



NCSEHE

National Centre for Student
Equity in Higher Education



Curtin University



FACILITATING STUDENT EQUITY IN AUSTRALIAN HIGHER EDUCATION

Make tomorrow better.

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Contents

Introduction.....	3
Issues and Trends for Low Socioeconomic Status Background and First-in-Family Students.....	4
Indigenous Students' Higher Education Outcomes.....	14
Issues and Trends for Students with Disability.....	22
Equity Scholarship Provision and Impacts.....	32
Issues and Trends in Graduate Outcomes in Australia.....	39
The Australian Student Equity Program and Institutional Change: Paradigm change or business as usual?.....	50
Opportunity Through Online Learning: Improving student access, participation and success in online higher education.....	54
Fair Connection to Professional Careers: Understanding social difference and disadvantage, institutional dynamics and technological opportunities.....	56
The Ten Conversations.....	58
Acronyms.....	60
Biographies.....	62
References.....	64



Introduction



Professor Sue Trinidad & Professor John Phillimore – NCSEHE Program Leaders

There is overwhelming evidence that a society based on social mobility and social justice reduces economic and social disadvantage. Equity in education is instrumental to this process because it is transformative for individuals, families and communities. It leads to greater social cohesion and a widening of the skills and knowledge base which are also facilitating features of the Innovation Economy.

There is a growing knowledge base as to what constitutes, impedes and best advances equity in higher education. But there is also a patchwork of well-intentioned policies and programs to improve equity outcomes with often inadequate program-specific or system-wide evaluation of those policies and programs. In addition, there are varied interests and perspectives on education and equity held by different stakeholders whose objectives are not always aligned. While advances have been made in equity in higher education, there remains a need to develop a positive feedback loop so that all stakeholders can participate in creating a shared narrative with agreed goals and a common purpose. We need to continue to close the loop between equity research, policy and practice.

The National Centre for Student Equity in Higher Education's (NCSEHE) Facilitating an Innovation Future Through Equity Forum, held at the National Press Club in Canberra on 28 November 2016, brought together some of Australia's most prominent researchers, policy analysts and equity practitioners with the goal of advancing equity in higher education. This compendium to the Forum, *Facilitating Student Equity in Higher Education*, is a summary of relevant research to date.

The Facilitating an Innovation Future Through Equity Forum makes a contribution to a reinvigorated public policy dialogue for equity in higher education in three ways: by summarising some of the key lessons learned from 24 research reports funded by the NCSEHE; by demonstrating the achievements of future equity leaders emerging from the Equity Fellows Program; and by launching 'The Ten Conversations' in equity to progress a process for coalescing different perspectives on equity into more focussed narratives in which all stakeholders have shared ownership.

Lessons from NCSEHE research reports have been synthesised into five areas of Low SES, Indigenous, Disability, Scholarships and Graduate Outcomes. The five reports present a wider research perspective of discrete areas of equity policy, summarising what research has been conducted, highlighting key trends and issues and recommendations for policy and practice. In taking a broader view, these summary reports provide a more holistic view of the five areas of research which may facilitate the identification of further areas for research.

The three inaugural 2016 Equity Fellows' reports provide an overview of their research as an important Australian Government initiative, funded through the Higher Education Participation and Partnerships Program (HEPPP) and managed by the NCSEHE. The goal of the Equity Fellows Program is to produce future equity leaders as well as significant research projects that will advance equity in higher education. Summaries of the work of the three 2016 Equity Fellows appear in this compendium: Dr Nadine Zacharias (The Australian Student Equity Program and Institutional Change); Dr Cathy Stone (Opportunity through Online Learning); and Dr Erica Southgate (Fair Connection to Professional Careers).

The Ten Conversations is an initiative of developing dialogues to unravel complex and often multifaceted issues and forge a consensus through over 80 equity experts' opinions assembled at the forum. The goal is to develop a coalescing of perspectives and turn them into focussed narratives in which all stakeholders have a shared ownership. The Ten Conversations selected for the Equity Forum include: 25 Years of Equity in Australia; Students from Low SES Backgrounds; Students from Regional and Remote Areas; Students with Disability; Students from Indigenous Backgrounds; Scholarships and Support Systems; Defining Success; Evaluating Performance of Equity Programs; Higher Education Data and Equity Policy; and Re-defining Equity Groups. These are not the only 'conversations we have to have' but they have enabled The Ten Conversations to be the start of building a collective narrative.

The common themes running throughout the research presented in this publication positions us for constructive dialogue that informs strategic policy decisions and equity practices, with all stakeholders sharing and owning a narrative that promotes equity in higher education.

Issues and Trends for Low Socioeconomic Status Background and First-in-Family Students

Mr Ian Cunninghame, Dr Diane Costello & Professor Sue Trinidad



Education is transformative. Education delivers benefits to individuals, their families and communities. It is this far-reaching impact that compels research into understanding what drives people from low socioeconomic status (SES) backgrounds and those who are first-in-family (FiF) to attend university. This review of the National Centre for Student Equity in Higher Education (NCSEHE) research reports focuses on presenting the key findings, recommendations and future research directions for low SES and FiF students, to reduce the disadvantages faced by these students, and to ensure Australia's higher education system is as equitable as possible.

Equity in higher education is based on the notion that the representation of disadvantaged groups within university populations should be equivalent to their representation amongst the overall population. Individuals from low SES backgrounds represent roughly 25 per cent of the Australian

population, and as such equity would be achieved once students from low SES backgrounds are represented at the same rate throughout Australian universities.

Decades of policy changes have seen a steady increase in the proportion of equity students participating in university studies, however the most recent significant change to higher education policy in Australia was not primarily intended to be an equity measure. Rather, the introduction of a demand-driven education system was to support the participation target of 40 per cent of Australians aged 25-34 holding an undergraduate degree by the year 2020 (Bradley et al., 2008). Although the intention behind this policy measure was not solely to improve equity participation, the removal of caps on undergraduate university places has spurred increasing numbers of students from disadvantaged backgrounds – particularly those from low SES backgrounds – seeking to attend university (Koshy & Seymour, 2015).

As set out in the Bradley Review (2008), the government's target for low SES higher education participation was set at 20 per cent by 2020, based on the postcode measure of socioeconomic status used at the time. However, currently the undergraduate enrolment share for low SES background students stands at just 17.7 per cent for 2015 figures (see Table 1). Since 2007, the number of low SES students enrolled at universities has grown at a greater rate than the general university population (44.9 per cent compared to 31.6 per cent, see Table 1), however there is still much to be done before equity is achieved for students from low SES backgrounds.

The disadvantages faced by low SES background students when approaching university studies can be exceptionally varied. As one of the largest equity groups, these students often identify with one or more other equity distinctions, increasing the complexity involved in assisting these students in successfully navigating higher education. Research consistently shows (for example: Bexley et al., 2013) that economic disadvantage and financial strains remain central concerns for many low SES background students, despite the robust and equitable student loan and fee assistance available to Australian students. In addition to this, students from mid and high SES schools have access to improved education opportunities in primary and secondary school which can leave low SES background students articulating from low SES schools at a significant disadvantage in their educational preparation (Redmond et al., 2014; Jennings et al., 2015).

As for FiF students, whilst not a recognised equity group of their own, these students also face significant disadvantages in achieving equitable higher education participation. Often viewed as a sub-group of the low SES background cohort, like many other equity sub-groups (such as mature aged students, or refugee background students) those from FiF backgrounds face many of the same disadvantages faced by low SES background students, but are distinguished by the specific issues they face through not having any close connections to past or present university participants. Being the first of one's family to access higher education often involves the daunting task of navigating entrenched academic systems and structures with no prior knowledge or support passed on by family with higher education experience – often referred to as 'hot knowledge', as opposed to 'cold knowledge' which refers to information provided by schools and institutions. Evidence of other student groups who also typically originate from non-academic families show participation can have significantly detrimental consequences concerning their social position amongst their peers and family (Walter, 2015; Naidoo et al., 2015; Gale & Parker, 2014).

In this review, we have summarised the key findings from NCSEHE-funded research projects on the issues faced by low SES background and FiF students in terms of access, participation, and success in higher education. Given this equity group is particularly prominent throughout education policy initiatives and future equity targets, it is crucial that the critical findings and recommendations of the most recent extensive research on this group is widely communicated, so that researchers, educators, and equity practitioners can work to reduce the disadvantages faced by these students.

Drawing on this material, the review focuses on the following aspects of low SES/FiF background students:

- Cohort characteristics and demographic details
- Core influences on access decision-making processes
- Critical concerns and barriers to learning for these equity students; and
- Support opportunities for policy development and service delivery

Based on the criteria above seven core studies were identified for inclusion in the review, detailed in Table 2.

Table 1 Domestic undergraduate enrolments by equity group, 2007-2014 (Koshy & Seymour, 2015, p. 5)

	2007	2008	2009	2010	2011	2012	2013	2014	Growth (07-14 per cent)
National	528,844	523,527	553,374	580,372	600,412	634,434	668,665	695,869	31.60%
Low SES	85,873	86,581	90,447	96,706	102,163	109,788	118,003	124,429	44.90%
Students with Disability	23,148	23,447	24,948	28,057	30,094	33,220	36,486	40,087	73.20%
Indigenous	6,828	6,820	7,296	7,943	8,445	9,005	9,939	10,860	58.90%
Women in non-traditional areas	-	103,120	105,438	107,959	109,936	114,382	119,105	123,544	19.80%
Regional	100,826	101,339	104,266	110,646	115,250	121,476	127,070	131,385	30.30%
Remote	5,428	5,240	5,368	5,532	5,572	5,804	6,069	6,303	16.10%
NESB	16,702	17,222	17,649	18,227	19,226	21,289	22,863	25,114	50.40%

Note 1 2007 data for 'Women in non-traditional areas' is not publicly available for domestic undergraduates, so the growth calculation is from 2008.

Source Australian Government Department of Education and Training

Table 2 NCSEHE funded studies included in Issues and Trends for Low Socioeconomic Status Background and First-in-Family Students review

Study Number, Title & Authors	Date	Method(s)	Status	Domain Availability
1. Cardak, B.A., Bowden, M.P. & Bahtsevanoglou, J. Are Low SES Students Disadvantaged in the University Application Process?	2015	Empirical analysis of qualitative data	Completed	Report available at ncsehe.edu.au/publications/are-low-ses-students-disadvantaged-in-the-university-application-process/
2. Edwards, D. & McMillan, J. Completing university in a growing sector: Is equity an issue?	2015	Quantitative analyses of available data	Completed	Report available at ncsehe.edu.au/publications/completing-university-in-a-growing-sector-is-equity-an-issue/
3. Gore, J., Holmes, K., Smith, M., Lyell, A., Ellis, H. & Fray, L. Choosing University: The Impact of Schools and Schooling	2015	Quantitative survey and qualitative interviews	Completed	Report available at ncsehe.edu.au/publications/choosing-university-the-impact-of-schools-and-schooling/
4. Lim, P. Do individual background characteristics influence tertiary completion rates?	2015	Quantitative analysis	Completed	Report available at ncsehe.edu.au/publications/do-individual-background-characteristics-influence-tertiary-completion-rates/
5. King, S., Luzeckyj, A., McCann, B. & Graham, C. Exploring the Experience of being First in Family at University	2015	Mixed methods - literature review and survey with FiF students	Completed	Report available at ncsehe.edu.au/publications/exploring-the-experience-of-being-first-in-family-at-university/
6. Scevak, J., Southgate, E., MacQueen, S., Rubin, M., Douglas, H. & Williams, P. Equity groups and predictors of academic success in higher education	2015	Quantitative – student data analysis	Completed	Report available at ncsehe.edu.au/publications/equity-groups-and-predictors-of-academic-success-in-higher-education/
7. Habel, C., Whitman, K. & Stokes, J. Exploring the Experiences of low SES Students Via Enabling Pathways	2016	Quantitative analyses and qualitative explorations of student experiences	Completed	Report available at ncsehe.edu.au/publications/exploring-the-experience-of-low-ses-students-via-enabling-pathways/

Summary findings across these reports have been aggregated under three key areas of: characteristics of low SES/FiF background students; pedagogical issues and challenges; and support policies and strategies. As presented in the following sections, sources of findings are indicated by the number labelled against each study in Table 2, i.e. 1-7.

Characteristics of Low SES and FiF Background Students

Given the broad range of students encapsulated by the low SES/FiF background distinctions, demographic information and particular characteristics for these students are difficult to accurately ascertain. However, there are a number of similarities which can be identified amongst these groups. Primarily, these common elements concern their influences and intentions regarding university aspirations, and how these reflect in the choices they make regarding higher education participation.

Demographics

- In 2014, low SES background students accounted for 17.9 per cent of the overall student population (Koshy & Seymour, 2015).
- FiF students are more likely to be: [5, 6]
 - Low SES
 - From rural background
 - Female
 - Older
 - Articulating via public school
 - Living away from home.

Influences and Intentions

- Higher education intention often originates before the final years of schooling [3, 4].
- Family history is a critical influencer, with parental education levels serving as particularly strong indicators of higher education intentions [1, 2, 3, 4].
- Regardless of education levels, parents are found to be the primary source for higher education aspirations [3].
- School ethos also has significant impacts, with subject choice and application advice showing impact on higher education intentions [1, 3].

Subject Choice

- Low SES background students are more likely to choose school subjects that lead to VET pathway rather than university [1, 3].
- FiF background students are more likely to enrol in Nursing, Education, Commerce, and Society & Culture, than Law, Medicine, Science, or Engineering [5, 6].
- Low SES and FiF background students are more likely to be enrolled in courses with lower prestige and/or undertake lower-level qualifications [4, 5, 6].
- Participation in low prestige courses is associated with a higher risk of non-completion [4].

Pedagogical Issues and Challenges

Issues regarding the knowledge low SES and FiF background students have of the higher education system leading up to university transition are found to be potential factors in lower representation of these students. Additionally, as with many other equity groups, educational preparedness presents a significant challenge for these students in participating in university studies.

University Knowledge

- Low SES and FiF background students typically have less 'hot knowledge', and are less able to translate 'cold knowledge' about university [3].
- High SES/independent schools inherently support higher education transition and knowledge development in ways low SES schools do not [1, 3, 4, 6].
- Guidance and career support for low SES background students are often influenced by negative perceptions of likelihood of success at university [1, 3].
 - Even talented low SES background students did not have adequate knowledge to make decisions concerning university applications and transition [1].

Educational Preparedness

- Underrepresentation of low SES and FiF background students in higher education is linked to lower school achievement and completion rates [3, 6].
- Attendance at independent (typically high SES) schools is found to result in higher entrance scores, which is not necessarily reflected in first year performance [4].
- Influence of Australian Tertiary Admission Rank (ATAR) as a predictor of university success is questionable for low SES and FiF background students facing disadvantage, and is not as crucial as other factors [2, 4].

Self-efficacy Perceptions

- Low SES background students are far more likely to have negative perceptions of their own academic potential [1, 4, 6].
- Lower self-efficacy perceptions are reflected in greater preferences for lower prestige institutions [4].
- Low SES background students are less likely to attend institutions appropriate to their skill levels, with significant underestimation of own potential to apply for higher prestige universities [1, 4].
- Low SES and FiF background students have a tendency to perceive university as a privilege to be earned through demonstration of intent, rather than a right for those with capability [1, 4, 5, 6].

Support Policies and Strategies

The most consistent finding regarding support policy across the reports was that low SES and FiF background students lack support in transitioning to higher education, and coping with academic and financial pressures.

Decision to Attend University

- As previously identified, the decision to attend university is significantly influenced by the availability of knowledge provided to low SES and FiF background students [1, 3].
- Sex, prior achievement, distance, and school SES were found to be more significant factors in determining university aspiration than socioeconomic status itself [3].
- It was found that limited support and incorrect information provided at some low SES schools led low SES background students to view university as a 'bad investment' [1].
 - If correct and appropriate advice is provided, ambition to apply for university can be created and/or raised [1].
- Only 30-36 per cent of students believed they had enough information to make an informed decision regarding higher education [1].

Financial Pressures

- For some degree types, additional costs such as textbooks can be unaffordable [5, 6, 7].
- Low SES and FiF background students report financial concerns as persistent impediments to greater participation and success [2, 4, 5, 6, 7].
- Experiencing financial stress significantly impacts the academic performance of low SES and FiF background students [2, 4, 6].
- Perception of financial constraints amongst university aspirants is not influential on decision to apply [3].

Academic Support

- Lack of communication with and access to teaching staff exacerbates learning gaps [7].
- Grade Point Average (GPA) scores for low SES and FiF background students is often higher than initial ATAR scores, particularly after first year [4, 5].

Specific Research Findings

Are Low SES Students Disadvantaged in the University Application Process?

Cardak, Bowden & Bahtsevanoglou (2015) investigated the sources of inequalities in university participation by examining the university application and admission process. Their research builds on international evidence of differences between high and low SES background students' understanding of the university application process. Empirical analysis within this report focussed on the number of changes made to application portfolios after students discover their ATAR.

As with many of the reports, the authors identified that critical influences for FiF students from low SES backgrounds

are parental education levels and support for their children's educational aspirations. Unique findings from Cardak, et al's research largely concerned how much of an impact the socioeconomic status of individual students and schools has on the university application process. They found low SES background students tend to lack the capacity or willingness to make appropriate changes to their application portfolios following the release of their ATAR results, which is also reflected in the tendency for these students to have less ambitious application portfolios from the beginning. The authors state that the results of this research 'validate[s] the idea that students from disadvantaged backgrounds are less engaged with the application process' (Cardak, et al., 2015, p. 64).

Completing University in a Growing Sector: Is Equity an Issue?

Examining the relationship between higher education completion rates and various indicators of disadvantage, a key focus for Edwards and McMillan (2015) was identifying which factors explain the differences in completion rates amongst equity groups. Previous studies have shown experiencing low socioeconomic status during studies has little impact on retention or completion once at university. This would suggest differences in these rates are attributable to the effects of low socioeconomic status on childhood development, in areas such as educational opportunity and support throughout secondary school.

However, Edwards and McMillan found that over the course of nine years there were significant differences (consistent across all cohorts studied) in completion rates between low SES background and high SES background students. Further disaggregation of completion rate figures showed even larger differences present for characteristics such as part time enrolment, and age at time of study. Additionally, incorporated survey data identified a significant difference in responses to consideration of discontinuing studies, both in rates and reasons given; the reasons most often given amongst low SES background students concerned financial and time management issues characteristic of the pressures faced by low SES background individuals. Such results cast doubt on previous findings and question the relevance of socioeconomic status. Instead, they highlight the very pressures faced by those from such backgrounds require serious consideration for universities if they are to improve completion rates for these students.

Choosing University: The Impact of Schools and Schooling

The aim of Gore, et al's (2015) study was to better understand the barriers to higher education participation over which schools have some control. To provide insight into possible ways of improving the prospects of low SES background students, the authors conducted a study of 15 New South Wales-based government secondary schools with low levels of socioeconomic advantage.

The results identified there is great enthusiasm for university articulation amongst students from low SES backgrounds despite their disadvantage. At least 40 per cent of students

across the schools studied identified an intention to pursue university studies, with vast differences in intentions between gender (proportionally, more females intended to pursue university than males), prior achievement (high achievers are more likely than low achievers to indicate intention for further study), and socioeconomic status (similar but less pronounced; high SES background students are more likely than low SES background students to aspire to university). Critically, awareness of barriers to higher education such as distance and finances were already prevalent concerns where appropriate for students intending on university studies, displaying the impact socioeconomic status plays in driving aspirations for the pursuit of higher education.

Do Individual Background Characteristics Influence Tertiary Completion Rates?

Through a thorough analysis of individual background characteristics, Lim (2015) looked at the impact on completion rates for students from low socioeconomic backgrounds when other equity factors are taken into consideration. As the other reports in this review have concluded, low SES background students often exhibit lower completion and participation rates – however when this disadvantage intersects with advantageous student characteristics, the results are less predictable.

The analysis found that the type of school attended can have a substantial impact on student participation; data indicates schools account ‘for around 30 per cent of the variation in university completion’ (Lim, 2015, p.7). While the impact of disadvantage associated with socioeconomic status is still indicative of lower completion rates, attendance at Catholic or Independent schools appears to reduce the impact of low SES disadvantage when it comes to completing university. Such findings highlight the benefit of additional educational support provided by typically high SES schools, strengthening the case for improving support offerings at universities for low SES background students articulating from low SES schools.

Exploring the Experiences of Low SES Students Via Enabling Pathways

Habel, Whitman and Stokes (2016) explored the experiences of students from low SES backgrounds who had transitioned to university study via foundational programs at two South Australian universities: the University Preparatory Program (UPP) at University of Adelaide, and the Foundation Studies Program at University of South Australia. As with many enabling and preparatory programs, the students interviewed were from a diverse range of backgrounds (such as mature-aged and students with disability) including low SES. Hence, they had typically experienced some degree of prior educational disadvantage and/or disruption which drove their decision to enrol in a preparatory studies course.

The most striking finding of Habel et al.’s study concerns the considerably transformative effect university studies has had on the interview participants. As is typical of many low SES background students, many had severely low expectations of their own capability in university level studies. However many indicated they are in fact exceeding those expectations

and excelling in their studies despite histories of disrupted education. As a result, this confirmation of the students’ value and capability has had a profound effect on their identities, with many reporting they feel they belong in an academic setting, where they may not have felt university was right for them prior to commencing their studies.

Exploring the Experience of Being First-in-Family at University

First-in-Family students are often thought to be synonymous with low socioeconomic status students, however King, Luzeckyj, McCann and Graham (2015) show there is remarkable complexity present amongst FiF student cohorts. As with the overall student population they are more likely to be school leavers, yet there is a relatively high proportion of mature aged students amongst the FiF cohort. Also, FiF students are more likely to come from regional areas, more likely to have experienced prior educational disadvantage, and more likely to have increased financial burdens.

