraints on staff time and resources more generally. Related issues were a lack of continuity of responsible and suitably qualified staff, time constraints for undergraduate mentors, and difficulties sustaining communication with schools and fitting activities in with their 'timetabling constraints'. While some qualitative responses suggested it was difficult to generate interest among teachers, students and parents, others indicated that programs were so popular in schools that it was difficult to meet demand. The in-depth case studies presented in the next section of this report will inform a better understanding of intervention strategies most likely to meet the needs of schools and their communities.

A lack of adequate funding was reported in a majority of qualitative responses, described variously as 'insufficient funding', 'limited budget', 'lack of funds' and 'never enough funding'. However, more important, and with significant implications for the sustainability of programs, is the insecurity of ongoing funding. Qualitative responses argued that funding on a year-by-year basis limited opportunities to engage in the 'sustained effort' and 'long-term support' that was needed if programs were to successfully 'address issues of social capital'.

> 'Ongoing funding is always a barrier.'
>
> 'Relying on funding year to year has meant that long-term planning is limited. Due to staffing (funding) restrictions, the number of schools that are able to access the program is restricted.'
>
> 'Funding does not stretch to supporting rural schools to attend events or to be able to send many current students out to rural schools.'
>
> 'Having access to sustainable funding' [is a problem].
>
> 'There is a lack of sustainable funding.'

The majority of programs in relation to which respondents provided qualitative responses are subject to year-by-year funding constraints that curtail the breadth and depth of program delivery because there are insufficient *committed* funds to plan for an increase in the number of students and schools involved, to address travel requirements and so on. The main concern was that programs were frequently short lived as funds were taken from annual budgets rather than from ongoing infrastructure allocations where the lifespan of the project was guaranteed beyond the current year. Their ongoing status was fragile. This meant that it was difficult to recruit and retain the right staff and that programs needed to be developed and delivered within short time frames—very difficult to do in schools and in universities where timetables and workloads may be struck the previous academic year and then be difficult to change. As discussed below, this was also a prominent reason for the difficulty of adequately evaluating programs and undertaking longitudinal research.

The qualitative responses raise a number of crucial issues about the sustainability and evaluation of interventions. Ironically many programs with excellent feedback from stakeholders had no formal evaluation data, as this had not been built into the costing of the program. Many excellent programs tended to rely on people volunteering extra time to ensure their success, including program developers

in universities, academics, university student mentors, schoolteachers and so on. In addition, the effects of such interventions may not be fully realised for some years, given that their goals are to increase the participation and success of low SES students at university. Generally, respondents were very much aware of the need to evaluate their interventions and were planning 'more robust' ways of doing so effectively. There was also some understanding of the difference between evaluation of the actual program on the basis of participant feedback and the longitudinal research needed to further identify outcomes in terms of student achievement, retention and transition to higher education.

> 'From 2008, the Equity and Diversity Unit will conduct longitudinal tracking of student achievement.'
>
> 'We had always hoped to evaluate the program via a longitudinal study but the person who planned to left. We do not have any funding to evaluate it.'
>
> 'Longitudinal tracking of students is a component of the new program but has not occurred in the past.'
>
> 'Evaluation depends on the event/program. Some have extensive research and others will not be formally evaluated but reviewed within the context of staff and student feedback and achievement.'
>
> 'Longitudinal [success] is difficult to track.'
>
> 'Much of this relies on long-term feedback from students who take up studies.'
>
> 'Any future pilot program will have more specific evaluation components over a set period.'

Some very promising pilot programs remained uncertain of the continuation of their funding even to the stage where the intervention could be scaled up appropriately and made available to a wider range of students (in terms of age and location) or to cohort groups. Programs clearly need more than one phase of implementation to ascertain their effectiveness, and more secure programs require longitudinal data analysis of their effects.

In summary, qualitative responses not only pointed out that the costs of delivering the program were frequently under-resourced but also that the lack of continuity of funding made the design and delivery of programs more and more difficult to staff, evaluate and refine accordingly. Clearly, this issue relates to who is responsible for such programs. It may be that the higher education and school sectors need to explore various models of shared infrastructure funding and associated funded positions.

3.6 Part D: Discussion

Interpretation of the data

Certain patterns, trends and issues are evident in the quantitative and qualitative data, specifically:

- *The prevalence of interventions aimed at Year 10 students*
  Given that the aim of most of the interventions was to build aspirations to attend university, targeting Year 10 students may be too late to achieve this. Similarly, a few interventions aimed at improving achievement and, again, targeting Year 10 students, may also be too late.

As indicated in the project's literature review, by Year 10 the schooling system has already sorted students into particular pathways. In particular, there is a high correlation between low socioeconomic status and lower school achievement, and this correlation increases the higher the level of schooling. Low SES students are also frequently directed into vocational and training pathways. In such circumstances, programs aimed at raising students' aspirations for university may already have missed students streamed away from an academic pathway or may not match their ability to meet the university entry requirements. Hence, aspirations raised at Year 10 by outreach programs may not be able to be realised. Similarly, improving students' achievement in Year 10 is a much more difficult task to achieve than working at earlier year levels when the gap in achievement between low and high SES students is less.

If the university sector is to take seriously the need to build aspirations and improve achievement as key aims for equity interventions in the school sector, then there is a need to reconsider the year levels for these interventions and put more emphasis on working in the early childhood and primary years. The review of the literature emphasised the need to target aspirations and achievement early in a student's education and to sustain this commitment to students over extended periods of time. Heckman & Rubinstein (2001), for example, notes that the best 'pay offs' for investment in education are those in which academic and aspirational support for students begins as early as possible and is continued for as long as possible.[16]

- *Targeting of equity groups*
  Within these programs, there appears to be some underlying confusion about the nature of the problem to be addressed. For example, does the question of equity involve fixing up deficits, ameliorating misunderstandings or engaging with disenfranchised communities? For equity policy to deliver, thoughtful diagnosis of the perceived problem is required. At the same time, researchers need to acknowledge that deficit views of traditional equity groups do not seem to have contributed to improved participation rates for these groups.

- *Early interventions aim to build aspirations for going to university*
  The literature review identifies four types of interventions for improving university attendance by students from equity groups: building aspirations, improving achievement, improving access and ensuring availability of courses. This survey revealed that the largest group of university interventions aims to build aspirations. Some interventions claimed to be about improving achievement but this aim seemed inconsistent with the actual nature of the intervention.

- *Extent and duration of interventions*
  Figure 17 above illustrates that several of the interventions reported in the survey are one-off events that aim to provide target students with a taste of university. As noted above and in the literature review, interventions are more effective if they are ongoing and sustained as they work to shape school students' aspirations towards higher education. It was evident from the extended qualitative responses of participants in the survey that they recognised the need for sustained and long-term support but that the uncertainty surrounding the levels of recurrent funding often prevented them

[16] Heckman, J. J., & Rubinstein, Y. (2001). The Importance of Noncognitive Skills: Lessons from the GED Testing Program. American Economic Review, 91(2), 145-149.

acting on this knowledge in a systematic way. In light of this, there is a greater need for programs that target younger students and maintain contact with them throughout their primary and secondary education.

- *Funding and evaluation*
  From the survey it was difficult to determine the effectiveness of the interventions reported. Follow-up did reveal that these interventions are generally poorly evaluated, which seemed to be consistent with the interventions being underfunded and possibly developed in an ad hoc manner. The need for well-conceived, comprehensive and adequately funded evaluation that assesses the effectiveness of interventions is thus a point for further discussion.

- *The dominance of equity units as drivers of early interventions*
  Responses to the survey reflect the view that equity policy in universities is often invested in an equity practitioner model (that is, equity policy is developed and implemented by the equity unit). This model is often criticised for being separated from the university's senior management and academic communities and potentially undermining the structural, cultural and pedagogical reforms required for long-term improvements in equity in higher education.

Analysis of the data

While the above observations are derived from equity practice, it is also possible to consider the survey data in the light of ideal features. The project's literature review (Section 2) concluded with an outline of key characteristics of interventions early in school that are likely to foster later higher education participation, particularly for low SES students. This set of key characteristics provides us with an initial conceptual framework through which to read the survey results. In analysing the survey data, we have also noted a characteristic of early intervention programs that was not identified in the literature review—namely, research-driven projects.

The characteristics include: collaboration across education sectors; establishing and sustaining early and long-term interventions to maximise program effects; 'people-rich' programs that develop ongoing relationships and conversations; programs that target cohorts of students rather than individuals or the student population *en masse*; the use of relevant information and communication technologies; familiarisation activities and site visits; recognition of the contributions different groups can bring to university; quality academic curriculum that seeks to enhance student engagement and achievement; and provision of financial support and incentives. The review noted that these work best in combination within programs rather than as stand-alone activities.

Using this framework, the following observations can be made:

- *Collaboration*
  Large numbers of schools (and students) are involved with universities in the programs reported in the survey (Figure 14), although this in itself does not reveal the extent of these schools' involvement. A better indication of this is the low level of involvement of schools and departments of education in initiating programs (Figure 10) and in their evaluation (Figure 19). However, these too are imperfect proxies for collaboration.

- *Early, long-term and sustained*
  The idea that programs should be long term is reflected in expectations that the majority of the programs surveyed will last for more than five years (Figure 9.1). Similarly, more programs are reported to be funded for five or more years than for periods of less than five years (Figure 13). However, it is important to note that there is a mismatch between expected program duration and anticipated funding, particularly for programs in the 'greater than five years' category, with expected durations exceeding anticipated funding. The data also illustrates that the school year level targeted most frequently is Year 10 or its equivalent, with each pre–Year 10 target group dropping in frequency so that junior primary and preschool levels receive the least attention. So, while many programs may be sustained over time, they are rarely targeting students much earlier than senior secondary school.

- *People-rich*
  Assessments of program quality are not easily made from quantitative data collection techniques such as surveys. Nevertheless, Figure 17 suggests that some programs are engaged in the kind of people-rich activities that create specific opportunities for students to engage with others in extended conversations. For example, several programs report students involved in extended university visits and in community/school projects with university staff or being mentored or tutored by university students. However, the one-off event remains a common outreach activity, with either university staff and/or students visiting schools or teachers and students visiting universities.

- *Cohort-based*
  Like people-rich activities, the important feature of a cohort is its relational aspects. In part, such relations are influenced by a cohort's size: how many schools and/or how many students are involved. Of the programs reported in the survey it is evident that there are many that are large in scale, operating in more than 20 schools (Figure 14) and some of which have an operational 'footprint' that is statewide. However, it is difficult to imagine that programs of this size are able to contribute to changing peer group attitudes towards university participation, even if (and especially when) one individual per school is targeted across many schools. Programs that operate in just one school but target large numbers in the school equally exhibit a counter-cohort orientation. Getting the size right is part of the equation, as some programs demonstrated (targeting clusters of schools and clusters of students). However, more needs to be known about the qualitative aspects of these groupings to be able to make judgments about whether they constitute legitimate cohorts of peers.

- *Communication and information*
  The move towards more contemporary (particularly online) forms of communication and dissemination of information noted in the literature review is reflected in some outreach activities reported by universities (recorded as 'other' in Figure 17). The simplest programs provide information online including university information, notices of events and learning materials for downloading. More interactive web 2.0 technology is also employed by a few outreach programs, which establish social-networking sites, wikis, blogs, etc. Programs use this technology to form online communities such as 'CareerShop', which keeps students up to date with the latest career and university information. More could be done to extend the reach of these forms of communication and information sharing to pre–Year 11 students.

- *Familiarisation/site experiences*
  Programs that aim to familiarise students with university are common among those reported in the survey (Figure 17). As noted above, the better forms are those that involve extended interactions with universities and university staff and students. These are evident in the programs surveyed (as are one-off visits).
- *Recognition of difference*
  It is not clear from the data whether equity groups targeted by early intervention programs are valued for what they potentially bring to higher education (in the form of linguistic diversity, cultural knowledge, etc). What is clear (as shown in Figure 16) is that early intervention programs tend to target students from low socioeconomic backgrounds and that most of these are offered when low SES students are in Year 10. It is also clear (as depicted in Figure 16.1) that a significant number of Year 10 programs aim to build students' aspirations for university. That is, there appears to be an assumption that low SES students lack aspiration. While not indicated in the data, it is not uncommon in the higher education sector for aspiration to be equated with a desire to go to university while those who desire other futures are regarded as lacking aspiration. How aspiration is understood (and how low SES students are valued) in university outreach programs needs to be the subject of further qualitative research.
- *Enhanced academic curriculum*
  The literature suggests that enhanced academic curricula and pedagogy lead to improved student retention and achievement and hence improved access to university. However, improving students' academic achievement is well down the list of most program aims (Figure 15). And, while improved student retention, achievement and completion rates are claimed programs outcomes (Figure 20), there is considerable doubt about the accuracy of these claims.
- *Financial supports and/or incentives*
  Only 4 per cent of the reported early interventions in schooling make scholarships and grants available to pre–Year 11 students (Figure 17).

An emerging theme: research-driven interventions

As well as being able to map the results of the survey against the characteristics we identified in the literature review, we were also able to identify an additional theme emerging from practice that was underemphasised in the literature. Specifically, this involved a research-driven approach to program design and was particularly evident in programs such as Access and Success at Victoria University and Deadly Maths at Queensland University of Technology.

The Access and Success project involves 'working with schools in the west of Melbourne to improve young people's access to, and successful participation in, post-compulsory education and training'. Additionally:

> Access and Success seeks to build on successful practices within VU by growing our existing relationships with schools in the region and undertaking research that investigates the effectiveness of our partnership approach. In 2008, Access and Success site-based projects are conducted in over 70 schools and other learning settings in Melbourne's west.
> *(www.vu.edu.au/About_VU/Making_VU/Access_and_Success/Projects/index.aspx)*

Access and Success has various intervention projects that use methods similar to those of action research in which university and school-based participants are co-researchers of the interventions. This model of intervention uses the research strengths of the university to drive design, implementation and evaluation.

3.7 Part E: Implications of the findings

The findings of this survey have significant implications for further research including the case study evaluations in Section 4. The following questions about universities' outreach activities, and their equity strategies more generally, arise from our analysis:

- What are the logics of equity policy as it relates to outreach activities in the university sector?
- How are equity policies on outreach activities developed, implemented and evaluated in this sector?
- How do equity policies on outreach activities work, or not, within the institutional structures and cultures of universities in Australia?
- How might the best practices of specific interventions be implemented in ongoing infrastructure and policy?
- In what ways is equity policy on outreach activities quarantined or mainstreamed in universities?
- How does the imperative to market the university have an impact on equity policy as it relates to outreach activities?
- Who funds outreach activity development and the various interventions implemented?
- What is the level and nature of collaboration between universities and schools?
- How might we understand the relationships between aspirations and achievement (i.e. is cause and effect the relationship or are there other relationships)?
- In what ways might higher education institutions and school sectors collaborate on sustainable equity initiatives?
- How might universities work with primary and junior primary schools to build relationships for advancing equity, and especially aspirations for university?
- How might university interventions in the school sector actually improve achievement in communities whose members have not traditionally attended university?
- How might a program of longitudinal research studies be designed to provide evidence of impact of various strategies and initiatives?
- How might research-driven interventions improve equity policy processes in universities?

The case studies reported in Section 4 of this research project provide one example of the further research that is required to address these questions.

Analysis of the data also has implications for policy. Given the generally limited nature and extent of interventions currently in operation, more funds would seem to be needed for outreach activities that target school students before they enter the post-compulsory years, in the primary and middle years of schooling. In particular, government funding needs to be introduced in ways that drive universities' outreach activities in particular directions.

Funds need to be made available to universities according to certain priorities and conditions. For example, applications for program funding from government could be required to demonstrate how they are informed by the characteristics of good programs derived from the literature review (see Section 2).

Universities in receipt of funding could be encouraged to target programs at particular school year levels or year level groupings (for example, middle school, junior primary) and design intervention aims most relevant to those year levels (for example, increasing aspiration, achievement, accessibility). They could also be given incentives to submit applications in partnership with other universities and/or education institutions, to stimulate collaboration and diminish the potential negative effects of a marketing orientation. Finally, sufficient consideration and funding need to be built into the design of programs that allow for their appropriate evaluation, ideally undertaken by individuals and organisations external to a program's operation.

4 Case studies of selected Australian university outreach activities

4.1 Executive summary

Many outreach activities currently being conducted by Australian universities are making successful contributions to the goal of increasing the participation of disadvantaged (especially low SES) students in higher education. However, these contributions have often been isolated and difficult to sustain both over time and across the higher education sector. This section comprises seven case studies of effective programs and constitutes Component C of the DEEWR-funded research project *Interventions early in school as a means to improve higher education outcomes for disadvantaged (particularly low SES) students.* These case studies represent leading practice in the sector and, together, illustrate a range of outreach approaches tailored to the needs of different groups and contexts.

Some case studies focus on programs in terms of a specific outreach activity. Others focus on broader programs that include a suite of complementary activities. Each case study comprises discussion of the program context, activities, evaluation and concluding remarks that identify key program characteristics. Data was gathered from semi-structured interviews and focus groups with a range of participants, including university equity staff and academics, university student mentors, school students, teachers and parents. Print and web-based materials describing the programs and their contexts were also consulted. In each case challenges have been identified in consultation with program staff.

The findings of this section suggest that a combination of key program characteristics, supported by a coherent university-wide equity orientation towards policy and outreach, holds the strongest promise for designing and implementing effective early interventions.

Earlier components of this study identified 10 characteristics that typify programs successfully fostering higher education participation for disadvantaged students. Nine characteristics were described in Section 2: *collaboration*; *early, long-term and sustained*; *people-rich*; *cohort-based*; *communication and information*; *familiarisation/site experiences*; *recognition of difference*; *enhanced academic curriculum*; and *financial supports and/or incentives.* A further characteristic was identified in Section 3: *research-driven interventions.* The success of the case study programs appears to depend on the presence of several of these characteristics (at least half of the set). It is not appropriate to prioritise the characteristics according to their relative importance. Rather, the most important feature of successful interventions is the *combination* of many characteristics in response to the particular requirements of different student and institutional contexts.

The characteristics are general principles that can be implemented from diverse policy orientations. However, a further common feature of the case studies is an *equity orientation* that underpins the different combinations of characteristics found in the various programs. This orientation is informed by three specific equity perspectives: *researching 'local knowledge' and negotiating local interventions*; *unsettling deficit views*; and *building capacity in communities, schools and universities.* The conjunction of this underlying equity orientation with the combination of multiple characteristics provides a focus for the design and evaluation of interventions.

There is no simple formula for successful outreach activities. Strong early intervention strategies require a suite of multifaceted responses to the particular needs of different groups. Strategies should be developed and implemented in partnership with a range of stakeholders, supported by secure funding sources and informed by a sophisticated equity orientation. Many case studies demonstrated the benefits

of interventions commencing in the early phases of schooling, ideally the primary years, and progressively supporting students as they make the transition through the middle years into senior secondary school. A coherent approach to developing and implementing interventions with these qualities, both within universities and across the Australian higher education sector, is required to sustain more systemic increases in the participation of disadvantaged students in higher education.

4.2 Introduction

This section comprises seven case studies of effective programs and constitutes Component C of the DEEWR-funded research project, *Interventions early in school as a means to improve higher education outcomes for disadvantaged (particularly low SES) students.* The case studies provide rich descriptions of university-initiated collaborative programs with schools that aim at increasing higher education participation and outcomes for disadvantaged (particularly low SES) students.

From the many excellent examples of early intervention programs gathered through the survey component (Section 3), the selection of programs to include in this study was made with several principles in mind. In keeping with the project brief, the primary selection criteria were interventions that target students prior to Year 11 and that focus on those under-represented in higher education—principally, students of low socioeconomic status (SES), Australian Indigenous students and regional students, with an overall bias towards the first of these. Other selection criteria included the variety of effective programs evident across the higher education sector.

Each case study depicts a program designed for a particular context and, accordingly, each has slightly different goals, strategies and outcomes. Some interventions seek to enhance access and aspirations, while others focus on supporting academic achievement. As individual case studies, they are distinct examples of effective practice; together, they provide evidence of a diverse repertoire of productive strategies that are useful in educational interventions. Among other things, they show how the location and intent of a program influence the scope and intensity of the intervention that occurs. In many instances, they also show how programs begin modestly and then diversify and multiply, targeting more students earlier in their learning years or adding other strategies and components to the program.

While the programs studied in each case focus on a selected group of schools, in some instances the number of schools involved is higher than in others. Where it is a large number of schools, programs are more likely to offer information sessions and university 'taster' experiences, designed primarily to make universities familiar to as many students and families as possible. Where the objective is to strengthen students' academic achievement, the intervention is more likely to involve smaller numbers of schools and/or students and to occur through intensive curriculum interventions such as summer schools or through long-term pedagogical relationships.

Some programs are initiated by university-wide equity units with a broad equity brief, while others are developed in academic schools, faculties or departments and take discipline-based approaches to intervention. Most programs incorporate some level of consultation with significant others (parents, teachers, community leaders and advisers), while some also include professional development for participants (teachers, teacher assistants, university staff and students).

Seven programs were identified for particular examination in this section. They demonstrate different effective ways of approaching the task of improving higher education participation and outcomes for disadvantaged students.

At Victoria University, the Access and Success project targets students in the western suburbs of Melbourne.

The initiative is multidimensional, with university staff and students working with school students and teachers on a range of projects. Together, the projects span early childhood, primary and secondary schooling, and often involve pre-service teachers actively engaging with teachers, parents and communities. Research is a core component of the project, contributing to teacher professional development and to project evaluation.

At Griffith University, the Uni-Reach program provides outreach services to Year 8–12 students in 12 secondary schools in Griffith's southern corridor catchment area. University students mentor Year 11 and 12 students in schools and during on-campus programs, an interactive drama production about going to university (Uni-Reach Drama) is provided to Year 8 students by Bachelor of Education Applied Theatre students, and Year 10 students receive an information booklet (*Griffiti*) designed for use in career planning. The Mata I Luga (Looking Up) pilot program provides a combination of in-school and on-campus visits for Year 10 Pacific Islander students in a school with a high Pacific Islander population.

At Wollongong University (Shoalhaven Campus), the Uni Connections program targets Year 8–12 students in nine schools in the Shoalhaven City Council area. The various aspects of the program involve university students mentoring and tutoring school students in a range of academic fields, university staff providing on-campus workshops, and the provision of on-campus activities specifically for Indigenous students and their families. The program seeks to maintain strong engagement with Indigenous communities and engages in active consultation with school communities to ensure that program activities are contextualised.

At RMIT University, the Koori Express program provides numerous activities for regional Indigenous school students. Indigenous university students are involved in mentoring programs in schools and are actively engaged in an on-campus introductory experience that involves several buses bringing Indigenous students and their parents to the university Open Day.

At the University of Technology, Sydney, the Make it Reel program involves around 30 students in Years 9–10 from priority schools in a three-week intensive filmmaking program. UTS undergraduate students studying film provide mentoring for students attending the program, which aims simultaneously to improve students' literacy skills and strengthen their university aspirations.

At Queensland University of Technology, the YuMi Deadly Maths program involves academic staff providing professional development in mathematics education to teachers and teacher aides in Indigenous schools in rural and remote areas of Queensland. The program is focused on whole-school change and reform, is designed in consultation with Indigenous leaders in the communities, and aims to improve the mathematics learning of Indigenous students in order to strengthen higher education pathways.

At Ballarat University, the Regional Schools Outreach Program targets regional school students in Years 10–12 across 43 schools in western Victoria. The program has a longitudinal component, providing follow-up activities to Year 10 students when they move in to their final two years of secondary school. Information sessions are also provided for parents. The program is reviewed and developed in response to continuous and broad-ranging research and evaluation that draws on national, state and institutional data.

These case studies have been developed using data—semi-structured interviews, focus groups and documents—collected from February to April 2009. Participants in the studies included those involved in designing and delivering the programs, program participants (typically school students, but also teachers and teacher assistants) and others associated with the programs (for example, parents, teachers, university students). The voices of students have been highlighted in cases where data collection involved them in interviews and focus groups. Participating program organisers have verified each of the accounts provided in this section.

The case studies identify key characteristics that contribute to program effectiveness. While each of the seven programs selected employs promising combinations of early intervention strategies, there are still substantive contextual challenges to be negotiated. These are discussed in each case, giving particular emphasis to the insights of those involved in program design, management and delivery.

Each case study follows a similar structure: an introduction to the program's context; a description of program activities; a discussion of program evaluation; and concluding comments on the program's most salient characteristics. An overall conclusion to this section follows the case studies and draws out collective lessons to be learned from these programs.

4.3 Access and Success (Victoria University)

Sam Sellar and Trevor Gale

Introduction and context

Victoria University is a multi-sector tertiary education institution that provides both higher education and technical and further education (TAFE). It has more than 50 000 local and international students enrolled at campuses across the city centre and western suburbs of Melbourne. Victoria University has a broad equity and diversity strategy that comprises the Access and Success project in conjunction with a number of other student equity initiatives, including:

- investigation of secondary school for students' aspirations for post-compulsory education
- implementation of strategies to address student finances and financial literacy
- provision of access to information technology resources for low SES students
- provision of inclusive education for students with a disability
- recognition of the cultural diversity of students and their communities, and
- provision of programs designed to increase the participation of students from equity groups through Access and Equity scholarships, and a Portfolio Partnership Program that provides an alternative pathway to university for capable students without a competitive ENTER score (Victoria University undated).

Victoria University's Equity and Diversity Strategy has been designed in response to the specific needs of students and communities in the western region of the Melbourne metropolitan area, which experience below-average educational outcomes in comparison with other regions. The university serves a student

population with a higher-than-average proportion of students from low SES backgrounds and backgrounds where a language other than English is spoken (LOTE).[17]

As part of the university's broader equity strategy, the Access and Success project constitutes a major 'research and development initiative, working with schools in the west of Melbourne to improve young people's access to, and successful participation in, post compulsory education and training' (Victoria University 2009a). The project places emphasis on establishing collaborative teaching and research partnerships with schools and has implemented programs across more than 70 different sites. Access and Success comprises a number of different 'arms', which involve university staff and students working in schools (Learning Enrichment); the professional development of teachers through their participation in postgraduate education (Teacher Leadership); working with senior secondary students to support their aspirations and provide information on tertiary education and employment pathways (Youth Access); enhancing students' educational engagement through school-based programs with community partners (Schools Plus); and developing and disseminating research about the work undertaken in each of these project arms (Access and Success Research). In this case study we focus specifically on the Learning Enrichment, Teacher Leadership and Schools Plus activities, which target students in the compulsory years of schooling, as well as the support for these activities provided by the research arm of the project.

Data for this case study was derived from relevant Access and Success documents, including the project website, and a semi-structured interview with the project director and two other members of the project team. In the discussion that follows, all quotations are from the project director.

Description of activities

Learning Enrichment

The Learning Enrichment arm of Access and Success involves 'school professional learning teams of university students, staff and schoolteachers working on negotiated projects to enrich learning environments'. A central aim of this initiative is to maintain an ongoing university presence in the schools of its region. This presence provides a means for schools and the university to work collaboratively on improving student achievement and to increase school students' familiarity with the university through regular contact with its staff and students:

> [School students] can see the university students in their school, and at the same time we're also targeting achievement as being a really important part of the thinking that prepares people for university, because if they're not feeling that they're capable of undertaking or engaging in these subjects areas, that it's university related, then they're not getting to that first step of thinking about university ... [It's] part of that kind of embedding of the university in the schools and in the thinking of the schools in the region.

For example, one program conducted under the auspices of the Learning Enrichment arm of Access and Success involves pre-service teachers working with in-service teachers and university researchers to design action-research projects that investigate issues of student disengagement across a cluster of schools. Another program involves pre-service teachers participating as literacy mentors in a whole-school

[17] See Victoria University (undated) for further demographic data relating to student equity at Victoria University.

literacy intervention at the secondary level, while also collaboratively researching the effectiveness of this intervention with school staff.[18] A program addressing student aspirations for university and TAFE has been initiated at another secondary school; it involves pre-service teachers working with a small group of Year 9 and 10 students that have high academic ability but low aspirations. This work in and with schools aims to respond to the specific needs of particular sites:

> Our work in schools is guided by the teachers in the school who usually ... identify an area that they would like to work on in conjunction with the university, something to do with stimulating the learning outcomes of students in the school.

This broader based 'immersion' approach to intervention, in contrast to approaches that target specific equity groups, is a significant feature of Access and Success. Importantly, it increases the potential for ongoing cross-sector collaboration between schools and the university when designing interventions and undertaking school-based research.

Teacher Leadership

The Teacher Leadership arm of the program aims to engage teachers and principals in professional learning that increases teaching capacity in the schools of Melbourne's western region. This has involved delivering professional development that articulates with graduate certificate or master of education programs offered by the university. The development of research partnerships based on participatory methodologies, which give teachers and principals control over the research agenda in their schools, is a central feature of this initiative:

> We didn't want to have this relationship where the university comes in and imposes ourselves as (a) the holders of the knowledge or (b) the ones that were providing the project parameters. Our researcher methodology is collaborative practitioner methodology where we try to make it a relationship of equality where people's voices can be heard in ways that are respectful.

This research relationship involves substantive negotiation processes to design teacher action-research projects, which encourage teachers to engage in deep reflection on their work and to pursue professional leadership roles in their sites. This aspect of Access and Success provides a means for enhancing the overall impact and sustainability of the project through 'building collaborative research capacity, reflective practice and knowledge within each school'.

Schools Plus

The Schools Plus arm of the project involves 'brokering partnerships with community organisations and agencies that work collaboratively to support school student learning and engagement'. Building school–community connections and increasing the engagement of students and families with education and community life are the central aim of this initiative. One program in this arm involves Australian Football League (AFL) players, specifically from the Western Bulldogs, visiting 30 primary schools in Melbourne's west. Pre-service teachers from Victoria University located in each of these schools build on the player visits by enhancing student learning in areas including nutrition, literacy, health and wellbeing, leadership, team work, physical fitness and skill development (Victoria University 2009b). This partnership has encouraged

[18] See Victoria University (2009b) for more detailed descriptions of these projects.

AFL players to become involved with students' learning in more substantial ways than traditional one-off visits generally enable. It has also supported a range of associated community development activities, such as sponsoring low SES and recently arrived families to attend football matches, and has had academic benefits such as increasing boys' engagement with literacy practices:

> Extra additions with this kind of program are things like family tickets to the football, which for families that are really just struggling to hold things together, they have little money for entertainment, this means periodically they get the bus into the game, and it's a great way of just engaging into that broader life of the community, and the schools recognise that. Some of the things that the principals are picking up are increased enthusiasm about understanding newspapers and how sports reporting works, particularly with the young boys, [making links such as] 'Oh, this is our player, I can read about our player in *The Sun*'.

Another program, Kinda Kinder, has been designed to engage and work with children whose parents are not strongly connected with education and may be less likely to enrol their child in preschool or kindergarten. Operating in public libraries, other community settings and schools, the program employs pre-service early childhood teachers to provide early childhood education in the form of storytelling and other play activities while also supporting young parents to develop social networks and their familiarisation with formal education and community services. The next step of the program, Kinda College, is being developed in conjunction with the TAFE arm of Victoria University and will involve offering parents the opportunity to gain further education accreditation for the skills they develop when participating in these groups. Regardless of accreditation, parents' increased involvement with education may enable them to better support their own children's educational experience. The multifaceted approach to building the educational capacity of communities that characterises this program is a significant strength.

Access and Success Research

The research arm of the project has been designed to support its work in other areas. The project website explains that 'Access and Success has, from the outset, been framed by a strong and strategic commitment to researching the nature of practices and outcomes of our partnership work' (Victoria University 2009c). This research component contributes to the sustainability of the project by recording the work of different programs, as well as facilitating the production and dissemination of knowledge about general equity issues and the effectiveness of particular intervention strategies:

> When Access and Success was first conceived, the idea was that it would be a research and development project, on the principle that if this is not conceived as a research project, then a lot of the value would be lost.

A range of different quantitative and qualitative research methodologies are used to evaluate and inform collaborations with school and community partners; to track the impact that Access and Success projects have on student engagement, achievement and aspiration; and to contribute to the literature on equity policy and practice. This research is linked to the research undertaken by pre-service and in-service teachers in other arms of the project.

Evaluation

The research arm of Access and Success provides the central means for evaluating the effectiveness of the project's work across the university, schools and communities. The project director explains that Access and Success is interested

> in contributing on a number of levels to the research agenda [of] the university but also [to] the broader community in terms of ... equity and social inclusion studies ... via the development of research papers and presentations at local, national and international conferences.

This evaluation and research is undertaken at a number of different levels:

> The research agenda of Access and Success utilises a multilayered approach. Data collection and analysis occurs at the regional [aggregated] level and continues right through to case studies involving the [local] micro-settings of individual schools ... A further and critical layer is the investigation of partnership processes themselves.

The research informs the ongoing development of a 'conceptual theoretical framework for the work that we're doing'. Ongoing theorisation of its programs and partnership efforts adds a significant extra dimension to the other arms of the project by providing data that can inform future Access and Success program design and implementation, as well as the development of intervention strategies in other higher education sites. The project has set a range of further milestones for its work throughout 2009–10, which aim to build on and strengthen its success to date.

This investment in research, as well as the emphasis on building of community capacity through partnerships, has the potential to increase both the reach and sustainability of the project. Indeed, a significant factor contributing to the project's success so far appears to be its strong focus on establishing cross-sector and cross-agency connections. By increasing the prevalence of university staff and students that are active as researchers and mentors in schools, higher education is made more visible in the school sector. At the same time, by enrolling teachers in graduate programs, school-based issues are made more prominent within the university's research agenda. This two-way exchange increases the permeability of barriers between the sectors (including TAFE, which also forms part of Victoria University) and constitutes what can be described as an 'immersion' rather than 'targeted' approach to university outreach. It will be important for the project to research the effects of this approach, and how it contrasts with and/or complements other, more targeted, programs. Indeed, the project draws together a range of different strategies that, when combined, offer the potential to increase students' educational achievement and aspirations for higher education through both sustained long-term effort and more discrete interventions.

While the emphasis on partnerships appears to be an important feature of the project, it also presents potential challenges due to the time and financial commitments that it requires from both school and university partners. This requirement raised concerns for some schools that have been approached to collaborate with the project:

> It wasn't for everybody. Some people would rather have a program rolled out, but this [partnership approach] was really for schools that felt, 'Well, we can commit to

> a relationship like this,' and they understand that there would be commitments on both sides; even if it was not an urgent commitment, they would have to be making commitments of time, staff, etc.

A partnership approach has significant benefits over the implementation of pre-designed intervention strategies, such as increased responsiveness to the needs of particular sites. However, schools are faced with multiple demands on staff time and financial resources and they may prefer the latter due to a perceived inability to sustain the former. This issue is not easily resolved and it does not undermine the value of the partnership approach pursued by Access and Success. However, it is necessary to acknowledge that some schools, particularly those in low SES areas with fewer resources, may be wary of its demands and this may limit the project's reach in some places.

Two other challenges were raised by Access and Success project staff. First, the project employs collaborative practitioner research methodologies and positions both teachers and students as researchers. The legitimacy of the knowledge produced by such research may be called into question in some instances:

> I've had this argument with people in other universities who say, 'Well, have they got Honours degrees? How can they be researchers? How can you have students doing research, because they haven't got Honours degrees?' ... But it's a way of trying to redress some of those themes, a way of exploring new ways of generating knowledge, managing knowledge ... and it's partly because we do start with our principle that some of the key experts in this area are the people who are in schools.

This emphasis on pursuing new ways to produce knowledge about equity issues, which take account of the expertise located in schools and communities, is a commendable aspect of the Access and Success research. However, although engaging teachers and students as researchers is widely recognised as a legitimate and beneficial research methodology in the literature, it may be met with resistance by certain researchers and policy makers in the field. While this resistance is beyond the control of the project, it may still inhibit the reception of their research in some venues.

Second, Access and Success staff noted that equity programs might not always benefit those in most need. Access and Success is coordinating university students to work with school students interested in increasing their ability to develop a portfolio that may enable them to gain entry to the university via the Portfolio Partnership Program (Victoria University's alternative entry scheme). Concern was raised in relation to parents enquiring about this particular program at the university's Open Day:

> They will be parents who are sharp enough and smart enough to understand how the system works, and to see that it might be a way of managing to make a particular pathway ... work for their child, so it's not necessarily going to pick up the ones who are first in the family ... It will pick up people who understand the system and understand how it works.

This issue of equity programs being taken up by those who may already be planning to attend university, and who may be capable of doing so without such support, is a challenge for intervention strategies more

broadly and is not specific to the Access and Success project or equity programs at Victoria University. Equity programs rely on finite resources. Increasing understanding of how these resources can be used to benefit those who would otherwise be unable to attend university is an important area for further research, and for the Access and Success project to explore in the future.

Conclusion

Section 2 of this report identified a number of characteristics associated with successful interventions. Many of these are evident in the work of the different Access and Success project arms surveyed here. For example, the project demonstrates a strong commitment to collaboration across sectors. It involves both school and community partners in designing and delivering interventions in an attempt to increase their relevance to particular contexts. The project also takes a people-rich approach to building relationships between school students and mentors such as university students or prominent community figures (for example, AFL players).

The Schools Plus and Learning Enrichment arms of the project provide early, long-term and sustained support for students from early childhood (kindergarten) through to the end of the compulsory years of secondary education. While some of the Access and Success initiatives are quite targeted, others such as the Schools Plus projects take a more cohort-based approach to changing student attitudes and peer culture. We have described this as an 'immersion' approach that aims to create greater student engagement with education in order to provide indirect support for improved achievement and aspirations for future education and employment.

The project's immersion approach, which involves ongoing university presence in schools, provides an opportunity for school students to develop familiarisation with higher education. Frequent school visits by university staff and students enable communication about higher education and TAFE over sustained periods of time. This approach is also supported by the provision of more specific information about education and employment pathways to students in the post-compulsory years of schooling, through the Youth Access arm of the project. The Portfolio Partnership Program, which enables students to gain entry to the university through a portfolio application, is also supported by university students (who in many cases come from backgrounds and circumstances similar to those of the school students) who act as mentors in schools under the auspices of Access and Success. As part of this process, school students preparing portfolios are encouraged to visit the university with their mentors in order to develop site experience. This process has resulted in students enrolling who would have otherwise felt alienated by the prospect of university study. Indeed, familiarisation with, and communication about, higher education is another significant strength of the project.

4.4 Uni-Reach (Griffith University)

Deborah Tranter

Introduction and context

Griffith University is one of three major universities in Brisbane. A member of the Innovative Research Universities network, it has positioned itself with innovations in multidisciplinary study, environmental studies, corporate sustainability, Asian studies and the arts, and with a significant focus on the health

sciences at its rapidly expanding Gold Coast campus. From its establishment in 1971, Griffith has been 'committed to promoting social justice and community engagement, with a strong international orientation' (Griffith University undated a).

Griffith enrols approximately 38 000 students, including nearly 9000 international students, across a very broad range of disciplines at five campuses spread across Australia's fastest growing population corridor, extending south from Brisbane to the Gold Coast.

Griffith's commitment to equity and social justice is articulated clearly through its vision, mission and values including:

- commitment to individual rights, ethical standards and social justice
- lifelong learning and personal development
- contributing to a robust, equitable and environmentally sustainable society, and
- tolerance and understanding of diversity in society (Griffith University undated c).

The university has a longstanding commitment to community engagement and social inclusion as key factors that differentiate Griffith from its peers and in recognition of its particular catchment area. Under the heading of 'Students', its Strategic Plan states:

> The Griffith corridor is extremely diverse in terms of its ethnic and socio-economic composition. As the main publicly funded university serving this catchment, Griffith takes seriously the obligation of public universities to promote social inclusion in higher education and to increasing participation and success in tertiary studies of Indigenous students, students of low socio-economic status and students with a disability (Griffith University undated a).

At the same time, the Strategic Plan notes that 'student entry scores are a major determinant of student success and the University's reputation' and the university's recruitment strategy is measured by the percentage of Overall Position 1–8 students who enrol at Griffith.[19]

The Strategic Plan is supported by an Equity and Diversity Plan, which affirms that the university's commitment to equity and diversity 'is a fundamental part of the University's identity, history and positioning for the future' (Griffith University undated d). This plan outlines the 'distinguishing characteristics and strengths of Griffith's approach' to equity and diversity through:

- recognition of the interrelationship of equity and diversity with excellence
- recognition that disadvantage is socially created by factors and circumstances that should be challenged, changed and remedied
- integration of equity and diversity with institutional quality assurance processes
- a scholarly and evidence-based approach to equity planning and review
- accountability for equity and diversity leadership across university management, and
- emphasis on community engagement and cross-sectoral collaboration (Griffith University undated d).

[19] OP, or Overall Position, provides a state-wide rank order position from 1 (the highest) to 25 based on overall achievement in Queensland Studies Authority Year 12 subjects.

In 2007, 186 Year 12 students and 163 Year 11 students participated in school-based activities, assisted by 19 paid mentors. Of these, 154 Year 12 students participated in the two-day On Campus Experience, supported by 29 mentors.

In 2006, 162 of the 242 Year 12 participants (67 per cent) applied for Griffith's Uni-Start Equity Admissions Scheme; 125 received an offer and 103 enrolled at Griffith. Data was not available for applicants to other universities.

Uni-Reach Drama

The Uni-Reach Drama project was developed by a Uni-Reach coordinator during 2001, with funding from a Griffith University Community Partnership Development grant. The project was designed specifically to begin developing higher education aspirations from an earlier age, in response to the findings of James and colleagues (1999). It was felt that an interactive drama production would provide an enjoyable and engaging method to connect with students at the Year 8 level.

An educational drama is presented to all Year 8 students at Uni-Reach schools. Scripted and presented by Bachelor of Education Applied Theatre students, a different production is developed each year on the broad theme of overcoming barriers to education. The presentation includes a performance lasting 30 to 40 minutes followed by 20 minutes of discussion, led by the performers. Opportunities are also provided for individual questions.

The coordinator selects a group of approximately six Applied Theatre students to develop the performance, preferably students from Uni-Reach schools or from similar low SES backgrounds. They are paid for the performances with a contribution towards the time spent in developmental work and rehearsals. The Griffith students work with the coordinator to develop an interactive, review-style performance that addresses a range of issues relevant to adolescents. These have included boys' engagement with schooling, peer pressure, money management, bullying, drugs and teen pregnancy. All issues are related to barriers to achievement and university aspirations. The aim is to make university appealing to a group of 12- to 13-year-olds while also addressing some perceived barriers:

> Our first year ... we did a pre-performance survey and post-performance survey, and what came through overwhelmingly was that students in Year 8 thought going to university was the most boring thing imaginable, why would you do it, carry on going to school, and that it wouldn't be fun, so we had a segment in the drama the next year that showed much more of the student party life and how much fun it was and meeting people, and all that, but we're also aware of addressing some of the issues that are the barriers to students coming to university in the first place.
>
> (Uni-Reach Drama coordinator)

The Griffith University actors add to the impact of the performance by telling their own personal stories about getting to university.

In 2007, the drama was performed at 11 secondary schools to a collective audience of 2300 Year 8 students and approximately 110 high school staff. (Final 2008 data was not available at the time of the study although similar numbers were estimated to be involved.)

Year 10 Griffiti (formerly Uni-Book)

Griffiti is a student-friendly information booklet distributed to all Year 10 students at Uni-Reach schools. It was initially developed as *Uni-Book* in 2005, funded by a Community Partnership Grant and designed in consultation with school staff, students and Uni-Reach student mentors. The book addresses a range of access issues involving the personal stories of Uni-Reach entrants to Griffith, accompanied by photographs of Griffith students from the targeted schools, 'funky' graphics and challenge questions aimed at teenagers. The book purposely avoids a corporate design and has the look and feel of a teen magazine. Schools are encouraged to use the book in career planning sessions, particularly for the development of students' Senior Education and Training plans (SET plans) that are a compulsory component of the Queensland Year 10 curriculum. A number of related additional teaching resources have been developed by Griffith to be used by the schools to support the development of students' SET planning. Griffith also encourages the use of the interactive DVD developed by Queensland University of Technology for school students, and its website called *project u.*[20]

Mata I Luga (Looking Up)

In 2007, a customised version of Uni-Reach specifically targeting Pacific Islander Year 12 students was piloted at one of the local secondary schools with a high Pacific Islander population. The program was developed in collaboration with the School of Education and Professional Studies at Logan Campus, in an attempt to identify the most appropriate ways to address the needs of a significant population group in the region that is particularly under-represented at university (some schools in the region had up to 60 per cent of their students from Pacific Islander backgrounds). While this program was well accepted, in consultation with the Islander community the focus of the program was moved to Year 10 students in 2008, in order to have a greater impact on students' senior secondary and post-secondary pathways. A program was developed with assistance from a Community Partnership Grant and in consultation with community leaders. Features of the program included a parent–student information evening, in-school visits with Griffith students from the community, and a family-focused on-campus visit with speakers of Pacific Islander descent. Participating students produced a set of resources for their parents and/or their school. The program drew on the successes of people from Pacific Islander backgrounds, addressing culturally specific challenges such as balancing family and church obligations with study obligations, and was successful in engaging a cohort of students and families who have been reluctant to participate in university study. The continuation of the program is subject to the availability of ongoing funding.

Evaluation

The data collection for this case study was conducted in February 2009, just as schools were commencing Term 1. Hence, it was not possible to visit the schools to talk to school students, or to observe either the Uni-Reach Drama or Uni-Reach visits, all of which occur in the second half of the year.

All of Griffith's student equity strategies are evaluated regularly through internal evaluation procedures, including student entry and exit surveys, feedback from teachers and school guidance officers, mentor feedback, and anecdotal feedback provided to the coordinators. Once enrolled, students' academic progress is monitored on an ongoing basis. A significant observation is that Uni-Reach students tend to take longer to complete their programs. For example, they are more likely to defer commencing their

[20] project u is an outreach resource developed by QUT to assist secondary students and their families with post-school career planning: *www.projectu.com.au*

studies and may also undertake a reduced study load. Some students also took leave, or deferred, during the course of their studies for periods of one year or more. Although no comprehensive analysis has been conducted, anecdotal evidence suggests that this additional time is taken to deal with complex family or personal issues or to work full-time in order to continue their studies in the future.

Each time the Year 8 drama production is presented, an evaluation is conducted using a mixture of focus groups and post-performance surveys. Comments have been overwhelmingly positive, with teachers stating, for example, that 'the theatre concept is a powerful communication tool. It makes the audience think and create connections between concepts' and it is 'great that you gave the message that anyone can go to uni'. Many commented that it was important to 'plant the seed in their minds about going to uni' but that they would like such performances repeated for other year levels. Students also responded positively to the humour of the production in particular, mentioning 'the possibility that I can have fun while succeeding in university' and 'they made it seem fun, not scary'.