Though FiF students display great demographic complexity, the report from King, et al. (2015) shows there are distinct characteristics displayed throughout this group which make it worthy of its own consideration in the equity space. As these students typically lack ‘hot knowledge’ about the university experience from their families, these students often face distinct challenges transitioning into higher education studies, and are likely to experience disruption in maintaining general health and wellbeing. Interestingly, the study identified a prevalent sense of not belonging at university amongst these students; so much so that they are likely to perceive university studies as a privilege which must be continuously earned through hard work and proving themselves, rather than a right afforded to them by their capability to participate in higher education.

Equity Groups and Predictors of Academic Success in Higher Education

Focussing on First-in-Family students, Scevak, et al. (2015) identified that in an Australian context there has been a lack of research on this group of students, despite the fact they display some unique qualities worthy of consideration in the formation of equity initiatives. Drawing on the available literature from the US concerning FiF students, their report tried to identify whether the same issues in access and transition are present for Australian FiF students.

Drawing out a number of demographic features of FiF students at a large regional university, they found that despite the distinct difficulties in transition to study for FiF students found in previous research, FiF students did not differ to their non-FiF counterparts in pathways taken to higher education. They also found their willingness to seek assistance from university staff and services, and their ability to cope with the stresses of university study were lower than that of non-FiF students. Crucially, this may indicate their disadvantages are not all that different from similar equity students, but due to their lack of identification as an equity group they are not likely to be targeted – and therefore assisted – by equity support services.

Recommendations

Numerous recommendations have resulted from the original research undertaken in various areas of low SES and FiF background higher education students with the help of funding provided by the NCSEHE. Rather than repeat these recommendations here, we have conducted a synthesis of related recommendations to present the most pressing policy and research directions for improving university access, participation, and success for these disadvantaged students.

Recommendation 1

That action be taken to improve understanding of university application processes and pathways in senior years of schooling.

As identified in a number of the reports, low SES and FiF background students (particularly those attending low SES schools) are at a significant disadvantage when it comes to knowledge of university pathways and the application processes. Part of this disadvantage manifests much earlier than senior years of schooling in the formation of future educational aspirations, but there is also a need to focus on improving information delivery to students approaching the university application stage.

A particularly useful recommendation evident through the comments of Cardak et al. (2015), and Gore et al. (2015), is that teacher-specific resources be provided to assist them in maintaining current knowledge regarding university application processes and transition services. Teachers are consistently noted as being particularly crucial influencers and sources of guidance for low SES and FiF background students, so ensuring they are up-to-date on relevant information concerning university transition is crucial to ensuring low SES and FiF background students are not disadvantaged in this area.

Recommendation 2

That outreach programs be expanded to inform First-in-Family students of the range of courses and pathways available through higher education studies.

Much like low SES background students, FiF students display significant concentrations in particular degree types. King et al. (2015) and Scevak et al. (2015) show these degrees are often centred on service occupations such as nursing and teaching, which often have less prestige and modest personal economic benefits.

The research suggests these pathways are likely preferred because they are more straightforward and involve lower personal costs, therefore reducing the risk associated with university participation, which may be perceived by such students as an investment. Additionally, such degree types have narrow application in the jobs market (as with VET qualifications), and are likely to limit opportunities for these students. As such, it should be a consideration that outreach initiatives make greater efforts to inform FiF students of the range of degree types available at university, and the broad application and appeal that less specialised courses can have.

Recommendation 3

That First-in-Family students be provided with tailored transition support, including information on time management, study skills, student support, and university systems & structures.

One of the most critical disadvantages facing FiF students is the lack of intergenerational knowledge and support provided to university students from parents, siblings or close relatives who have previously participated in higher education. As a result, FiF students are far less likely to know how to navigate unfamiliar university systems and structures in order to access the support they need, as well as lacking awareness as to how to structure their study patterns and manage their study/life balance.

These critical gaps in knowledge regarding the university experience can have significant negative impacts on FiF students. Their ability to cope with the workload across multiple units with competing timeframes can have a significant effect on students' mental wellbeing, which can result in lower performance over the course of their studies. A greater emphasis on providing FiF students with the necessary information regarding university structures, as well as useful methods for organising and coping with higher education workloads, would greatly assist in addressing the disadvantages associated with being First-in-Family at university.

Recommendation 4

That support for students from low socioeconomic status backgrounds needs to be provided throughout the entirety of university studies

While access initiatives are critical to ensuring the Bradley Review target of 20 per cent low SES background student participation by 2020 is met, increased participation numbers are not always translating to increased completions for low SES background students. Although these students experience numerous hurdles to accessing higher education, research consistently shows disadvantages do not cease upon successfully accessing university.

Future Research

Whilst the NCSEHE funded a substantial range and depth of research concerning students from low SES and FiF backgrounds, many of the reports identified a number of future directions that higher education equity research can take in order to strengthen the knowledge base for this equity group.

Challenges of Social Mobility Discourse

Habel et al. (2016) noted that whilst the students they interviewed had successfully undergone positive transformations in self-efficacy and senses of belonging, this process often came at a cost to their personal relationships. This was reported to be more impactful for female interviewees, as internalised and externalised gender narrative conflicts presented additional barriers to be navigated. As a result, Habel et al. suggest applying intersectional analysis to further research on equity student experience of university.

“While this research began by focusing around low-SES/working class students, it quickly became clear that this was not the only, or even the dominant, aspect of their social identity [...] this suggests that researchers need to begin to apply the kinds of intersectional analyses that have been called for in the literature” (Habel et al., 2016, p. 85).

FiF Group Distinctions

Scevak et al. (2015) highlighted that First-in-Family students need to be assessed as a distinct group in order to understand how the particular challenges facing these students might differ from established equity groups such as low SES background students.

“Further research needs to be carried out to explore the unique challenges that FiF students face and to identify the type of support they need to help overcome these challenges. Therefore it is important that support is tailored to modify the message or strategy so that there is a closer fit to this target group as opposed to a general orientation for all students” (Scevak et al., 2015, p. 14).

Role of Teachers and Schools

Gore et al. (2015) note that the role of teachers cannot be overlooked in access initiatives, as their influence on student aspirations is often overlooked.

“Our data highlight the teacher–student relationship as a key mediator of students’ interest and engagement in the subjects undertaken during the senior years of schooling which is likely to have a bearing on academic performance and post-school options. In this light, any policy directives designed to increase participation in higher education should take into account the centrality of the teacher in affecting students’ educational goals” (Gore et al., 2015, p. 64).

King et al. (2015) also highlight the important role teachers play (both in schools and as teaching academics in universities) in shaping expectations, aspirations, and persistence, particularly for FiF students who lack family ties to higher education knowledge providers.

Further reiterating the need for further research on the impact of teachers and schools, Lim (2015) notes that an investigation of individual characteristics identified there may be unidentified effects of school experience which last well into a student’s university experience.

“[Further research is needed] to expand the investigation into the impact that schools may have on university completion. The inclusion of

more in-depth school level information, available from a range of sources, including LSAY, would extend the work of Li and Dockery (2014) and attempt to determine which aspects of schools matter to completion” (Lim, 2015, p. 44).

Enhancing Application Skills for Low SES background Applicants

Cardak et al. (2015) recommend that due to the identifiable deficiencies in low SES background students’ understanding of the university application process, more information is needed about ways in which such disadvantages may be reduced.

“This research suggests that policy actions should be taken towards the end of high school to improve student understanding of university application processes and thereby outcomes for low SES students. However, this should be seen as complementary to, rather than a substitute for, long term efforts to improve high school achievement. Improving high school achievement and thereby university eligibility will make the implications of this research about information even more important as greater numbers of disadvantaged students qualify for and seek higher education opportunities” (Cardak et al., 2015, p. 2).

Broader Perspective of Equity Students and Completion

As a strong focus on widening participation has resulted in a great deal of information gathering and progress on improving access for equity students, there is a need to ensure access disadvantages are not simply recreated in participation disadvantages, and in turn, lower completions.

Lim (2015) identified there is an opportunity to closely assess the specific influences that equity measures (such as socioeconomic status) have on student pathways through higher education.

“A [possible] extension is to look at the pathways of individuals through university. That is, does SES (and other measures of disadvantage) influence course changing or the length of time that individuals take to complete their courses?” (Lim, 2015, p. 44).

Edwards and McMillan (2015) note that taking available information concerning participation and progression through university amongst equity groups such as low SES background students would assist greatly in identifying means of assisting these students to achieve greater completion rates as a cohort.

“Developing more detailed analyses based on the cohort data would significantly enhance our understanding of progression through university [...] further research could inform targeted interventions to most effectively



increase university completion rates” (Edwards & McMillan, 2015, p. 34).

Equity Impacts on Graduate Outcomes

Just as equitable access without equitable completion is problematic, equitable completion without equitable outcomes is as worthy of consideration and further research. For many students, particularly those from low SES and FiF backgrounds, a university degree is seen as a means to improving their opportunities in life, so without positive graduate outcomes as a result of higher education studies such a goal is likely to be hampered.

Lim (2015) identified as such, and highlighted the need for improved analysis of post-university pathways and outcomes, particularly for students from low SES backgrounds.

“Investigations into post-university employment outcomes, and whether students are working in occupations or industries aligned with the field of study commenced, would also be policy relevant given the assumption that increasing participation of low SES students will generate positive returns in employment and earnings” (Lim, 2015, p. 44).

Edwards and McMillan (2015) posit early indications from recent research are that in the event equity students do complete their studies, their graduate outcomes are currently equitable. With further research and articulation of such findings, there could be further, morale-boosting impacts on access and participation aspirations amongst low SES background students.

“Further exploration of outcomes in the contexts of specific groups of students with low completion rates would highlight the difference that a university qualification can offer to disadvantaged students. Preliminary analysis suggests there are few differences in post- completion employment and salary outcomes between equity-group students and others. Further articulation of these outcomes, with a specific link to the issue of retention and progression for these groups would offer a worthy and targeted future research project” (Edwards & McMillan, 2015, p. 34).

Indigenous Students' Higher Education Outcomes

**Mr Ian Cunninghame, Dr Diane Costello, Professor Sue Trinidad
& Associate Professor Mike Dockery**



The persistent under-representation of Aboriginal and Torres Strait Islander peoples undertaking university study in Australia and the resultant gap between the educational attainment of Indigenous and non-Indigenous Australians has been the subject of many government reviews (e.g. Behrendt et al., 2012). Indeed, increasing Indigenous Australians' higher education participation and success has been a stated priority for past and present Australian Governments, including the 'closing the gap' policy and associated initiatives announced by the Council of Australian Governments (COAG) in 2009 (Council of Australian Governments, 2009). Despite these initiatives and promising increases, there remains a scarcity of research on how Indigenous students approach higher education decisions (Cupitt et al., 2016).

The goal of widening participation in higher education, particularly amongst those from low SES backgrounds, has

been largely based on the idea of 'equity' – that university students from low SES and Indigenous backgrounds, should exhibit proportional representation compared with the broader population (Gale et al., 2013, p. 6). Indigenous people, who make up three per cent of the Australian population (Australian Bureau of Statistics (ABS), 2016), represented only 1.6 per cent of higher education student enrolments in 2014, but crucially this reflected an increase in Indigenous student numbers of 58.9 per cent since 2007 (Koshy & Seymour, 2015).

The equity participation rate – the proportion of undergraduate enrolment – of Indigenous Australians in 2011 varied greatly across different institutions. Representation was highest at Charles Darwin University (4.84 per cent) and James Cook University (4.05 per cent), and lowest at Victoria University (0.31 per cent) and Swinburne University of Technology (0.24 per cent) (Gale et al., 2013, p. 32). Enrolment shares

of Indigenous students continue to vary significantly across university groupings, with Indigenous students accounting for only 0.8 per cent of enrolments at Group of Eight universities in 2014, whereas institutions affiliated with the Innovative Research Universities Group and Regional Universities Network reported 2.4 and 2.7 per cent Indigenous representation respectively (Koshy & Seymour, 2015).

A number of issues compound Indigenous educational disadvantage. The Indigenous population is significantly younger than the non-Indigenous population, with around 35.9 per cent of the Indigenous population aged under 15 years, compared with 18.4 per cent of the non-Indigenous population (Steering Committee for the Review of Government Service Provision, 2014). In remote and very remote areas, Indigenous Australians comprise 16 per cent and 45 per cent of the populations respectively (Steering Committee for the Review of Government Service Provision, 2014). The ABS Australian Statistical Geography Standard determines the degree of remoteness based on distance from population centres (ABS, 2011). Remoteness influences outcomes for Indigenous Australians with non-participation in education increasing with remoteness. This is changing slowly, with population data from the ABS (2016) showing that the percentage of Indigenous people living in non-remote areas increased from 76 per cent to 79 per cent between 2008 and 2015.

An equitable higher education system in which the composition of the student body reflects the composition of society as a whole confers many economic and social benefits to a country. The challenge of securing appropriate representation of Indigenous students is an ongoing public policy challenge that is hampered by widening growth in inequality, major structural shifts in the Australian and international economies, and rapid technological change which is radically altering industries, employment and lifestyles. These changes present unique challenges for equity policy given the complex backgrounds of disadvantaged students and we cannot assume that old established programs of equity group support will work as efficiently as they once did.

A recent evaluation by the Productivity Commission (2016) highlighted that despite years of concerted policy attention, there has been no consistent improvement in the literacy and numeracy achievement of Indigenous primary school students for at least the past 16 years. While the focus of policy is often the performance of Indigenous students in remote and very remote locations, the gaps in educational achievement are present across all regions and across all states and territories. These gaps in early educational outcomes compound over the life course, with around 59 per cent of Indigenous youth now completing Year 12 compared to 88 per cent of non-Indigenous youth (Steering Committee for the Review of Government Service Provision, 2014). While Indigenous Australians are more likely than non-Indigenous Australians to complete vocational education and training (VET) qualifications, such qualifications are less likely to provide a pathway into higher education for Indigenous Australians (Mahuteau et al., 2015). Closing the gap in equitable access to higher education will require greater

attention to be focussed on Indigenous students in the primary years of school in metropolitan, provincial and remote areas across all states and territories (Productivity Commission, 2016).

From a holistic perspective of equity in higher education, education policy makers, institutional leaders and equity practitioners need to be continually aware of developments at three critical assessment points: facilitating access, developing experience, and measuring outcomes. Excellence in research is needed to better understand how the issues and challenges of supporting Indigenous students are evolving. It is through this knowledge that researchers and practitioners can propose innovations in programs of support for Indigenous equity students who then demonstrate effective outcomes for themselves and society as a whole.

In this review, we have summarised the key findings from NCSEHE-funded research projects on the issues faced by Indigenous students in terms of access, participation, and success in higher education. These studies illustrate the exciting research taking place, featuring the discovery of new information, incisive analysis and new and innovative research methods and findings. The projects analyse gaps in our knowledge about Indigenous equity in higher education participation which incorporate issues such as: reaching prospective students with potential and helping them to connect with higher education (facilitating access), assisting learning experiences and supporting students through higher education (developing experience), and evaluating the effectiveness of equity programs in achieving their goals (measuring outcomes).

Five core studies were identified for inclusion in this review, with an additional eight reports included for crucial details pertaining to this critically important equity group, the details of which are listed in Table 3.

Table 3 NCSEHE funded studies included in Indigenous Students' Higher Education Outcomes review

Study Number, Title & Authors	Date	Method(s)	Status	Domain Availability
1. Mahuteau, S., Karmel, T., Mavromaras, K. & Zhu, R. Educational Outcomes of Young Indigenous Australians	2015	Quantitative study: statistical analyses of LSAY data	Completed	Report available at ncsehe.edu.au/publications/educational-outcomes-of-young-indigenous-australians/
2. Dreamson, N., Thomas, G., Hong, A. & Kim, S. Culturally Inclusive Learning for Indigenous Students in a Learning Management System	2016	Literature review – quantitative and qualitative analysis	Completed	Report available at ncsehe.edu.au/publications/culturally-inclusive-learning-for-indigenous-students-in-a-learning-management-system/
3. Fleming, M. & Grace, D. Best Practice in Supporting Indigenous Students with Disability in Higher Education	2016	Mixed – literature review, data analysis DET data and disability advisor survey	Completed	Report available at ncsehe.edu.au/publications/best-practice-in-supporting-indigenous-students-with-disability-in-higher-education/
4. Fredericks, B., Kinnear, S., Daniels, C., Croftwarcon, P. & Mann, J. Path+Ways: Towards best practice bridging and Indigenous participation through regional dual-sector universities	2015	Qualitative approach: case study; Focus group, interviews	Completed	Report available at ncsehe.edu.au/publications/are-low-ses-students-disadvantaged-in-the-university-application-process/
5. Edwards, D. & McMillan, J. Completing university in a growing sector: Is equity an issue?	2015	Analysis of government held data	Completed	Report available at ncsehe.edu.au/publications/completing-university-in-a-growing-sector-is-equity-an-issue/

Study Number, Title & Authors	Date	Method(s)	Status	Domain Availability
Other relevant 2014 and 2015 Funding Round NCSEHE Research Reports				
6. Gore, J., Holmes, K., Smith, M., Lyell, A., Ellis, H. & Fray, L. Choosing university: The impact of schools and schooling	2015	Mixed methods; surveys/ interviews with students and key influencers. 4 case studies of Schools	Completed	Report available at ncsehe.edu.au/publications/choosing-university-the-impact-of-schools-and-schooling/
7. Harvey, A., McNamara, P., Andrewartha, L. & Luckman, M. Out of care, into university: Raising higher education access and achievement of care leavers	2015	Mixed methods: literature review, statistical analysis of available data	Completed	Report available at ncsehe.edu.au/publications/out-of-care-into-university-raising-higher-education-access-and-achievement-of-care-leavers/
8. King, S., Luzeckyj, A., Mccann, B. & Graham, C. Exploring the experience of being first in family at university	2015	Mixed methods: literature review; quantitative survey analysis and qualitative analysis of interviews	Completed	Report available at ncsehe.edu.au/publications/exploring-the-experience-of-being-first-in-family-at-university/
9. Lim, P. Do individual background characteristics influence tertiary completion rates?	2015	Quantitative; statistical analyses of Graduate Surveys on graduate outcomes	Completed	Report available at ncsehe.edu.au/publications/do-individual-background-characteristics-influence-tertiary-completion-rates/
10. Richardson, S., Bennett, D. & Roberts, L. Investigating the Relationship Between Equity and Graduate Outcomes in Australia	2016	Quantitative; statistical analyses of Graduate Surveys on graduate outcomes	Completed	Report available at ncsehe.edu.au/publications/investigating-the-relationship-between-equity-and-graduate-outcomes-in-australia/
11. Zacharias, N., Cherednichenko, B., Ryan, J., Gerge, K., Gasparini, L., Kelly, M., Mandre-Jackson, S., Cairnduff, A. & Sun, D. Moving Beyond 'Acts of Faith': Effective Scholarships for Equity Students	2016	Qualitative, case study analysis of 3 Universities survey responses.	Completed	Report available at ncsehe.edu.au/publications/moving-beyond-acts-of-faith-effective-scholarships-for-equity-students/
12. Burke, P., Bennett, A., Burgess, C., Gray, K. & Southgate, E. Capability, Belonging and Equity in Higher Education: Developing inclusive approaches	2016	Qualitative, two stage, survey and focus group/ one-on-one interview	Completed	Report available at ncsehe.edu.au/publications/capability-belonging-and-equity-in-higher-education-developing-inclusive-approaches/
13. Li, I. W., Mahuteau, S., Dockery, A. M., Junankar, P. N. & Mavromaras, K. Labour Market Outcomes of Australian University Graduates from Equity Groups	2016	Quantitative: student data analysis	Completed	Report available at ncsehe.edu.au/publications/labour-market-outcomes-of-australian-university-graduates-from-equity-groups/

Summary findings across these reports have been aggregated under three key areas of: Indigenous cohort characteristics, pedagogical issues and challenges, and Indigenous students' support services. As presented in the following sections, sources of findings are indicated by the number labelled against each study in Table 3, i.e. 1-13.

Indigenous Cohort Characteristics

Representation at University

- Enrolments of Indigenous students as a share of domestic students have grown by a small, yet significant amount from 2007 (1.3 per cent) to 2014 (1.6 per cent), led primarily by growth in enrolments at IRU and RUN affiliated universities (Koshy & Seymour, 2015).
- Government figures indicate growth in Indigenous enrolments of over 70 per cent over the past ten years (Commonwealth of Australia, 2016).
- However, the rate of commencing Indigenous students relative to the total commencing student population has remained relatively steady between 2001 (0.93 per cent) and 2013 (1.09 per cent) [3].
- Indigenous students are significantly underrepresented across Australian universities [4, 5].
 - Regional and remote Indigenous students are underrepresented in higher education and VET [4].
 - Indigenous students with disability represent a small, but growing percentage of overall students with disability, yet still remain well below representation in the wider population [3].
 - Lower proportions of the Indigenous population commence university study [9].

Retention and Success

- Completion rates for Indigenous students (47 per cent) are well below overall student cohort rates (74 per cent) [5].
- Middle and high SES Indigenous students display a higher probability of completion, however low SES background Indigenous students are less likely to complete university (compared to non-Indigenous students of similar SES backgrounds) [9].

Intersectional Equity Identification

- Indigenous students are more likely to belong to one or more other established equity groups (such as low SES, regional/remote) or emerging equity groups (such as first in family, or care leavers) [3, 7, 8, (Smith, Trinidad & Larkin, 2015)].

Labour Market Outcomes

- Four to six months after graduation, Indigenous graduates are markedly less likely to be employed than non-Indigenous graduates but more likely to be in further study [10].
- Intersectional disadvantage compounds inequitable graduate outcomes, with low SES background Indigenous graduates and Indigenous graduates with disability less likely to be employed than non-Indigenous low SES

background/disabled graduates [10].