An evaluation of the Year 10 *Uni-Book* was conducted prior to its redesign in 2008, although only school staff were canvassed to avoid the resource and ethical complexities of research with school students. Again, feedback was overwhelmingly positive, especially about the age-appropriateness of the design and language used, and the value in targeting the book at the age when students are making important decisions about pathways. Recommendations to make the book more interactive and colourful, and even less formal in its language, were taken up in the re-design of *Griffiti*. It appears to have been very well received to date, although no formal evaluation has been conducted given its recent release.

In 2007, Griffith University asked Richard James (Centre for Studies in Higher Education, University of Melbourne) to conduct a review of its low SES programs. James reported that 'Griffith has an impressive suite of programs and initiatives focussing upon equity', that 'there is considerable energy, resources and planning devoted to equity programs', and that 'they appear to be well conceived and working effectively'.[21] However, he also argued that the small number of low SES students enrolled at Griffith 'suggests few gains are being made' and that the university's performance 'lags behind other Queensland universities', failing to meet its own aspirations. James noted that the postcode measure of SES could be working against Griffith, whose catchment area was particularly socially heterogeneous, but that the university's other strategic objectives to recruit more school leavers with high Overall Position scores may be competing with its equity goals and should be reconsidered 'in the light of the current mission, character and positioning of the institution and the contextual elements that are affecting equity'. The tension between equity goals and the desire to maintain or increase entry scores is faced across the sector, particularly in a context where entry scores are equated to quality (James 2007). James also noted the strong pull factors towards TAFE for students in the region. This factor is also identified in the literature review of this report (Section 2).

In conclusion, James recommended that Griffith consider further the diversity of the low SES populations in its catchment and the inhibiting factors influencing these populations, 'viewing the target group as more nuanced and giving attention to the personal circumstances of students'. He also recommended working more closely with parents within the targeted schools and continuing to work early in secondary school, 'if not earlier'.

[21] From excerpts provided to the researcher from Richard James' 'Review of low SES activities' at Griffith University, conducted in February 2008.

The data collected through this case study accentuated the diversity of the catchment area served by Griffith, with some schools serving large Pacific Islander student populations, some serving high numbers of recent immigrants and refugees, and some serving more traditional working-class Anglo-Australian communities. Although statistics on student ethnicity had not been specifically collected by Griffith, the sampling of the case study indicates that many of the students being admitted through Uni-Reach were from recent immigrant families—students who the literature (for example, Marks et al. 2001; James 2002) suggests tend to have high levels of aspiration for university, often with family support. Of the 12 students interviewed, all Uni-Reach students that have been admitted to Griffith, nine were from recent immigrant families, including five African refugees who were living with extended family members and away from their parents.

The two guidance officers interviewed came from widely differing school populations. At one school, Pacific Islander students made up 60 per cent of students, African refugees 10 per cent, Indigenous students 10 per cent, and low SES Anglo-Australians the remaining 20 per cent. The other school enrolled about 400 students from 40 different nationalities, including 60 per cent from a background where a language other than English is spoken, and significant numbers of refugees. One guidance officer explained that:

> The group who want to go to university are the ones who weren't born here ... this group sees education as the pathway to a better life. They are desperately hungry. They have no scaffolding behind them as to how to do it, but they are going to do it, and they form the bulk of the Uni-Reach group.

She later commented that the students with low aspirations were those born in Australia from low SES Anglo or Indigenous backgrounds:

> Now for this group there's very low aspirations, low pay, low status, no career path. That's what they see as their direction in life ... and they're a group who are very, very hard to lift to get them to see the big picture, that they are capable of going on and achieving something in life as this incredibly hungry CALD [culturally and linguistically diverse] group.

The other guidance officer interviewed echoed this perception but also recognised the impact of poverty on people's perceptions of what is possible and valued:

> If you look at [that] hierarchy of needs, if you are spending the bulk of your energy struggling to worry about how to pay the rent, how to put food on the table, then buying uniforms, buying exercise books, having the energy to come to parental information evenings at school, all that kind of stuff is kind of secondary in their world. I mean, they are real, tangible barriers that we can't wish away.

A number of the students interviewed also commented that the students who participated in Uni-Reach 'already had the glimmer of aspiration' and that the students who did not go to the Uni-Reach sessions 'might be really bright but they're not encouraged'. Indeed, several of the students were quite condemnatory of teachers who pigeonholed students too early, streaming them into particular classes:

> In Year 8 the teachers have decided your fate if they streamline you, because then you have the kids who will hopefully maybe do something, and then all the other kids are there going [makes derogatory noise].
>
> (Former Uni-Reach student and mentor)

Students suggested that some teachers had made judgments that university was too difficult for the students at their schools, 'they kind of put you off going to university', and that these students had to convince teachers that they wanted to learn:

> I learnt very quickly that to get the teacher to actually help you or give you work, you had to, you know, sidle up to them, let them know that you're one of the good kids. It sounds really bad but that was a kind of survival thing for me because you had to let them know that you were there because you wanted to learn, not because you had to, or you just wanted to stare at the boy in the second row, or something.
>
> (Former Uni-Reach student and mentor)

It appears that, at the least, the Year 11 and 12 Uni-Reach program is assisting those students who are relatively motivated and already aspiring to university but having little effect on less engaged students or those who the schools considered were not 'university material'. It is schools that select the students to participate in Uni-Reach, whom, in the process, usually incorporate a degree of self-selection on the part of the students. While the schools are probably best positioned to select participants, processes of selection are likely to involve judgments about who is 'university material' and may limit the capacity of Uni-Reach to engage with more marginalised students.

The students commented that earlier interventions at the schools would be beneficial, suggesting that 'Grade 8 is probably the ideal time just to make them aware of university' and that 'even the subjects you choose in Grade 9 and 10 can affect what you will later do in Grade 11 and 12, so the earlier you know, the better choices you can make, and take the steps to get there'. The Uni-Reach coordinators were keen to extend the program of school and campus visits into the earlier years of secondary school but reported that 'we found that the guidance officers were saying no ... They don't think the students are interested or ready before that, so that's what's prevented us from going further' (Uni-Reach coordinator). One of the guidance officers interviewed was particularly concerned about too much pressure being placed on younger students to 'have to figure it out at an early age what they want to be doing when they're 18, and make them feel bad about the fact that they don't know, because lots of them don't know'.

Nevertheless, an acknowledged strength of the Griffith program is the suite of activities that build on each other. These commence with the drama production in Year 8 and continue through Years 10, 11 and 12 to the transition to university support, as well as providing part-time employment opportunities through the extensive mentoring program. A Uni-Reach coordinator illustrated the building of this relationship by describing how one of the new Uni-Reach mentors, a former participant in the program, had commented: 'I'm glad I'm getting back into the Uni-Reach family'.

None of the 12 students interviewed at Griffith for this study could remember the Year 8 drama production.

For them, Year 8 was too long ago with too many things happening. The guidance officers, on the other hand, valued the opportunity for awareness to build from the Year 8 drama production across the school years. The introduction of the *Uni-Book* (now *Griffiti*), and its integration with the compulsory Senior Education and Training planning, was considered to be especially valuable by the guidance officers, as it facilitated reflective activities through the school curriculum. In a recent review discussion they confirmed that the introduction of Year 9 activities would have a greater impact on earlier career planning and subject choices, and suggested that *Griffiti* should be introduced to students at Year 9 to build on the Year 8 performance.

A further strength of Griffith's model is the close relationships that have been built with the group of Uni-Reach schools over the course of more than 10 years. The two guidance officers interviewed had both been involved with the program for many years. They were most appreciative of the opportunities the university provided to their students and the relationships they had developed with the Uni-Reach staff:

> I look after my students as well as I possibly can, and I feel comfortable transitioning them on to people I know, and I know I can email and they will respond. So that's a big issue for students at [name of school], the fact that they are people they feel comfortable with, who they know will look out for them.

The program has developed through close collaboration with the schools, often with key individuals in the schools, and is informed by a deep understanding of the issues facing the schools and their communities. The dependence on relationships can be a risk, however, in cases where key members of staff move from the school (or the university). At the university level, a team of four are involved with Uni-Reach, three since its beginning, to minimise this risk. University staff have also worked at developing networks in schools that are less reliant on individuals.

For the students interviewed, the role of the student mentors was especially important in making university seem real, especially if they had been past students at the school:

> The school can't reach you on such a personal level. Uni-Reach can, especially when they have past students from the school come in and talk to you ... I think they really help because you know them in the first place, and ... it just makes it more real, like a real person explaining uni ways and whether they think it's been worthwhile, and how they cope, like whether they work and how they get to uni, and where they live, and how they spend their days.
>
> (Former Uni-Reach student)

Both the students and the guidance officers indicated that the on-campus visits were particularly valuable in helping make university seem more attainable for students who may have little opportunity to discuss university at home:

> I think just not being sure of exactly what you're getting involved into. I mean you can read about it and people can come and talk about it, but it's good to be able to go to

> uni and see, and sit in on lectures and things like that, and it's also a big problem to not have somebody talk you through enrolling and picking a course.
>
> (Former Uni-Reach student)

A newly admitted young African student commented that the visits in Year 12 had assisted with making university seem more comfortable now that she was enrolled: 'like, before it was, oh my God, what am I going to do, but now we know where to go'.

There were aspects of the Uni-Reach program, however, that some of the students interviewed were less positive about, including the repetition of advice about time management, setting goals and study skills 'that was already drummed into us at school':

> They go along and they're like 'Oh, I've heard this before, it's just about being a good student', and I think that could put them off. It's only the people who hang on long enough that go on the excursion trips and things like who get something out of it. So I think it would be good if you could say some different things.
>
> (Former Uni-Reach student)

Many of the students, and the guidance officers, would like to see structured campus visits at Year 11, or earlier, in recognition of the fact that this demystification and familiarisation process is an especially valuable part of the program.

Conclusion

The Griffith suite of programs demonstrates most of the characteristics of successful interventions identified in Section 2 of this study. The range of programs has been developed in collaboration with a group of identified disadvantaged schools in Griffith's targeted catchment area, through the development of long-term and sustained relationships between the schools and the university. The Uni-Reach Drama production introduces students to the concept of university study at the beginning of their secondary schooling and illustrates that it can be an enjoyable and valid option for them. This early introduction is developed further in Year 10 through the distribution of *Griffiti* to all students, and its integration with Senior Education and Training planning work in the targeted schools. The Uni-Reach Year 11 and 12 programs provide cohorts of students with further in-depth information about university, incorporating academic enrichment, familiarisation/site visits and, importantly, support from people-rich relationships with both the Uni-Reach coordinators and mentors. Support is also continued through the university application process, including adjustments to selection processes in recognition of the uneven playing field constituted by tertiary selection processes, financial standing and differences in transition support.

While there is some recognition of difference, particularly valuing the diversity that the culturally and linguistically diverse students bring to the university, resource constraints limit the capacity to deepen the program and to consider the needs of the most disengaged groups of students from low socioeconomic backgrounds: white, working-class Australian males and Indigenous students. The Year 11 and 12 program appears to work well at enhancing opportunities for low SES students who are already interested in

going to university, but the most disengaged groups are a further challenge that may require different approaches and greater resources. As with many universities, Indigenous student outreach and support are the responsibility of a specialist Indigenous unit: the GUMURRII Student Support Unit. The work of this unit intersects with the broader student recruitment and equity outreach activities, and collaborations have commenced between Student Equity Services and GUMURRII to pilot a different approach to engage Indigenous secondary students. This approach will consider ways of changing the preconceptions of some school staff about Indigenous students' potential for university study.

The university coordinators commented that there has been a marked decline in the number of OP-eligible students at Uni-Reach schools in the last two to three years, with less than 50 per cent of Queensland Certificate of Education students being OP eligible at 10 of the schools and less than 40 per cent in seven others. They expressed concern about the growth of VET subjects in these schools and the increasing imbalance between preparation for VET and university:

> I think sometimes the schools aren't preparing [students] for it, for uni at all. It depends on the school again, but I think that some schools that we see, they don't expect them to go, or just some of the teachers don't expect them to go, and they expect that they will go and do a trade.
>
> (Uni-Reach coordinator)

Both the guidance officers and the program coordinators were critical of the role of the Queensland Core Skills Test in determining students' eligibility for university entry, particularly for the high proportion of students in the Uni-Reach schools who are from backgrounds where a language other than English (LOTE) is spoken. It was felt that this test was culturally exclusive and discriminated against LOTE students, preventing many of them from being OP eligible and thus from being able to qualify for university. In such situations, programs such as Uni-Reach are invaluable for providing an alternative pathway to university. Indeed, many of the students interviewed indicated that they would not be at Griffith if it had not been for Uni-Reach and the Uni-Start Equity Admissions scheme.

The Griffith suite of programs has been regularly evaluated through internal mechanisms, with significant developments evolving in response to these evaluations and reviews (refer to Table 2). It has been recognised as best practice by AUQA, receiving a commendation in Griffith's 2008 AUQA audit. The external review conducted by Richard James provided a number of recommendations that are being addressed by the university, including the development of the trial Pacific Islander program. Nevertheless, the concerns expressed by James about tensions between the university's equity mission and its desire to increase the proportion of students with a high Overall Position is one that program coordinators grapple with, especially given the difficulties many students from targeted schools confront when trying to achieve competitive Overall Position scores. While the Bradley review (Bradley et al. 2008) has established the need to investigate a broader range of university selection criteria, the dominance of current ranking systems confirms the need for interventions such as Uni-Reach. For schools in the Griffith corridor, Uni-Reach is a critical component in efforts to help level the uneven playing field of university selection.

4.5 Uni Connections (University of Wollongong, Shoalhaven Campus)

Dianne Bills

Introduction and context

The University of Wollongong is located 80 kilometres south of Sydney and its outreach Shoalhaven Campus is situated further south on the coast in Nowra. The Shoalhaven Campus is a joint teaching space established by the University of Wollongong and the Illawarra Institute of TAFE. The Uni Connections program was established in 2004 to make stronger connections with students experiencing regional, economic and/or social disadvantage. The program is located in the Student Services Unit and is funded by federal government equity funds.

The University of Wollongong has two Uni Connections groups: one at the university's main campus (Wollongong) supporting six disadvantaged high schools in the Illawarra, and the other at the university's Shoalhaven satellite campus.

The Uni Connections program aims to:

- assist school students with the skills and motivation to increase their ability to attain the Higher School Certificate and consider further education options
- provide support to school students at risk of not achieving their educational potential
- support partnership programs between the University of Wollongong, schools and the community
- familiarise school students with university options and expectations and with university life, and
- provide opportunities for University of Wollongong students to experience and develop personal career pathways.

Nine high schools in the Shoalhaven City Council area participate in the program; five of them are state public schools and the remainder are private schools. Only two schools are formally designated socioeconomically disadvantaged, both of them state schools, but all are considered 'regionally disadvantaged' by virtue of their location at distances between 85 and 170 kilometres from the university's main Wollongong Campus. There is limited public transport between regional schools and the main city campus.

This case study draws on a semi-structured phone interview with the Uni Connections Program Coordinator based at the Shoalhaven Campus of the University of Wollongong. Student and teacher comments have also been taken from workshop evaluations provided by the coordinator.

Description of activities

The Uni Connections program is multidimensional, with four main components: a mentoring program, on-campus workshops, Indigenous community engagement strategies and an active culture of establishing community–school–university links. Community consultation is an important part of this work, with activities in each strand developed in consultation with particular schools and communities, with the result that interventions often 'look different with each school'. What follows is a description of each component with examples of the kinds of educational intervention that occur.

Mentoring for school students: the Tutors Assistance Program

University students are allocated a number of paid hours to work in a local school where they mentor and support students with their learning in identified areas of need. In keeping with the consultative philosophy underpinning the program, the kind of learning assistance provided depends on the needs of the school and is negotiated on a case-by-case basis. Most consultation is initiated and conducted by the program coordinator (and is described in more detail below). University student mentors are allocated around 20 hours of work per semester, as a form of work experience with benefits for their development of career goals and work pathways. The work does not constitute a practicum or professional work placement and, while it might duplicate the kinds of outcomes expected from service learning experiences, it is not strictly classifiable as service learning because the students are paid for their work. They are described as 'an extra set of hands', working in various locations within a school including classrooms, homework centres and libraries. The following examples of student mentoring experiences were provided by the program coordinator and illustrate the efficacy of interventions that have occurred:

> A university student fluent in Italian is working in a homework centre with four girls from different schools who are all studying Italian by distance education. The university mentor meets with the students on one afternoon every week and tutors them through course materials and develops their conversation skills. After two years all of the students finish with excellent results.
>
> A student in a maths faculty has 20 hours of paid work in which she organises her time in schools to work with young people struggling to understand mathematics and numeracy concepts. She works alongside a maths teacher at the school.
>
> An arts degree student with a strong background in ancient history is working in the school library and learns that a high school student is studying ancient history by distance education. Under the supervision of the school librarian, she supports the school student in her distance education learning.

Peer mentoring and tutoring has the potential to enhance learning outcomes for students through the provision of individual attention and motivation, especially when they learn in distance education mode, as is the case for many regional and rural students. Less acknowledged is the reciprocity of mentoring relationships that may also have valuable outcomes for the mentors. Over the past four years, at least nine University of Wollongong students involved in mentoring school students have enrolled in and/or graduated from a Postgraduate Diploma in Education, suggesting that mentoring does have the capacity to help students decide or confirm their personal career goals and pathways.

University workshops for school students

A trial of school-based workshops provided by University of Wollongong staff revealed that it is often difficult to ensure that workshops succeed in school contexts. There are unavoidable interruptions and difficulties associated with the extended period assigned to a workshop. Staff reported that students were inclined to view the workshops as simply more of their regular 'school work', but on a prolonged basis. Since part of the purpose for providing 'taster' academic workshops is to break down barriers and demystify university study, staff decided those aims are better served by bringing students on campus.

Generic and discipline-specific workshops are conducted at the Wollongong and Shoalhaven campuses. Generic workshops cover topics like study skills, essay writing and library research, and are facilitated by librarians and/or student support staff. Disciplinary workshops are facilitated by academic staff and have been conducted by the faculties of Law, Informatics, Creative Arts and Engineering, and by the Woolyungah Indigenous Unit. Discipline-specific workshops are typically whole-day events that include a range of experiences, including attending a lecture, engaging in a 'hands on' or interactive activity and interacting with university student mentors who ideally come from the same region and may be known to the school students. University student mentors help to break down barriers by presenting university as 'doable'. Workshops at University of Wollongong are open to Year 12 students but are more likely to target Year 10 and 11 students because university staff recognise the benefits of making interventions earlier. The following examples of discipline-specific workshops were provided by the program coordinator:

> A creative arts workshop targets students applying for portfolio entry, preparing them for the process by making the expectations for portfolios, performances and interviews explicit. Students also have an opportunity to investigate the range of university subjects and become familiar with the university campus.
>
> A law workshop provides opportunities for school students to meet and talk with university law students, to attend a lecture, experience a moot in the university Moot Court and complete a worksheet on court procedures, protocols and language.

Responses from young people attending workshops illustrate the multiple benefits for students. They may learn about particular professions and disciplines, about possible career pathways and about the benefits of higher education generally. They become more familiar with the way universities operate and many build new confidence in their own abilities. Some students' responses drawn from workshop evaluations: include:

> I enjoyed the Moot Court and the in-depth discussions on family and contract law.
>
> I enjoyed learning about different strands of law.
>
> I am more informed about how drama at the uni works.
>
> The physics experiments were great and the people in the faculty were very interesting and helpful.
>
> I have a greater understanding of my future as an accountant.
>
> I did not realise that accounting can lead to so many positions.
>
> The day opened my mind to other options.
>
> I enjoyed the opportunity to do activities and discover more about my career prospects.
>
> School and a good education is now more relevant to attaining a good job.
>
> I enjoyed learning about scholarships and early entry.

I learnt how uni operates and what to expect.

I was given a greater insight into uni life.

One of the greatest experiences I have ever had!

Today showed me I can do anything if I put my mind to it.

Engagement with Indigenous communities

Shoalhaven has a large Indigenous population and Uni Connections has been a conduit for increased engagement with Indigenous communities. The program coordinator meets regularly with an Aboriginal Education Consultancy Group and works closely with representatives of Indigenous communities in the area. Collaboration with schools and communities involves university staff and students. The university participates in the Indigenous Employment Expo run by the Shoalhaven Area Consultancy Group and the program coordinator assists on the managing committee. The Shoalhaven Indigenous HSC graduation ceremony is held for between 20 and 25 students each year and involves up to 200 participants including Indigenous elders and parents and members of community organisations and schools. With increasing numbers of Indigenous students in the region achieving HSC, the community and university place a high priority on supporting Indigenous students in their transition to university, further education and employment.

A university whole-day on-campus experience targets Indigenous Year 10 students. Indigenous students, Indigenous and non-Indigenous students studying Aboriginal studies, Aboriginal education officers and Aboriginal studies teachers are all transported by bus to the University of Wollongong Woolyungah Indigenous Centre. Students attend an Aboriginal studies lecture, take a campus tour, investigate facilities and meet Indigenous students and staff in various faculties. Education, nursing, medical science, engineering, informatics and law are popular with the students. Students also enjoy lunch provided by the Indigenous support staff at the Indigenous Woolyungah Centre. A student evaluating the day comments: 'I can now imagine I could attend university. I have something to work for at school.' Teachers respond with such comments as 'my students have changed their vision of university' and 'two of our four Indigenous students are now considering further study at university' (responses drawn from program evaluations).

Community engagement

While engagement is promoted specifically with and for Indigenous communities, Indigenous people are also actively involved in consultations with all local communities. The program coordinator is actively involved with regional organisations and meets regularly with staff and parents in schools. Relationships are forged with the Aboriginal Education Consultative Group, local community partnership boards (LCP) and with local agencies of the YWCA, community employment boards and regional councils. Once a term the coordinator meets with members of each high school leadership team (for example, the school principal, deputy principal, careers counsellor), together with community members and agency representatives, to map the various programs on offer in the region. This networking meeting is facilitated by the Uni Connections coordinator as part of her activities, and the university's role in this facilitation forms part of efforts to raise education aspirations and awareness in the community. Gaps and duplications are identified

in the provision of learning and career support through an annual regional meeting of schools, which aims to identify the best and most efficient ways of improving educational outcomes for all students. As well as informing the Uni Connections program, the collaboration has resulted in other initiatives such as a careers expo and a safer driving education program that is facilitated by agencies on the Shoalhaven Campus of the University of Wollongong. Bringing students on campus for a range of activities is regarded as a significant strategy for demystifying their perceptions of university. Students from primary and secondary schools visit the campus and plans are developing with the Aboriginal Education Consultative Group for these visits to include preschool students as well. University staff and community leaders recognise the need to plant the seeds earlier and create broader community ownership of pathways to higher education.

Evaluation

The university coordinator is aware that while 'the statistics' are not available, there is evidence that some of the students who attended the creative arts workshop in previous years have now been given offers to university. She believes the most important task now is to gather evidence, in the form of enrolment statistics and other data, to demonstrate the success of various elements of the program. To date, much of the evaluation conducted has been based on participant perspectives on the usefulness of the workshops and the other activities. The mentoring program is evaluated in this way rather than through a formal survey instrument, because the mentoring that occurs in each location is dependent on the circumstances and therefore quite different in form and function. Some of the mentoring occurs in homework centres, working across Years 7–12 on different aspects of the curriculum, while other mentoring is more structured through sustained relationships, such as the Italian language example provided above. Overall, the success of particular initiatives is judged on the strength of participant feedback and requests to continue the program.

A multidimensional intervention such as Uni Connections is by nature people-rich and diverse in its activities and its staff and student involvement. It is sensitive to local contexts and highly consultative. In these circumstances it is difficult to evaluate the program in a way that provides evidence of the efficacy of interventions beyond the immediate outcomes of each activity. The program coordinator believes the major success of the program has been 'demystifying what university and tertiary education is about and making university and tertiary education achievable'. She also holds the view that educational prospects have been improved for some students through their increased attendance at school and the support of their community and families:

> Being able to include families and communities, universities, TAFE and school, in collaboration with each other is important, especially when parents begin asking "how can we support them, who do we go and talk to, and how can this happen?"

However, there is no systematically produced evidence across the range of activities with the various participants that can show the extent to which the program as a whole enhances the academic achievement of disadvantaged students and results in their increased access to higher education. Research and evaluation in a people-rich program should be sensitive to the contextualised nature of the interventions, both intensive and longitudinal, if it is to evaluate achievement and simultaneously track the post-school

destinations of students. Requiring staff to conduct that evaluation systematically, or buying in research expertise to do so, will inevitably divert resources from the students the intervention is designed to benefit. Yet it is imperative that such research be encouraged and supported in order to identify and understand the long-term effects of educational interventions conducted through university–school partnerships.

Conclusion

Staff are keen to expand the Uni Connections program to make it accessible to students in a wider range of schools, particularly those more distant from the campus. Plans include developing a Tutor Assistance Program for remote schools with the assistance of mentors who are ex-students of the school; extending workshops on to other campuses; and making better use of remote technologies such as video-conferencing. There is a strong belief that 'rural disadvantage' exists for students who lack geographic access to a university campus and that geographic location exacerbates educational disadvantage related to socioeconomic and cultural background. Staff also appreciate the need to engage with younger students but believe staffing and resource constraints may make that difficult. In individual circumstances, the mentoring program could be extended to make a difference with younger school students.

The value of this program lies in its consultative framework and its multidimensional nature. There is flexibility available to target different schools, cohorts and individuals according to need, and on the basis of consultation with communities and school staff. The program coordinator works half time in a disadvantaged high school with a high Indigenous population and understands school contexts and constraints. She clearly values input from others and seeks to build rapport with students, parents and their communities. University–community partnerships are strengthened in other areas through the consultation and communication that occurs. The strong mentoring component provides people-rich and responsive peer support, at the very least helping to demystify university life but also in many instances assisting students to achieve higher levels of academic success. Paying peer mentors is a successful strategy as it allows students who might otherwise be in part-time work to contribute their skills and motivation. This is particularly important for rural and low-income students who are supporting themselves away from home.

4.6 Koori Express (RMIT University)

Robert Hattam

Introduction and context

> At the Ngarara Willim Indigenous Centre we realise that it's not always easy for people to travel to Melbourne to attend our Open Day. So we have developed a program that will allow you to make the trip with no expense to you, and allow you to bring along a parent, friend or guardian (RMIT University 2009d).

RMIT is one of the largest universities in Australia, with over 60 000 students studying at 'RMIT campuses in Melbourne and regional Victoria, in Vietnam, online, by distance education, and at partner institutions throughout the world' (RMIT University 2009c). RMIT is a dual-sector institution, offering specialised vocational and professional programs across Technical and Further Education institutions and higher education. RMIT is a member of the Australian Technology Network of universities and of the Global U8 Consortium.

RMIT has a Student Equity and Diversity Policy that involves the following Equity Admission Schemes:

- a Special Entry Access Scheme (SEAS) and an Alternative Category Entry Selection Scheme (ACESS) assist applicants whose education has been affected by long-term disadvantage
- an Asylum Seeker Access Scheme (ASAS): Temporary Protection Visa holders or asylum seekers on Bridging Visas are eligible to apply under ASAS only
- a Postgraduate Commonwealth Supported Equity Places Scheme operating in postgraduate coursework programs for Australian residents who meet the entrance and equity criteria
- an Indigenous Access Scheme that supports the increased access and participation of Indigenous students in RMIT TAFE and university programs (RMIT University 2009b).

In terms of outreach programs, in 2001 RMIT also developed a Schools Network Access Scheme (SNAP) to facilitate entry into RMIT programs for disadvantaged secondary school students in designated schools (RMIT University 2009a). SNAP facilitates access to programs by students from 42 secondary schools in Victoria that are identified by the following characteristics:

- government secondary schools in low socioeconomic areas, with high numbers of students from disadvantaged backgrounds
- schools within RMIT's geographical commitments, largely in the northern metropolitan industry corridor and East Gippsland, with which RMIT has ongoing partnerships.

Of special significance for this scheme is the Managed Individual Pathways (MIPS) model, which provides a structured curriculum for pathways planning and the development of a portfolio that represents the students as learners.

This case study is particularly focused on RMIT's strategies and interventions for Indigenous students. The data collection involved visiting RMIT University, especially the Ngarara Willim Indigenous Centre. A semi-structured interview was conducted with the Manager Aboriginal and Torres Strait Islander Unit Student Services Group (who is also Manager of the NWIC) and the Manager of Equity and Diversity. Further material was drawn from the RMIT website.

Description of activities

Equity and diversity for Indigenous students

The Indigenous Access Scheme has been devised by RMIT as an alternative process to tertiary entrance (ENTER) scores calculated by the Victorian Tertiary Admissions Centre. The scheme is based on a capabilities model and supports students during the application process by providing information about RMIT programs, pathways, vocational options and study choices. It requires ongoing work in the university, especially unsettling traditional admissions schemes that are based on persistent myths in Australian universities about the oppositional nature of equity and excellence. This means working with the selection officers in an effort to change practices for Indigenous students. The Indigenous Access Scheme also offers an explicit three-day residential transition program that aims to enhance academic success and provide ongoing support. This transition program is coordinated by the Ngarara Willim Indigenous Centre and

the Access and Equity Unit, in conjunction with the Study and Learning Centre, and provides Indigenous students with intensive academic preparation for tertiary study prior to Orientation Week.

The equity and diversity strategies for Indigenous students are managed at RMIT by the Ngarara Willim Indigenous Centre, located on the main Melbourne campus together with the university's Student Services Group. The NWIC emerged out of the recognition that, while Indigenous students have a good academic success rate at RMIT—over 90 per cent success—the university has low numbers of Indigenous students. The NWIC recognises that in order for RMIT to broaden access, especially for Indigenous students from rural Indigenous communities, there needs to be a different model of engagement. Hence, it works to enhance access and participation and to provide ongoing support for those Indigenous students who are enrolled in programs.

Recent work of the NWIC has focused on broadening outreach activities at RMIT, with a view to increasing participation from Indigenous students from less advantaged communities. There is also recent impetus from the Victorian state government for such a commitment. RMIT has a State Training Plan agreement with the Victorian government, and an annual TAFE Wurreker Plan specifying Indigenous priorities and key performance indicators for the year, and is keen to improve Indigenous participation in education and training. As a dual-sector institution, RMIT can offer pathways to university through vocational education and training courses, which is an increasingly popular approach for students from low SES communities.

Koori Express

One of the recent strategies developed by the NWIC centre has been the Koori Express program (see RMIT University 2009d). For selected Indigenous communities, Koori Express provides intensive exposure to the programs offered by RMIT. Quite literally, the Koori Express is a bus trip, with free accommodation, to attend RMIT open days.

The program, which began in 2007, involves:

- educational experiences for Indigenous students and their parents
- working with selected Indigenous communities to enhance aspirations for university
- free transport to Melbourne for RMIT open days on a 4–5 star coach
- accommodation at a hotel in Melbourne
- other activities, including attending an AFL football match and a movie
- provision of all meals
- free transport from the various RMIT campuses and support from existing RMIT Indigenous students.[22]

The Koori Express program builds on existing relationships with and knowledge of Indigenous communities in rural Victoria, especially Gippsland and the Echuca region, as well as in northern metropolitan Melbourne.

[22] For a case study of the Koori Express, see RMIT University (2008).

Working with local knowledge of communities

The Koori Express program works with local education groups in various Indigenous communities across Victoria. There are a number of ways in which the Ngarara Willim Indigenous Centre identifies and collaborates with these communities, some of which include:

- *developing local education groups*
  The NWIC is able to identify Indigenous communities from areas such as Echuca, Robinvale and Swan Hill, Gippsland, Shepparton and Bendigo. RMIT also has TAFE programs and community education in some of these communities.
- *working with the Dare to Lead program (see www.daretolead.edu.au), which operates in some secondary schools*
  Dare to Lead is a Commonwealth-funded national project with a focus on improving educational outcomes for Indigenous students. It provides a network of support for school leaders to work effectively with current programs, and to initiate new models of activity, with the aim of improving outcomes for Indigenous students.
- *outreach in Gippsland Schools Network Access Scheme schools (for example, Bairnsdale)*
  The NWIC collaborates with the Koori liaison officer supporting a group of Indigenous students (mainly Year 7–9 boys) to keep them in secondary education. RMIT is 'their major tertiary access point', but the program managers recognise that there are issues relating to retention and aspiration for these students (Manager 2). The outreach involves meeting with the students and discussing how they might achieve their aspirations (such as success in sport) through studying at university (for example, RMIT's Human Movement program). This generates conversations about the importance of academic achievement:

  > You know, if you're going to think about that as something you want to do, then you need to think about keeping up with your maths, because you're not going to get far without your maths.
  >
  > (Manager 2)

  The outreach programs aim to re-engage young people who left school in the early secondary years and, specifically, to reconnect them with formal education through pathways programs and skills building.
- *establishing dialogue*
  The Ngarara Willim Indigenous Centre and the Equity and Diversity Unit have an interest in establishing dialogue between Koori educators and careers teachers in secondary schools.

The Koori Express program in 2008: the case of Gippsland

The Koori Express program has targeted rural Victorian communities during recent years, including some of the school communities from Gippsland. In these regional communities, the only local options for further education are programs in the TAFE sector. The Koori Express aims to improve access to university for low SES students in these communities, which experience high levels of educational disadvantage.

The program aims to provide an experience for those students who 'wouldn't even have really thought

about studying at university', but who have aspirations for studying at the local TAFE or 'working in the tractor factory across the road' (Manager 1). It aims to provide students with an increased range of options beyond their current plans for the future: 'When they get to 15, they're thinking about going to work, or getting a traineeship in Parks and Gardens, or thinking "I'll get a job working in the forest"' (Manager 1). In the case of Gippsland, the State Training Plan focuses largely on access and enabling programs in limited vocational fields. The Koori Express thus aims to expose students to a wider range of educational and vocational pathways, and to connect prospective students with RMIT's specialised courses. RMIT's programs are specialised, professional and vocational—as such, the equity programs seek to demystify and explain their nomenclature, discipline clusters, pathways and employment outcomes.

The Koori Express program has been designed to bring together a range of strategies for improving the aspirations of young Indigenous students: providing students with an experience of university and vocational and further education and training; involving parents to expose them to the university context; involving Koori educators; and providing leadership experiences for the Indigenous students already enrolled at RMIT.

The program works with Koori educators in secondary schools, especially to conduct preliminary work identifying students and their families. In 2008, this involved working with four schools in the Gippsland area, particularly through the Schools Network Access Scheme program. Staff working in these schools and programs are keen to 'present [the] post-school options [available] to the students if they stick in with it,' explaining that 'there will be something at the end of this re-engagement for you' (Manager 2).

The bus visit coincides with RMIT's Open Day, so the university is on display. RMIT staff are aware of the Koori Express and are ready to talk to prospective Indigenous students. The university engages in a marketing campaign in the Gippsland area, especially through community Indigenous radio stations. There is substantial community work before Open Day to ensure that Indigenous people in Gippsland are aware of the Koori Express. In 2008 there were five buses accommodating more than 120 people:

> So the buses brought groups of students and family members from the country for two days of activities. It's important to note that we don't put a limit on age because we want young children who are in the early education sector to also be exposed to the notion of further education, and we want the parents to engage as well, so if they had to bring their young child or children, that's OK. As a way of making that work, we had a children's educator do a circus workshop for one of the days with the young children. This enables young parents to get out and about and have that one-on-one exposure to the education without trying to also wrangle with toddlers and young children, and that was really valued.
>
> (Manager 2)

One key aspect of the program is the involvement of some RMIT Indigenous students who act as ambassadors (identifiable by their red Koori Express T-shirts). The opportunity to meet Indigenous university students is a key part of the program, 'particularly for the kids because people like us talking to them ...' (Manager 2). The Indigenous RMIT student ambassadors are enrolled either in TAFE or

undergraduate programs and are involved in the Lead Program, which helps them to work as mentors with groups and to develop their leadership skills. Some of these ambassadors travel on the bus to the communities, some are at the hotel for the arrival of the buses, and another cohort works for the full weekend with visitors in the various activities involved in the Koori Express experience. These activities include taking students to an AFL football match one evening, going to their choice of movie, and managing the coordination of daytime activities such as listening to high-profile Indigenous guest speakers who are known to most students. Connections are also made with Melbourne's Aboriginal communities, who provide rural visitors with a sense of welcoming and belonging. On the Saturday there are also structured sessions (for example, on filmmaking) with guest speakers in preparation for the Open Day activities on Sunday.

For Open Day, visitors are broken into groups depending on their educational and vocational interests, and are provided with student ambassadors who act as program guides. Each participant is provided with a 'show bag' of glossy publications about the university. There is an expectation that RMIT academic staff working at the Open Day will be very responsive to the RMIT Indigenous ambassadors that approach with Koori Express participants: for example, "'Here's Joan from Lake Tyers, she's a bit interested in Chinese medicine." That student would then get some really good attention and detail' (Manager 2).

The NWIC also follows up with participants in the Koori Express by phone, in order to enquire about additional information they might require.

Evaluation

> We're very much learning from it, too ... It's around learning what will work for the schools and the cultures and the school leadership, and the practitioners.
>
> (Manager 2)

The program has various forms of evaluation gathered from feedback sessions at the end of the Koori Express experience and from other kinds of feedback through phone call follow-up shortly after Open Day. The Ngarara Willim Indigenous Centre drafts its own reports on the program for internal and external readers, which also provides opportunities for ongoing evaluation. These reports have recommendations for future planning of the interconnected set of strategies that are currently being developed and implemented.

This program has been fully supported by RMIT and is understood as a community engagement strategy that requires long-term commitment, given that the program aims to work with students and their families who are in primary and junior secondary school. As well, there is acknowledgment of the long-term aspirations of the project given the nature of the educational disadvantage that the program seeks to address. The program has only been in operation for three years and hence it is only early days. Nevertheless, there has been an increase in students enrolling in RMIT programs from the areas in which Koori Express operates, such as from Gippsland, Bendigo and Shepparton. Manager 2 explains: 'What we do know is that it seems to have a positive impact on general access from the geographic areas where the Koori Express is delivered'.

Conclusion

While it is too early to evaluate this program in terms of increasing the numbers of Indigenous students attending university from the rural communities being targeted, there are very encouraging signs. The following features are worth noting.

Collaboration in the project involves rural schools and their Indigenous communities, NWIC and other parts of the university. The collaboration is made possible by coordination across the university by the manager of the Ngarara Willim Indigenous Centre and the manager of the Equity and Diversity Unit. The program is nested in a broad equity policy logic that informs a set of strategies that work in concert. For example, the Indigenous leadership program at RMIT (the Lead Program) provides ambassadors for the Koori Express program, who play a vital mentoring role for the participants. As well, the program works due to good community reconnaissance conducted in school communities over many years by the NWIC. This aspect of the program is vital for its success: good knowledge of local Indigenous communities provides the program with local credibility that is essential for its ongoing success. The program also targets students in primary schools, when aspirations are still being formed. Such a program requires a long-term commitment to pay dividends but, in the case of improving Indigenous university participation, university interventions that target the later years of secondary school are often too late. Importantly, the program also engages with parents, which has the added benefit of providing them with an opportunity to consider aspirations for future education and training. Finally, the program has evaluation processes that provide for ongoing learning and modification of the program from year to year, but would be improved with more rigorous evaluation that draws on action-research processes.

4.7 Make it Reel, Sydney Summer School Program (University of Technology Sydney)

Barbara Comber

Introduction and context

The University of Technology Sydney (UTS) has a wide range of programs designed to provide information and attract low socioeconomic students to consider attending university. Many of these are developed and delivered by its Equity and Diversity Unit. UTS's Educational Pathways focus is part of its student equity strategy and, as the UTS website *(www.equity.uts.edu.au/education/index.html)* makes clear, has an overt commitment to helping students from socioeconomically disadvantaged backgrounds:

> UTS aims to serve the community at large and enable its students to reach their full personal and career potential. The University also has a strong commitment to providing equitable access to education, and supporting Australian Indigenous people and the process of Reconciliation.
>
> The UTS Student Equity Strategy contains a range of programs and strategies to assist students from educationally disadvantaged backgrounds through:
>
> 1. Outreach
> 2. Admission

3. Support and Success
4. Inclusive Community

The designated equity target groups are:

- Students of Australian Indigenous descent
- Students from low socio-economic status backgrounds
- Students from non–English speaking backgrounds
- Students with disabilities
- Female students studying in non-traditional fields
- Students from rural and isolated areas.

Outreach projects include university open days, visits to schools, on-campus programs, promotion of access schemes and distribution of information booklets to prospective students and their parents. The unit produces a wide range of printed booklets (also published on the website) designed to answer common questions that these groups may have about attending university. It is an extremely comprehensive set of resources.

Given this context and demonstrable commitment to encouraging its target groups, it was not a surprise to find in the survey, which constitutes Section 3 of this research project, that in 2009, the University of Technology Sydney was embarking on a new project in collaboration with the NSW Priority Schools Program (PSP) of the New South Wales Education Department called 'Make it Reel'. Discussions about Make it Reel emerged in the context of the long-term relationship between UTS's Equity and Diversity Unit and the NSW Education Department's Priority Schools Programs and its Equity Coordination Unit. The Make it Reel project is the focus of this case study.

During March 2009, with the program coordinator from the Priority Schools Program team, we visited two of the priority schools whose students had participated in Make it Reel and also met with educators from UTS's Equity and Diversity Unit and the NSW Department of Education Priority Schools Programs.[23] Four focus group discussions were recorded and transcribed. Participants included:

- *three male students from an inner-city secondary priority school*
  One student was of Indian heritage and spoke English and Hindi. One was of Chinese heritage and spoke English and Cantonese, and one was of Vietnamese heritage and spoke English and Cantonese.
- *three female and two male students from an outer-suburban secondary priority school, a parent of one of the students, their teacher and a local regional educational consultant*
  One student was born in Bosnia and spoke Serbian and English. One was born in Germany, her parents were in Bosnia, and she spoke Croatian, German and English. A third was born in Australia to Serbian-born parents and spoke Serbian and English. One boy was born to Chinese parents in Vietnam and spoke Chinese and English. Another boy was born in Australia to Vietnamese parents and spoke Vietnamese and English.

[23] The research team was grateful to the University of Technology Sydney and New South Wales Priority Schools Program, in particular the program's Innovations Coordinator, for organising these visits, which allowed us to seek the perspectives of the secondary school students, their parents and teachers, as well as the university personnel.

- *the participating school-based teacher*
  UTS staff and NSW Education Department staff involved in the project.

Other parents and staff involved in the program also expressed a willingness to be interviewed, but the short time frame of the study did not allow for this. The young people's perspectives are featured in this case study in order to demonstrate their strong engagement with this project and also to highlight their remaining concerns about accessing university. They were particularly articulate about both their aspirations and the challenges that faced them in realising their hopes.

The two schools visited are served by the New South Wales Education Department Priority Schools Program, whose website (*www.psp.nsw.edu.au/about/index.html*) explains its mission in the following way:

> Priority Schools Programs support government schools serving the highest densities of low socioeconomic status families in New South Wales. The programs are underpinned by principles of equity and are part of the NSW government's commitment to social inclusion.
>
> These programs provide resources to improve the literacy and numeracy achievements and engagement of students from low socioeconomic status backgrounds. These are the most critical requirements for student achievement across the full range of education and training outcomes.
>
> Priority Schools Program resources support Priority Schools to *do things differently with more*, rather than, *more of the same.*

Clearly, there were strong synergies in the missions of the UTS Equity and Diversity Unit and the NSW Department of Education and Training that underpinned the collaboration that was vital to the genesis of this intervention.

Description of activities

Make it Reel is a summer school program held at UTS during the holiday break in January. The project is of interest in the wider context of university early intervention programs, because it targets Year 9 and 10 students and is designed and delivered cooperatively by two education sectors. Make it Reel is based on Cineliteracy, an earlier initiative of the NSW Department of Education and Training in its priority schools (see *www.psp.nsw.edu.au/resources/cineliteracy_vcd/index.html*), which was designed to be used in schools with students from K to 12.

Cineliteracy was particularly designed to support the engagement of students in 'real life' literacy practices in low socioeconomic status communities. However, it is a resource that many public sector schools in New South Wales are incorporating into their teaching and learning programs, informed by the understanding that Cineliteracy is a strategy for teaching traditional and critical literacy skills through the study of the moving image (for example, film and television). As film and television are central to contemporary life, parents, community members, teachers and students participating in Cineliteracy can bring valuable cultural and background knowledge to the classroom.

Make it Reel is based on Cineliteracy but the program has been adapted to be offered as a three-week intensive summer school for 30 students from priority schools whose families had not attended university. The deputy director of the Equity and Diversity Unit at UTS saw the potential of a university summer school based on this program as part of their outreach activities. Educators from the Equity and Diversity Unit and the Priority Schools Program met to discuss how to work together to modify the program for the intended student group and to deliver it as a summer school. The basic aim of the program is for participating students to produce short films, but the underlying goals were to:

- inspire and motivate students in Years 9 and 10 from priority schools to attend university, and
- improve the students' literacy skills in order to better equip them for selection in to, and success at, university.

This case study analyses the development and implementation of the Make it Reel summer school conducted in January 2009. Academic staff and a classroom teacher developed a three-week program, based on Cineliteracy, to be delivered on the UTS City Campus. UTS students were recruited to act as mentors to the school students. Publicity for the program and an application process were jointly developed but managed through the NSW Department of Education and Training. Both UTS and the department provided cash and in-kind support to guarantee the success of the project. Funds were needed to cover the time of academics, teachers and mentors, as well as catering. In addition, each school student was given a travel allowance and a small sum of money for attending and completing the summer school (to defray lost income from possible holiday employment). The recruitment process was conducted in 2008 and involved an online application and an orientation day at the university in December.

Students needed to commit to attending every day from 6 to 22 January from 9.15 am to 3.30 pm unless prevented by illness. Thirty students began *and* completed the program. Students were assigned to one of three teams and many were no longer with peers from the same school. Each team was supported by a UTS film undergraduate who acted as mentor and guide throughout the three weeks, and as the 'producer' of the students' films. A student explained how it worked:

> We were divided into three teams, and each team had to make a movie, and the university students helped us by, they were like, they took the roles of producers, and they helped us, they guided us through the process of filmmaking.