- Among those in full-time employment, Indigenous graduates earn less than non-Indigenous graduates [10]. However, as is the case with non-Indigenous Australians, higher levels of education for Indigenous Australians are associated with a substantial earnings premium and higher levels of labour force participation [(Birch 2014)].
- Indigenous graduates who were engaged in paid employment during their last year of studies were far more likely (than those who were not in paid work) to be employed following graduation [10].

Pedagogical Issues and Challenges

Educational Preparation

- Indigenous school students exhibit consistently lower test scores than non-Indigenous students in the National Assessment Program for Language and Numeracy (NAPLAN) [1, 7, (Productivity Commission, 2016)].
- Key indicators of educational preparedness are lower, dependent on how remote they are. Though those not experiencing distance-related disadvantage still perform worse on average than non-Indigenous students [1]. Students' socioeconomic background is the most robust indicator of educational outcomes for both Indigenous and non-Indigenous primary school students [Productivity Commission, 2016]).
- Various factors other than economic status and remoteness, such as social and family issues may contribute more to Indigenous educational disadvantage [1, 4].
- For those continuing schooling beyond the age of 15, Indigeneity does not exacerbate educational disadvantage beyond that age [1].
- Enabling programs – programs designed to prepare for higher education students who do not meet the standard admissions criteria – have been growing in importance as a gateway for Indigenous Australians. They are particularly important for indigenous students in remote and regional areas [5, Pitman et al. 2016)].
- Estimates show enabling programs have surpassed VET articulation as a pathway to degree programs for Indigenous Australians. Further, the Indigenous entrants via enabling programs appear to have superior retention rates and comparable success rates when compared to other Indigenous students [(Pitman et al. 2016)].

Approach to Learning

- Some aspects of Indigenous culture do not align with Western pedagogical values of self-driven, task- focussed, grade-oriented learning practices [2]. However, there is also evidence that stronger cultural identity for Indigenous people promotes participation and achievement in education [4, (Dockery 2013)].
- Individuals are encouraged/expected to utilise social, cultural and economic capital for the benefit of the community, not the self [6, (Behrendt et al., 2012)].
- Once commenced, mid and high SES Indigenous students

are more likely to complete than similarly achieving peers [9].

- Indigenous students exhibit a personal attribute of 'vulnerable determination,' described as high motivation and perseverance coupled with greater self-doubt and lower prior educational attainment [8].

Culturally Inclusive Learning

- Intergenerational trauma and cultural responsibilities present unique barriers to participation in higher education for Indigenous students, which needs to be addressed [7].
- Holistic pedagogical approaches are more able to address characteristics of Indigenous cultural learning practices, whilst not excluding other cultural backgrounds [2, 4].
- Teaching strategies involving discussion, sharing and reflection are utilised in various education settings to include Indigenous and non-Indigenous learners [2].
- Inclusion, consent and cultural understanding are signifiers of best practice in Indigenous enabling programs [4].

Indigenous Students' Support Services

University Experience

- Surveys consistently find low student experience of support and learner engagement for Indigenous students, with little statistical difference compared to non-Indigenous students [5].
- Indigenous students are much more likely than non-Indigenous students to indicate that financial pressures negatively impact university life [5].
- A sense of belonging and of capability is important in shaping a positive university experience [4, 12]. The low Indigenous representation in higher education clearly militates against the development of such feelings of belonging.

Current Program Delivery

- There are currently so many programs aimed at Indigenous students that competition between programs can be overwhelming to students [(Cupitt et al., 2016), (Smith et al., 2015)].
- There are numerous programs aimed at Indigenous students which may run the risk of projecting deficit discourse messaging by making Indigenous students feel constrained [(Cupitt et al., 2016)].
- Indigenous students report greater difficulty and lower rates of engagement with disability services [3].
- Evaluation of progress made through program delivery is severely lacking [4].

Equity Scholarships

- Equity scholarships for Indigenous students result in increased retention and success compared to non-scholarship Indigenous students [11].

Culturally Appropriate Services

- Disability services are often identified as inadequate for Indigenous students as they lack cultural awareness of

particular Indigenous disadvantage [3].

- Acknowledging the continued trauma of intergenerational experiences of the stolen generation and providing services to assist with such issues could improve higher education experience [7].
- Improving Indigenous well-being needs to be a central focus of any service delivery or policy decisions [(Dockery, 2014)].
- Care needs to be taken to ensure the promotion of Indigenous specific programs, scholarships and cultural appropriateness does not undermine Indigenous students' sense of belonging and capability [12].

Synthesis of Recommendations

Numerous recommendations have resulted from the original research undertaken in various areas of Indigenous higher education students with the help of funding provided by the NCSEHE. Rather than repeat these recommendations here, we have conducted a synthesis of related recommendations to present the most pressing policy and research directions for improving higher education access, participation, and success for Indigenous students.

Recommendation 1

That more efforts be made to reduce educational disadvantage in primary/secondary education, and widening participation efforts in tertiary education be maintained.

A common concern raised throughout many of the reports – particularly recently published work by the Productivity Commission (2016) – identifies the prevalence of educational disadvantage early in Indigenous students' education career. Coupled with evidence that past the age of 15 Indigeneity does not exacerbate educational disadvantage (Mahuteau et al., 2015), a focus on reducing the gap in educational performance in prior years of schooling has been identified as having the greatest scope for improving Indigenous participation in higher education.

While we endorse a commitment to improving earlier education outcomes for Indigenous students, the Productivity Commission (2016) report makes it clear that progress in this area is occurring far too slowly, if at all. We cannot afford to wait for efforts in early childhood, primary and secondary school education to flow through to increased participation in higher education. More immediate action on multiple fronts is required to lift Indigenous representation as recommended below. Indeed increased Indigenous participation in higher education and greater representation in professional occupations may be a necessary precursor to raising Indigenous people's expectations and aspirations for themselves and their children (Kinnane et al. 2014).

Recommendation 2

That greater emphasis be placed on providing cultural awareness training for support services staff.

Findings from a number of the reports emphasised the need for Indigenous educational support services to be developed with a focus toward being more culturally appropriate.

Principles and practices that have been identified as underpinning successful programs/interventions for Indigenous Australians include:

- Flexibility in design and delivery so that local needs and contexts can be taken into account
- Community involvement and engagement in both the development and delivery of programs
- Respect for language and culture including recognising different learning styles to engage Indigenous learners
- Developing social capital, building trust, and fostering positive relationships with staff; and
- Continuity and coordination of services (Australian Institute of Health and Welfare & Australian Institute of Family Studies, 2016).

Recommendation 3

Avoiding deficit discourse and assimilation driven policy design and service delivery, moving toward self-determination and Indigenous well-being.

Aspects that have been found to be conducive to a positive university experience and better educational outcomes for Indigenous students include an environment which affirms and respects their cultural identity, a sense of capability and a sense of belonging. Course content, support services and equity practices all need to be designed with care not to create deficit discourses or the portrayal of Indigenous students as 'others' who do not naturally belong in higher education. This should include Indigenous input into policy design and service delivery and recognition that success for Indigenous people may include cultural and community based outcomes.

Recommendation 4

"That the Australian Government lead the development of specific strategies to support the transition of Indigenous care leavers to tertiary education, involving Indigenous peak bodies, community service organisations, and state and territory governments" (Harvey et al., 2015, p. 7).

Indigenous children represent only five per cent of children nationally, yet account for 34 per cent of out-of-home care children, and are placed in out-of-home care at a rate of 10.6 times that of non-Indigenous children (Harvey et al., 2015). Though the large bodies of research into established equity groups such as Indigenous students have developed strategies for addressing disadvantage in higher education access, the body of research for care leavers is comparatively sparse; for Indigenous care leavers even more so. As such, there is a need to develop initiatives to identify and address the particular challenges facing these students in higher education.

This is often the case for a number of smaller groups of Indigenous students experiencing intersectional disadvantages. Whilst much research has focussed on the large numbers of Indigenous students from regional/remote and/or low SES backgrounds, issues pertaining to other groups such as Indigenous students with disability are poorly understood by comparison. As a result, this recommendation could apply for a number of smaller groups of Indigenous students underserved by current access and participation strategies.

Recommendation 5

That State and Commonwealth governments, plus the VET and higher education sectors work together to improve VET articulation to higher education.

Given the higher proportion of Indigenous Australians gaining VET qualifications and the lower rate of entry to university through VET articulation, there is a need for the State and Commonwealth governments to work together with the VET and higher education sectors to develop strategies to increase the transition rate from VET to university.

Recommendation 6

Student data collection facilitate the tracking of students who undertake enabling courses at one university and move to and enrol at a second university (Behrendt et al., 2012).

Enabling programs provide an essential alternative pathway to higher education for many prospective students who have not articulated via year 12 or previous tertiary study pathways. They are also increasingly providing effective preparatory education for university studies, particularly for Indigenous students entering as non-year 12 leavers. Research is showing enabling pathways are potentially the most effective mode of articulation, better than VET transition (Pitman et al., 2016), however as with many aspects of data collection, details are being lost as to the effectiveness of particular institutions' enabling programs by not tracking students from enabling to higher education enrolment.

Future Research Directions

The research has covered a range of issues relevant to Indigenous access to and participation in higher education. A common limitation across many of the studies is the inability to relate findings pertaining to access, support services or cultural inclusion to actual outcomes, be that in terms of completion or post-graduation outcomes. It is important that this shortfall is addressed, whether through better utilisation of existing data sources or through primary research, and that this encompasses Indigenous perspectives on what constitutes 'success' from higher education.

Mahuteau et al.'s surprising finding that educational outcomes for Indigenous Australians are comparable to those for non-Indigenous Australians given their educational achievement by age 15 (Mahuteau et al., 2015). has potentially important policy implications, and needs verification through alternative data

sources. There are a number of possible reasons for why such a result may not be reliable, and it would be risky to conclude on the strength of this one study that Indigenous and non-Indigenous students with comparable results at age 15 have equal opportunities for further education.

The apparent effectiveness of enabling programs also warrants further investigation, as well as comparable analyses for outreach programs. Enabling programs broadly offer two forms of preparation for university studies: academic skills and promoting a sense of belonging in the university environment through, for example, cultural support. Determining the respective contributions of each of these aspects to the success of enabling programs would have implications for the design of outreach and other support programs.

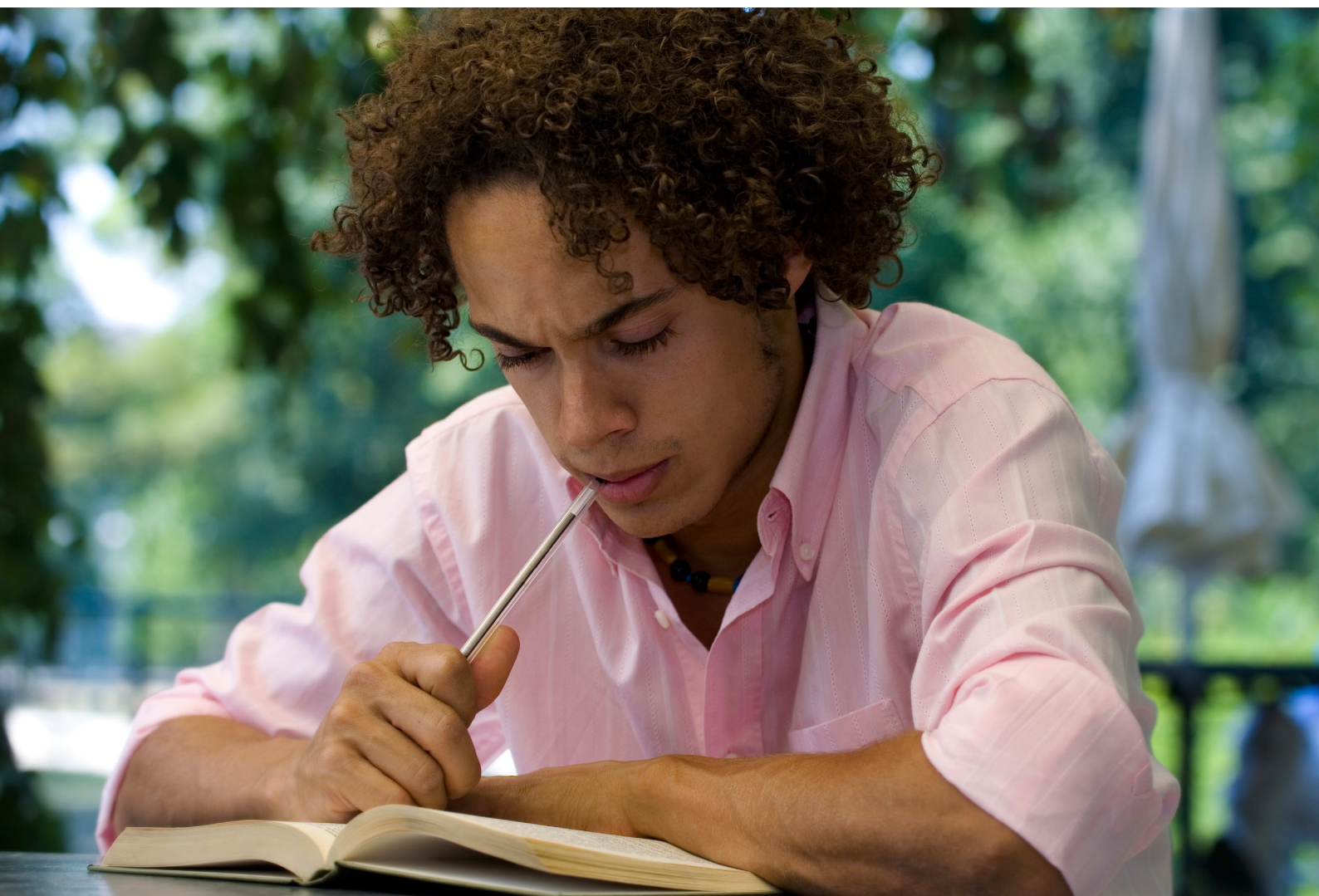
Given the critical role of remoteness in shaping Indigenous Australians' educational attainment, more investment into the development and evaluation of alternative modes of delivery is called for. This should include outcomes for Indigenous people who need to leave their communities to study, on-line delivery to remote communities, and the potential benefits of tailoring university participation to the needs of regional and remote Indigenous communities.

Participation and Completion Data

The low proportion of the Indigenous population in Australia, combined with their under-representation within the university sector, results in prohibitively small sample sizes for many research pursuits using mainstream data collections. This applies to population-representative surveys, such as those typically conducted by the Australian Bureau of Statistics, as well as those specifically targeted at the university student population, such as the Australian Graduate Survey. Hence to address issues of Indigenous equity there is an imperative to make greater use of administrative systems data and the Australian Government's Higher Education Statistics Collection and to increase the accessibility of such data to researchers. This relates particularly to data on completion and other outcomes to address the priorities for future research identified above.

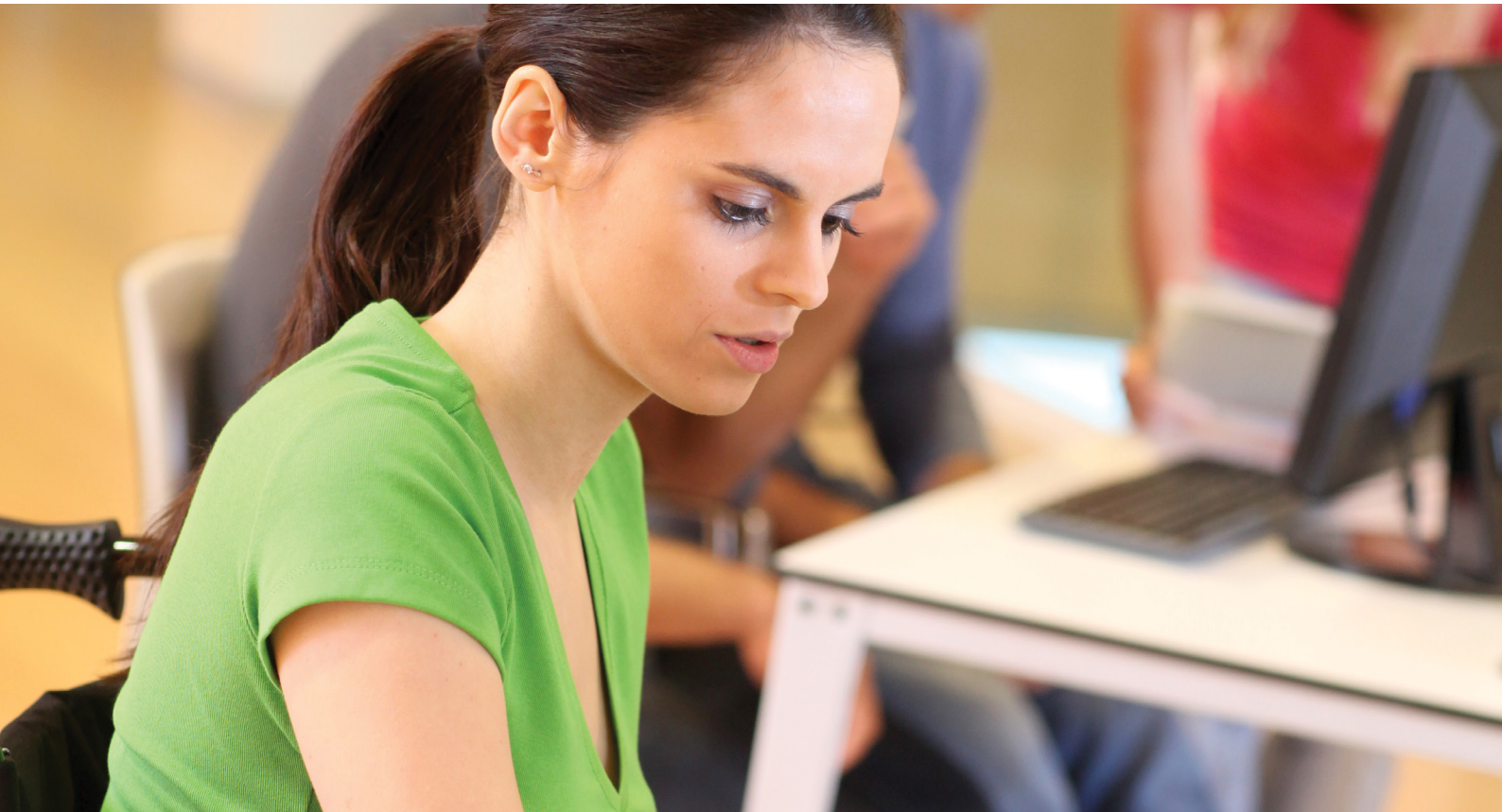
“There is a need to further explore data on Indigenous student completion” (Edwards & McMillan, 2015, p. 34).

The Issues and Trends in Graduate Outcomes Review Paper outlines a number of options for linking participation, completion and outcomes data for equity group students, which in that context is also applied to Indigenous students as a nominated equity group. This involves the matching of census-level data – i.e. full enrolment cohorts at the national level – which ensures sample sizes are large enough for program analysis to be made workable.



Issues and Trends for Students with Disability

Mr Ian Cunninghame, Dr Diane Costello & Professor Sue Trinidad



As identified by many researchers working in the field of disability research, there is a lack of comprehensive information as to: the participation and performance of students with disability, the various pedagogical issues impacting their engagement with higher education, and the best approach to developing services to support students with disability. This review focuses on presenting the key findings, recommendations and future directions for further research for the equity group of students with disability.

Typically, disability is described as “any limitation, restriction or impairment which restricts everyday activities and has lasted, or is likely to last, for at least six months” (Australian Bureau of Statistics, 2013). The Federal Disability Discrimination Act 1992 (2015) defines ‘disability’ more specifically as:

- Total or partial loss of the person’s bodily or mental functions; or

- Total or partial loss of a part of the body; or
- The presence in the body of organisms causing disease or illness; or
- The presence in the body of organisms capable of causing disease or illness; or
- The malfunction, malformation or disfigurement of a part of the person’s body; or
- A disorder or malfunction that results in the person learning differently from a person without the disorder or malfunction; or
- A disorder, illness or disease that affects a person’s thought processes, perception of reality, emotions or judgment or that results in disturbed behaviour.

According to the most recent Survey of Disability, Ageing and Carers (Australian Bureau of Statistics, 2016), people with disability represent 18.3 per cent of the Australian population,

with roughly half that figure accounting for working age Australians. The Australian Network on Disability (2016) indicates one in six Australians have some form of hearing loss, over 350,000 Australians have a vision impairment, roughly 10 per cent of the population has dyslexia, and an estimated 45 per cent of the population will experience a mental illness within their lifetime.

As per the Act, the definition of disability covers persistent, previously existing, predisposed future disability, and those imputed to a person (Disability Discrimination Act 1992, 2015). It is worth noting such a normative definition of disability and the classical categorisations which are associated with it can be problematic when the full spectrum of impairments which fall under the category of 'disability' are considered, as the reports commissioned by the NCSEHE reveal that disability is an exceptionally diverse field, particularly more so than the current taxonomy would suggest.

In Australia, tertiary education institutions are typically guided by the definition presented in the Disability Discrimination Act 1992 in order to offer specialist disability services to meet their obligations to students with disability, as well as develop course and campus design measures to provide inclusive curriculum and building design to accommodate students with a variety of impairments. Students are required to provide documentary evidence of disability or an ongoing health condition and how their access and/or study may be affected (Cupitt, Costello, Raciti & Eagle, 2016). While institutions may differ in their methods of supporting students with disability, identifying where reasonable adjustments can be made to the learning process is a key aspect of reducing the detrimental impacts of disability on university studies. This can involve a number of supports including the loan of equipment (e.g. screen-reading software), and reformatting of course materials to accommodate specific impairments (e.g. reformatting for large print), or the provision of in-class and tutorial support. This may also include access to learning/academic support, counselling, assessment accommodations, or financial advice (Cupitt et al., 2016).