They mentioned that they were 'proud' to have been selected and students from the outer-suburban school made it clear that being on campus was significant for them:

> Well, I remember the first day, me and [Student 2] got on the train and we were like "Oh my God, UTS". We were just like jumping up and down because we felt special, like "we're going to UTS, a university that's pretty hard to get into and we're going there for filmmaking", and we just couldn't help but think, you know, out of how many people that applied, "we got to be chosen", you know, "how lucky are we?" It's like a once in a lifetime chance. You don't [have] this come around all the time.
>
> The experience of going to university made me feel prestigious, like I'm smart, because

> it's helped me figure out like where I want to go for uni, like what kind of future I would have, like because I haven't decided what career I want to follow, so it's helping me decide which path to go to.

The summer school program was based on a series of workshops where young people were explicitly taught the various complex skills of filmmaking. Topics included: writing a synopsis, editing with iMovie, production design, writing the screenplay, camera operation, revising the screenplay, filming protocols, sound design, location reconnaissance and safety checks.

At the end of the summer school, the students and their families were invited to a launch and 'graduation' ceremony, where they were presented with certificates by the UTS Vice-Chancellor.

When invited to reflect on their experience of Make it Reel, several students reported that they had made films at school and at home, which they described as 'amateur', and contrasted these with the UTS experience as 'professional'. One student from an inner-city high school was quite articulate about what he had learned:

> The most I learnt was about continuity. I really didn't think about that much when we were like filming our amateur films, but then I saw the difference, like what goes wrong when you don't use, like when you don't think about continuity and linking all the parts of the film together.

This student went on to state, with respect to a new film he planned to make with friends:

> Yeah, now we're following the steps of the UTS. Last time we didn't know about pre-production.

Another student from the outer-suburban school made a similar point:

> First day she's like 'You have 13 days to make a movie, guys, suck it in', and we were like 'Oh my God', because like I said it usually takes one month and a half to make a movie, just in school, by yourself, and to have a group of people you have to have teamwork and you have to have control over the group.

Students from the school also noted the importance of the professional feel of the whole experience:

> *S1:* I don't know. I expected like simple, I don't know, Dell computers with the very standard programs, but then when we got to the computer lab it was big Mac computers, you know, with everything on it, Photoshop, everything you need to make a movie, like it was amazing.
>
> *R:* So the facilities were really, really ...
>
> *S1:* Up to date.
>
> *R:* Yeah, OK, and that was important to you, yep.
>
> *S1:* Because how would it be if we're trying to make a movie and we don't have the programs.

[24] Abbreviations used in this case study: S1 (Student 1), S2 (Student 2), S3 (Student 3), Student 4 (S4), Ss (multiple students talking at once) R (Researcher), PSPC (Priority Schools Program Coordinator), T (Teacher), Equity Officer.

S2: It let us be more professional.

S1: More professional—that's one thing about this experience is that we viewed the movie like it was ...

S2: Yeah, very professional.

S1: In a cinema thing, you know.

S3: Like that part, it had the whole ...

S1: We had introductions, we had speeches, we had a program, we had everything planned out like the real thing, so it made us feel more important like ...

S2: Yeah, even the criticism of the producers made it seem more professional, that this movie had to be, or the movies had to be ...

S1: They gave us criticism that they would use in real life, basically.

S2: Yeah.

It is important to note that this summer school program did not offer the typical 'remedial' approach to young people's literacy skills. This program—based around young people's serious engagement in the media arts—ensured the development of skills through high-quality learning and sustained motivation. The 'professional' feel of the entire enterprise—equipment, feedback, time frame, speeches, cinema—had an impact on the students' valuing of the whole experience.

Evaluation

The aim of this case study is not to evaluate the students' learning in the Make it Reel project. Indeed, such an evaluation would require long-term and specific data gathering beyond the project's brief. Rather our aim is to analyse the intervention in terms of the key features that made it successful from the points of view of the participants and to identify issues that emerged in the retrospective commentary that indicate the need for modifications for future iterations of the project or for similar interventions. Different informants highlighted a range of issues and insights that may have implications for others wishing to replicate similar collaborative programs. These include observations about the nature of the intervention, the summer school concept, recruiting the target group, reducing the emphasis on the Tertiary Entrance Rank (TER) and the Universities Admissions Index (UAI), and sustaining cross-sectoral collaborations.

The nature of the intervention

The Make it Reel approach takes young people seriously as apprentice filmmakers. They were not offered a watered-down approach to filmmaking or a top-up version of schoolwork during the holidays. This approach is in line with the characteristics of other long-term, sustainable and effective school–university collaborations, such as University–Community Links (www.uclinks.org) at the University of California (Gutierrez et al. 2009). The characteristics of such approaches are important to identify, because students and parents believe that summer schools offer important and meaningful learning opportunities.

Indeed, these young people are looking for serious learning opportunities in an area of media/arts, not a

traditional remedial program in literacy skills. As two decades of University–Community Links research in the 5th Dimension projects (after-school education programs that involve collaboration between education sectors and other organisations) indicate (see Table 3), there is great potential for young people to be apprenticed to meaningful learning communities focusing on digital media and forms of representation.

Table 3: Gutierrez's Remediation versus Re–Mediation

Remediation	Re-mediation
Basic skills	Basic activity
Often individualised	Joint activity
Scripted	Generative
Low-level mediation or assistance	Multiple forms of assistance
Homogenous	Heterogenous
Readiness models	Rigorous, challenging
Generic assistance	Strategic assistance
English-only	Hybrid language practices

Source: Gutierrez et al. (2009:14)

Gutierrez et al. (2009) contrast traditional forms of 'remediation', which focus on individual students practising basic skills in pre-planned tasks with generic forms of assistance, and approaches that involve groups of young people in complex learning 'ecologies' using tools relating to activities that matter historically and culturally. These distinctions apply to Make it Reel. Students were involved in all aspects of the entire activity. They worked together in groups on an evolving negotiated product, with assistance from various helpers who had varying degrees of knowledge, during a rigorous, challenging project. Evidence of how seriously these young people engaged in the task was their continuing interest in obtaining feedback several months after the summer school had finished. Students at the city secondary school were still seeking more critical feedback after their films had been launched and they had 'graduated':

S1: Just one thing. For this Make it Reel thing, at the end of it could someone analyse our videos and then give us recommendations, feedback.

S2: Professional feedback.

PSPC: Yeah, right, OK.

S1: Because we never got any feedback and what we should have done different and stuff.

S2: Yeah, everybody was just like 'Oh, that's good'.

S1: Yeah, 'It's good', and that's it.

Students had developed a desire for high-quality professional feedback, which was not extinguished at the end of the program. This seems to have been another key aspect of being taken seriously, which was also associated with not being late, not missing any sessions, and being paid to attend. In reviewing the notion

of 'apprenticeship' with respect to arts and theatre summer programs targeted at disadvantaged youth in the United States, Halpern (2009) notes the importance of feedback from practising professionals—artists, directors and actors. In the programs he reviews, young people are apprenticed through real rehearsals and performances to become directors, importantly learning about responsibility for success through real engagement, not simulated tasks or parts of tasks. When asked about whether their literacy skills had improved during the course of Make it Reel, the following discussion occurred:

S2: Because we had to fill out worksheets and stuff, so yeah, it kind of contributed.

R: OK, tell me about that because I haven't seen them, I don't know anything about them yet.

S2: Well, we had to like, we had to write stories, ideas for stories, and write about roles of, roles in the filmmaking process.

S3: To form out of a script, that was something we ...

R: You hadn't done that before?

S1: Yeah, we did but we just developed our skills, how to write it a bit better.

R: How to write it better?

S1: Yeah.

R: What made a difference to writing it better?

S1: It made the movie better.

R: OK, yeah, it made the movie better. So by doing that writing, so you did the writing, in a group or as an individual?

S1: In a group and then, yeah, we kept ... actually with only two people but then we could contribute our ideas and then change the script, I think we could do that.

R: And did you get feedback?

S1: Yeah.

R: So the feedback came from the whole group?

S1: Yeah, but we used to have this session at the end of the day, where we'd give information about each other, like, and the progress of everyone.

In this project, students' literacy improved as they witnessed the difference that revised scriptwriting makes to the quality of their film. Literacy was not an end in itself but part of the learning repertoire required to make high-quality films. In this context, students were not intimidated by the need for regular writing and revision. Indeed, they barely noticed the 'literacy work' required. Immediate feedback became a crucial part of learning. As one student recounted:

> I think it was to our advantage that they were being, that they were criticising us because that's how we were learning. I mean obviously if someone doesn't criticise then you think you're doing the right thing even though it's not.

These students do not shy away from rigorous and challenging activity; they welcome it because it makes sense in the context of what they are trying to achieve. When one group that was engaged in making a documentary about war began to encounter the emotions of people who had been affected by war, the project took on further meaning. Referring to the father of one of her peers whose childhood had been traumatised by the Vietnam War, one student explained:

> As soon as he started to show emotion everyone started to get really into it, like 'Oh my God, this documentary actually means something'.

No longer just making a movie, but fully engaged with the politics of representation and filmmaking, this young woman really began to understand what the filmmaking career she is planning would mean as a social and cultural practice with tangible effects.

The summer school concept

As mentioned above, the idea of offering interventions in the form of after-school programs and summer schools is not new in terms of encouraging low SES students to aspire to and attend university in the long term. The Make it Reel program developers had anticipated that some of the student cohort they were seeking to attract would be working during the summer break and hence offered a small payment as an incentive for the young people to attend. When asked about what they might otherwise have been doing in their summer holidays, there were clear differences between students at the different schools. The city secondary school boys appeared surprised that they might have been in paid employment.

R: What would you have been doing otherwise, you know, like in your holidays, like would you have been working? That's what I'm mainly interested in, is whether you would have had summer jobs, or just hanging out.

S2: Yeah, just hanging out.

R: Hanging out.

S2: We didn't have much jobs.

R: OK.

S1: Can't even get a job anyway.

R: What was that?

S1: We can't even get a job.

S3: I'm not old enough.

In fact, they would have been old enough to work, but this was not an option they had considered seriously. As discussed below, these boys may have been more privileged than the intended target group;

nevertheless, their desire for more opportunities for 'serious' summer schools and autumn schools was extremely interesting:

> *S3:* They could make it a, like they could give out certificates, like each time they can like go again, and each time they get like Certificate 1, Certificate 2.

I see, yep, so you get some credentials, yep. What about, you know, you guys, some of you are interested in software stuff, I mean would you go to a summer school or an autumn school, or a winter school, about IT?

> *S3:* Yep.
>
> *S1:* Yeah, definitely that's ...
>
> *R:* Would that interest you?
>
> *S1:* Learning experience, yeah.
>
> *S3:* I would go for a nursing summer school or something.
>
> *S2:* I would go for any.
>
> *S3:* Because it's a productive way of using ...
>
> *R:* OK, so it's not only that filmmaking is cool, you would do these other areas as well?
>
> *Ss:* Yeah.
>
> *R:* That's very important.
>
> *S1:* It's probably once in a lifetime you can do it.

These students emphasised that they would be interested in further opportunities, including a specific interest expressed in relation to a nursing summer school.

Students and a parent interviewed at the outer-suburban school reiterated the appeal of the summer school concept, even though these students mostly had part-time jobs. The intensity of the learning experience was clearly part of the attraction.

> *S4:* Because I didn't do photography in Year 9 and 10 so I didn't have much experience, but with the program I learnt lots, like how to use the different roles, like the first AD [Assistant Director] and what they do, the cameraman, and all the shots. It's like a crash course into photography.
>
> *S1:* We did two years skipped up in 13 days.

The parent who attended the interview and who had participated in the filmmaking was adamant that summer schools were a real advantage for his children, who spoke English as a second language and who would be the first in their families to have the opportunity to attend university. He raised concerns that young people tended to stay at home during the long break, without what he saw as enough contact with

nature, friends and the community. In his view this was a result of easier access to digital entertainment in the home. He was a great fan of the summer school because from his perspective it provided learning opportunities in English and in the university setting that extended what families speaking English as a second language could provide. He explained the need to work long hours to support his children to stay at high school and consider higher degrees, and believed that the government could consider subsidies for high school students, which would assist families like his. As he explained:

> I mention because the government got a plan like this for the holiday time, the kid can go study again, that way they can keep continual study, like it very good this thing. The government should support ... how long. If they do like this on the future, I think very good, and for me these day lot of the kid, you know, stay home, doesn't go out, doesn't see anyone, that's why this will work for the new generation. They should be and when the holiday they have to go out somewhere, study, like that, good for them.

He explained that weekends provided good family time to get together and that the long holidays were perhaps too long from his perspective. He also referred to the extra costs he incurred in getting his children extra help with language:

> For me, for me when I got a kid, I think they go to study at the uni. Very hard, very hard, because they lot of homework ... That time, for me, was very important, the English, that way when I go to work I get the kid go study the language for help them, because I can't help them, because I ... English, not understand much, that why I can't help them for their homework, that why I have to pay for someone.

Clearly, long-term financial and personal struggle is involved for this parent as he attempts to support his family to aspire to university and to achieve the academic performance that is necessary to take them there.

Recruiting the target group

One surprise for the Priority Schools Program coordinator was that a number of students were not the first in their family to attend university, even though this was the student cohort sought for this intervention. However, as it eventuated, at the city secondary school the students who successfully applied for the program all had parents who had graduated from higher education and were employed professionally. This is not to say that these students' families were necessarily economically well off. In one case the student was from a single-parent family, and in another the parents' international medical credentials were not recognised so their level of employment was lower than in their home country. However, before having attended the summer school, each of the boys not only assumed that he would attend university but also knew which universities he would apply for, sometimes in order of preference:

R: So I'm interested I guess in you having a bit of a think about has this program made any difference to your thinking about university?

S1: I was going to go to university.

S3: Yeah, that's what we're aiming for.

S1: Yeah, all of us.

R: So all of you were aiming for university?

S1: It's our goal.

R: It's your goal, OK, so that's fine. So tell me more about that then, let's keep going with that, you know, what do you plan to do when you finish school, so let's just go one at a time in terms of ...

S1: Software engineer, yeah, I'm not pretty sure about it but I'm just going to get the highest UAI [Universities Admissions Index score] I can get.

S2: And see what happens.

As the conversation continued it became clear that these boys had given their academic future a great deal of thought and had very high aspirations:

R: I don't know the unis as well here. You know you want to go to university, do you care which one?

S1: Yeah, I do, but I don't know which one.

S3: Yeah.

R: But you do care?

S1: Yeah.

R: What's your goal?

S1: Harvard!

Each of the boys outlined the options he was considering in terms of degrees and preferred universities, as discussed further below. It was also clear that none of these boys was considering a media career in his list of possibilities. They were there for the extracurricular experience. None of them ranked UTS as his first choice, as they were seeking occupations where other universities were perceived to have higher standing:

R: I mean do you know people yourselves who have been to university, and if so has that been a factor in your thinking?

Ss: Yeah.

S3: Talk to my parents.

S2: Same with my parents.

S3: It's just been put in my head that I have to go.

S2: It's always parents.

R: Always parents? For all three of you?

S2: You've got to follow the footsteps of your parents.

R: So all three of your parents, one or both, have gone to university, for each of you?

Ss: Yeah.

The feedback from these students raises a broader question about whether early interventions recruit the young people whom they intend to target. The focus group boys suspected that friends of theirs who might have benefited from the summer school had found the application process too demanding. As one student explained, 'There were other people but they just couldn't be bothered typing those essays' (Student 1).

At the outer-suburban high school, the participating students also spoke with a reasonable degree of certainty about their futures, including attending university. However, in this case, the UTS experience and the recent experience of an older sibling or friend had made a difference to their aspirations. None of the parents of the five students interviewed had been to university:

R: What are you thinking of doing? Are you imagining your future with a university in it?

S1: Oh yeah, that's why I was excited because UTS is the university that I want to go to.

R: OK, and you thought that before, after, during?

S1: Before, way before.

R: Before? So you'd already wanted to go to UTS before?

S1: That course, that is our best two design courses in our design course, is what we just did, the filmmaking course.

R: So it confirmed that?

S1: It confirmed that.

This determination somewhat surprised their teacher, yet this student was not alone in her aspirations:

S4: What I liked about UTS was the experience, getting experience how to make filmmaking, and I have decided that if I get the chance to go to university, mine was University of New South Wales, or UTS, either that. If I can't make it into New South Wales, then I'll go to UTS because it's closer to the station.

R: That's very important, very important. What do you want to do?

S4: Maybe graphic design, filmmaking or photography.

Later the teacher explained that this was a significant turnaround, particularly for Student 4 who has struggled with literacy, academic demands and confidence. She was delighted to see the change in him:

> Yeah, again I think confidence in literacy and confidence in learning is a really, really big factor. I see a boy like [Student 4] walking into a classroom and just giving up in the first five minutes, sitting down, which is a little bit sad, and just giving up, because already in five minutes the concepts are over his head. And the confidence … he's back here this year and he's a new man. He's taking notes, he's writing everything down, he's on time. He knows he's different, he knows he's special, and he knows he can do something, he knows he can achieve, so that's turned him on to being a better learner.
>
> (Outer-suburban secondary school teacher)

As the conversation went on the young people continued to delight her, particularly Student 2:

> Well, university has always been a part of my future. I've always wanted to go to university, and I can't wait to start at uni, and I've also wanted to study law in university, and I wanted to do a double degree, so being there I've made my decision that my second degree would be in communications, in media and production, so it's been very helpful for me to decide which kind of degree I would choose.

Student 2, who was extremely articulate throughout the focus group discussion, later elaborated that she intended to work for the United Nations and had already discussed these plans with her mother. This student is already aware of the advantage of doing a specific kind of double degree to take her to the ambitious future she envisages.

These young people did not demonstrate low aspirations despite attending schools in low socioeconomic areas and, in many cases, despite their families being on a low income. However, as they explained, they were not necessarily typical of their school peers. In various ways, the young people who participated in Make it Reel were being actively supported by their parents, even to the extent of the provision of extra support with English-language tutoring and so on. At the very least their parents, and in a number of cases older siblings and friends from the community, had already made them aware of university as a possible future pathway. Some of them had considered their educational trajectories in relation to long-term personal futures:

> *R:* I mean you've thought about getting a job and having the credibility. Is the money side of what you'd earn, is that something that you think about at this point, or not really?
>
> *S1:* Probably our future, like if we have a family.
>
> *R:* OK, earning potential?
>
> *S3:* Yeah.
>
> *R:* Do you want to add to that?
>
> *S3:* No.
>
> *S2:* And security.

This group of young men knew that some of their friends did not share their aspirations for the future and had watched classmates leave or talk about leaving school:

R: Are there things that you hear from your mates at the school that you think might stand in other people's way, not necessarily yours?

S2: The travel, they live really far from the universities and stuff.

S1: They don't know the value of university, like our classmates dropping out in Year 10.

S2: Yeah, some people are dropping at Year 10.

R: Why do you think people are dropping out?

S2: They prefer other options.

R: Like?

S2: Like ...

S3: Macca's.

S2: There's this guy who's dropping out of Year 10, he's working as a nurse, he's trying to get into a rural nurse course.

R: Right, go a different pathway?

S2: Yep.

S1: Probably to get experience.

R: You think people are wanting that work experience sooner?

S1: Yes, but uni like takes years.

R: It's so far away in time, uh huh.

S1: You'll be old until you get hired.

The students raised several interesting issues in this discussion. They pointed out that some of their peers had already dropped out at Year 10, and one suggested it might be to work at McDonalds—one local option for young people who leave school early. However, his friend complicated this rather deficit account and described a specific pathway into nursing. They then turned their attention to the value of actual work experience, before admitting that university would take years and anticipating being 'old' before they had won their first position! Clearly, these young men were at the stage of imagining possible futures and understanding what might need to be sacrificed for the long-term goal. They also recognised the pressures on peers to make different decisions. One of the pressures they emphasised, as did the students at the outer-suburban school, was that associated with the Universities Admissions Index (UAI)—the NSW version of the Equivalent National Tertiary Entrance Rank (ENTER), which is often abbreviated in individual states as the TER. This was particularly interesting in the light of the recent Bradley review (2008), which argued that more widespread use of alternative admission processes should be trialled.

Reduce the importance of the Tertiary Entrance Rank

Students at both schools talked about peers who did not have the support they needed to finish school and go to university. When asked about what could be done to make a difference, they had a range of suggestions but they emphasised the dominance of the TER:

R: What do you think the universities could do, or the school could do, for your friends, you know, like the ones who are thinking of dropping out now in Year 10? Is there anything we could do?

S3: Provide some sort of incentive.

S2: Yeah, make it more appealing.

R: Talk about what that might be like.

S3: It's probably about the pressure that they drop out.

R: Say something about that.

S3: They might be scared of what they get, they probably can't face it.

S1: Yeah, the only reason our classmate is dropping out is because she fears she's going to fail the HSC [Higher School Certificate] and stuff.

S2: Some hospitals they said they have enough doctors and nurses, and the doctors and nurses have to get a high UAI to get into it [university]. If it's too high, like there's less people, so that's one thing.

R: OK, so there's pressure, that's the negative, so we could do something about the pressure, but then you also said provide an incentive so talk a bit about what that might be.

S3: Some sort of, I don't know, money.

R: So scholarships?

S3: Yeah, scholarships.

A number of suggestions are embedded here about incentives that remain unelaborated, but the boys then returned to their earlier theme:

S2: Lower the UAI.

S1: Like last time there's this occupation, it was 85, and I looked it up, it was 89.1 or something.

R: OK, so the fact that it's going up?

S1: It's going up.

EO: Could something happen before you get to the UAI, like what could be

happening at school to take the pressure off, before you get your UAI? Is there something [that] could be happening in Year 8 or Year 9 that would help people feel less pressure?

S1: I don't know, stop making such a big deal out of the UAI. Just make it sound like some, just another exam, like most people have a nervous breakdown in their UAI.

S2: Yeah! It's like the whole schooling career's, like, building up to this.

S1: Yes, there's a lot of pressure.

The Bradley review explicitly addresses this point and argues that:

> ...more widespread use of other approaches to selection and admission with a broader range of criteria in addition to or replacing the TER (Tertiary Entrance Rank) and which recognise structural disadvantage should be trialled (Bradley et al. 2008: 38).

The review also points out the problems with information about the process that may exacerbate disadvantaged students' difficulties with aspiring towards and attending university. Students at the outer-suburban high school agreed and indicated some of the confusion that exists:

S2: Yeah, the ranking and the scaling, depending on the school that you're from.

S1: Yeah, depending on the school they rank you to that, so...

S2: I don't think there's enough information out there about the scaling and the ranking.

S1: The scaling, no-one really knows how they really do it, so you kind of get freaked out, you know, maybe if that other person in the class...

S3: But if you're really good you get...

S1: But they didn't say that if that person has a higher class mark or higher something, then your one swaps with theirs?

S2: It's very confusing because it's hard to find information satisfactorily.

There was both anxiety and confusion evident about how the Tertiary Entrance Rank—or Universities Admission Index in the case of New South Wales—was established, why it was so important and why the required rankings escalate for particular courses. Some students also recognised that where they grew up counted in terms of how they were seen:

S2: Well, I think schools should encourage their students to actually go to uni because I believe that the schools are not encouraging us enough, especially in western Sydney, because we are classified as disadvantaged, is it, and I think because we're classified as disadvantaged, then they probably feel that we're not...

S1: We don't go to uni.

S2: Yeah, we don't have a good knowledge.

T: Aspiration.

S2: Yeah, aspiration to attend uni.

R: But that's not true, right?

S2: Yeah.

S1: But, see, there's some kids that take that, what they say they're disadvantaged, and actually they strive and get 99.9 for their UAI. Last year we got 99.1, was it? [Students are actually discussing the TER here, indicating confusion about the TER and UAI.]