As a symbol of the Australian Government's commitment to make higher education more inclusive, the landmark report *A Fair Chance for All*, established the rationale for developing objectives, targets and strategies to increase equity group participation in higher education, including students with disability (Brett, 2016). Current research has shown that students with disability have achieved substantial growth in both enrolments and representation in higher education since 2007 (Koshy & Seymour, 2015). While these outcomes are promising, the particular disadvantages experienced by students within this equity group are not adequately addressed within higher education institutions, as support services designed for these students are at times insufficient and often under-utilised. KPMG's (2015) evaluation of disability support programs found there are still gaps in awareness amongst students with disability as to the availability of university resources and how well their specific needs will be met. An issue also impacting students' access to resources is the diversity of disability

classifications, which means that many students' specialised needs are not met by current support services.

For this review, we have summarised the key findings from NCSEHE-funded research projects on the issues faced by students with disability in terms of access, participation, and success in higher education. Developing an understanding of how universities might best provide support to students with disability in order to ensure successful outcomes is a particularly pressing issue for equity policy development. Unlike many other equity groups, students with disability tend to require more support throughout their studies rather than before they commence, as they often display the capacity to succeed once their support needs have been met.

Based on the criteria above, nine studies were identified for inclusion in the review; six reports with a specific focus on students with disability, and three with a broader focus but detailed crucial findings for this equity group. Those identified are presented in Table 4.

Table 4 NCSEHE funded studies included in Issues and Trends for Students with Disability review

Study Number, Title & Authors	Date	Method(s)	Status	Domain Availability
1. Kilpatrick, S., Johns, S., Barnes, R., McLennan, D., Fischer, S. & Magnussen, K. Exploring the Retention and Success of Students with Disability	2016	Mixed – student data analysis, and semi-structured interviews with institution representatives	Completed	Report available at ncsehe.edu.au/publications/exploring-the-retention-and-success-of-students-with-disability/
2. Fleming, M. & Grace, D. Best Practice in Supporting Indigenous Students with Disability in Higher Education	2016	Mixed – literature review, data analysis of DET data, and disability advisor survey	Completed	Report available at ncsehe.edu.au/publications/best-practice-in-supporting-indigenous-students-with-disability-in-higher-education/
3. Owen, C., McCann, D., Rayner, C., Devereaux, C., Sheehan, F. & Quarmby, L. Supporting Students with Autism Spectrum Disorder in Higher Education	2016	Mixed – literature review, survey, and photo-voice analysis of students with disability	Completed	Report available at ncsehe.edu.au/publications/supporting-students-with-autism-spectrum-disorder-in-higher-education/
4. Brett, M., Harvey, A., Funston, A., Spicer, R. & Wood, A. The Role of Inherent Requirement Statements in Australian Universities	2016	Qualitative – desk top audit; usage of Inherent Requirement Statements across 38 Australian Universities	Completed	Report available at ncsehe.edu.au/publications/the-role-of-inherent-requirement-statements-in-australian-universities/
5. Ganguly, R., Brownlow, C., Du Preez, J. & Graham, C. Resilience/Thriving in Post-Secondary Students with Disabilities: An Exploratory Study	2015	Mixed – analysis of survey data, and deductive analysis of interview data	Completed	Report available at ncsehe.edu.au/publications/resiliencethriving-in-post-secondary-students-with-disabilities/
6. Kent, M. Access and Barriers to Online Education for People with Disabilities	2016	Mixed – quantitative and qualitative analysis of survey and interview data.	Completed	Report available at ncsehe.edu.au/publications/access-and-barriers-to-online-education-for-people-with-disabilities/
7. Li, I.W., Mahuteau, S., Dockery, A.M., Junankar, P.N. & Mavromaras, K. Labour Market Outcomes of Australian University Graduates from Equity Groups	2016	Quantitative – analysis of anonymised student data and Australian Graduate Survey data	Completed	Report available at ncsehe.edu.au/publications/labour-market-outcomes-of-australian-university-graduates-from-equity-groups/

Study Number, Title & Authors	Date	Method(s)	Status	Domain Availability
8. Zacharias, N., Cherednichenko, B., Ryan, J., George, K., Gasparini, L., Kelly, M., Mandre-Jackson, S., Cairnduff, A. & Sun, D. Moving Beyond 'Acts of Faith': Effective Scholarships for Equity Students	2016	Qualitative – case study analysis of 3 Universities survey responses.	Completed	Report available at ncsehe.edu.au/publications/moving-beyond-acts-of-faith-effective-scholarships-for-equity-students/
9. Richardson, S., Bennett, D. & Roberts, L. Investigating the Relationship Between Equity and Graduate Outcomes in Australia	2016	Mixed – analysis of Australian Graduate Survey data, and interviews from OLT commissioned project	Completed	Report available at ncsehe.edu.au/publications/investigating-the-relationship-between-equity-and-graduate-outcomes-in-australia/

Summary findings across these reports have been aggregated under three key areas of: student cohort characteristics, pedagogical issues and challenges, and support policies and strategies. As presented in the following sections, sources of findings are indicated by the number labelled against each study in Table 4, i.e. 1–9.

Student Cohort Characteristics

Disability: Definitions, Indicators, and Data Collection

- Department of Education statistics categorise students with disability by six classifications: hearing, learning, mobility, vision, medical, and other [1].
- The 'other' category for disability classification often includes broad disability types such as mental illnesses and Autism Spectrum Disorders [1, 3, 6].
- The lack of disaggregated data in regards to mental illnesses in particular is problematic given the large percentages of students disclosing such disability [1, 6].
- As noted by Brett (2016), "as long as the disability indicators remain superficial and poorly aligned with robust theoretical frameworks, an evidence base that might trigger more innovative approaches is absent" (p. 104).

Representation at University

- In the years since 2007, the percentage of enrolled students with disability at Australian universities has increased from 4.4 per cent (in 2007) to 5.8 per cent (in 2014) (Koshy & Seymour, 2015).
- There were no significant changes in the distribution of disability types between 2007 and 2013. However, there has been a shift toward the 'other' category, as distribution across hearing, learning, mobility, visual, and medical has reduced slightly [1].
- Smaller universities with 10,000-30,000 students have a larger proportion of commencing and enrolled students with disability, compared to large universities with more than 30,000 students [1].

- As with issues raised in the previous section the data collection provides some, but not all, the relevant information. Data on disability only captures self-disclosed or medically verified impairment which can lead to inaccurate figures for less visible disability types such as mental illness and learning disabilities [1, 3, 6].

Retention and Success

- When comparing students with disability to the total student population, students with disability have a slightly lower success rate and consistently lower retention rate [1, 9].
- In comparison to the total disability cohort, students with learning, medical, and 'other' categories exhibited consistently lower retention and success rates [1, 8].
- Scholarship provision resulted in varied retention and success rates for students with disability, dependant on institution and scholarship type: [8]
 - At Deakin University, scholarship recipients had greater retention and success rates than non-scholarship recipients.
 - Queensland University of Technology recipients had higher retention than non-scholarship receiving students with disability, but lower success than all non-recipients.
 - Those receiving scholarships at University of Sydney had higher success rates than non-scholarship students with disability, but lower success than all other students and lower retention than both groups of non-recipients.
- Success rates of students with disability according to university size have converged over time [1].

Labour Market Outcomes

- Students with disability experience significant labour market disadvantage following graduation [7, 9].
- Graduates with disability were less likely to be in work than those without, and compounding disadvantage decreased the likelihood of being employed further [9].

- Graduates with disability earn less than those without disability [9].
- The few characteristics resulting in an increased likelihood of employment following graduation for students with disability were: [9]
 - Engagement in paid employment during the final year of studies;
 - Gender, with females more likely to be employed than males;
 - Attending a GO8, ATN or IRU affiliated institution;
 - Studying natural and physical sciences, agriculture, or health; and
 - Age, with graduates aged 22 or under more likely to be employed.

Support Seeking Behaviour

- Students who identify and seek support for their disability have greater academic success and display retention and completion rates comparable to overall student cohort rates [1, 3, 5].
- Disclosure rates are likely to be unrepresentative of overall need for services as stigma continues to be an issue, particularly for students with non-physical disability [1, 2, 3, 4, 5, 6].

Institutional Culture

- Current disability standards legislation regarding built environment design tends to be focussed on mobility and physical access, with little attention paid to inclusive design for other disability types [3].
- There has been broad acknowledgement of the need for significant overhaul of institutional culture concerning disability [1, 2, 3, 5].
- Issues continue to arise whereby academic and administrative staff are not adhering to institutional principles and standards (such as applying reasonable adjustments) regarding students with disability [2, 4, 5, 6].

Professional Development and Training

- Cases have been identified whereby staff have not provided educational adjustments when provided with appropriate documentation, in potential violation of the Disability Discrimination Act 1992 [5].
- Mandatory disability awareness training modules and professional development training in consultation with disability practitioners and support workers represent an appropriate means of ensuring institutional standards are adhered to [3, 5].
- Consistent discussion regarding the need for more training in disability awareness suggests this must be a core part of institutional business, and disability practitioners should be involved in the training of all staff to ensure planning, design, administration, and education staff are aware of the impact of their work on students with disability [1, 2, 3, 4, 5, 6].

Educational Content Delivery

- Learning spaces themselves – both physical and digital – can present significant barriers to participation for various

disability groups [1, 2, 3, 6].

- E-learning spaces have been touted as particularly beneficial for some students with disability, however current tools and platforms used do not have the capacity to address the needs of many students with disability, for example:
 - The problems of hearing-impaired students may be magnified in the context of e-learning where audio recordings are more common than visual learning aids [6].
 - Students with Autism Spectrum Disorder can experience significant barriers when faced with overstimulating online platforms [3].

Support Policies and Strategies

Adequate Service Delivery

A number of students with disability are unaware of the range of support available through university services, or that support exists at all [5, 6].

- Many institutions lack culturally sensitive support services for students from various cultural backgrounds [1, 2].
- Support options need to be expanded beyond face-to-face provision in order to accommodate students unwilling to engage with such services as well as online students with disability [2, 3, 6].
- The provision of services for students with non-physical disability represents an area of disability support requiring significant further investment by universities [3, 6].

Reasonable Adjustments Provision

- Teaching staff at some institutions appear to be unclear as to how and when reasonable adjustments should be provided, especially when applied to students with varying disabilities [1, 3, 5].
- Course integrity and equality of opportunity are common concerns raised by staff regarding reasonable adjustments, displaying a lack of understanding as to the fundamental rationale for providing reasonable adjustments [1, 3, 4, 5].
- There is an inconsistent approach across institutions regarding the provision of Learning Access Plans (LAPs) as an effective means of applying reasonable adjustments, though most are developed with fundamental principles in mind [1, 3].

Inherent Requirement Statements

- The provision of clear details concerning inherent requirements appears to be inconsistently dealt with at an institutional level [4, 5].
- There is a paucity of consideration given to the potential conflicts between signalling inherent requirements, transparency in their application, compliance with anti-discrimination legislation, and serving the best interests of students [4].

Specific Research Findings

Exploring the Retention and Success of Students with a Disability

Though the number of students with disability at university can vary significantly across the country, a closer look at the figures show student share is another issue. Kilpatrick et al. (2016), showed that the distribution and share of students with disability shows little variation across university groupings, with only a slightly increased share studying at Regional Universities Network affiliated institutions. In addition to this, the success and retention of these students is also relatively consistent across university groupings, albeit still lower than the total student population's success and retention figures.

Despite this relative lack of difference in share and performance, the authors identified attitudes and options for support varied greatly. Few institutions had easily accessible information regarding the support offered at the institution, and some did not have a supportive approach to the use and implementation of Disability Action Plans. However, some institutions were identified as beginning to move disability support services to student services divisions, indicating a positive move away from framing university provided disability support under a medical model to an inclusivity model to assist in retention and success.

Best Practice in Supporting Indigenous Students with Disability in Higher Education

There is a wealth of literature pertaining to the challenges faced by Indigenous students across the education system, though there remains a relative lack of analysis focussing on the particular difficulties associated with identifying as an Indigenous student with disability. As with many cross-sectional equity identities, issues in access, participation, and success are often amplified for such students, as Fleming and Grace's report (2016) identifies. As is often the case for Indigenous students in general, a lack of cultural awareness can impede their ability to embody a sense of belonging at universities, and the lack of coordination between Indigenous education units (IEUs) and disability units (DUs) identified by this research only serves to exacerbate these disadvantages.

This uncoordinated approach goes further than a mere lack of communication between IEUs and DUs. The project identified that less than half of the surveyed DUs asked for details on cultural heritage and identity upon interaction with the support services. This coupled with the lack of coordination suggests cultural awareness concerning the nuanced difficulties faced by Indigenous students with disability needs to be included as part of standard training across DUs across Australian universities. Along with significant improvements in communication and consultation between IEUs and DUs, the authors recommend such changes are vital for ensuring Indigenous students with disability are best served by the support services available through Australian universities.

Supporting Students with Autism Spectrum Disorder in Higher Education

For students with disability, the concept of universal design

in teaching and assessment is often touted as a critically neglected principle. As Owen et al. (2016) discuss, students with Autism Spectrum Disorder (ASD) can face significant barriers to higher education participation in this regard, as assessment requirements such as group work and oral presentations can present insurmountable challenges for those with particularly prominent issues with social interaction. As mandated by federal disability rights legislation, the authors note that mechanisms such as reasonable adjustments delivered through disability action plans and other disability supports (such as mentoring and transition support) are showing to be effective methods for addressing teaching and learning challenges for students with ASD.

The most significant finding of this report however, is the way in which the design of university spaces (both physical and digital) can affect a student with ASD's ability to engage in higher education. Whilst digital platforms which are overly complex, visually stimulating, and illogically structured can present significant challenges to participation, it is the built environment which is often overlooked as a potential barrier for students with ASD. Episodes of sensory overload and forced social interaction are only heightened by not having suitable quiet zones for these students to escape to, and creative design elements can lead to difficulties navigating for those students with ASD who have trouble following 'illogical' signage or pathways. Through their analysis of the impact physical space has on students with ASD, Owen et al. recommend a series of measures institutions can take as they redevelop their campus spaces to be more inclusive to all students.

The Role of Inherent Requirement Statements in Australian Universities

Students with disability should have every right to participate in higher education, despite their level of disadvantage. However, it is incumbent upon universities to appropriately communicate to prospective students the particular capabilities required to adequately engage in a course of study, in order that they may make an informed decision about the expectations for a course of study they intend to begin. For this reason, inherent requirement statements have become a means by which universities may signal to students whether a particular course may present significant difficulties for those with disability. However, this research shows the practice is far from consistent across the higher education sector.

As Brett et al. (2016) note throughout the report, inherent requirement statements are only provided for a minority of courses, and the level of detail can vary greatly between institutions. With no standard guidelines for the construction of inherent requirement statements or coordination across the sector as to which courses need to include them, statements which should be a means of providing crucial information to prospective students to foster inclusion, may risk falling foul of anti-discrimination legislation through exclusionary language and practices. Given the inconsistent approach to what is an exceptionally delicate balancing act between evolving professional standards, federal and state legislation, and institutional values and policies, this report highlights the dire

need for further detailed and systematic analysis of inherent requirement statements.

Resilience/Thriving in Post-Secondary Students with Disability

As the first research project funded by the NCSEHE focussed on students with disability, Ganguly et al.'s (2015) report detailed the dire need for further research into the university experience for these equity students. The authors found that resilience amongst students with disability, and levels of engagement with university study and life were consistently higher amongst those students with disability on a GPA greater than 5.5. These findings indicate that for students with disability who are able to achieve greater than a passing grade through adequate support and study methods/habits which facilitate active participation in their studies, their level of disadvantage is not particularly indicative of their capacity for resilience and ability to thrive throughout university.

Perhaps the most significant and alarming finding of this report, was the identification by a number of interview subjects of incidents where teaching staff disallowed reasonable adjustments provided by disability support policies (such as disability action plans) at the university. As some of the most critical support mechanisms which allow for equitable participation amongst students with disability who may face unavoidable, sporadic interruptions to their studies, it is particularly concerning that disability support policies may be circumvented where teaching staff may not have adequate disability awareness training. Not only is the knowledge of such occurrences alarming due to the likelihood they may cast doubt over the reliability of evaluative data analysis of such support policies, but these incidences appear to violate the spirit of the Disability Discrimination Act 1992, as well as international declarations on the rights of individuals with disability.

Access and Barriers to Online Education for People with Disabilities

Online education is a rapidly growing source of higher education participation, particularly for students with disability for whom structured attendance at university campuses may present an unfeasible study option. As a major online provider, Open Universities Australia (OUA) serves as the source of Kent's study (2016) on the issues faced by students with disability in online education, which include unique challenges associated with the nature of multi-institutional online education provided by OUA. The research found that as students are required to access courses across a number of universities throughout their degree, students with disability are forced to go through disclosure processes numerous times in order to access necessary accommodations and support available through each institution. A major finding of the student surveys conducted in this research was many students found the lack of an option to automatically disclose placed an unnecessary administrative burden on them, and risked enflaming concerns and anxieties surrounding their self-efficacy and reception amongst teaching staff by repeatedly having to identify as a student with disability.

Beside administrative and technical difficulties faced as a result of the evolving field of online education, the study made an alarming finding concerning the current state of universal design principles and course structure in fully online higher education such as that offered by OUA. Issues with universal design have been identified in blended modes of study available on campus, however this research shows that purely online higher education instruction exhibits many of the same issues due to courses largely attempting to recreate on-campus teaching methods rather than utilising the opportunities for more inclusive course design offered by the online space. In addition to this, rather than presenting more flexible term structures, many students surveyed noted the continuous study periods offered by OUA to be more inflexible than on campus courses, one of the common reasons students with disability turn to online education in the first place.

The reports consulted for this analysis each made a range of recommendations resulting from the literature consulted and from their own original research findings. Whilst some of the recommendations were unique according to the specific research conducted, there are a number which suggest similar policy or research actions be taken. As such, we have conducted a synthesis of the most pertinent recommendations from the listed reports to provide an indication of where the current gaps in research and practice lie, in order that they may provide direction as to where further research and policy action needs to be directed.

Synthesis of Recommendations

Recommendation 1

That disability related data collection and performance indicators be refined to generate a better understanding of the participation of students with disability in higher education.

A number of reports found significant deficiencies in the classification of disability types, particularly concerning large percentages of students such as those with mental illnesses or medical impairments. Some classifications have a tendency to relegate large groups of unrelated disability types to the 'other' classification, which can inhibit support delivery and student cohort analysis. However, merely providing additional classification types for students to self-identify may not sufficiently address the fundamental flaws inherent in such data collection. Another option may be to standardise classifications in line with other comprehensive datasets on disability classifications, such as the Survey of Disability and Carers Census.

The point is also raised repeatedly that data collection relies heavily on self-identification, acceptance, and disclosure of a student's disability, and as such this data is highly unlikely to be entirely indicative of the actual representation of students with various disabilities at university. Additional identification and data collection methods may need to be considered, particularly for accurately measuring statistics regarding retention, performance, and success.

Recommendation 2

Universities must ensure Inherent Requirement Statements are clear, transparent, and in accordance with the Higher Education Standards Framework, Disability Discrimination Act 1992, and Disability Standards for Education 2004.

Inherent requirement statements provide universities with a means to communicate to students with disability whether they are likely to experience insurmountable barriers to completion of a course of study, where particular physical proficiencies are required to effectively demonstrate learning outcomes have been achieved. However, as legislative measures such as the Disability Discrimination Act 1992 and Disability Standards for Education 2004 dictate, no student with disability may be unfairly excluded from a course of study because of their disability. As a result, inherent requirement frameworks must be carefully described and revised as necessary to ensure full compliance with anti-discrimination legislation.

Additionally, the report recommended that universities “monitor the impact of inherent requirements on prospective, enrolled and graduating students” (Brett et al., 2016, p. 3). This would allow universities to ascertain whether inherent requirement statements are providing an effective means of communicating realistic expectations regarding university course content to students with disability, and to measure their effectiveness for the purposes of informing reasonable adjustment provision.

Recommendation 3

Pedagogical methods, materials and technology should (where possible) adhere to the principles of universal design, and further efforts should be made to provide a variety of options for engaging with learning content and spaces.

Given the nature of particular disabilities (such as hearing or vision impairments) efforts should always be made to provide content through a variety of modes (i.e. closed captions or audio files) in order to ensure no student with disability is unable to engage with learning material provided for the purpose of achieving the learning outcomes of a particular course. However, additional participation options to address barriers for students with other impairments, such as learning disabilities, mental illnesses, or persistent medical conditions, must also be considered to ensure equitable participation in higher education is achievable. Such measures to reorient pedagogical design toward universal, inclusive environments for all students could have the additional benefit of reducing the necessity for disability service provision to address disadvantages experienced by students with disability when participating in normative learning structures.

Ensuring group collaboration is not mandated where it is not required to achieve learning outcomes to cater for students with mental illness and learning disabilities who may not thrive in such environments; providing low sensory stimulation spaces to enable students on the autism spectrum to retreat; enabling students to learn at their own pace rather than mandating persistent engagement through weekly assessment, are a few specific options suggested throughout the reports in order to improve the participation of students with disability.

Recommendation 4

That disability awareness training be made a mandatory component of induction materials and institutional policy training modules for all administrative and academic staff, to ensure staff are competent in their understanding and administration of disability support provisions.

A common theme throughout the disability support research has been that some staff members are unaware of, and/or unwilling to adhere to, institutional disability support provisions. Lack of communication between disability support units and teaching staff as to the requirements for accommodations and adjustments has occasionally driven such a disconnect in policy and practice, however a number of reports also identified lack of knowledge and understanding of disability support provisions as significant barriers to application of policy. It is therefore imperative institutions make further efforts to require completion of disability awareness training to ensure all staff are aware of practices and policies concerning students with disability. Additionally, there is a need to include in such material extra information concerning intersectional understanding of the particular challenges for students who identify with other equity classifications (particularly Indigenous and NESB) in addition to students with disability.