S3: 99.2

S2: 99.8.

S3: There was a 99.2 or something.

T: 99.25 was the highest.

S2: It was very high. They say that we can't do it, but we can.

These young people demonstrated a strong critical awareness of where they stood in terms of wider societal expectations for them as a group. Yet, they contested stereotypical deficit views and called on previous outstanding performances of former schoolmates as evidence of what they might accomplish. They recommended that there should be more emphasis on going to university at their school, in the media and in the community, as well as better information about what was involved and what pathways and supports were available to them. They also suggested that this kind of information should start no later than Year 9, as very often they were making subject choices that limited pathways by the end of that school year, if not earlier.

Conclusion: sustaining cross-sectoral collaborations

The teams from the University of Technology Sydney and the Priority Schools Program who were responsible for the design and delivery of the summer school made it clear that their long-term relationships were integral to the program's initiation and ultimate success. They were keen to learn from their initial summer school experience and from this case study in order to inform possible future work together. Both groups acknowledged the importance of each other's record of achievement in equity-related projects and ongoing programs as well as the value of having 'a shared vision'.

The program developers did, however, raise a number of issues that are important to document here. One key issue was that 'partnerships are enormously time consuming and resource intensive and they're not going to work unless you do have some resources to put into it'. The range of issues they raised concerning their partnership model included:

- ongoing funding
- ongoing roles and responsibilities for different aspects of the program (for example, recruitment and publicity, student selection, staffing, correspondence and permissions)

- clarifying and recruiting the appropriate target group (stage of schooling, low SES, gender and ethnicity, literacy capabilities)
- keeping the scale of interventions manageable, and
- cross-sectoral endorsement/accreditation of the students' work.

One of the developers summed up the value of the approach they had taken:

> It definitely was a dual-pronged approach. The department definitely wanted literacy built into it, and we definitely wanted aspiration built into it, and one of the things, one of the ways that we went about doing that was not only to bring them on to the university campus, and I guess give them, treat them like they're doing serious, serious work ... but getting university students to be their mentors so that they're actually exposed to people who are living the university student life.

In terms of the strategies to be noted in the Make it Reel intervention, there are three major themes to be highlighted. First, the project involves a serious long-term collaboration with the school sector, built upon a reciprocal recognition of skills and knowledge and a shared commitment to equity principles and practice. There is serious investment of people's time and expertise from both sectors. From cohorts in identified priority schools it attempted to recruit young people in Years 9 and 10 in order to make a difference before the latter years of secondary school.

Second, the activities themselves draw upon the best features of the student-as-apprentice model to build an enhanced, highly engaging curriculum: mentors with professional/practitioner know-how, an indenture-like model (being paid to attend for a contracted period), and building in of critical feedback, typical of real craftspeople. The curriculum design capitalised on young people's interests in popular and digital media and the cultural experiences of the diverse study body.

Third, the academic goal of improved literacy is achieved through embedding literate practices in the larger goal of producing a quality product. Students participated in a rigorous and demanding high-stakes curriculum on a highly motivating group project. They were supported with high-quality tutoring as required in the context of the university environment and, in turn, the university was showcasing the best of what it has to offer.

4.8 YuMi Deadly Maths (Queensland University of Technology)

Sam Sellar and Trevor Gale

Introduction and context

The Deadly Maths Consortium is located in the Faculty of Education at the Queensland University of Technology (QUT), a large university serving 40 000 students across campuses in metropolitan and outlying areas of Brisbane.[25] It is a member university of the Australian Technology Network. The Deadly Maths Consortium has emerged from the work of academic staff based in schools and research centres at both Queensland University of Technology and Griffith University, rather than from the QUT Equity Services,

[25] See Deadly Maths Consortium (2008a) for an overview of the consortium's work.

and it therefore differs from many of the other intervention programs reviewed in this section. Rather than constituting a single intervention strategy, the consortium comprises a number of different programs that 'aim to improve Indigenous life chances and opportunities for employment' by developing proficiency in mathematics (Deadly Maths Consortium 2009). These programs span all levels of education and involve working with Aboriginal and Torres Strait Islander students in early childhood, primary and secondary schooling (YuMi Deadly Maths); supporting the development of Aboriginal and Torres Strait Islander students' mathematics learning in the vocational education and training sector (Indigenous VET); and supporting Aboriginal and Torres Strait Islander students to pursue research degrees, and non-Indigenous students to research Indigenous issues at postgraduate levels (Deadly Degrees).[26]

In this case study, we focus specifically on the YuMi Deadly Maths program. Increasing students' access to tertiary education is a specific aim of the program, and it pursues this aim by building capacity in the provision of mathematics education for Indigenous students in the compulsory years of schooling. The program includes a range of different projects; however, here we focus on the broad approach of YuMi Deadly Maths that informs each of them. YuMi Deadly Maths emerged from connections that QUT researchers had established with schools in low socioeconomic contexts. Invitations to provide teacher professional development were extended as a result of these connections, and over time this professional development work became predominantly focused on Indigenous schools in rural and remote locations across Queensland. During this period, a range of related projects were collected under the title of 'Deadly Maths'—a term drawn from Aboriginal language and culture that was proposed by an Aboriginal staff member during an early phase of the project. This title was later extended to 'YuMi Deadly Maths' to include reference to Torres Strait Islander language and culture (Deadly Maths Consortium 2008b, 2008c).

The program has continued to grow over the past 10 years with the support of funding from competitive research grants (including Australian Research Council funding) and from partnerships with schools, government and other organisations. While improving the mathematics learning of students is the central aim of the program, and some direct pedagogical work with students is undertaken, this aim is predominantly pursued through professional development programs for teachers and teacher aides, and through working with school and community leaders to support whole-school change. Mathematics curriculum materials are also developed by researchers in the program and trialled with teachers and teacher aides as part of this process. Action research and design experiments are conducted in parallel with the provision of professional development. This enables researchers to evaluate the effects of various projects on student learning and teacher practice, in order to inform ongoing project development and implementation. The program appears to be highly regarded within the network of rural and remote schools in Queensland and Western Australia, where its projects have been conducted.

Data for this case study was collected during semi-structured interviews with a lead researcher and a co-researcher from the program, and during a focus group with three long-serving research assistants working on Deadly Maths Consortium projects. Relevant Deadly Maths documents, including resources published on the consortium's website, were also consulted.

[26] One current YuMi Deadly Maths project involves working in early childhood contexts with students as young as 2–4 years (Deadly Maths Consortium undated).

Description of activities

Mathematics education and professional development

The YuMi Deadly Maths program reflects a specific view of mathematics education in Aboriginal and Torres Strait Islander communities. It positions the students in these communities as capable learners with the potential to become successful mathematicians, and emphasises the cultural and contextual aspects of mathematics knowledge and practice:

> The maths itself must be contextualised, must not be a celebration of Western greatness, which it often is in maths and science. It's got to accept that Indigenous cultures have tremendous mathematical ability. It's got to ... build knowledge of the structure of mathematics, not functional maths that just teaches them to do applications, because they won't tolerate that, that's second-rate maths.
>
> (Lead researcher)

The program aims to teach mathematics in meaningful ways and employs active pedagogies (whole body, hands-on) to engage students. There is a focus on providing students with deep understanding of mathematical structures rather than simply developing proficiency in basic skills and applications. Students are supported to develop 'understanding [of] the fundamentals behind the operation, or behind the concept that they're trying to learn' (Research assistant 1). There is also a focus on connecting 'powerful' Western mathematics with Indigenous knowledge and ways of knowing. The program encourages teachers and schools to grant this knowledge equal legitimacy, in order to recognise and engage its value as a learning resource in the classroom:

> The project is about the contextualisation of mathematics to Torres Strait Islander culture of community and home language ... when we go into classrooms it is hoped that we learn about their ways, their knowledges and understandings ... so it's through ... contextualising Torres Strait Islander ways of knowing with the home languages, with Westernised mathematics, so they all come together.
>
> (Co-researcher)

The program's rationale directly links improved academic achievement in mathematics with improved access to higher education and future employment for Indigenous students.

The professional development aspect of the program involves researchers working with teachers and Indigenous teacher aides to develop their mathematical content knowledge and their proficiency in effective mathematics pedagogies. Four guiding principles inform the program's approach to professional development: ensuring that such work is undertaken with teachers that are open to change and motivated to learn; providing knowledge and materials that are theoretically informed but strongly connected to practice—for example, 'something [teachers] can use on Monday' (lead researcher); supporting the implementation of this new knowledge and curriculum material in the classroom; and pursuing further iterations of professional development and research in order to sustain changes generated by initial interventions. Sustaining change and providing ongoing support are central foci for the program, and the development of curriculum materials is another means to integrate its work into more enduring

structures. The action research and design experiments conducted in parallel with mathematics education and professional development also provide a means for recording and disseminating knowledge about effective intervention strategies.

Community collaboration and whole-school change

YuMi Deadly Maths researchers described their belief that sustainable interventions require whole-school change and the strengthening of school–community networks, rather than simply focusing interventions at the level of the classroom or individual students. Indeed, consulting and establishing connections with Indigenous leaders in the communities served by schools participating in the program is the first stage of YuMi Deadly Maths projects:

> As soon as we get the OK [to work in a particular school] we have to go and meet with the Indigenous leaders of that community, before we get any money and before we go in there, because we have to show everyone that that's the most important thing. Schools and the community must come together ... You've got to go in together. The successful schools have always had these aspects, high connections and interaction with the community, including allowing community knowledge to become an accepted part of the curriculum. You can't say that the Elders' knowledge is no good and we've only got our Western knowledge to give you.
>
> (Lead researcher)

Here the program's logic of intervening at the level of community attitudes and curriculum structures is clearly described. Researchers also attempt to build educational capacity through collaboration with community members by, for example, helping 'Indigenous teacher aides to become effective tutors of mathematics to their students' (research assistant). This approach is a key strategy for increasing the sustainability of interventions like YuMi Deadly Maths. High teacher turnover in these rural and remote Indigenous schools can make it difficult for schools and their communities to retain the benefits of such interventions over time. Researchers found that much of the mathematical knowledge, and proficiency in mathematics pedagogies, that was being developed was quickly exported with teachers when they transferred to other sites. This obstacle led to researchers working with both teachers *and* teacher aides, in order to increase the likelihood of the knowledge and skills developed by the program becoming embedded in these places. Many teacher aides are long-term community members who provide support roles in schools but have no formal teacher education, and may have only minimal secondary school education. The YuMi Deadly Maths program provides them with professional development in both mathematical content knowledge and pedagogies, and thereby attempts to increase both their own level of educational attainment and their capacity to work pedagogically with others.

However, this approach relies on the willingness of new teachers in these schools to work with, and learn from, teacher aides. This willingness is not always evident, and researchers found that often 'new young teachers coming in are arrogant towards them and won't let them try their stuff' (lead researcher). This problem led to a greater focus on ensuring commitment to the program at the whole-school level, in order to encourage change in school cultures through professional development of teachers, teacher aides and

principals. It is hoped that this approach will create conditions in which teacher aides can 'be given power to even tell the teachers what to do' (lead researcher), although pessimism about the likely success of this approach was also expressed.

The whole-school focus of the program also places onus on principals to implement cultural change in relation to students, including expectations of high attendance, appropriate and effective behaviour management, strong student engagement and high academic expectations. Importantly, researchers emphasised that such change involves acknowledging the need for institutional structures to respond to the specific requirements of the communities that they serve, rather than constructing problems such as low engagement or academic achievement as the result of individual deficits. For example, one researcher explained that 'the school sensibility has to change ... the school might have to fit in with the students a little bit' (lead researcher). The consortium now considers whole-school reform to be a necessary prerequisite for improved mathematics learning: 'You can't do it by just going in and changing the maths, there's got to be a whole-school program' (lead researcher). Such reform is also part of a broader holistic approach to improving Indigenous student outcomes through teaching and learning interventions, which involves situating the YuMi Deadly Maths program in the suite of programs that also includes Indigenous VET and Deadly Degrees. These programs combine to support students' access to higher education and employment from their first engagement with formal education in the early childhood and primary school years, and across different education sectors.

Evaluation

The Deadly Maths Consortium generates evaluation data about its programs through internal research and diagnostic testing. For example, the professional development and whole-school change pursued by the YuMi Deadly Maths program is supported by accompanying participatory research conducted with teachers. The Deadly Maths Consortium website (http://bmec.oz-teachernet.edu.au/approach) describes how decolonising research methodologies inform the logic of this work in schools and with communities. This logic was further elaborated by one of the lead researchers:

> We try to work in teams with Indigenous academics—there are four people in the leadership team, two Indigenous, two non-Indigenous—and we follow a philosophy that says that any research you do must immediately benefit the researched, so that leaves us with ... design experiments or action research.
>
> (Lead researcher)

Teachers are interviewed before and after interventions to gauge the effects of professional development on teachers' practice and to gather feedback regarding curriculum materials trialled in classrooms. Teachers and teacher aides also provide written feedback in response to their participation in professional development activities, and in some instances diagnostic testing is conducted with students before and after interventions. The program has collected quantitative data such as improvements in student outcomes on diagnostic tests, which provide evidence of the effectiveness of its interventions in particular sites. For example, in one school a trial of YuMi Deadly Maths curriculum materials resulted in a twofold increase in students' demonstrated mathematics knowledge over the course of approximately

one school term. In another school, professional development of teacher aides contributed to six Year 2 students succeeding in the Queensland Year 2 Diagnostic Net testing for the first time in the school's history. In combination with these more specific and immediate forms of evaluation, YuMi Deadly Maths researchers also maintain ongoing contact with students, teachers and communities through recurrent site visits and regular phone conversations. This contact enables less formal but longer term and more contextualised evaluation of interventions.

Researchers in the program attribute its successes to a range of factors, including the combination of community and whole-school engagement, targeting teachers and schools that are open to change, and the provision of ongoing support. This approach has contributed to the development of the program's reputation among rural and remote schools for its capacity to provide successful interventions. This reputation was described by one of the lead researchers, with particular reference to a conversation with a prospective project partner:

> We said 'This is what we do', and he said 'Hold it, I talked to the [schools], I know what schools are saying. All the schools' (because we've been to nearly every one of these schools in the last few years). He said, 'All the schools say you're the best and you have the best product'.

It is evident that strong connections with schools and communities established by researchers enable them to work effectively in Indigenous contexts. The decolonising approach to improving teaching and learning through community consultation and collaboration, rather than approaching interventions according to a rationale of remediation, has enabled relationships based on trust and mutual respect to be sustained over time. While the program has demonstrated teaching and learning improvements in particular sites, it is also necessary to evaluate it in a more qualitative manner that reflects its ongoing and multifaceted approach to working with schools and communities over time, as well as in relation to the support it offers to students from early childhood through to higher education. For example, the program has three Indigenous students currently enrolled in PhD study and has supported a number of Indigenous teacher aides to enrol in teaching degrees. The Deadly Maths Consortium establishes connections between community-based educators, VET and universities, and therefore has potential to strengthen the higher education aspirations and pathways for students in the schools and communities targeted by the YuMi Deadly Maths program.

While the program has been successful in many respects, it also faces a number of ongoing challenges. Chief among these is sustainability, in relation to both funding and staffing. The program is largely supported by 'soft funding' from competitive research grants, and its ongoing work depends on researchers continuing to win these grants in the future. While the research-driven nature of the program is a significant strength, the level of funding—which is accumulated from small grants provided for up to 10 concurrent projects—has proved inadequate in the past and has not enabled researchers to meet the demands on their time that result from commitments to a large number of small projects.

> We've had up to 10 different [grant-funded] projects, ranging from $20 000 to $100 000, and that means we've got to go to a lot of places, so all we've got really time for is to

> do the professional development and a bit of follow-up work. Now that hasn't worked as well as it might.
>
> (Lead researcher)

This difficulty has led to the consortium pursuing larger long-term funding sources; however, it continues to remain dependent on its applications for external competitive grants being successful. Related to this difficulty is the risk posed by changing valuations of 'legitimate' research within funding bodies and universities, and the possibility that the methodologies employed by the program may attract reduced funding in a different research climate.

Sustainability is also an issue in relation to program staffing, because the knowledge and skills required to successfully implement its various projects is vested in a few lead researchers. The program would be at risk if the expertise of these individuals were no longer available. Researchers in the program recognise this challenge and are currently working to broaden the knowledge base and capacity of the research team.

> This is what their focus is turning to when they have a chance, when they have a second in the day to think about it, how it can be sustainable. They've got all the knowledge, [the two lead researchers] and other people have all of the knowledge, and we have some …
>
> (Research assistant 2)
>
> But not enough to sustain it.
>
> (Research assistant 1)

As previously described, the challenge presented by staff turnover in the YuMi Deadly Maths schools and communities also presents a further challenge to the sustainability of the program's interventions, and is currently being addressed through a whole-school reform approach.

Conclusion

A number of the characteristics of successful interventions identified in Section 2 of this study are evident in both the YuMi Deadly Maths program and the Deadly Maths Consortium more broadly. Several are worth highlighting here.

The consortium draws together programs being conducted across all stages of schooling, VET and universities, which together comprise a collaborative approach to fostering the increased participation of Indigenous students in tertiary education. This approach enables feedback between researchers that are designing and implementing projects in different sectors. The YuMi Deadly Maths program provides early, long-term and sustained support for students across different stages of schooling. A further strength of the program is its emphasis on creating sustainable interventions through people-rich strategies, such as providing education and training for teacher aides and sustaining ongoing contact with schools through repeated face-to-face visits and regular phone conversations. This approach enables students to work with people who share similar life histories and who are involved with higher education. It also facilitates discussion and opportunities for learning between university researchers and Indigenous communities.

The YuMi Deadly Maths program is a cohort-based intervention, as demonstrated by its approach to

improving teaching and learning through whole-school reform and community engagement. The program emphasises the need to strengthen student learning identities across the school, as well as the need to develop school learning cultures in which Indigenous students are positioned as capable learners who feel entitled and encouraged to aspire to higher education. This approach aims to strengthen the aspirations and achievement of peer groups rather than targeting individual students.

The design and provision of curriculum materials, in conjunction with professional development, is designed to enhance curriculum and pedagogy. Issues such as low student achievement or engagement are framed as problems that can be addressed through the reform of curriculum and pedagogy, rather than remediating individual student deficits of learning capacity or interest in education. The program also seeks to combine academic and intellectual rigour with meaningful learning tasks. The curricula and pedagogies promoted by the program are intended to 'scaffold' students into deep understanding of mathematical structures by contextualising learning in relation to community language and culture. This contextualisation reflects a substantive effort to recognise and value cultural differences by pursuing institutional change in response to community needs, and by encouraging teachers and researchers to learn about the knowledges and practices of the Aboriginal and Torres Strait Islander communities in which they work. Indeed, the program appears to be particularly strong in this area.

In combination, each of these characteristics increases the likelihood of the YuMi Deadly Maths program providing effective early and sustained interventions that have the potential to increase Indigenous students' achievement, and their capacity to aspire to and access higher education.

4.9 Regional Schools Outreach Program (University of Ballarat)

Dianne Bills

Introduction and context

The University of Ballarat is situated approximately 100 kilometres west of Melbourne. It is the only fully regionally based university in Australia that is multisectoral, providing secondary schooling, technical and further education (TAFE) and higher education. The university has 25 000 students, of whom approximately 70 per cent are domestic students drawn from a broad area of regional Victoria that includes the communities of Ballarat, Ararat, Stawell, Horsham, Nhill, Hamilton, Maryborough, Warrnambool, Portland, Bacchus Marsh, Bendigo, Mildura and Swan Hill. Most of these communities have lower participation rates in post-secondary education than the national average. There are six campuses, two located in Ballarat and others in Mt Helen, Horsham, Stawell and Ararat.

Through a range of student equity and diversity initiatives, the university aims to increase the participation of students who have traditionally 'not had the same advantages as others in accessing study' (University of Ballarat 2009a). A wide range of services and policies respond to the needs of:

- students from a low-income/low socioeconomic background
- students from a rural or isolated background
- students from a background where a language other than English is spoken

- Indigenous students
- students with a disability
- women studying in a non-traditional area for women
- young people and older people (who may not have completed Year 12).

Many of these groups have access to scholarships and financial advice and are able to gain alternative entry to tertiary study through a Foundation Access Studies Program (*FAST—see www.ballarat.edu.au/ard/bssh/FAST*).

The Regional Schools Outreach Program (see University of Ballarat 2009b) is coordinated by the Equity and Equal Opportunity Office, which is part of the Student and Learning Support portfolio. It aims to increase higher education aspirations, access, participation and awareness among Year 10–12 regional school students in the broader catchment area of the university. Year 10 students are targeted through information on matters such as the benefits of tertiary education, pathways into university or TAFE, moving away from home and student finances; this information is reinforced when the students are in Year 11. The development of the program exemplifies a common trajectory among university–school outreach programs, having begun with a recruitment focus with Year 12 students and gradually expanded into an equity-based aspirational program focused on Year 10 students. The program is distinctive in two ways. First, it is aimed at developing partnerships *exclusively* with regional schools across a wide area of country Victoria, on the basis of socioeconomic and rural (geographic and sociocultural) educational disadvantage. As a result, the program reaches more than 40 secondary schools in the western region of Victoria. Second, the development of the program has been informed over several years by a wide range of research and evaluation, including internal data gathering, and the outcomes of the evaluations have informed successive iterations of the program. Survey findings published in Section 3 of this study have indicated that institutional evaluations of intervention programs are generally lacking in content and scope. In this instance, however, program evaluation has been rich in content and diverse in its sources, and its impact on planning is explicit in institutional documents and in conversations with staff.

The data for this case study was collected through participant interviews and from documentary sources provided by the Program Director. A semi-structured phone interview was conducted jointly with the manager of the university's Equity and Equal Opportunity Office and the coordinator of the Regional Schools Outreach Program. Post-interview email correspondence provided further information, and participants provided copies of institutional evaluation reports and an externally published research report.

Description of activities

2007 Equity and Outreach Program

In 2006, a project officer was appointed to produce an overview of outreach activities being conducted by various areas within the university. Concurrently, a recruitment program with a strong transition theme was operating with Year 12 school students in the university's catchment area. When the recruitment program was discontinued, an Equity and Outreach Program was established under the direction of the Equity and Equal Opportunity Office. The program targeted Year 10–12 school students and their families, with the aim of increasing their knowledge of university life and their aspirations to attend university. Programmed

activities included information sessions for 41 secondary schools in the university's catchment area (the 'aspirational' project) and a pilot program of information sessions for parents. Over a period of seven weeks between July and September 2007, approximately 1300 students attended a one-hour presentation delivered by a project officer, assisted by 58 university student volunteers. Supporting the design of the program was a study on regional Victorian students that had been conducted by the university's School of Education at the University of Ballarat, in which factors associated with the students' low participation in, and aspirations to, higher education were reported (Golding et al. 2007). Data was gathered in 10 school communities: from Year 10 students, parents of Year 12 students, teachers and a cohort of 2003 school leavers who had taken a job after leaving school. The findings indicated that important factors influencing the aspirations of regional/rural students were a lack of information about university, perceptions of its high cost, a lack of confidence, inadequate preparation through a restricted school curriculum, and parental perceptions about the relevance of higher education. In response to these factors, topics covered in the 2007 information sessions for students and for parents included general information about university life, as well as financial advice and guidance related to moving away from home.

Evaluation of the 2007 program was incorporated as part of a detailed internal report of research related to the impact of rurality and low socioeconomic status on the transition of Victorian school students to further education. The extensive report integrated information from national, state and university sources, including internal institutional data; the outcomes of a 2006 pilot study of Year 11–12 students in a cluster sample of rural schools in the university's catchment area; data from Victorian government departments; Victorian On Track surveys, which collect information about the education, training and employment destinations of students that complete Year 12; and the findings and recommendations of national large-scale research studies. The 2007 program evaluation incorporated in that report was conducted through surveys and focus groups and included feedback from students, parents and teachers involved in the program.

The program was judged to be effective on the basis of the high proportion of students who indicated they had confirmed or shifted their intentions towards higher education as a result of attending the session. Those who shifted their intentions favourably towards university cited as reasons their increased awareness of employment opportunities resulting from higher education and a better understanding of university life, both of which were strong themes in the presentations. The use of university student speakers was strongly endorsed by students, teachers and parents. The parent sessions were appreciated by those present but were generally poorly attended. Teachers considered the program was pitched at the right audience (Years 10–12), but parents were more inclined to recommend the program for Years 7–11. University staff were quick to recognise the validity of these apparently competing concerns. Parents valued information aimed at young people still considering their post-school choices, which reflected their immediate concerns as parents of Year 10 students. On the other hand, the teachers involved generally had responsibility for senior secondary students who had made their choices and who now needed accurate and up-to-date information on courses and transition processes.

The evaluation also showed that in some schools a combination of factors—timetabling, and decisions about which students were encouraged to attend—had resulted in the session being presented to those

students already aiming for higher education. A form of preselection had effectively occurred. While these students still benefited from the information provided through the program, there were restricted opportunities for university staff to interact with students whose post-school aspirations did not include university. Other data confirmed that the expenses and debt associated with attending university was a discouraging factor for many students in the targeted schools, and those students and parents needed up-to-date information about the costs and benefits of leaving home to pursue higher education. As is the case with many of the intervention initiatives explored in this study, university staff in this instance recognised that, if the aim was to encourage students to consider higher education as an interesting, achievable and *possible* post-school option, it was imperative that students be targeted before they made career decisions and associated subject choices in Year 10. It was also important to provide information sessions for parents, many of whom had limited experience of higher education and were therefore less likely to appreciate the relevance and benefits of a university qualification.

2008 Regional Schools Outreach Program

Informed by the research and evaluation available, the 2008 program was renamed the Regional Schools Outreach Program and was implemented across 43 schools in western Victoria, targeting Year 10 students but with continuing provision for Year 11 and Year 12 students to attend. With prior experience in school teaching and presentations, the program staff appreciated the need to appeal to a diverse student audience through a high degree of interactivity and the capacity to cater for different learning styles. The information session format was transformed with the introduction of interactive games and worksheets and the use of a visual analogy that involved construction of a 'barrier'.[27] University students were again recruited and trained as facilitators and presenters, with attempts made to select students who had attended the schools being visited. Conscious efforts were made to 'flip the discourse' of intervention, so that although barriers were named (for example, the costs or fear of moving away from home), discussion was focused on positive aspects (for example, the accessibility, affordability and safety of university accommodation).

Evaluation of the 2008 program showed that it had helped many students to clarify their feelings about continuing on to further education. In particular, among students who had previously been undecided about pursuing tertiary study, there was a significant increase in the number reporting that they now aspired to tertiary education (23 per cent in some school districts). The proportion of students undecided about their post-school destinations after attending the program fell by up to 36 per cent in some districts, confirming the real need for students to receive timely information to guide their decision-making process. Students also reported a marked increase in their knowledge about the benefits of further education, in particular the levels of graduate salaries, and the support available to minimise the costs and effects of leaving home, such as the availability of scholarships, accommodation and student support services. Talking with the university students was rated by the school students and teachers as the most successful feature of the program.

2009 Regional Schools Outreach Program

University of Ballarat staff members remain alert to issues raised through the evaluation. A pre-program questionnaire had indicated that a little under one third of the students surveyed were not committed to finishing Year 12. Alarmed at the level of disengagement with schooling, program staff considered

[27] A wall was assembled with large foam building blocks labelled with issues and 'barriers'. As a topic was completed students could physically knock down a block, symbolising a 'barrier' overcome.

extending the program to Year 9 students. However, teachers again expressed the view that Year 11 students, having made the decision to aim for further education, were often overlooked until they were in Year 12 and that they experienced a gap in information. Another concern voiced by university staff was that a halo effect might be evident in the responses of students who had just experienced an enjoyable activity. They now consider it important to know whether the reported changes in aspirations and attitudes endure over the longer term. They remain concerned at the low attendance at the parent sessions but appreciate that one of the factors is perceived relevance: 'If I'm a parent who doesn't have university on my radar for my child, why should I go to something run by the university?' (program staff member).

As a result, the 2009 program has expanded considerably. Year 10 students will continue to be targeted but there will now be a second follow-up on-campus program for Year 10 students to experience university life through workshops and other activities. To address what teachers perceive is a gap between the decisions taken when students are in Year 10 and the ongoing information provided for them in Year 12, a concurrent presentation for Year 11 Victorian Certificate of Education students will build on information from the previous year and maintain connection with the students. Strategies for connecting with parents have also changed and the program coordinator is negotiating individually with teachers and school leaders to adjust the timing and nature of the sessions for parents, according to their school and community contexts.

Evaluation

The University of Ballarat Regional Schools Outreach Program is notable for the extent to which its continuous revision and improvement has occurred in response to systematic stakeholder consultation and evaluation, supported by local, state and national data. Comprehensive data collection and evaluation across a range of schools in the various districts in the university catchment area exposed differences in aspirations and attitudes by geographical region. Comparative data is very important for institutions seeking to target the most disadvantaged groups, because it allows for a more contextualised delivery of information in response to local cultures. What is missing is the longitudinal data that would provide evidence of the long-term effects of the intervention on the numbers of students progressing to higher education; the personnel recognised that this data collection was beyond the scope of their program. Program staff had emphasised their focus on equity by expressing an aim to promote further and higher education *in general* as a post-school option, rather than advancing the interests of a particular university. They believed the success of the program should be judged by increases in the proportion of school leavers from the schools in their catchment area who progressed to study at any university, not just the University of Ballarat. While it is possible in Victoria to track the outcomes of the particular schools visited in the Outreach Program—and attempts were made to do so—official on-track data does not exist for very small schools. In the absence of resources for longitudinal tracking, program evaluation remains reliant on the judgments of participants. In intervention programs such as this one, which reaches around 1400 students from over 40 schools, this is a lost opportunity to gather data on the degree to which such interventions influence students' post-school aspirations and destinations.

Institutional research and evaluation in higher education is rarely shared among institutions, and often remains as 'grey literature' circulating almost entirely within an institution (Altbach 2002). While one of the

university's reports was published more widely, most of the program evaluation has been for internal use only, as is the case for most universities. Yet, the findings have relevance for a wider audience, particularly as the trajectory of this program's development mirrors a common process among university–school interventions. The effectiveness, efficiency and accountability of educational interventions would be well served by policies and processes that encourage the sharing of data.

Conclusion

A clear strength of this program is its broad reach across a large number of schools in regional/rural areas of Victoria. Many of the schools are located at a distance from Melbourne and other large regional centres, which makes it difficult for students to attend university campus open days and other programs such as Tertiary Information Service (TIS) presentations. Program personnel are mindful that their program provides one more source of information for rural students whose location too often limits their accessibility to information and other resources. There is a conviction among program personnel that earlier intervention is necessary, but with limited staffing and resources such interventions could only be offered to a smaller number of schools, thereby affecting the scale of services offered more broadly across the region.

Geographic location continues to limit the higher education choices available to rural students. Along with perceptions of the high cost and low relevance of university qualifications, rural students and their families are more likely to be unfamiliar with university cultures and to have limited access to accurate information about university programs and courses. As well as demystifying university for younger students, the Regional Schools Outreach Program provides essential information to secondary teachers and senior school students who rely heavily on the provision of up-to-date and reliable career and program information. This is information that could be delivered by other means—for example, through web-based resources—but for young people who are not yet totally committed this presents another 'distance' to be overcome. For rural students and their families, it is imperative to maintain the scope of information programs such as these in order to 'reach' as many students as possible. There must be sufficient resources available to assist earlier intervention without curtailing programs for rural senior school students, for whom the imminent practical, social and financial implications of relocation can too easily undermine aspirations and commitment.

4.10 Conclusion

The case studies in this section provide strong examples of successful interventions that comprise 'constellations'[28] of the characteristics identified in earlier components of this study.

Section 2, *A review of the Australian and international literature*, identified a set of nine characteristics of early interventions that are likely to make a positive difference for the higher education participation of disadvantaged (particularly low SES) students. Specifically, it concluded that interventions that foster greater participation have many of the following characteristics:

- *collaboration* between stakeholders across different sectors and agencies at all stages of program development and enactment

[28] We use the term constellation 'to signify a juxtaposed rather than integrated cluster of changing elements that resist reduction to a common denominator, essential core, or generative first principle' (Benjamin 1977, in Jay 1984: 14–15).

- an *early, long-term and sustained* approach to intervention that is designed to work with students in earlier phases of schooling, ideally the primary years, and to continue as they transition through the middle years into senior secondary schooling
- a *people-rich* approach that requires the development of ongoing relationships between young people and those in a position to offer them ongoing guidance that relates to their situation and capacities
- a *cohort-based* approach that engages with whole classes, or even larger cohorts of young people in a school or region, to change peer cultures as well as supporting individuals
- the provision of *communication and information* about university life and how to get there using a variety of digital media technologies, as well as more traditional means such as brochures or school visits
- the provision of *familiarisation/site experiences* through a schedule of university visits designed to both inspire and familiarise young people with higher education and what it means to be a student in that context
- *recognition of difference* premised on the perspective that disadvantaged students bring a range of knowledge and learning capacities to formal education that should be recognised and valued as assets
- the provision of *enhanced academic curriculum* and pedagogy designed to sustain the ongoing quality of everyday lessons throughout schooling and to prepare students for further/higher education
- the provision of *financial supports and/or incentives* addressed to particular economic constraints of different cohorts, and that combine with other support strategies.

Section 3, *A survey of the nature and extent of outreach activities conducted by Australian higher education (Table A) providers* confirmed this set of characteristics and identified a further theme, which constitutes a tenth characteristic:

- the value of *research-driven interventions* that engage the research capacities of the university to inform program design, implementation and evaluation, and to support the production and dissemination of knowledge about effective intervention strategies.

The case studies indicate powerfully that successful interventions draw together many of these characteristics as a 'constellation' or interacting set. It is not appropriate to hierarchically prioritise this set in terms of their relative importance. Rather, it is most likely that effective interventions enact many of them and the *combination* of approaches is their most desirable feature.

While the case studies in this section provide examples of effective interventions, they also describe challenges that must be confronted when attempting to enact effective interventions amidst the complexities of particular contexts. The set of 10 characteristics emerged from a review of international literature and a review of strategies being implemented by the Australian higher education sector. As such, they have been framed as general principles that have applicability across multiple contexts. The case studies in this section provide detailed descriptions of how these characteristics have been adapted by different programs in response to the specific requirements of particular universities, schools and communities. They also provide accounts of the negotiation within and across institutions required of different programs in order

to create conditions conducive to their interventions. It is clear from the case studies that significant levels of negotiation by committed university staff, in quite complex institutional spaces, are required to develop programs, implement them, learn from them, and hopefully to sustain them over a number of years. Sustaining these programs often involves ongoing efforts to secure funding and working against the contingent nature of institutions.

Reading across the case studies draws attention to the importance of developing a suite of strategies that are informed by a common equity orientation. Early intervention should be underpinned by a broad, multidimensional equity policy that provides for coherence and coordination of effort across multiple approaches to ensure that they work in concert. Single programs, irrespective of their effectiveness, cannot be expected to be successful in the same way across different contexts or for different cohorts. Further, the 10 characteristics identified in this study can be pursued in terms of different policy orientations. The case studies suggest that universities are best served by the development and implementation of a suite of intervention strategies that address different contextual needs and which are informed by a coherent equity orientation. At least three specific perspectives typical of an equity orientation can be derived from the case studies.

Researching 'local knowledge' and negotiating local interventions: Given the importance of context in addressing inequalities, research about 'local knowledge' is a key feature of interventions and university equity policy. This necessarily involves building viable relationships with specific schools and their communities, and learning about their understandings of the 'problem', as a preliminary step to designing interventions (for example, Access and Success). This may include community consultations, for example, or hiring or working with staff that have local knowledge. There also needs to be scope to negotiate between universities, schools and their communities over imagined interventions. Encouraging genuine reciprocal alliances and collectively investigating long-term effects on a range of factors will help to build an evidence base particular to specific contexts and groups (for example, University–Community Links; Gutierrez et al. 2009), and to make the interface between school and university more permeable.

Unsettling deficit views: Working with, rather than on, others requires strategies based on positive understandings of historically disadvantaged schools, students and their communities. This means widening university catchments to include working with the most disengaged, hard-to-reach students, rather than simply targeting high-potential candidates or those already proven to be outstanding. However, it does not mean watering down the curriculum. While programs should present university as attainable for disadvantaged students, and position these students as intelligent and capable learners, they also need to maintain in-depth, intensive and/or long-term focus on rigorous and rewarding learning to build academic disposition (for example, Make it Reel, Deadly Maths). Programs aimed at improving achievement and aspirations should be sensitive to alternative cosmologies and epistemologies. They should also present opportunities for learning that involve high intellectual challenge, high expectations of students producing high-quality products (artefacts of learning), and high-motivation projects and events.

Building capacity in communities, schools and universities: Achieving improved outcomes for disadvantaged students requires building increased capacity in communities, schools and universities, including increased

funding for programs from sources such as state governments and the federal government and further supplementary funding from individual universities. Capacity-building programs that aim to familiarise students and their parents with university are about developing cultures of possibility. These programs need to begin early in schooling, particularly with primary schools in areas of high disadvantage, in order to generate cultural and dispositional shifts in students, families and teachers in relation to achievement and aspiration (for example, Koori Express, Deadly Maths). Whole-school change models are preferable to individual classroom projects. Further, programs may be strengthened by engaging in the development of curriculum materials, working with school leadership and developing school–community partnerships. Implementing such programs requires professional development of university staff and teachers through participatory action-research methodologies, which involve negotiating theory and practice in specific interventions and have the potential to link with teacher professional learning in credentialled programs provided by the university.

It appears that successful early interventions combine multiple characteristics of effective programs and underpin a suite of diverse strategies with a common equity orientation. In different contexts, the combination of characteristics and their enactment in terms of an equity orientation will take different forms. For example:

- The YuMi Deadly Maths program at QUT demonstrates the strength of *collaboration* underpinned by an orientation towards *researching local knowledge* and *building community capacity*. In the context of the Aboriginal and Torres Strait Islander schools involved in the program, this collaboration takes the form of learning about local Indigenous and Torres Strait Islander knowledge, negotiating local interventions with community Elders, and building community capacity by providing teacher aides, who are often community members, with professional development in mathematics content knowledge and pedagogies. This collaborative approach appears to work particularly well in the Indigenous contexts addressed by the YuMi Deadly Maths program.
- The Make it Reel program at UTS demonstrates the strength of a *people-rich* approach underpinned by an equity orientation towards *unsettling deficit views* of low SES students' capacities as learners. UTS undergraduates mentor groups of school students who are positioned as apprentice filmmakers and engaged in intellectually challenging media/arts learning tasks that result in high-quality products. This approach appears to be particularly effective for strengthening low SES students' aspirations for higher education, their academic achievement and their familiarity with the university context.
- The Access and Success program at Victoria University also demonstrates the strength of a *people-rich* approach in combination with an orientation towards *building school and community capacity* and *drawing on local knowledge* to inform interventions. In the context of this program a people-rich approach involves AFL players mentoring class groups of school students. This mentoring is supported by VU pre-service teachers who help embed this interaction in substantive curriculum units tailored to each context, and also by the provision of tickets to AFL games for families in order to increase their participation in community life. This appears to be a particularly successful strategy for building partnerships between the university, schools and communities during the early phase of students' education.

Further productive relationships between the 10 characteristics identified in earlier components of this study and the equity orientation described in this section are discussed in Section 1: *Synopsis*. A Design and Evaluation Matrix for Outreach activities (DEMO) is provided as a resource to assist in the identification and design of early interventions that have significant potential to support the higher education participation of low SES students and students from other disadvantaged groups.

The sustainability of early intervention programs was a challenge that haunted many of the programs examined in this section, and the Australian higher education sector is also haunted by the absence of change in participation rates for certain groups across the sector and over time. As a collection, the case studies draw out lessons from a range of successful interventions, in order to begin articulating a shared strategy for universities to address the under-representation of disadvantaged groups throughout the sector as a whole. While there is evidence that good programs have been in operation for some time and with good effect, these have often been isolated and their effect on the whole sector has been minimal. For example, despite the successes of individual programs, the proportion of low SES students in the Australian university population has remained relatively constant (at around 15 per cent) since at least 1990 and most likely since the Second World War (see the literature review in Section 2). The case studies in this section complement the previous components of the study in order to suggest that working within and across university intervention programs is important if the higher participation targets set by the federal government are to be achieved.

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6 Appendicies

6.1 Appendix A: Figures extracted from the survey resport[5]

Is the program still operating?	Frequency	Percent
Yes	49	83.1
No	5	8.5
No response	5	8.5
Total	*59*	*100.0*

Expected program length?*	Frequency	Percent
Less than a year	1	2.0
1-2 years	6	12.2
3-5 years	7	14.3
>5 years	35	71.4
Total	*49*	*100.0*

**Of those who indicated that the program is still running*

Figure 9.1: Current programs and their duration

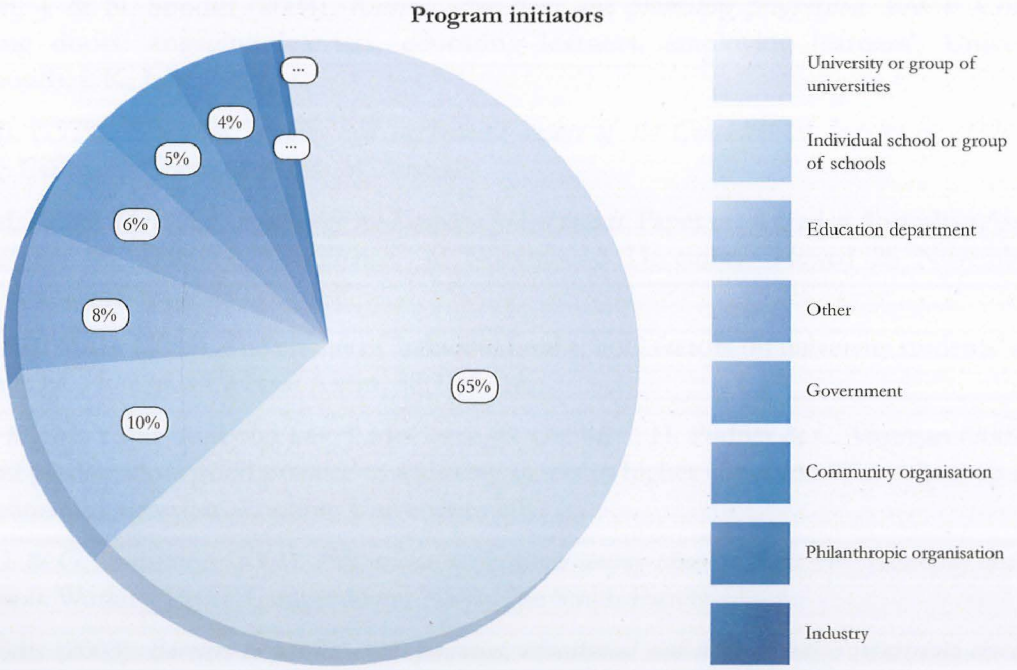

Figure 10: Program initiators

[29] T. Gale, R. Hattam, S. Parker, B. Comber, D. Bills & D. Tranter (March 2009). *A survey of the nature and extent of outreach activities conducted by Australian higher education (Table A) providers.* Canberra: National Centre for Student Equity in Higher Education and Department of Education, Employment and Workplace Relations.