Recommendation 5

That the option for increased agency be provided to students as to the management of information and disclosure regarding their disability.

Concerns around disclosure have been raised throughout most of the reports as a persistent point of contention for students with disability. Part of the problem with disclosure involves the prevalence of stigma regarding many disability groups, which may be addressed through increased awareness training and more deliberate attempts to normalise disability in the curriculum. In some cases though, the way in which disclosure processes are perceived as onerous and confronting results in lack of disclosure, particularly for disability groups prone to stigmatisation. In environments such as OUA where students are engaged at multiple institutions, the necessity for repeated self-disclosure is not only time-consuming but occasionally financially burdensome where official documentation is required. As such, greater flexibility for students wishing to automatically disclose where necessary should be an option, and greater communication concerning disclosure processes and options should be made available.

Recommendation 6

Develop a more holistic approach to support for students with disability, providing study and organisational skills in conjunction with Learning Access Plans and in consultation with faculties and other educational support units (such as Indigenous Education Units for Indigenous students with disability).

The need for partnerships between disability support providers, Indigenous Education Units, and faculty as part of a whole of university approach to supporting Indigenous students with

disability was a specific recommendation of Fleming and Grace's report (2016). Along with ensuring Indigenous students play a key role in the decision making process for support initiatives, these measures would go a long way to not only recognising the intersectionality of multiple disadvantages faced by Indigenous students with disability, but also provide scope for greater partnership and communication between student service providers throughout institutions.

Additionally, the broadening of service delivery to include non-academic skills development support alongside formal equity policy implementation would assist in reducing further disadvantages faced by students with disability.

Recommendation 7

There is a need for support services and study terms to offer more flexible options for students with disability.

It has been noted that disability support/health services often only operate on campus, during daytime hours, and on weekdays. This is a significant issue for many students with disability who may have work or class schedule commitments which affect their ability to seek appropriate and timely support (Ganguly et al., 2015). Given university students tend to have less consistently structured schedules, greater flexibility in the delivery of support services associated with institutions should be considered to adequately address those student's needs.

In a similar manner there is scope for more flexibility in study term options to address learning preferences of students with disability. The perpetual study model of OUA's 13 week study periods has been identified as a model which may be beneficial to some who prefer consistent engagement and structure, yet significantly detrimental to others who require breaks between study periods to recoup and consolidate what they have learnt. It is recommended therefore that greater choice in study term intensity and structure be provided to students when considering course delivery.

Future Research Directions

Whilst the NCSEHE funded a substantial range and depth of research concerning students with disability, many of the reports identified a number of future directions that higher education disability research can take in order to strengthen the knowledge base for this equity group.

Achievement and Retention

A number of the reports suggested directions for further research to better understand a range of aspects impacting on student achievement and retention:

"More research is needed into institutional and other factors that impact on the retention and success of students with a disability, and particularly for different disability types. Such research should adopt a student lifecycle focus, incorporating outreach and recruitment, as

well as transition out of university, including transition to a vocation or career" (Kilpatrick et al., 2016, p. 51).

"Further research needs to be conducted to clarify and/or verify the responses of participants who scored high or low in resilience. If this finding [GPA < 5.5 associated with low resilience] holds true in a larger sample and across different disability categories, it has enormous implications for improving the retention rates of students with disabilities" (Ganguly et al., 2015, p. 57).

Disability Classifications and Cohort Characteristics

Although strongly recommended in a number of reports that classifications for disability types should be expanded, Kilpatrick et al. (2016) identified that further research might assist in the implementation of greater quality in data collection:

"Further research should be conducted to identify appropriate methods of disclosure and data collection, including Commonwealth data collection and reporting, to more accurately reflect retention and success statistics for students by disability type" (Kilpatrick et al., 2016, p. 51).

Some recommendations for further research indicated more detail is needed on specific disability types and cohort characteristics:

"Individuals with ASD represent an important, growing population of higher education students [...] and further research is needed to determine best practices [in pedagogy and support for these students]" (Owen et al., 2016, p.20).

"Further research would be useful to identify further the particular challenges of female students with a disability" (Ganguly et al., 2015, p. 60).

"These two categories [mental illness and medical impairments], to date, also have little or no literature around inclusive design in learning and teaching in higher education, particularly in an eLearning context [...] research into this area must be seen as a matter of significant priority" (Kent, 2016, p. 148).

Pedagogical Approaches and Support Programs

Although findings regarding pedagogical approaches and support policy formed the bulk of recommendations, a few areas for further research were identified, particularly with regard to students on the autism spectrum:

"Further research on a comparison between mentoring programs, the approaches within

institutions that would best supplement this approach, and the effectiveness of the approaches in terms of student experience and academic progression is required” (Owen et al., 2016, p.67).

“Further research needs to be undertaken to clarify the type of support available to higher education students with ASD under the NDIS” (Owen et al., 2016, p.7).

“Further research is required to ascertain from academic, teaching, professional and administrative staff their current knowledge, and the types of supports required to increase their skills in working with students with ASD. Moreover, it is important that this is combined with efforts to develop broader public awareness of ASD and foster a culture in which difference is not only recognised but also celebrated” (Owen et al., p.67).

Inherent Requirements

In addition to providing specific recommendations in regards to inherent requirements, Brett et al.’s report (2016) noted a couple of areas where further research could inform analysis and development of inherent requirements:

“Universities are simultaneously seeking to: increase enrolments by promoting the participation of students with disability; provide transparency for all prospective students on essential course requirements and skills; ensure that reasonable adjustments are made for enrolled students as required by legislation; promote the employability of all students; and satisfy the demands of professional and registration bodies, all in an increasingly complex and competitive environment. The potential tensions between these objectives, and their implications for prospective, enrolled and graduating students, require further research and investigation” (Brett et al., 2016, p. 3).

“Further research is required to assess the impact of requirements on potential, enrolled and graduating students, and that particular work is required to capture directly the voices of affected students” (Brett et al., 2016, p. 19).

Employment Outcomes

As with all equity groups, it is not enough to address only those disadvantages which affect access and participation, but also those relating to success and transition into employment. Recent research (Li, Mahuteau, Dockery, Junankar & Mavromaras, 2016; Richardson, Bennett & Roberts, 2016) has shown some groups display equitable employment outcomes compared to overall student cohorts, but others – including students with disability – still lag behind:

“The most pressing priority for research and policy innovation is around employment. It is concerning that the labour market participation statistics for graduates with disabilities are so different from those evident with those without disability” (Brett, 2016, p. 104).

Recruitment and Outreach

Students with disability continue to be severely underrepresented in higher education. In 2015, almost one in five Australians were identified as persons with disability (Australian Bureau of Statistics, 2016), yet students with disability still account for less than six per cent of the student population. Although there is an implicit focus on recruiting students from other equity groups through outreach and recruitment initiatives – such as low SES, Indigenous, regional and remote, women in STEM, and non-English speaking background – there are few, if any, initiatives targeted at attracting students with disability to universities.

“Further research into the impact of relationships between NDCOs and universities on the recruitment of students with disability is recommended [...] research should adopt a student lifecycle focus, incorporating outreach and recruitment” (Kilpatrick et al., 2016).

“Students in a number of impairment categories suggested that universities actively promote themselves as disability friendly, and more specifically welcoming and accommodating of specific disability communities and impairment types” (Kent, 2016).

Equity Scholarship Provision and Impacts

Professor Gail Whiteford & Professor Sue Trinidad



Australian universities provide equity scholarships to new and continuing students as a standard practice. The equity scholarships that are made available across universities vary in amount and duration and also in stated eligibility criteria. A process through which eligibility is determined and through which the scholarships are administered, also varies significantly from institution to institution. Until relatively recently, there has been little data available which reflects both institutional practice(s) in the provision of equity scholarships and the impacts on the recipients – the students – of these scholarships. This is an issue of concern for funders and providers alike given that the aggregated number of scholarships offered has, in an uncapped and HEPPP funded context, raised significantly in the period between 2009 and 2016. Addressing the range of issues associated with an uncapped environment is currently the focus of the newly formed Higher Education Standards Panel (HESP, 2016).

The NCSEHE has commissioned a review of four recent Australian studies focussed on equity scholarships. The purpose of this review is to:

- Identify which scholarship architectures are most appropriate;
- Determine which equity students — relative to need – benefit most from scholarships;
- What the threshold amounts for scholarships are that have most impact; and
- Identify best institutional practice for administering scholarships.

Based on this analysis, the review aims to also posit recommendations with respect to:

- Policy – for funders and providers;
- Institutional administration of equity scholarships; and
- Future research priorities.

Consistent with the aims of the review, a purposive sample approach was used. This meant identifying research that met the criteria of being:

- Recent (undertaken within the last 5 years),
- Undertaken within the Australian national context (for consistency of nomenclature/funding parameters and sociodemographic context),
- Focussed on an aspect, or aspects of equity scholarship policy, provision, administration and impact including lived experiences of recipients as well as providers, and
- Generated identifiable findings which could serve to inform practice in other institutional contexts.

So as to not exclude research currently in progress completion and publication were not included as criteria.

Based on the criteria above, four studies were identified for inclusion in the review. Those identified are presented in the Table 5.

Table 5 Studies included in Equity Scholarship Provision and Impacts review

Study Number, Title & Authors	Date	Method(s)	Status	Domain Availability
1. Reed, R. & Hurd, B. A value beyond money? Assessing the impact of equity scholarships	2014	Mixed – descriptive statistics plus qualitative interviews with students	Completed	Publication: Studies in Higher Education 2014, 1-15
2. Whiteford, G. & Trinidad, S. Equity Scholarship Provision in Australian Universities: Insights and Directions	2015	Mixed – desktop audit plus qualitative interviews with university staff in a range of roles	Completed	Report available at ncsehe.edu.au/publications/equity-scholarship-provision-australian-universities-insights-directions/
3. Zacharias, N., Kelly, M., Cairnduff, A., Cherenichenko, B., Ryan, J., George, K., Mandre-Jackson, S., Gasparini, L. & Sun, D. Moving Beyond 'Acts of Faith': Effective Scholarships for Equity Students	2016	Mixed – statistical analysis plus student survey	Completed	Report available at ncsehe.edu.au/publications/moving-beyond-acts-of-faith-effective-scholarships-for-equity-students/
4. Clerke, T. & Raffaele, C. Maximising the capacity for equity scholarships to improve participation and success in higher education by people from low SES backgrounds	2016	Survey – with students, staff and stakeholders	Preliminary findings available	Web resource: University of Technology, Sydney

Summary findings across these reports have been aggregated under three key areas of: equity scholarships, student cohorts/ characteristics, and impacts. As presented in the following sections, sources of findings are indicated by the number labelled against each study in Table 5, i.e. 1-4.

Equity Scholarships

Administration and Evaluation

- Structural arrangements, accountabilities and reporting lines with respect to equity scholarships are variable across institutions [2].
- Collaboration between institutions and agencies expedites efficient equity scholarship processing [2, 3].
- Evaluation of impacts of scholarships across institutions has been variable to date, as has the extent to which it has informed institutional policy [1, 2, 3].

Amount and Duration

- All equity scholarships have a positive impact [1, 2, 3, 4] but higher value (\$7,500 - \$10,000+), longer duration scholarships have a proportionally greater impact for most, but not all, students [1, 3, 4].
- Scholarships of even small amounts (e.g. \$500) can make a difference to equity students with high degrees of financial stress [3, 4].

Applications Processes

- Transparency of decision making processes is important in ensuring fairness, engendering trust in outcomes [2, 3].
- Providing support to students through the application process is important [4].
- Streamlined processing of scholarship applications, a 'bundling' supports approach and a 'one form' orientation is best practice and least stressful to applicants, mitigating the effects of 'application fatigue' [2, 3].

Architecture

- Simple architectures are the most powerful [3].
- Equity scholarship architectures and their discrete foci (e.g. specific equity group) are most powerful when informed by relevant stakeholder groups [2].

Autonomy

- Institutional autonomy is important in setting priorities for equity scholarship provision relative to context, profile and strategy [2, 3].
- Institutional autonomy in equity scholarship provision enhances flexibility in a fluid policy environment [2].

Communications

- Naming and framing are important considerations in how equity scholarships are communicated and the ways in which they are viewed [2].
- Commencing students are not always aware of the availability of equity scholarships and other supports, so promoting scholarship availability early is important [1, 2, 4].

- Information regarding equity scholarships can be difficult to find for potential applicants [1, 2, 4].
- Organic communications strategies such as 'tell a friend' can be valuable in growing awareness [2, 3].
- University staff can benefit from greater awareness of equity scholarship provisions within their institution as they represent an important potential philanthropic source [2, 3, 4].

Ethos

- Equity scholarships delivered within the ethos of a 'caring community' [2, 3] that include a range of supports represent best practice.
- Normalisation of need as opposed to stigmatisation relative to disadvantage contributes to an empowering ethos for applicants [2, 3].

Merit

- Where merit (ATAR score/previous academic achievement) is included as either a primary or secondary eligibility criterion, retention and success rates are enhanced. Although 3 noted that effect of merit criteria variable is dependent on institution. However, this finding should be viewed with caution as it does not reflect the presence of confounding variables and may represent an "in-built achievement bias" [3].

Timing

- Provision of equity scholarships prior to Census date reduces financial stress [3, 4].

Student Cohorts/Characteristics

Complexity

- Complex life circumstances are not as responsive to the impacts of scholarship holding – especially retention – as poverty is [3].

Equity Groups, Age and Gender

- Overall, low SES students comprise the largest cohort to receive scholarships [1, 3].
- The 25-29 year age group was the group in which the largest and most consistent retention effect was observable [3].
- Female scholarship recipients had higher retention and success rates than male recipients [3].

Financial Neediness

- Those with greatest levels of financial neediness (but low amounts of complex life circumstances) respond most significantly to scholarship provision [3].

Recruitment

- The availability of equity scholarships does not have a strong impact on equity student choice of institution, i.e. it does not seem to work as a focus of recruitment, per se [1, 3, 4].

Impacts

Belonging and Loyalty

- Receiving an equity scholarship enhances a sense of belonging to the university community and loyalty to it [1, 3, 4].

Engagement

- Receiving an equity scholarship enables greater levels of engagement in university life and enhanced civic contribution [1, 3, 4].

Independence

- Scholarship holders experience an enhanced sense of independence — practically, from parents/carers, and existentially, in terms of greater levels of choice and control [1, 4].

Motivation

- Recipients of equity scholarships experience enhanced motivation towards their studies now and in career/postgraduate plans for the future [1, 3].

Performance

- Students who receive equity scholarships perform above average, however, performative effects vary across different equity groups [1, 3].

Psychological ‘Boost’ and Efficacy Beliefs

- Receiving a scholarship can provide recipients with a psychological “boost” which stems from feeling valued and supported and can strengthen belief in self efficacy relative to meeting demands of university life competently [1, 3].

Retention

- Holding an equity scholarship tends to enhance retention across all equity groups [1, 3, 4] although 3 stated this was often dependent on institution.
- Students who have undertaken previous studies – either TAFE or university, complete or incomplete – have higher retention outcomes with a scholarship [3].
- Students from Aboriginal and Torres Strait Islander backgrounds who are scholarship recipients have higher retention outcomes [3].
- In adjusting to university life, access to a scholarship and/or financial support can be the most important factor, followed by the availability of appropriate academic support [4].

Security

- Being awarded an equity scholarship enhances feelings of security and provides a “safety net” of financial support [1, 3, 4].

Social Inclusion

- Being a scholarship recipient means real and symbolic inclusion in not only the university as a whole, but more broadly, in society [1, 4].

Time/Work

- Equity scholarship recipients report they have more time for study [1, 3, 4].
- Scholarship recipients who work less have best outcomes [1, 3, 4].

Synthesis of Recommendations

Each of the studies reviewed, with the exception of 4, contained a series of recommendations. Rather than re-present these, what follows in the next section is a synthesis of key recommendations that are based in the aggregated findings presented above. The headings of scholarships, students and impacts are retained for consistency.

At an aspirational level, it is hoped that these recommendations may also stimulate the identification of best practice guidelines for equity scholarship provision in Australia.

Scholarships

Australian universities offer equity scholarships to enhance the representation of equity and under-represented groups as part of their institutional strategy as well as being a *means* through which to enact their social contract. The *means to an end* of equity scholarship offerings is a more inclusive society in which people from all backgrounds are equitably represented in the professional workforce. The ways in which universities organise, oversee and administer equity scholarships varies relative to context, strategic priorities and extant relationships with key agencies (e.g. TACs, Centrelink) and stakeholder groups. Ultimately, the suite of equity scholarships on offer and the eligibility criteria represent, to a greater or lesser extent, institutional values and culture such as meritorious academic performance. Despite a recent focus nationwide on equity scholarship offerings, information regarding scholarship availability can be difficult to find, predicated a need to focus on proactive communication strategies through a range of media/channels.

Recommendation 1

Promoting equity scholarships to students from under-represented backgrounds who face structural, technology and informational barriers will require innovative solutions to identify more appropriate channels of communication and improve the quality of applicants in terms of need. Strategies can be informed by market research and concept testing to target scholarships to students from disadvantaged backgrounds. Equity scholarship offerings need to be communicated widely, through multiple platforms and students need support in accessing and completing applications. Processing of, and decision-making with respect to, applications should be transparent and timing should allow for delivery pre-Census cut-off date.

Recommendation 2

Equity scholarships should be offered as part of a 'bundle' of supports (e.g. information should be provided alongside offer of acceptance, particularly to students applying from recognised low SES/regional schools, counselling, child care etc.) within an ethos which normalises need. The way that scholarships are structured (their architecture) should be as straightforward as possible to enhance uptake and maximise impact.

Recommendation 3

While all equity scholarships make a difference to students and have a positive impact on retention, amounts of higher value (\$7,500 +) and longer duration (more than one year) have a greater net impact.

Students

An uncapped environment has provided more opportunities for more Australians to participate in higher education and, in doing so, transform many aspects of their lives and of those around them (OECD, 2009). For first in family students, this is especially true. However, numerous challenges still exist for students from low SES, Aboriginal, rural/regional, CALD and disability backgrounds. Accordingly, considering and treating each student on a case by case needs – oriented, basis is important as the mix of factors affecting each varies significantly. Financial support – whilst highly important – without support is inadequate in mitigating the challenges posed by complex life circumstances. Due to the mix of these factors, scholarship impacts vary within the different equity groups.

Recommendation 4

Scholarship application processes should be as streamlined as possible and expedite the identification of a range of other needs to ensure supports are mobilised quickly and efficiently.

Recommendation 5

Whilst equity scholarship availability does not constitute a powerful factor in institutional choice, information regarding equity scholarship availability is important to include in recruitment information as students from equity groups view it as an access (to higher education) strategy.

Recommendation 6

That, as well as supporting a range of equity groups consistent with institutional context and strategy, universities consider that low SES (and most financially distressed), female, 25-29 year old students who have had previous study experience (either at TAFE or university) are the groups upon whom scholarships have greatest impact. The finding that scholarship provision impacts positively on indigenous student retention should also inform policy and provision.

Impacts

The research reported in the studies included in this review contains some new findings with respect to the impacts of equity scholarships. Whilst it is clear that all students benefit from the provision of scholarships and that it has a positive impact on both retention and performance, additional impacts have been noted. These include enhancing students' sense of belonging, loyalty, civic engagement, inclusion and, concomitantly, the development of efficacy beliefs. As captured in the narrative data, students report that being awarded a scholarship gave them a psychological 'boost' which motivated them in the present, but also stimulated consideration of future postgraduate study and career planning. Students also reported the development of an ethic of 'giving back' – not to the institution per se, but to future generations of students experiencing disadvantage. As suggested in all the studies, there is a value beyond money in terms of equity scholarship impact.

Recommendation 7

Given the finding that equity scholarships enable students to work less, and that this has a positive impact on academic performance and engagement, that universities note (as per Recommendation 3) that higher value scholarships proportionally reduce amount of time in paid work and hence, proportionally increase positive net impacts.

Recommendation 8

That universities provide appropriate, timely academic support alongside equity scholarship provision to facilitate adjustment to university life and its attendant demands.

Recommendation 9

Universities can amplify the positive impacts of equity scholarship provision such as belonging, loyalty, security, independence, inclusion and engagement through creating and providing opportunities for social connectedness and service learning, e.g. mentoring programs, volunteering activities in disadvantaged communities.

The studies included in this review have, as a whole, provided some timely findings with respect to equity scholarship provision in Australia. However, as several suggest, there is still much to be explored and understood in this inherently complex arena. The journey through higher education is an essentially transformative one, but each person has a unique journey given the mix of life circumstances and contextual demands they contend with on a daily basis. It is this journey – at the level of the individual, family and community – about which we have little information. We also have little information about the impact of the journey into professional and civic spaces at a societal level and what this means now and into the future. Additionally, at a performative level, whilst it has been noted that all equity students benefit from being a scholarship recipient, the impact is not the same across all groups. The reasons, however, for such inter-group variations remain unclear. Based on the aggregated findings and stated recommendations of the studies included, the following recommendations for future research are presented for consideration.



Research Recommendations

In terms of research recommendations what is required is to provide evidence of the impact of scholarships in order to determine the true impact of what is a patchwork of offerings across the sector currently.

The findings indicate that significant funds are devoted to scholarships and evaluation practice is diverse in terms of ascertaining its likely impact and efficacy of those funds. There is scope for institutions to 'own' aspects of their scholarships practice and implement evaluation frameworks through which the institution-level impacts of scholarships become more visible. This would allow for improvement of processes on the run, and also to acquit against funding.