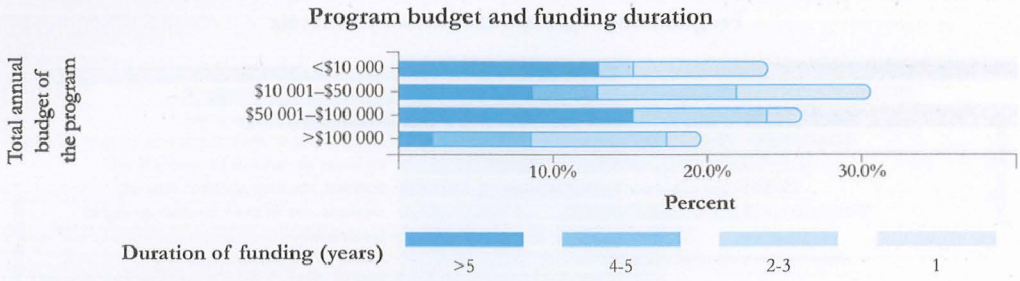

Figure 13: Program budget and funding duration

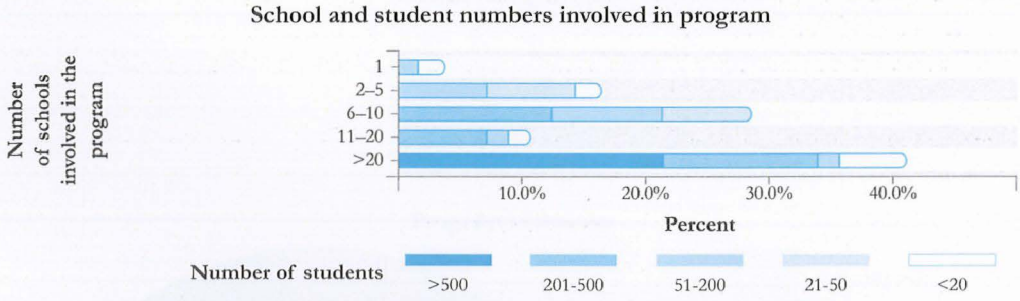

Figure 14: School and student numbers involved in program

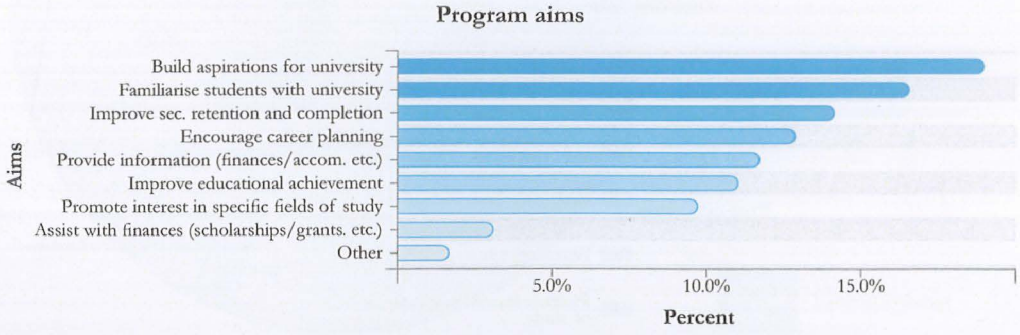

Figure 15: Program aims

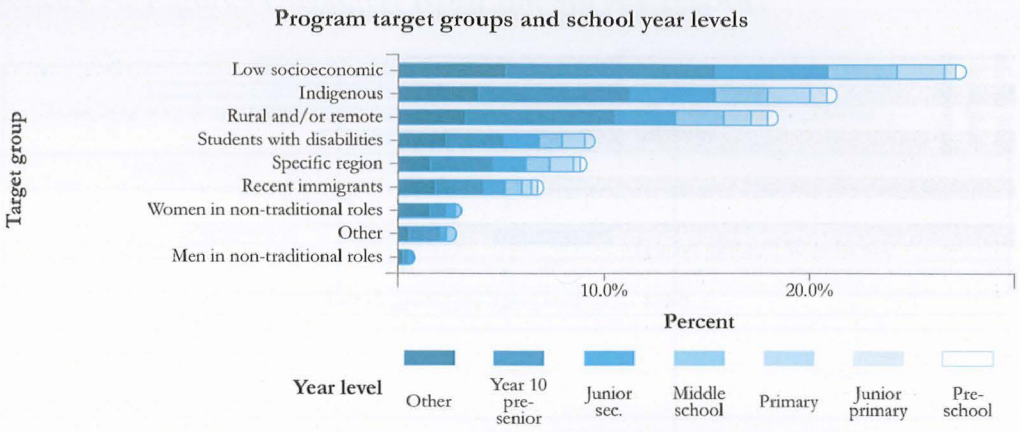

Figure 16: Program target groups and school levels

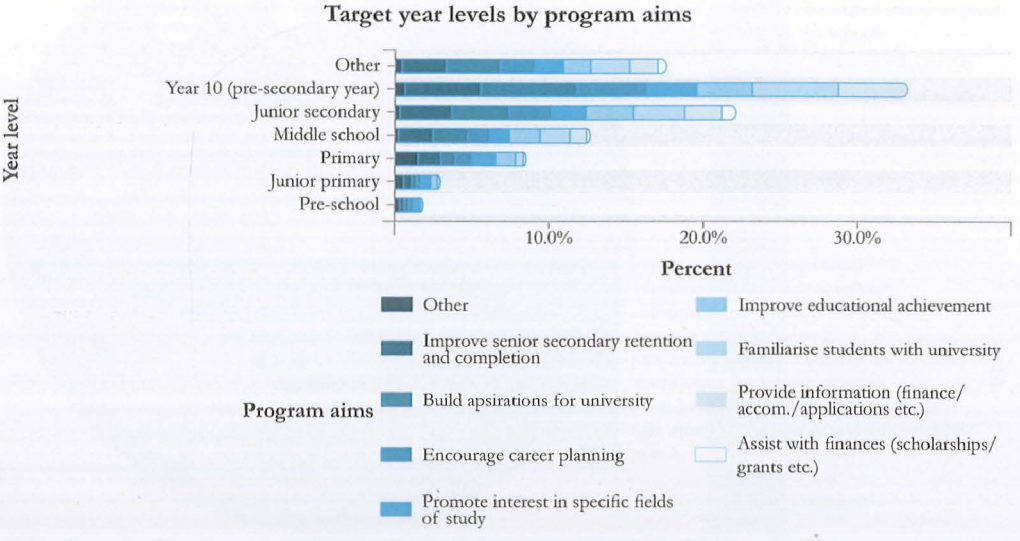

Figure 16.1: Program target groups and school levels

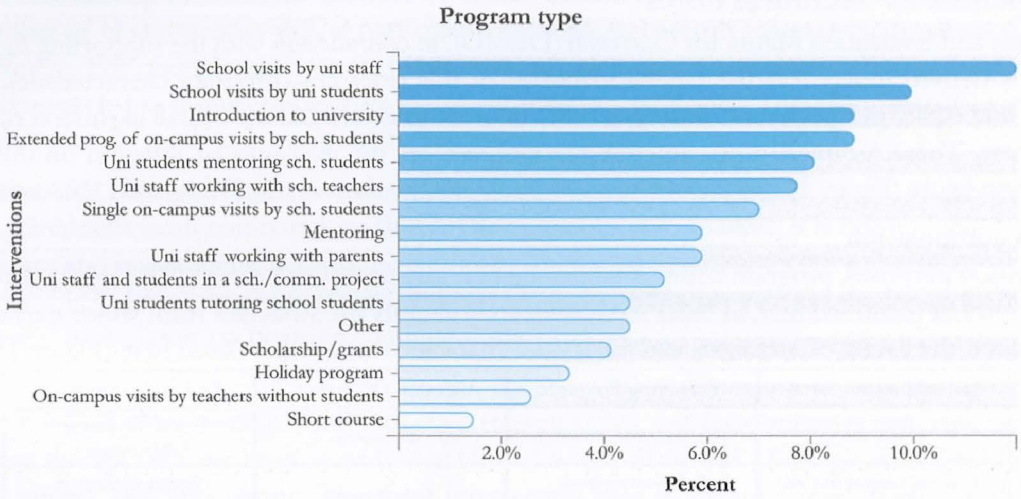

Figure 17: Program type

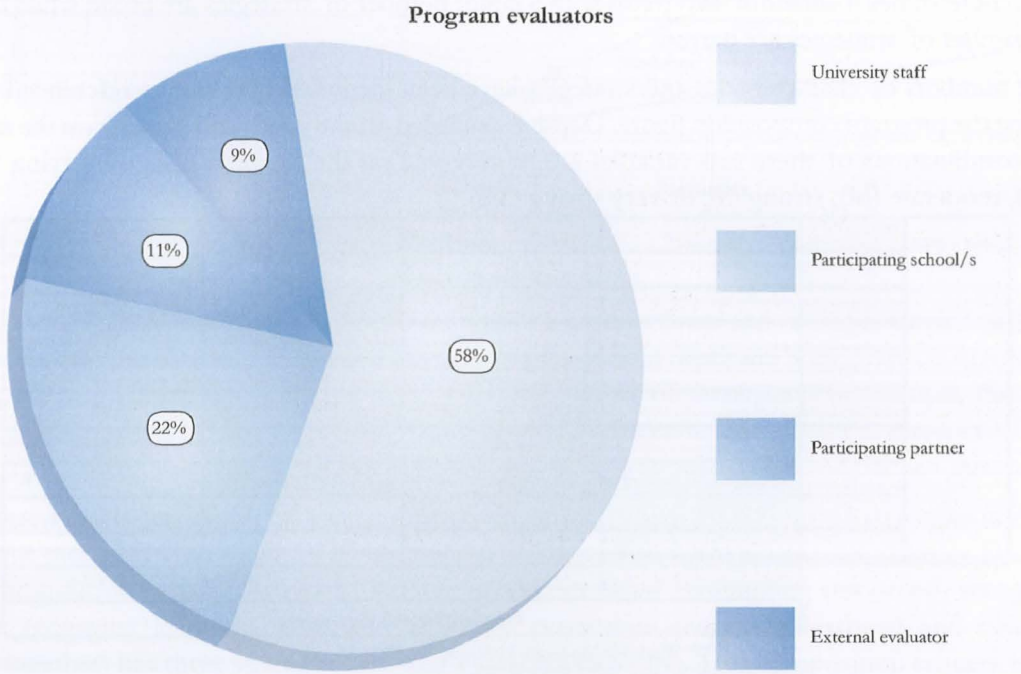

Figure 19: Program evaluators

6.2 Appendix B: Technical notes

The Design and Evaluation Matrix for Outreach (DEMO), in conjunction with the supporting figures from which it is derived, references the criteria identified in this research—program characteristics, program strategies and equity perspectives—with each other in order to determine the overall likelihood of program effectiveness. These technical notes describe the rationale for the measures of strength on the program composition figure (Figure 2) and the measures of likely effectiveness on the Design and Evaluation Matrix.

Program composition

For evaluation purposes, program composition is the first instrument to be used. We suggest that program characteristics be identified first, in order to subsequently identify the strategies from which they are drawn. For reference, the listing of strategies and associated characteristics is reproduced here (Figure 1).

Assembling resources	Engaging learners	Working together	Building confidence
People-rich	Recognition of difference	Collaboration	Communication and information
Financial support and/or incentives	Enhanced academic curriculum	Cohort-based	Familiarisation/site experiences
Early, long-term, sustained	Research-driven		

Figure 1: Four strategies and 10 characteristics of outreach programs

Within this model, programs can have a maximum of 10 characteristics and four strategies. The number of characteristics evident in a program determines its depth. Programs with a large number of characteristics are deep while those with a low number of characteristics are shallow. The number of strategies evident in a program determines its breadth. Programs with a larger number of strategies are broad while those with a lower number of strategies are narrow.

Once the numbers of characteristics and strategies have been identified they can be referenced with each other using the program composition figure. Depth is recorded on the y-axis and breadth on the x-axis. The possible combinations of these two variables are represented on the figure as cells of varying 'strength': weak (W), moderate (M), strong (S), or very strong (VS).

	10				VS
	9				VS
	8			S	VS
	7			S	VS
	6		M	S	VS
	5		M	S	VS
	4		M	S	S
	3	W	M	M	
	2	W	W		
	1	W			
		1	2	3	4
		Program Breadth (Strategies)			

W=Weak M=Moderate S=Strong VS=Very Strong

Figure 2: Program composition

There is a relationship between the number of characteristics and the number of strategies. An increase in the number of characteristics will, at particular thresholds, necessarily increase the number of strategies that are present. For example, each strategy comprises no more than three characteristics. Once a program has four characteristics it must necessarily involve at least two strategies. Therefore, increases in program depth will eventually result in corresponding increases in breadth.

The relationship between depth and breadth prohibits certain combinations of characteristics and strategies. Grey cells mark combinations that are not possible. For example, it is not possible to have four characteristics and one strategy, because each strategy involves no more than three characteristics. Equally, it is not possible to have one characteristic and two strategies. The grey cells on the figure therefore mark the upper and lower limits on possible combinations.

Thresholds emerge at three critical points on the figure: at the combination of two strategies and three characteristics (2,3), three strategies and four characteristics (3,4), and four strategies and five characteristics (4,5). These thresholds have been used to establish the four measures of program composition: weak, moderate, strong, and very strong. The three intersecting lines in Figure 3 mark these thresholds (each coordinate in Figure 3 corresponds to a cell in Figure 2).

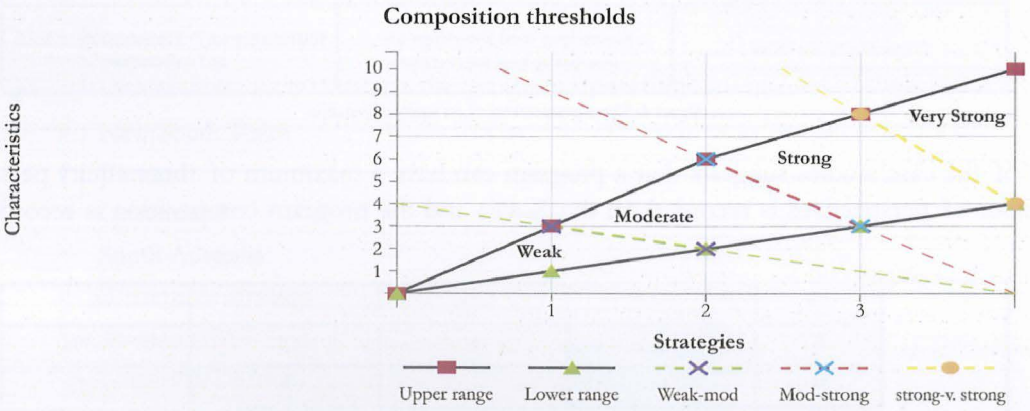

Figure 3: Composition thresholds

Programs become qualitatively stronger as the numbers of characteristics and strategies surpass each of these thresholds. As each threshold is surpassed a corresponding increase in depth and breadth results in combinations that comprise at least one more characteristic than the number of strategies. For example, the minimum requirement for a program composition to be considered of Moderate strength is the presence of least two strategies represented by at least three characteristics (2,3; the first coordinate beyond the first threshold).

As each threshold is surpassed, programs draw from an increasingly broad set of strategies in relation to the previous measure, while having a concentration of characteristics in at least one strategy. For example, a strong program that comprises early, long-term and sustained (assembling resources), recognition of difference (engaging learners), enhanced academic curriculum (engaging learners) and cohort-based (working together) has three strategies and four characteristics (3,4). This composition ensures reasonable strategic breadth with a particular strength in the area of engaging learners.

There are cells where an increase in program breadth does not entail a corresponding increase in depth that would surpass the next threshold. For example, a program composition is weak if it comprises two characteristics, regardless of whether they are drawn from one or two strategies. A program composition is moderate if it has three characteristics, regardless of whether they are drawn from two or three strategies, and a program composition is strong if it has four characteristics, regardless of whether these are drawn from three or four strategies. In these instances, increasing breadth by distributing characteristics more broadly is not considered to result in the same qualitative strengthening of a program's composition that results from a corresponding increase of depth and breadth.

The program composition measure for a program becomes one criterion referenced on the DEMO.

Design and Evaluation Matrix for Outreach

For evaluation purposes, the DEMO is the meta instrument to be used. Having determined a program's composition, the DEMO combines this with the equity perspectives that inform and support the program. For reference, the list of equity perspectives comprised by an equity orientation is reproduced here (Figure 4).

Equity orientation		
Unsettling deficit views	Researching 'local knowledge' and negotiating local interventions	Building capacity in communities, schools and universities

Figure 4: Three perspectives of an equity orientation

Analysis of the case studies suggests that a program can have a maximum of three equity perspectives.[30] The number of perspectives is recorded on the X-axis and the program composition is recorded on the Y-axis.

	VS	U-L	L-QL	QL-VL	VL
	S	U	L	QL	QL-VL
	M	U	L	L	L-QL
	W	U	U	U	U-L
		0	**1**	**2**	**3**
		Number of Equity Perspectives			

U=Unlikely L=Likely QL=Quite Likely VL=Very Likely

Figure 5: Design and Evaluation Matrix for Outreach

The possible combinations of program composition and equity perspectives are represented in the 12 cells of the matrix (Figure 5). In combination they produce four possible measures of program effectiveness: unlikely, likely, quite likely and very likely.

Programs that have a Weak composition or do not have an equity orientation are generally Unlikely to be effective. The likelihood of programs being effective increases incrementally as composition strength and number of equity perspectives increases: programs of Moderate composition with one equity perspective

[30] The number of equity perspectives and indeed the number of program characteristics and strategies are derived from the research. It is possible that further research may reveal more equity perspectives, characteristics and strategies. That is, this research focused on university programs operating in schools in an Australian context. It may well be that programs operating in different contexts may reveal different program features.

are Likely to be effective and programs with a Strong composition and involve two equity perspectives are Quite Likely to be effective. Programs that are Very Strong in composition and include all three perspectives are optimal and Very Likely to be effective. Other combinations are also possible. The likely effectiveness of these combinations increases in relation to improved program composition and/or the presence of a larger number of equity perspectives.

The matrix includes six ambivalent cells that have two possible values.[31] These cells relate to programs that have a very strong composition or include all three equity perspectives. Programs with a maximum rating on one of the criteria—composition or equity orientation—may have a higher likelihood of being effective due to their comprehensive satisfaction of this criterion. In each instance where the likely effectiveness of a program falls within one of these ambivalent cells, contextual judgment is necessary to determine whether its particular combination of depth, breadth and equity orientation warrants the lower or higher measure.

6.3 Appendix C: Survey questions

Note: In the case of multiple choice options, please delete the answers that are not applicable. I.e. In Q2, please leave only the state/s where the program operates and delete other options.

Q1. Name of university:

Q2. In which state or territory is the program operating?

- New South Wales
- Victoria
- Queensland
- South Australia
- Western Australia
- Tasmania
- Northern Territory
- Australian Capital Territory

Q3. Name of campus (or campuses) involved if other than university-wide:

Q4. If this is a collaborative program with other universities, please list participating universities and indicate which is the lead institution:

Q5. Location of program within university (select one only):

- Faculty/School/Department
- Equity unit
- Marketing unit
- Teaching and learning unit
- University-wide
- Other (please specify):

31. 'Ambivalent' is used strictly to mean uncertainty or fluctuation between two apparently different values.

Q6. Name of the program:

Q7. How widely available is the program? (select one only):

- ▫ State-wide
- ▫ Region-wide
- ▫ Within a group of schools
- ▫ Within a single school
- ▫ Other (please specify):

Q8. Under-represented groups targeted (select as many as applicable):

- ▫ Low socio-economic
- ▫ Rural and/or remote
- ▫ Specific region
- ▫ Indigenous
- ▫ Students with disabilities
- ▫ Recent immigrants
- ▫ Women in non-traditional fields
- ▫ Men in non-traditional fields
- ▫ Other (please specify):

Q9. State any specific criteria for involvement (eg first in family to attend university, Indigenous students):

Q10. Educational level targeted (select as many as applicable):

- ▫ Pre-school
- ▫ Junior primary
- ▫ Primary
- ▫ Middle school
- ▫ Junior secondary
- ▫ Year 10 (or final year pre-senior secondary)
- ▫ Other (please specify):

Q11. Year program commenced:

Q12. Is program still running?:

- ▫ Yes
- ▫ No

Q13. If no, how long was the program operating:

- Less than 1 year
- 1–2 years
- 3–5 years
- >5 years

Q14. If yes, how long is the program expected to run

- Less than 1 year
- 1–2 years
- 3–5 years
- >5 years

Q15. New program planned for implementation in 2009?:

- Yes/No

Q16. Number of schools involved:

- 1
- 2–5
- 6–10
- 11–20
- >20

Q17. Number of students involved each year:

- <20
- 21–50
- 51–200
- 201–500
- >500

Q18. Who initiated the program? (select as many as applicable):

- University or group of universities
- Individual school or group of schools
- Education department
- Community organisation
- Philanthropic organisation
- Industry
- Government
- Other (please specify)

Q19. Who funds the program? (select as many as applicable):

- ▫ University or group of universities
- ▫ State government
- ▫ Federal government
- ▫ Community organisation
- ▫ Private donor or group of donors
- ▫ Industry
- ▫ Other (please specify):

Q20. If wholly or partly funded by the university, what is the source of that funding? (select as many as applicable):

- ▫ Marketing Unit
- ▫ Equity Unit
- ▫ Teaching and Learning Unit
- ▫ Academic Program or Course
- ▫ Faculty, School or Department
- ▫ Other (please specify):

Q21. Annual budget

- ▫ <$10 000
- ▫ $10 001 – $50 000
- ▫ $50 001 – $100 000
- ▫ >$100 000

Q22. Number of years funding available

- ▫ 1
- ▫ 2–3
- ▫ 4–5
- ▫ >5

Q23. Intervention strategies (select as many as applicable):

- ▫ Scholarships/grants
- ▫ Single on-campus visit by school students
- ▫ Extended program of on-campus visits by school students
- ▫ On-campus visits by teachers without students accompanying
- ▫ School visits by university students
- ▫ School visits by university staff
- ▫ University staff working with school teachers

- University staff working with parents
- University students tutoring school students
- University students mentoring school students
- University staff and students engaged in a school/community project
- Introduction to uni
- Holiday program
- Short course
- Mentoring
- Other (please specify):

Q24. Aims of the program (select as many as applicable):

- Assist with finances (e.g. scholarships, grants)
- Provide information (e.g. about finances, application processes, accommodation)
- Familiarise students with university
- Improve educational achievement
- Promote interest in specific fields of study
- Encourage career planning
- Build aspirations for university
- Contribute to improved senior secondary retention and completion
- Other (please specify):

Q25. Describe in 200 words (approx) what program participants do (or will do if the program is in planning stage):

Q26. *If you have a program website, please provide the URL:*

Q27. How was/is the program evaluated? (select as many as applicable):

- Not evaluated
- Numbers involved in Program
- Teacher perceptions of value
- Student perceptions of value
- Community/parent perceptions of value
- University staff perceptions of value
- University student perceptions of value
- Measurement of success against specific aim (e.g. increased retention)
- Longitudinal tracking of student achievement
- Longitudinal tracking of student aspirations
- Other (please specify):

Q28. What outcomes have been identified? (select as many as applicable):

- Increased demand for participation in the Program
- Increased satisfaction with the Program
- Increased understanding of university environment and procedures
- Changed aspirations towards higher education (ie more or less motivation to attend)
- Changed senior secondary subject choices
- Changed career plans
- Increased educational achievement
- Changed interest in specific fields of study
- Improved retention of students at school
- Improved senior secondary completion rates
- Increased number of students from the targeted group applying for university
- Other, eg increased confidence (please specify):

Q29. Who evaluated the program? (select as many as applicable):

- University staff
- Participating partner
- Participating school or schools
- External evaluator

Q30. What, if any, barriers or difficulties has the program faced in its development and implementation?

Q31. If there are any publications arising from the program (e.g. reports, journal articles) or any other documentation you are willing to share, please give details (e.g. URLs, publication details, contact details for hard copies of reports):

Q32. Do you have any further comments you would like to add?

Q33. Are there other participants you recommend we contact? If so, please provide contact details if possible:

Q34. We would be grateful if you could provide name and contact details of the most appropriate university person to contact if we require further information about this program:

6.4 Appendix D: University participants and their pre-Year 11 programs

- Australian National University – ANU Access Program
- Australian Catholic University – ACULINK
- Charles Sturt University – Aspirational Pilot Program; Mentor Program; On Campus School Visits
- Central Queensland University – Tertiary Awareness Program

- Curtin University – Curtinlink; Curtin Linkup; hosting of school visits by the Centre for Aboriginal Studies as part of the Follow The Dream And Up4it And Future Footprints Programs; unnamed initiative based on a City Survival Guide booklet
- Deakin – several based in the faculties of Science and Technology; Arts and Education, and Health, Medicine, Nursing and Behavioural Sciences
- Edith Cowan University – various programs including Equity Support Programs and Direct Entry and Pathways Programs
- Flinders University – Recruitment strategy/program; Inspire Mentor Program; First Generation Mentor Program; Breakthrough Program; Catalyst; and an extension of existing mentor program currently in the planning stage
- Griffith University – Mata I Luga; Uni-Reach; Tertiary Education Experience (Tee) For Students With Disabilities
- James Cook University – Siemens Science Experience; Indigenous Connections; ASPIRE
- La Trobe – In2Science; Talk and Tour, Experience La Trobe and Year 10 VCE Expo and Info Evening (combined response); eMentoring
- Queensland University of Technology – Deadly Maths Consortium
- RMIT – Schools Network Access Scheme Outreach; Koorie Express
- Southern Cross University – Equity High School Outreach Program
- University of Ballarat – Regional Schools Outreach Program
- University of Canberra – unnamed mentoring program
- University of Melbourne – Kwong Lee Dow Young Scholars Program; Masterclass; Melbourne Access Program (MAP) for Schools; National Disability Coordination Officer Program; Talk About Uni
- University of Newcastle – Maths+Science+Girls=Choices Summer School; MEGS (Making Educational Goals Sustainable)
- University of New South Wales – ASPIRE
- University of Queensland – Market Stall at Croc Fest; Siemens Science Experience
- University of South Australia – Rural Reconnect; First Generation University Orientation Program; Savvy presentation; Closing the Gap: Developing an Inclusion Framework; Lapsit; Something in the Week
- University of Technology Sydney – U@UTS Day – A University Experience For Year 10 Students; UTS Advance Awards For Most Improved Students In Year 10 Or 11; UTS School Visits to Priority Schools; UTS Cineliteracy Summer School
- University of Western Australia – Unidiscovery
- University of Western Sydney – Fast Forward
- University of Wollongong – UniConnections
- Victoria University – Access and Success Program