What needs investigation is how much of this information may already be captured through existing collections. For instance, the first and final year questionnaire of the University Experience Survey (UES), which is completed by a large number of students, could form the basis of data collection on scholarships.

If there are gaps in the UES they can be addressed through the introduction of a module in the UES for scholarship recipients only. This would provide the type of data needed to access the impact of scholarships without necessarily initiating a new survey. The challenge would be to ensure that more scholarship recipients completed the UES and the additional questions. Completion of the UES could be a condition of scholarships.

A data set on scholarship holders of this type would allow for sophisticated statistical modelling, including multivariate analysis, to be undertaken at institutional, state and federal levels to determine causal relationships between student background, age, scholarship type, duration, university context (equity support infrastructure) etc. This will complement the extant, descriptive statistics available and provide a more detailed picture of the impact of scholarships. This could compliment a national, multi method, longitudinal study that tracks individual students from equity backgrounds. This should include those who have been in receipt of a scholarship so that intra- and inter-group comparisons can be made on a range of indicators (including access to and use of social and academic support). This could also include ethnographic research component within discrete socio-demographic communities (e.g. remote communities) and socio-cultural communities (e.g. Indigenous, CALD communities) to illuminate the meanings associated with community members (in receipt of an equity scholarship) engaging in higher education and impacts on aspiration and attainment.



Issues and Trends in Graduate Outcomes in Australia

Mr Paul Koshy & Dr Sylvia Soltyk



This review of two research reports funded by the National Centre for Student Equity in Higher Education (NCSEHE) focuses on presenting the key findings, recommendations and future directions for further research into graduate outcomes among recognised equity groups.

In Australia, the defined equity groups are:

- Students from Socioeconomically Disadvantaged Backgrounds (Low SES students);
- Students with Disability;
- Indigenous Students;
- Students from Rural and Remote Areas;
- Women in Non-Traditional Areas (WINTA); and
- Students from Non-English Speaking Backgrounds (NESB Students).

Typically, equity reporting revolves around these definitions

for access (equity proportion of entering or new enrolments), participation (equity proportion of total domestic undergraduates or all students) and outcomes (equity proportion of students graduating from the system to enter employment or further study).

Outcomes can be further divided into: (i) degree completion; (ii) employment and earnings; and (iii) further study.

Degree Completion

The first primary measure of graduate outcomes is degree completion. A perusal of completion numbers indicates that equity defined students show consistent levels of disadvantage in terms of completion, quite aside from their reduced chances of access and participation. A recent study by the Australian Government Department of Education (2015) of the 2005 Australian undergraduate entry cohort finds that 73.6 per cent had completed an undergraduate qualification by 2013. The

Table 6: Completion Rates – Cohort Analysis 2005-2013, Total Domestic Undergraduates and Equity Groups, 2013.

Domestic Undergraduate Groups	Rate of Completion
Total domestic completions	73.6%
Full time students	78.8%
Part time students	49.2%
Internal students	76.6%
Multi-modal students	70.6%
External students	46.6%
High SES students	77.7%
Medium SES students	72.6%
Low SES students	68.9%
Indigenous students	46.7%
Non-Indigenous students	73.9%
Metropolitan students	75.5%
Regional students	69.8%
Remote students	59.5%
NESB students	78.7%
English speaking background	73.4%
Secondary education admission	78.7%
Other basis of admission	69.4%
19 and under	80.3%
20-24	70.4%
25 and older	58.5%

Source: Australian Government Department of Education (2015).

study also reports findings for various equity groups, reported in Table 1, which indicate lower rates of degree completion for: Low SES (68.9 per cent), Indigenous (46.7 per cent) and Regional (69.8 per cent) and Remote (59.5 per cent) students. Among designated equity groups, only NESB students, at 78.7 per cent, show greater levels of progress than the general population.

As is the case with access and participation, the reasons for the divergence in outcomes between the general population and equity students are complicated and reflect compounding disadvantages (e.g. students with disability from regional areas) which limit students' ability to navigate the Australian higher education landscape as easily as non-equity students.

Employment and Earnings

Evidence on employment and earnings outcomes for equity students in Australia is primarily sourced from the Graduate Destination Survey (GDS) (now the Graduate Outcomes Survey – GOS), with official estimates sourced from the GDS survey manager from its inception in 1993 to 2015, Graduate Careers Australia (GCA). For much of this period, GCA has reported some findings on equity groups, although the GDS definitions of

equity group status do not necessarily align with those collected at the point of enrolment, making definitive statements about equity student outcomes difficult.

Further, in view of the lower rates of completion among equity group students, it is often the case that post-graduation outcomes need to be read with caution, bearing in mind the relatively high level of attrition seen in equity groups at the undergraduate level. For instance, Indigenous students have a very high level of attrition and, conversely, a low level of completion – 46.7 per cent, as seen above. However, in the GCA report for 2014, Indigenous graduates were more likely to be employed than graduates overall – 76.6 per cent compared to 68.1 per cent (GCA 2015, p.14).

Given the reduced levels of participation across most equity groups (NESB students are the exception, although there are complexities within that broad grouping), their general lower levels of completion and employment require ongoing analysis, some of which has commenced with the reports cited in this paper.

In a study summarised below – Richardson et al. (2016) – an examination of GDS data for all Australian universities showed that equity group graduates uniformly saw lower levels of earnings compared with the general student population.

Further Study

Other than employment, the major alternative outcome for graduating undergraduates is articulation into postgraduate study.

However, equity data collection and linkage in Australia is still in its nascent stages with the Australian Government Department of Education and Training reporting on “All Students” and “Undergraduates,” but not separately reporting postgraduates in aggregate or by generally accepted sub-categories such as “Masters by Coursework,” “Masters by Research” and doctorate level qualifications.

A fairly recent presentation by Heagney (2010) provides some equity data for various levels of postgraduate enrolment in Australia and finds that generally, low SES students have even lower levels of representation at the postgraduate level, accounting for 14.9 per cent of all postgraduates compared to 16.1 per cent of undergraduate students in 2008. There are similarly lower levels of representation at the higher degree by research (HDR) level. The 2010 National Research Student Survey (NRSS) conducted across the majority of the Table A universities, reported a sample (unweighted) average of 15.1 per cent of PhD students in Australia coming from low SES backgrounds in that year on the basis of the socioeconomic status of the area (postcode) where students grew up (Edwards et al., 2010). This reporting of postgraduate participation highlights the lack of connection to undergraduate entry and the notion of postgraduate study as the natural outcome of an undergraduate course. To this extent, the examination of equity status in relation to articulation in higher education requires data sets which can match undergraduate and postgraduate

careers with consistent definitions of equity status. This issue will be partially addressed with the projected rollout of the GOS-longitudinal survey (GOS-L) as an extension to the GOS, with a view to following new graduates beyond their first year after graduation.

Purpose and Aims of the Current Paper

This paper summarises the approach and findings from key NCSEHE-funded projects in the graduate outcomes area with a view to raising suggestions about potential future projects that extend what is known about outcomes, both in its own context but also more broadly in the education life-cycle which includes pre-access, access and participation activities.

In addition to recent research commissioned by the NCSEHE, the review will draw on work for the Equity Performance Framework (EPF), prepared by the NCSEHE for the Australian Government

Department of Education and Training (Pitman and Koshy, 2015). That report looks at data collection and reporting at three tiers in higher education – Access, Performance and Outcomes. Drawing on this material, the review will focus on two aspects of the assessment of graduate outcomes:

- NCSEHE study findings on graduate outcomes among equity students, in terms of completion and labour market outcomes, with identification of potential extensions to research; and
- Data requirements for collecting information on graduate outcomes and drivers in Australian higher education, flowing from the above research, and as identified in the EPF.

Based on the criteria above, five core studies were identified for inclusion in the review. Those identified are presented in Table 7.

Table 7 NCSEHE funded studies included in Issues and Trends in Graduate Outcomes review

Study Number, Title & Authors	Date	Method(s)	Status	Domain Availability
1. Edwards, D. & McMillan, J. Completing University in a Growing Sector: Is Equity an Issue?	2015	Quantitative – student data analysis	Completed	Report available at ncsehe.edu.au/publications/ completing-university-in-a-growing- sector-is-equity-an-issue/
2. Lim, P. Do individual background characteristics influence tertiary completion rates?	2015	Quantitative; statistical analyses of Graduate Surveys on graduate outcomes	Completed	Report available at ncsehe.edu.au/publications/ do-individual-background- characteristics-influence-tertiary- completion-rates/
3. Li, I.W., Mahuteau, S., Dockery, A.M., Junankar, P.N., & Mavromaras, K. Labour Market Outcomes of Australian University Graduates from Equity Groups	2016	Quantitative – student data analysis	Completed	Report available at ncsehe.edu.au/publications/labour- market-outcomes-of-australian- university-graduates-from-equity- groups/
4. Richardson, S., Bennett, D. & Roberts, L. Investigating the Relationship Between Equity and Graduate Outcomes in Australia	2016	Quantitative analysis of Australian Graduate Survey	Completed	Report available at ncsehe.edu.au/publications/ investigating-the-relationship- between-equity-and-graduate- outcomes-in-australia/
5. Pitman, T. & Koshy, P. A Framework for Measuring Equity Performance in Australian Higher Education	2015	Literature review; stakeholder survey and analysis; agency interviews.	Completed	Equity Performance Framework project overview available at ncsehe.edu.au/feedback-on- the-draft-equity-performance- framework-for-australian-higher- education/

The core findings from these four studies are classified into three sub-groups:

- Equity group degree completion;
- Equity group labour market outcomes; and
- Data collection and reporting to support and improve equity group graduate outcomes.

Equity Group Degree Completion

Studies and Approaches

The NCSEHE has funded two studies on graduate completion – Edwards and McMillan (2015) and Lim (2015). These studies use different data sets to examine the issue of completion – a national cohort data set and longitudinal study.

Edwards and McMillan (2015)

The Edwards and McMillan (2015) study uses data from the 2005 national cohort collected for the Australian Government Department of Education (2015) study and subsequent cohorts in 2006, 2007 and 2008, with the analysis for all four cohorts extending over six years to determine the extent to which differences emerged in terms of completion rates and a supplementary analysis using the University Experience Survey (UES).

Lim (2015)

Lim (2015) uses longitudinal data from the Longitudinal Study of Australian Youth (LSAY), starting with a cohort aged 15 in 2003 and following their progress to 2013, when they were aged 25 and the point at which LSAY ceased to track them. The sample is restricted to those in the cohort who commenced university over this period, equal to 2,479 subjects, with 1,930 of these completing university by age 25, equal to around 75 per cent of the sample and the remainder being categorised as non-completers. The data provides a rich set of individual background variables including parents' backgrounds, education and occupation; courses studied; plus academic testing in areas such as mathematics, reading and problem solving. In particular, it allows for the effect of schooling and school performance on higher education completion to be examined.

Key Findings

Edwards and McMillan (2015)

The Edwards and McMillan (2015) study had the following findings for 2005 to 2008 Australian cohorts after six years:

- National completion rates: Around 73.6 per cent of domestic bachelor students completed a degree within six years of commencement, a finding broadly in line with that seen in the 2005 cohort alone. There was evidence for lower completion rates among certain groups, including:
 - students with lower Australian Tertiary Admission Ranks (ATAR), especially below 60;
 - part-time students; and
 - external students
- Equity group completion rates: Completion rates among equity groups within six years were generally lower –
 - Low SES students: 69 per cent;

- Regional students: 70 per cent;
- Remote students: 60 per cent; and
- Indigenous students: 47 per cent.

- Findings from 2013 UES: The UES data provided some indication of inhibitors to completion in the non-equity and equity group populations –
 - Non-equity population – subject and vocational choice predominated as a reported reason for non-completion;
 - Equity population – financial and family constraints were dominant.
- Preliminary finding on employment outcomes for equity students: Importantly, the preliminary analysis of graduate employment and salary outcomes suggests that equity group graduates see similar outcomes to those of the general population, with disadvantage being eliminated after allowing for the reduced probability of graduation. However, the authors emphasise that further work is required to look at the impact of completion on small groups of equity student, such as Indigenous or remote students who are affected by multiple, compounding factors associated with their socioeconomic status and geographical location.

Lim (2015)

The Lim (2015) study has the following findings on the LSAY cohort who were aged 15 in 2003 and commenced university before turning 25:

- Females (65 per cent) were more likely to commence university than males (45 per cent)
- SES continues to play an important part in university completions with low SES students having lower completion rates than high SES peers. Low SES males are more likely to complete than low SES females; however, females overtake males as SES increases.
- Those with lower academic achievement at age 15 are further disadvantaged if they are also low SES, whereas higher academic achievement reduces the impact of being low SES.
- There is a strong relationship between commencing field of study and SES. Low SES students who commence in a technical field have the lowest probability of completion.
- Students attending Catholic or Independent school have a higher probability of completion than those from government schools. High SES removes the impact the school sector has on completion. Attending a Catholic or Independent school may cushion the impact of being from a low SES background.
- SES has a minimal impact on regional status, with students from regional locations having lower completion probabilities across the full range of SES.
- Working moderate hours (between one and 20 hours per week) over their course increases the chance of course completion, regardless of SES background. This may be because income earned helps students to meet living expenses. Results also show that working more than 20 hours per week, and not working at all, substantially decreases the probability of completion for all SES students.

- SES remains important even after considering the influence of an individual's academic ability. However, it is not SES alone that impacts on completion, but rather the combination of background characteristics that influences an individual's chance of completing.

Areas for Further Investigation

Edwards and McMillan (2015)

- Edwards and McMillan (2015) identify the need for consistent measurement of equity status from enrolment through to completion and the UES reporting. This has now been achieved with the inclusion of enrolment indicators for equity status in the GOS and the new Student Experience Survey (SES), which replaces the UES.
- Use of ATAR: While ATAR is a predictor of the likelihood of completing university, only approximately 40 per cent of commencing students have an ATAR recorded in the cohort-tracking datasets. Because this measure only applies to a minority of students, retention policies might better focus on other factors.
- Research is needed to look at smaller equity groups, such as Indigenous and sub-groups in Disability, as well as the intersection of part-time, mature age and equity group status.

Lim (2015)

- This study confirms an aspect of participation and completion for low SES students, namely the choice of field of study, with students entering technical fields seeing reduced chances of graduation.

Discussion

The work of Edwards and McMillan (2015) can be extended along the lines suggested in 3.1.3 and in view of pending developments in Australian higher education, including the commencement of the GOS and SES which have definitions for equity groups consistent with reporting for access and participation in Australia. In addition, the likely enhancement of reporting of entry standards being considered by the Higher Education Standards Panel (HESP) as part of its review of transparency of entrance standards in Australia should ensure an increased flow of data to characterise non-ATAR students (see NCSEHE 2016 for an overview of the issues).

Lim (2015) provides some indication of the type of analysis possible with LSAY and either future extensions of LSAY or a new longitudinal study. Potential extensions in terms of the analysis is the linking of LSAY data to other school data sets such as NAPLAN, and an extension to university administrative data sets where student equity definitions can be attached to LSAY unit record data.

Equity Group Labour Market Outcomes

Studies and Approaches

As noted above, the NCSEHE has funded two major studies into graduate labour market outcomes and equity status in Australia: Li et al. (2016) and Richardson et al. (2016). These studies have similarities and differences:

- Both studies examine the probability of employment outcomes (employed/not employed, employment match, employment satisfaction) for each equity group studied based on a range of demographic, academic and employment characteristics of graduates.
- Although both studies ask the same broad question (probability of employment for equity groups based on various demographic, academic and employment characteristics), they ask different specific questions and therefore their reported answers to these questions (results) differ in parts of the analysis.

Data and Methods

Data

- Both studies use data from the GDS which provides information on graduate employment, and various demographic and occupational characteristics.
- Li et al. (2016) looked at GDS and university record data (including academic record data) for 10,718 undergraduate completers from four anonymous Australian universities. The authors further filter the data using only domestic students who were admitted to university based on their year 12 scores. The study looks at four equity groups: low SES, regional and remote (combined), NESB and female STEM.
- Richardson et al. (2016) use data for all graduates of from all Australian universities in 2013 and 2014. This is sourced from the 2014 Australian Graduate Survey (AGS), comprising the GDS and UES survey components and which reported information on graduate outcomes from a total of 142,647 graduates.
- The study looks at seven equity groups: low SES, regional, NESB, female STEM, indigenous, disability, born overseas.

Quantitative Methods

- In the study by Li et al. (2016), each equity group is modelled separately using a probit model to examine probability of employment, with further analysis undertaken on graduate salaries/earnings using an ordinary least squares (OLS) regression model.
- In their study, Richardson et al. (2016) examine each equity group separately using a logit model to determine probability of employment, with further analysis undertaken using a multinomial logit model to determine the odds ratio for equity group graduates given a certain characteristic (e.g., how many more times more likely is a graduate from a particular equity group to be full time employed, part time employed, self-employed, and studying versus neither working nor studying?).

Key Differences Between the Studies

- There are differences in the dependent variables (demographic, academic, employment characteristics) chosen for modelling between the two studies, with Li et al. (2016) using a different set of explanatory variables for each equity group, while Richardson et al. (2016) use the full set of characteristics available for each group.

Findings

The studies have broadly concordant results for three equity groups in both studies: Low SES, Regional and Remote students, and NESB students:

- Graduates who had undertaken paid work in their final year of study were more likely to be employed than graduates who did not undertake paid work in their final year (both studies).
- Students tended to be clustered into specific discipline areas such as education and arts.
- Female graduates more likely to be employed than male graduates (both studies).
- Graduates born outside of Australia are less likely to be employed than graduates born in Australia (both studies).

The studies had specific findings for other groups:

- Li et al. (2016) find that substantial labour market disadvantage exists among female graduates in the science, technology, engineering and mathematics (STEM) disciplines, with female graduates facing barriers to securing (good) employment outcomes as well as encountering an earnings disadvantage. Further research that identifies causes of these disadvantages, as well as policies to improve the labour market outcomes of these groups, would be welcome.
- Richardson et al. (2016) has a sufficiently large Australia-wide sample to look at outcomes among Indigenous students. They note that Indigenous graduates were concentrated in the field of "Society and Culture."
- Richardson et al. (2016) find that students with disability had lower employment outcomes compared with the general population and that disability also reduced the chance of accessing employment among equity group students.

In addition, Richardson et al. (2016) look at salary outcomes and find that all equity group students have reduced earnings in comparison with non-equity students.

Discussion

There is now a move towards linking data sets across the entire higher education path so as to better understand higher education outcomes. For instance, the NCSEHE is currently funding a new project by Li and Carroll (2016) to look at final year responses to UES data in view of student performance (academic records) and pre-tertiary background information, notably through the use of National Assessment Program for Literacy and Numeracy (NAPLAN) data to characterise graduates' high school backgrounds (i.e., socioeconomic status and academic performance of school attended).

Data Collection and Reporting of Graduate Outcomes

Study and Approaches

The Equity Performance Framework (Pitman & Koshy, 2015)

In June 2013, the Australian Government Department of Education and Training commissioned the NCSEHE to provide detail on a proposed Equity Performance Framework (EPF), its structure, overall logic and potential data sources. The EPF is intended to:

- provide a set of Indicators that will allow the measurement of institutional and system-wide achievement in the higher education sector against the Government's commitments, targets and goals in relation to equity;
- inform policy through the provision of relevant information to support the development of evidence based policy;
- foster informed debate through the provision of key information;
- provide a platform which will guide evaluation of programs by government and activities by Institutions; and
- inform practice within, and support equity in, the higher education system.

The EPF builds on existing data collection in Australian higher education through institutions and the Higher Education Information Management System (HEIMS), including the ongoing defining of equity group students.

Data and Methods

The EPF will report a series of Indicators for equity performance in higher education. It is hierarchical in structure and is comprised of three Tiers:

- Context (Pre-higher education) – covering pre-primary, primary and secondary education results;
- Performance (Higher education) – covering all 129 Australian higher education providers and university students at all levels of study; and
- Outcomes (Post-higher education) – covering graduates from higher education.

Findings

- Importantly, the EPF will report outcomes at the equity group level, where there is sufficient data to do so.
- The key Outcome indicators and key source for each are as follows:
 - Graduate earnings (sourced from the GOS);
 - Graduate employment (GOS);
 - Graduate further study(GOS); and
 - Graduate satisfaction (SES).
- In addition to its pre-existing definition, the EPF is designed to accommodate changes in structure and the introduction of new indicators over time. In the context of graduate outcomes this includes the linking of national data sets (GOS and SES) to existing data sets such as student administrative data and potential linkages to taxation/HECS data to examine post-education outcomes beyond the first year of employment.

Discussion

The emergence of the EPF, in some form, will see significant increases in the potential to link important education-related data sets together over the life-cycle of the student. This includes examining graduate outcomes in higher education in the context of equity group status, as defined at the enrolment point for students, in the context of pre-university background (e.g. age, school attended) academic performance (weighted average marks – WAM and other measures) and responses to student surveys such as the SES.

The research reports each highlight facets of the discussion around gauging graduate outcomes for equity students. These are summarised briefly below.

Synthesis of Recommendations

Recommendation 1

Research into graduate outcomes should make use of data matching opportunities in Australia

A number of the reports emphasised the need for access to more data to determine the final impact of equity status on graduate outcomes. This sentiment is best summed up by Edwards and McMillan (2014):

“... developing further analyses based on the cohort data would significantly enhance our understanding of progression through university. The issue of finding a balance between confidentiality and useful research insights for the purpose of evidence-based policy making is important and projects such as this have helped to not only raise this issue, but to work towards

solutions which include the Commonwealth department as key stakeholders and experts in this level of data manipulation” (p.34).

Australia has an enviable collection of official and longitudinal data collection systems, as well as several at the scoping stage. These are outlined below in Figure 1. Central to work in examining higher education outcomes is the existing collection through HEIMS (in italics) which provides data on equity performance, with official outcomes data now more directly linked to HEIMS via the GOS.

An important extension of current collections includes the collection of outcome data several years after graduation, most recently trialled though GCA's *Beyond Graduation Survey* (BGS) and the prospective GOS-L. A further extension of this resource is a link to HECS-HELP records on post-university earnings which is theoretically possible through the Australian Taxation Office (ATO) but requires legislative change in view of privacy regulations under the *Higher Education Support Act* (2003).

These specific measures for examining outcomes are proposed by Pitman and Koshy (2015) as part of the EPF and the issue is currently being discussed in the British context as part of their examination of student performance reporting. Richardson et al. (2015) highlight the need for this type of data collection in their findings, and in particular the requirement to:

“Gather data from graduates at multiple intervals of time following graduation, such as through the Beyond Graduation Survey. This will enable evidence to be collected about the longer-term contribution of university education to careers rather than only the immediate short-term outcomes” (p. 10).

Context	NAPLAN (School/Individuals) (Prospective) Longitudinal – HILDA; LSAY; Widening Participation Longitudinal Survey (Scoping)
Performance	<i>HEIMS equity identification – aggregate data</i> Individual Student Records – academic; enabling data Student Experience Survey – First and Last Year (QILT)
Outcomes	Graduate Outcomes Survey (GOS) – official (QILT) Graduate Outcomes Longitudinal (GOS-L) – 3 + years Prospective: Data linkage - HECS-HELP records

Figure 1: Major Australian Higher Education Data Collections

In terms of pre-participation data, linkage to NAPLAN school data is currently possible with links to student data subject being more limited and restricted to special studies. Both HILDA and LSAY are being redeveloped to include a greater focus on education collection at the university level and are therefore likely to be used more readily in the future. The Widening Participation Longitudinal Study is still at the scoping phase, but could also fulfil requirements for this type of linkage.

Recommendation 2

Research into graduate outcomes should examine specific outcomes for equity group students.

Outcomes for equity students reflect not just academic performance but also the unique challenges facing these students compared with the general population. In many ways, it is outcomes, rather than participation, which determine the true success of measures to increase participation among equity groups:

“This report shows that increasing access to higher education for low SES individuals won’t necessarily translate into higher completions. In order to facilitate completions, support for low SES students needs to be provided during their studies, as well as providing greater access to university. An understanding of how other factors of disadvantage influence completions is also needed, together with improved methods for measuring socioeconomic status. Support may also be needed for regional students to help them complete their university courses” (Lim 2014, p. 6).

This is an important point as unfavourable outcomes for equity students will ‘feedback’ into perceptions of the suitability and real benefit of higher education participation. There is also still considerable scope for examining specific aspects of equity group participation in higher education and their impact on outcomes:

“Recruit students from disadvantaged backgrounds into all fields of education. Students from disadvantaged backgrounds tend to be clustered in those fields of education which tend to lead to relatively lower status and less well paid occupations such as teaching and nursing, with low numbers of disadvantaged graduates in occupations which tend to be higher status and better paid such as law, medicine and financial services” (Richardson et al., 2015, p. 10).

Identifying differential impacts across the graduate groups is the first step in addressing this issue and this requires the proper identification of equity status. The introduction of a linkage between GOS, SES and HEIMS-sourced administrative data goes some way to ensuring consistent definitions of equity status in data sets.

Recommendation 3

Specific attention should apply to equity groups with small numbers and/or particular access issues.

A remaining issue is the extent to which small numbers in certain equity groups (e.g. Indigenous at a state level; sub-groups for Disability) impact on the extent to which causality is addressed in their specific cases. The Disability briefing paper recommends specific projects analysing barriers to employment access and progression among students with disability. For instance, Richardson et al. (2015) emphasise that it is important to:

“Identify barriers to employment among graduates from disadvantaged backgrounds, particularly those with a disability” (p.10).

Graduate outcomes can also indicate that other issues or impediments to higher education participation may be at work. For instance, in the case of WINTA and NESB graduates, evidence that they see relatively poor outcomes in the workforce may feedback into lower participation in the future:

“Substantial labour market disadvantage for graduates from NESB and female graduates in STEM fields were found. For graduates from NESB, a substantial earnings penalty was uncovered which could not have been explained by differences in human capital. Female graduates in STEM faced barriers to securing good employment outcomes as well as earnings disadvantage” (Li et al., 2015, p. 22).

Recommendation 4

Research into equity graduate outcomes should examine ‘external’ contexts such as labour market and postgraduate environments

Universities have considerable responsibility in relation to ensuring graduates are ready to participate in the labour force or further education. However, in general and especially in relation to equity students, they have less control over society-wide factors which affect employment and earnings outcomes, and it is important for researchers to identify such factors for equity students. For example, Lim (2014) concludes his recommendations by noting that:

“Finally, investigations into post-university employment outcomes, and whether students are working in occupations or industries aligned with the field of study commenced, would also be policy relevant given the assumption that increasing participation of low SES students will generate positive returns in employment and earnings” (p. 44).

Li et al. (2015) find that this is particularly important in looking at STEM disciplines, a finding which aligns with the historic concern in Australia with monitoring and bolstering female

enrolment and outcomes in these subjects. In addition, there is a clear lack of ongoing reporting of equity outcomes in the postgraduate space, where these outcomes are usually hidden as part of reporting for “All Students” with little breakdown between professional and HDR categories. Perhaps as a consequence, research into equity issues in the postgraduate area has been seen to be lagging that undertaken on issues of access, participation and employment and earnings outcomes for undergraduates.

Recommendation 5

Research into equity graduate outcomes in higher education should take into consideration as many control variables as possible.

Outcomes for equity students reflect longstanding impediments to success born of social disadvantage and isolation as well as unique circumstances in comparison with the general population. An analysis of equity outcomes needs to consider a wide range of factors, including access and pre-access factors, in properly attributing deficits in outcomes to equity status. As Lim (2014) states:

“The first requirement is to expand the investigation into the impact that schools may have on university completion. The inclusion of more in-depth school level information, available from a range of sources, including LSAY, would extend the work of Li and Dockery (2014) and attempt to determine which aspects of schools matter to completion” (p. 44).

This necessitates studies which manage data linkage between key administrative data sets and the construction of inter-disciplinary literature reviews to identify participation drivers across the lifecycle.

Recommendation 6

Research should also focus on the impact of interventions in reducing the gap between equity groups and the general population in terms of higher education outcomes.

The ultimate use of research into equity group graduate outcomes is to inform policymakers, administrators and practitioners as to policies and programs which act to ameliorate disadvantage. This often requires the use of program data, coupled with administrative data, in program assessment studies and more broadly, longitudinal data sets to ensure a greater number of control variables in any study.

In this research, it is also critical to ensure that comparisons between the equity and general population are made in the context of their starting points and an understanding that for this reason, outcomes from courses will not only differ between students but also will mean different things to different students. Note this in three of their recommendations, suggesting the following:

“Use a measure of post-graduation employment

that distinguishes between employment gained as a result of graduation and employment that is a continuation of that done while studying. Ensure that this measure can differentiate between graduate-level and other work.

Make provision for multiple graduate outcomes in reporting AGS data, such as graduates who undertake multiple part time roles or consulting roles that combine to provide full-time employment.

Broaden definitions of graduate success in light of the changing labour market and graduates’ increasingly diverse activities. The notion that a full time job is the ultimate graduate outcome is increasingly out of date with graduates involved in entrepreneurship and start-up activities that do not neatly fit into current AGS categories” (Richardson et al., 2015, p. 10).

From this assessment of the NCSEHE-funded research to date, on the subject of graduate outcomes there are a number of major research projects which could be designed to build on critical findings and extend the possibility for further analysis.

Future Research Directions

Research into Data Linkage

An analysis of equity group outcomes relies on data linkage to provide enough data for researchers to analyse the underlying factors contributing to differing outcomes across students. This includes data linkage between the major graduate outcome surveys – the GOS and the final year SES – and relevant administrative and academic records for students from universities. A data linkage project looking at the potential to create national higher education data sets would provide the basis for several teams of researchers to analyse some of the critical issues in graduate outcomes outlined in this paper.

Research into Equity Group Outcomes

The historic mismatch in equity definitions between university collections and the AGS surveys (GDS and UES) has resulted in a discussion of equity status in these collections which is inconsistent with that taking place in work on participation. One immediate benefit from the development of the GOS and linked longitudinal data is that the GOS survey can now draw equity definitions for students from their HEIMS record. This allows for a consistent definition of equity group status which means that graduate outcomes can be analysed over the course of a student's enrolment and immediate graduate outcome. Coupled with 4.2.1 above, this will allow investigators to analyse equity issues on a consistent basis from enrolment through to post-graduation, while allowing for linkage to earlier data sets at the individual level.

Research into Drivers on Graduate Outcomes

Further linkage to related records such as university application and offer records and NAPLAN information on individual and school characteristics is also desirable. In addition, this could form the basis for more linkage to data from studies such as HILDA, LSAY and potential educational studies such as the Widening Participation Longitudinal Study. Linkage to longitudinal studies which report data on student backgrounds is especially desirable. Both activities provide a basis for determining the extent to which disadvantage emerges during "access" years in high school or in "pre-access" years during early primary.

Research on Graduate Outcomes and External Factors

Given improvements in the data on equity group graduate outcomes outlined above, researchers will hopefully be able to extend work on graduate outcomes to look at specific outcomes in the context of external factors such as labour market conditions (e.g. at the regional level), organisational culture (using specialised data sets which can be linked to individual student records) and also into an examination of factors influencing articulation into postgraduate areas, be they professional or research areas.





The Australian Student Equity Program and Institutional Change

Paradigm shift or business as usual?

Dr Nadine Zacharias

The vision of an Australian higher education system that actively widened participation and whose graduates reflected more closely the diversity of the Australian population was articulated in the Bradley Review of Higher Education (2008) and drove the establishment of a national student equity program in 2010: the Higher Education Participation and Partnership Program (HEPPP). This Fellowship has explored how the vision of a more equitable higher education system was translated into institutional practice. The key questions enquired how the sector has responded to the challenge and opportunity provided by HEPPP and whether the national equity program became a catalyst for driving strategic and institutional changes in how universities' conceptualised and implemented student equity programs.

HEPPP has provided significant funding to 37 public universities since 2010 to "undertake activities and implement strategies that improve access to undergraduate courses for people from low socioeconomic status (SES) backgrounds and improve their retention and completion rates". The 2012 Guidelines state that "HEPPP aims to encourage and assist providers to meet the Commonwealth Government's ambition that, by 2020, 20 per cent of domestic undergraduate students must be from low SES backgrounds". Six years on, and following substantial financial investment, it is important to understand how HEPPP has been implemented by universities and whether they responded in the anticipated way, i.e. engaged with schools and communities to generate interest in higher education, increased enrolments of students from low SES backgrounds and allocated resources as necessary to ensure retention through to graduation in a whole-of-institution approach.

The approach to the Fellowship program has been collaborative, using a qualitative methodology which includes five interrelated pieces of work and an engagement strategy with key stakeholders:

1. Analysis of HEPPP annual progress reports (2010-2015) to produce a typology of institutional approaches to HEPPP implementation.
2. Interviews with policy makers at the Department of Education and Training to establish their aspirations and experiences in implementing HEPPP.
3. Review of institutional performance data (2010-2015) with regard to access, participation, retention and success rates of students from low SES backgrounds
4. Three institutional case studies illustrating types of institutional approaches to HEPPP, including additional document analysis and interviews with key decision makers, equity practitioners and program partners in the chosen universities.
5. Five Student Equity workshops with practitioners in four capital cities to explore how universities have designed, implemented, evaluated and improved student equity programs since the introduction of HEPPP.

The first two phases of data collection were conducted during a four-week placement with the Australian Government Department of Education and Training in Canberra and three follow-up visits. These visits also included formal and informal meetings with the Equity Programs team and other relevant experts in the Department as well as a presentation to the Department on equity scholarships research.



Through the analysis of annual HEPPP progress reports and the collation of institutional case studies, the Fellowship has produced a typology and three in-depth examples of how universities responded to policy and program objectives in terms of strategic approach and alignment to institutional mission, program design, administration and governance. In doing so, the Fellowship research presents a rich and complex view of Australia's national equity program and its implementation in deliberately different institutions and geographic locations.

The most important finding of the Fellowship is that instead of aiming for a one-size-fits-all blueprint of 'best practice' in HEPPP implementation across the sector, it is significantly more important to assess what kind of program works best for a specific institution in its context. Most universities had pre-existing equity programs which were re-worked, scaled up and/or significantly expanded by HEPPP funding. HEPPP has provided universities with the flexibility to develop and implement bespoke programs which best fit their institutional profile and priorities. What is missing is an effective approach to evaluating how successful these approaches have been in context. The Fellowship identified existing measures and developed new tools to more comprehensively and meaningfully assess the effectiveness of institutional HEPPP initiatives, including a typology of approaches to HEPPP implementation and an expanded Equity Initiatives Map initially produced as part of the Critical Intervention Framework (Part 2).

HEPPP design and implementation was assessed as having worked well overall. At the same time, some key challenges and scope for program reform at federal and institutional levels were apparent at an early stage of the Fellowship. These included:

- Increased accountability and the need to better enforce universities' adherence to the HEPPP Guidelines;

- Annual funding allocations as serious barriers to efficient and proactive program implementation;
- Very large numbers of initiatives in many institutions and little evidence of comprehensive program review and reform;
- The need for systemic support and national frameworks to enable effective evaluation, collaboration and sharing of leading practice.

While there were some common themes, the ways in which HEPPP has been implemented across the sector strongly reflects existing institutional diversity and, though there were similarities between some universities, there were no dominant 'types'.

To reflect the diversity of approaches adopted across the sector, three case study institutions were chosen for their differences in institutional type (a Group of 8, an Australian Technology Network, and an unaligned university), geographic location, student profile and approach to implementing HEPPP. There were distinct differences in the scale of HEPPP initiatives, the organisational model adopted, conceptual frameworks used as well as the level of selectivity of the institution in terms of both students and partners. These differences are outlined in more detail in the typology in Appendix 1. I have called these three types:

- Deliver at scale
- Principles and partnerships
- Targeted and personalised

However, it was not possible to group all 37 universities into these (and potentially other) types as originally intended because the information provided in the HEPPP annual progress reports was insufficient to make an informed judgement.

In addition to identifying different approaches to HEPPP implementation, the Fellowship project endeavoured to link these different types of institutional structures to student and program outcomes at the institutional and national level and to identify any influence of the form of an institution's HEPPP initiatives on its success or otherwise. However, there were a number of methodological and practical challenges in the evaluation process.

The HEPPP Guidelines position the 20 per cent participation target as an important objective of HEPPP, to be achieved by increasing access and retention rates of students from low SES backgrounds. Corresponding institutional targets were initially set out in Compact Agreements. A key theme of the Fellowship was whether the 20 per cent target is the best measure of success of the program, taking into account the interrelationships between the demand driven funding system and HEPPP which were introduced in tandem in 2010.

In summary, low SES participation rate is a useful outcomes measure at sector level but, by itself, seems an imperfect tool to assess the quality and success of a university's HEPPP initiatives, especially due to the influence of other variables which cannot readily be accounted for. The HEPPP Guidelines already include improvements in access, retention and completion rates as explicit objectives of the program. To get a more nuanced view on achievements and challenges, it would be useful to shift the collective focus to the underlying drivers of participation rate and to factor in completion rates to any assessment of program success. Furthermore, an equal emphasis on total numbers of students in the system provides a more accurate and positive picture on low SES participation. Finally, process measures could be introduced to assess the quality and success of an institutional HEPPP

activities in its context. These process measures would increase the accountability of universities regarding the targeting and effectiveness of their HEPPP activities and go some way to demonstrating the effects of HEPPP in the context of demand driven funding.

In response to the key question of the Fellowship, does Australia have a more equitable HE system now than in 2010, the results are arguably, and perhaps not surprisingly, mixed. It is without question that HEPPP has fundamentally changed the scale, scope and approach to student equity work in universities. There was evidence, especially from the case studies, that HEPPP increased the institutional focus on student equity and created an expert workforce with specialist skills not previously found in universities. There were also examples of systemic changes in outreach work, admission systems and student support. HEPPP-funded work touched most areas of universities while not necessarily altering them in fundamental ways. At the partner school level, there were examples of HEPPP-funded interventions being identified as catalysts for whole-of-school transformations. Practitioners described the achievements of the partnership work funded by HEPPP as a "triumph".

From 2010, Australia has recorded the first substantial increase in participation rates since the 1990s, from 16.3 per cent in 2009 to 17.9 per cent in 2014, and there are significantly more students from low SES backgrounds in the system now than ever before, 124,429 students in 2014 compared to 90,447 in 2009, an increase of 38 per cent. However, at both ends of the spectrum, universities have seen actual declines in participation rates which seems to be an effect of demand driven funding.

Universities have contributed to, and drawn on, a rapidly growing evidence base on the nature of the challenge and



what works in widening participation for students from low SES backgrounds. This is in itself transformational as equity practitioners and university decision makers are less likely to commit 'acts of faith' in designing interventions to increase the participation of equity students and are instead enabled to make strategic decisions informed by solid evidence.

The Fellowship research is the first exploration of how institutional mission and strategy as well as administrative and governance arrangements have shaped the HEPPP initiatives implemented in different institutions. The key finding is that HEPPP has provided an opportunity for universities to develop bespoke equity programs and that any assessment of 'success' of institutional HEPPP initiatives must consider what kind of program works best for a specific university in its context. Low SES participation rate as the sole measure of success is an imperfect indicator to determine how these meso structures contribute to overall program and student outcomes. Instead, success indicators should consider each objective of HEPPP, improving access, retention and completion and combine outcome with process measures.

The Fellowship methodology worked well for this exploratory project and provided a rich perspective on the implementation of HEPPP across the sector which opens up questions and avenues for further research.

In line with the key finding that there is no one-size-fits-all recipe of success, the onus is on universities as well as the Department to assure themselves that an institution has designed and implemented a HEPPP activity which best fits its institutional context and priorities and optimally supports prospective and current students from low SES backgrounds in their area of influence. The best interest of the student, prospective and current, has to be paramount in that process.

While the focus of the Fellowship research has been on universities' responses to HEPPP, it provided a conversation starter about whether HEPPP in its current form is the optimal national equity program for Australian higher education. Recommendations have been provided to the Department of Education and Training for that purpose.



Dr Nadine Zacharias
2016 NCSEHE Equity Fellow

The Equity Fellowship has been a unique opportunity to work at the intersection of equity policy, research and practice. It has provided space to unpack and interrogate some taken-for-granted

assumptions, rules and practices with experts, colleagues, university leaders and policy makers. Through that process, a rich and complex picture of the approaches taken by Australian universities to widening participation through HEPPP has emerged that can guide our collective thinking and action at a time of higher education policy review and reform.

The engagement component of the Fellowship has been critical in that regard. I developed an engagement schedule to ensure targeted and strategic engagement with key stakeholders who were in a position to contribute constructively to the outcomes of the Fellowship. This paid off in significant ways:

- The placement at the Australian Government Department of Education and Training was a powerful tool to increase a practitioner's understanding of the workings of the federal administration and gave the Department an insider's view on student equity practice in the sector.

- A cross-disciplinary group of academic and other subject matter experts acted as the Fellowship's Expert Advisory Panel. This group had a key role to play in the design and evaluation of the Fellowship and was a sounding board on many issues. I would like to thank the experts for their commitment to the project and to me as a Fellow.
- A Special Interest Group at the STARS conference led to an invitation to University Australia's equity policy forum and a series of student equity workshops with practitioners which generated significant additional insights, were a platform to disseminate early findings and engage equity colleagues in the big questions currently being discussed at the national level.

The Fellowship has been a transformative experience and has firmly established me as a thought leader in the field. I will leverage the insights, relationships, skills and data generated from the Fellowship for many years to come.

Opportunity Through Online Learning

Improving student access, participation and success in online higher education

Dr Cathy Stone

There is increasing evidence internationally that online learning is helping to widen access to higher education (Ilgaz & Gulbahar, 2015; Knightley, 2007; Stone, O'Shea, May, Delahunty & Partington, 2016) particularly where there are widening participation pathways into university studies (Shah, Goode, West & Clark, 2014; Stone, Hewitt & Morelli, 2013). The flexibility offered by online learning enables students from backgrounds which have been historically underrepresented at university, to combine study with paid work, family and financial responsibilities (Park & Choi, 2009).

However, completion of studies has been shown to be considerably lower in online than face-to-face programs. An Australian Government Department of Education and Training report (2015) shows that only 46.6 per cent of fully online domestic students completed bachelor degrees between 2005 and 2013; compared with 76.6 per cent of domestic on-campus students. More than one in five online students (20.4 per cent) did not complete their first year, compared with 6.9 per cent first year attrition amongst on-campus students.

Much of the literature indicates that the two-fold challenges of understanding e-learning technology, along with a sense of isolation are key issues for online students (Ilgaz and Gülbahar, 2015; Yoo and Huang, 2013). Such findings indicate the importance of exploring ways in which the retention and success of online students can be improved, so that a greater number of students can successfully achieve their learning goals in the online environment. The research that I have been undertaking through the Equity Fellows Program will lead to the development of a set of national guidelines, informed by research evidence, for improving the access, academic success and retention of students in online education.

Using a qualitative approach, semi-structured interviews were conducted with 150 members of staff across 16 higher education institutions – 15 in Australia (regional and metropolitan, from every state including the Northern Territory) and The Open University UK.

Participating Institutions			
1	The Open University, UK	9	University of Newcastle
2	Open Universities Australia	10	University of Southern Queensland
3	Swinburne University	11	University of New England
4	RMIT University	12	Charles Darwin University
5	Murdoch University	13	University of Tasmania
6	Macquarie University	14	Southern Cross University
7	Curtin University	15	Charles Sturt University
8	La Trobe University	16	Flinders University

Following institutional approval, invitations to participate were sent out internally by each institution to relevant staff. Each of the staff members who agreed to be interviewed were all involved in development, coordination and/or delivery of: online units/courses/programs (primarily undergraduate); and/or support, success and retention strategies for online students.

Participants were asked to share their knowledge and experience of the online student cohort at their institution, the interventions and strategies used to engage and retain these students, whether these had been evaluated, and any other thoughts on ways to improve retention and academic outcomes for online students. All interviews have been transcribed and are being analysed using NVivo 11. An extensive literature search has been conducted, of national and international research into improving outcomes in online learning, including research into students' personal experiences of online learning. This body of research will help to inform the final conclusions.

During August, I undertook a 12 day placement at the Australian Department of Education and Training in Canberra. Based with the Equity Policy and Programs team I had the opportunity to interact on a day-to-day basis with staff responsible for Equity Policy and Programs and those responsible for Student Information and Learning and for Funding, Policy and Legislation. This occurred informally, through conversation and discussion, and formally through meetings and presentations.



Whilst analysis is continuing, some preliminary findings from the research project have been emerging strongly. The bullet points below summarise factors emerging as being of crucial significance in successfully engaging and retaining online students.

- Institution-wide recognition and understanding of the diversity and needs of the online student body
- Strategic whole-of-institution approach to ensure consistency and quality of online delivery and teaching standards, including teacher training and adequate resourcing
- Early interventions to ensure realistic student expectations, facilitate appropriate preparation and improve early engagement
- Vital role of “online teacher presence” in building sense of belonging to a learning community
- Learning design, curriculum and pedagogy that are engaging, supportive and specific to online delivery
- Collaboration between teaching and support, embedding support within curriculum, including help with technology
- Harnessing the capacity of learning analytics to inform appropriate interventions, personalised and targeted along the student journey

Over the next few months, analysis of data and exploration of related research will continue in order to develop a set of national guidelines, informed by research evidence, for improving the access, academic success and retention of students in online education. These guidelines and the final report will be completed by end-March 2017 and widely disseminated to all Australian institutions, as well as by further publications and presentations.



Dr Cathy Stone
2016 NCSEHE Equity Fellow

Thanks to the Equity Fellows Program, established this year by the Australian Government Department of Education and Training, and administered through the National Centre for Student Equity in Higher Education (NCSEHE), I have been funded to undertake research that will lead to the development of a set of national guidelines, informed by research evidence, for improving the access, academic success and retention of students in online education. I consider myself extremely fortunate to have this opportunity and believe that the research I have been able to undertake will help to make a positive difference in the student equity field in Australia.

The national guidelines generated from this project will be disseminated widely across the Australian higher education sector; including recommendations to Government regarding policy or funding changes required to facilitate implementation. It is hoped that these guidelines will have sector-wide impact and will have some influence on the direction that governments and institutions take in relation to online learning, to ensure more students from diverse and underrepresented backgrounds can succeed.

Another important and valuable part of the Fellowship has been the placement at the Australian Government Department of Education and Training in Canberra, a requirement of each of the Equity Fellows, for the purposes of information sharing and building communication. Bringing together Higher Education research practitioners with Higher Education policy-makers and administrators, is an innovative and creative feature of the Equity Fellowships, enabling us to learn from each other and to share our different perspectives on student equity.

Fair Connection to Professional Careers

Understanding social difference and disadvantage, institutional dynamics and technological opportunities

Dr Erica Southgate

Imagine this: you are fifteen years old, and you live in a country town where you can go fishing, look after all your animals and swim in the river with friends when it gets hot. You like school and some of the teachers have shown an interest in you because you knuckle down in class and always get your assignments in on time. Your grades aren't bad either; in fact, in maths and science, you are doing really well. Your parents can't afford much data on their internet plan but they try to make sure you and your sister get to use some for homework and Facebook, and you use what you can to look up anything to do with NASA on the internet. You love NASA, the international space station, the singing astronaut, aeronautics and the new technology that is being invented. You dream about inventing materials that can be used in space. You wonder how you might get to do this. Do you have to become a scientist or an engineer? What's the difference anyway? Would you have to move away and go to university and what would that be like? What subjects at school would you need to do? What do scientist or engineers actually do in their work? The only science-y people you have met are your teachers and your parents don't know a lot about engineering except that your dad can fix the truck he drives. Mum tries to help you on the internet, but she says she doesn't know much about this stuff either because she works as a cleaner and hasn't met anybody who does these types of jobs. When there is a chance to do some work experience through school, you want to go and work with real scientists or engineers, but your teacher says you need to find your own placement. Because your family doesn't know anybody like this, mum lines up some work experience with the local bakery where you help out serving customers and learn a bit about cake decorating.

The features of this vignette are drawn from research with young people experiencing disadvantage in Australia today. Young people of low socioeconomic status (low SES), rural and remote, and Indigenous backgrounds may have significant career aspirations but are less likely to gain access to university and are vastly under-represented a range of high-status degrees

such as medicine, law and engineering, and their associated professions. While there has been an understandable focus on academic achievement as a key barrier to accessing high-status degrees, there are numerous other social, cultural and economic factors preventing talented young people from reaching their goals.

The purpose of my Fellowship was to explore the complexity surrounding access to high-status degrees for young people experiencing disadvantage, with special attention paid to the potential of new and emerging digital technologies as a means of creating authentic, early connection to high-status professions. The Fellowship comprised three interrelated components. The first involved analysing data from existing projects including (1) mining the qualitative data from the Aspirations Longitudinal Study of school students in Australia; and (2) a study of first-in-family (FIF) university students enrolled in the high-status degree of medicine (FIF is highly correlated with low SES). The analysis of the first dataset identified the types of barriers highlighted in the above scenario. High school students experiencing disadvantage who had career aspirations to high-status professions had very limited capacity to identify the range of careers options available to them. They weren't aware of the academic prerequisites and alternative educational pathways available for gaining access to the degrees associated with such careers and had virtually no access to 'hot knowledge' or direct experience of connecting with professionals in their field of interest and undertaking relevant work experience. In the main, working class kids got working class work experience, and this hampered their ability to explore careers authentically. Analysis of these FIF data revealed that these university students often had protracted and circuitous pathways into medical education and that many received minimal encouragement and career education about high-status degrees at school.



Moreover, many struggled with the financial pressures involved in studying medicine. Feelings of stigma related to family background were also evident. However, FIF students were often committed to returning to their communities of origin to practice medicine (these communities being working-class, rural, remote and, for some, Indigenous).

The second component of the Fellowship project was a national scoping of barriers and enablers to high-status professions through interviewing experts in the field. Analysis of this component is underway.

The final component was a road map (or primer) to existing and emerging digital technologies and their potential application for K-12 education and career exploration. A report - Immersed in the Future: A roadmap of existing and emerging technology for career exploration - is available for free download at

http://dice.newcastle.edu.au/DRS_3_2016.pdf (4MB). The report scopes a range of technologies including virtual and augmented reality, haptics, tangibles, and new video media. It provides accessible explanations of these technologies and some examples of how they are, or might be, used to promote deeper learning in the disciplines associated with professions and virtual 'taster' experiences of post-school education and the world of work. At the heart of the report is a vision for using these technologies to promote equity of educational outcomes and career opportunities for all students facing disadvantage, just like the student described in the scenario that opens this summary.

Publications and other outputs from the Fellowship can be found on my research profile (newcastle.edu.au/profile/erica-southgate) and my research network website, (dice.newcastle.edu.au).



Dr Erica Southgate
2016 NCSEHE Equity Fellow

It takes deep thought and much time to grapple with enduring social and educational problems. It also takes scholarship, collective phronesis or practical wisdom and lateral thinking. Creating fair access to high-status professions such as law, medicine and engineering, and their associated degrees is one of the key challenges in equity in education internationally. This problem of access has nothing to do with talent, ability or resilience of young people experiencing socioeconomic disadvantage; rather, it is one of structural barriers, unconscious bias and social norms that curtail the pathways to realising aspiration. Young people dream big and are smart enough to be lawyers, doctors and engineers; it is just that the pathway there is not clear or full of opportunities to understand and practice what it entails to be this type of professional.

For over two decades, I have been grappling with 'wicked problems' - those social and education issues for which there are no straight forward answers. My Equity Fellowship has provided me with the opportunity to think through the particularly wicked problem of how to create fair access to high status professions by exploring the issue through its 'pipeline' from school education to the university experience of those who are the first in their family to go to university and study in the degrees associated with high status professions. This experience of 'extreme' social mobility is little explored in the international literature but is vital to understand so that universities and the profession better relate what these students are going through.

My Fellowship has granted me the privilege of meeting experts in the field of equity in universities and faculties across Australia and globally. Gathering this practical wisdom about what works to increase access is vital. These experts, in their roles as program managers, lecturers, and senior discipline leaders, have worked tirelessly and innovatively to forge real strategies that address this issue and particularly to grasp its complexities.

Finally, my Fellowship has allowed me to dream big with my colleagues in computer science to produce a futuristic roadmap on new technologies that might be used to spark interest in disciplines knowledge and allow young people the opportunity to experience through virtual and augmented reality, the professions in question. This road map is the first comprehensive and accessible primer for teachers and career advisors on what the future will hold. It is also a call to action for more interdisciplinary work around equity with a focus on creative and dynamic technological solutions. It is vital that quality scholarship is seen as something more than a precursor or element of equity practice. Without a strong evidence base, built on the rigours of peer review, progress withers and action for social good finds itself lacking both anchor and rudder. My Fellowship has provided an opportunity for me to contribute to the evidence base around the 'wicked' and seemingly intransigent problem of increasing social diversity in high-status professions and their associated degrees. It has also allowed me to connect with the deep wisdom on this issue that sits in the Australian higher education sector.

The Ten Conversations

Implications for Student Equity Policy in Higher Education



The Ten Conversations is an initiative of developing dialogues to unravel complex and often multifaceted issues and forge a consensus through over 80 equity expert's opinions assembled at the Facilitating an Innovation Future Through Equity Forum. The goal is to develop a coalescing of perspectives and turn them into focussed narratives in which all stakeholders have a shared ownership.

The Ten Conversations were developed and allocated to ten tables, each headed by a leading equity professional, assisted by a NCSEHE staff member to act as a scribe. Each table was asked to produce three policy ideas that would assist their equity conversation.

The overarching goal is to facilitate the development of a positive feedback loop so that stakeholders can participate in creating a shared narrative with agreed goals and a common purpose.

The Ten Conversations are not single-issues but a combination of several related issues. The conversations identified are not the only important issues in equity today – but collectively they cover a large number of the challenges for equity in higher education.

1 25 Years of Equity in Australia
Australia has widely been seen as successful in promoting equity in higher education as an embraced reform for over 25 years. We need to promote excellence in equity. How can we do that? What lessons have we learnt from the past which can be applied to equity policy and program support in the future?

2 Students from Low SES Backgrounds
Higher education for students from low socioeconomic (low SES) backgrounds is transformative for individuals, their families and communities. For this reason, it is important that universities are relevant to finding employment in an economy in which jobs and skills are being re-shaped by technology and where other options exist, including vocational education and training (VET). How do we continue to build on recent successes in low SES students accessing and completing higher education?

3 Students from Regional and Remote Areas

The proportion of regional and remote students in the overall student population fell between 2011 and 2015. The main challenges for regional and remote students – developing positive narratives, extra cost of living burdens and the ‘psychological dislocation’ of leaving home – all remain issues. Are these issues so entrenched that they can only be ameliorated at the margin or are significant new cost-effective initiatives that increase regional and remote participation possible?

4 Students with Disability

Universities face a challenge of adequately supporting the complex multi-dimensional issues of a growing number of students with disability. The range of built environments in educational institutions and the different disability initiatives put in place by universities, in some cases poorly communicated to equity practitioners across the sector, makes it difficult to know what constitutes best practice, a concept which itself is constantly changing. How do we progress best practice across all educational institutions in a cost effective manner?

5 Students from Indigenous Backgrounds

An increasing number of Indigenous people are entering higher education, but this group are consistently under-represented in higher education and face numerous economic, social and educational disadvantages. They are less likely to go to university, less likely to complete university, less likely to be employed soon after graduating and more likely to receive lower incomes from employment. Are current initiatives ‘closing the gap’ or do we need to re-think program design, coordination and funding?

6 Scholarships and Support Systems

Institutional equity scholarships exist in the context of a national income support system (Centrelink) which includes Commonwealth Scholarships; and the Commonwealth Indigenous Scholarships scheme (soon to become part of the ISSP). Institutional scholarships have proliferated and vary widely in amount, duration and eligibility, catering to local interests and conditions, but appear to have a strong retention effect; a modest success effect; and a modest recruitment effect, acting as an affordability signal to low-SES prospective students. Students have access to a means-tested, nationally-consistent, transparent, Commonwealth-funded income support system, and also to institution-specific, but often less-transparent institutional schemes. How should the Commonwealth income support scheme and university scholarship schemes be most optimally structured and targeted, and how should they best work together to attract and support low-SES students?

7 Defining Success: Student Performance, Transition, Retention and Graduate Outcomes

Equity students fare less well than non-equity students in terms of degree completion, employment and earnings, and further study. They are more likely to concentrate in educational subject areas that result in lower paid jobs. Are equity students more disadvantaged than the data suggests? What constitutes ‘success’ for equity students? How do we measure and report success?

8 Evaluating Performance in Equity Programs

Equity support programs have expanded in number, range and objectives as a larger number of institutions reach out to a greater number of equity students. The standard of evaluation of those programs varies widely and comparing one program or institution with another can be difficult because of different analysis and reporting methodologies. How can we improve the evaluation of equity support programs as well as the transparency and reporting on those programs so we can encourage the development of best practice in equity support programs across Australia?

9 Higher Education Data and Equity Policy

To close the gap between equity policy, research and practice, we need to ensure that policy has a solid evidence base. How can we ensure that data from higher education, and perhaps education in general, is used to evaluate policy?

10 Re-defining Equity Groups

Shifting demographic and economic trends have implications for equity in higher education and the way equity groups are categorised and become a focus for support. Are the current equity groups the right ones to focus on? Is there a case for ‘more but focussed’ groups or ‘fewer but wider issues’ based groups? How do we manage changes to equity groups while maintaining long-run datasets?

Acronyms

ABS	Australian Bureau of Statistics
AGS	Australian Graduate Survey
ASD	Autism Spectrum Disorder
ATAR	Australian Tertiary Admission Rank
ATN	Australian Technology Network
CALD	Culturally and Linguistically Diverse
COAG	Council of Australian Governments
EPF	Equity Performance Framework
FiF	First in Family
GCA	Graduate Careers Australia
GDS	Graduate Destination Survey
Go8	Group of Eight
GOS	Graduate Outcomes Survey
GPA	Grade Point Average
HDR	Higher Degree by Research
HEIMS	Higher Education Information Management System
HEPPP	Higher Education Participation and Partnerships Program
HESP	Higher Education Standards Panel
HILDA	Household, Income and Labour Dynamics in Australia Survey
IRU	Innovative Research Universities
ISSP	Indigenous Student Success Program
K-12	Kindergarten to Year 12
LAP	Learning Access Plan
LSAY	Longitudinal Surveys of Australian Youth
Low SES	Low Socioeconomic Status
NAPLAN	National Assessment Program for Literacy and Numeracy
NCSEHE	National Centre for Student Equity in Higher Education
NDCO	National Disability Coordination Officer
NESB	Non-English Speaking Backgrounds
NRSS	National Research Student Survey
NSW	New South Wales

OLS	Ordinary Least Squares
OUA	Open Universities Australia
PhD	Doctor of Philosophy
RUN	Regional Universities Network
SES	Socioeconomic Status
SES	Student Experience Survey
STEM	Science, Technology, Engineering, Mathematics
TAFE	Tertiary And Further Education
UES	University Experience Survey
UPP	University Preparatory Program
US	United States (of America)
VET	Vocational Education Training
WINTA	Women In Non-Traditional Areas

Biographies



Professor Sue Trinidad

Professor Sue Trinidad is the Director of the National Centre for Student Equity in Higher Education, hosted by Curtin University. An established scholar in the areas of higher education pedagogy and change management, the use of technology and student learning, Sue's research covers

higher education and leadership, including the use of technology for regional, rural and remote areas to provide equity access to all students regardless of their geographical location. Prior to becoming the NCSEHE's Director, Sue was Deputy Pro-Vice Chancellor and Dean of Teaching and Learning in the Faculty of Humanities at Curtin during 2007-2012.



Dr Diane Costello

Dr Diane Costello has over 14 years of experience in the higher education sector, undertaking a variety of research projects, consultancies and teaching in the field of community psychology. The vast majority of her projects involved applied research with Indigenous, regional and remote

communities, guided by a social justice analytical framework. After completing her contract as a Research Fellow in the field of social sustainability with the Faculty of Humanities, Diane joined the NCSEHE in 2014, where she is currently involved in undertaking research activities in projects related to access, attrition and retention of equity students, including an evaluation of Australian higher education enabling programs.



Professor John Phillimore

Professor John Phillimore is the Executive Director of the John Curtin Institute of Public Policy (JCIPP) at Curtin University and works on a range of public policy issues including federalism, higher education policy, public sector management, innovation and technology policy, and the Australian

welfare state. John is NCSEHE Program Leader for Program 2 – Equity Policy and Research Program and oversees the NCSEHE's Student Equity in Higher Education Research Grants Program.



Associate Professor Mike Dockery

Associate Professor Alfred Michael (Mike) Dockery is Principal Research Fellow with the John Curtin Institute of Public Policy, NCSEHE Program Leader for Program 3 – Student Equity Data and Analysis, and leads the Cooperative Research Centre for Remote

Economic Participation's project on Indigenous mobility. Mike is also part of the research team at the Bankwest Curtin Economics Centre, where his research pursuits include the school-to-work transition, the effects of work and other labour market experience on happiness and wellbeing, and Indigenous labour market and social outcomes.



Mr Ian Cunninghame

Ian has a Masters degree majoring in professional writing and publishing and a Bachelor of Arts majoring in Internet Communications. He is currently assisting the NCSEHE with the cataloguing of its past and present research to a referencing database, conducting reviews of 2014 and

2015 funding round reports, and assisting in gathering research relating to social mobility through higher education.



Professor Gail Whiteford

Professor Gail Whiteford has an extensive background and experience in higher education having worked in Australian, New Zealand and for Canadian and US universities as well as with the Karolinska Institute in Sweden and the University of Capetown, South Africa. She has been a

Head of Department, Research Centre Director, Head of Campus and, most recently, Pro Vice-Chancellor (Social Inclusion) at Macquarie University. In her home discipline of occupational therapy, Gail is widely published and has been an invited speaker and facilitator in numerous countries - including on two European Commission funded programs - and was honoured by the Canadian Association of Occupational Therapists for her international contribution. Currently Gail is an Adjunct Professor at the University of Canberra and is Principal of Whiteford Consulting, specialising in evaluative research, equity and diversity, leadership and program development.



Dr Cathy Stone

Dr Cathy Stone is currently an Equity Fellow with the National Centre for Student Equity in Higher Education, Curtin University, and is employed by The University of Newcastle Australia. Cathy has had many years' experience in developing and managing programs and strategies to improve student

success and retention for both on-campus and online students in the Australian higher education sector. Much of Cathy's research focuses on the experiences of mature-age and first-in-family students, in which she has a number of publications. As a result of her previous work with Open Universities Australia, Cathy has a particular interest in improving outcomes for online students, amongst whom there is such diversity of experience and background.



Mr Paul Koshy

Mr Paul Koshy is the co-manager of the Equity Performance Framework project, and works within the Centre's Equity Policy and Research Program area looking at education, and participation and outcomes. He has extensive experience in applied labour market and higher education research and

has participated in over fifty contract research projects for state and national government agencies, private sector organisations, and international agencies. His recent work has included policy research into geographic measures of socioeconomic status and higher education policy. Paul is currently completing a PhD on the socioeconomic determinants of higher education participation.



Dr Erica Southgate

Dr Erica Southgate is a Senior Lecturer in the School of Education at The University of Newcastle Australia. She has extensive experience in conducting qualitative, ethnographic and mixed method research on social disadvantage and marginalisation in the fields of health and education. Her

most recent publications include an edited book on global perspectives in widening participation in higher education, and scholarly articles on access to high status degrees for people who would be the first in their family to attend university, and the deconstruction of key concepts in higher education policy such as 'aspiration', 'capability' and 'choice'.



Dr Sylvia Soltyk

Sylvia holds a Bachelor of Commerce (Economics) and Bachelor of Science (Statistics) with Honours. Sylvia previously worked in research at the School of Economics and Finance at Curtin University. She is currently assisting the NCSEHE team as a research assistant focusing in data

analysis and statistical modelling.



Dr Nadine Zacharias

Dr Nadine Zacharias is an equity practitioner with research expertise in the fields of equity policy and program management, inclusive teaching and learning in higher education and gender equity in employment. In 2016, she is an inaugural Equity Fellow sponsored by the National Centre for Student Equity

in Higher Education to undertake a strategic student equity research project of national significance. In her substantive position, she is Director, Equity and Diversity at Deakin University which covers the interrelated portfolios of access and equity partnerships, equity and diversity programs and access and inclusion to support students with disability in participating equitably in higher education.

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About the Centre

Closing the loop between equity policy, research and practice

The National Centre for Student Equity in Higher Education began operation in 2008, hosted by the University of South Australia. In May 2013, Curtin University won the bid to take over the Centre and received funding to achieve its aim of informing public policy design and implementation and institutional practice, to improve higher education participation and success for marginalised and disadvantaged people.

The NCSEHE's objectives are:

- to establish a reputation for high quality products that inform public policy dialogue about equity in higher education
- to 'close the loop' between equity policy, research and practice by
 - > supporting and informing evaluation of current equity practice, with a particular focus on identifying good practice
 - > identifying innovative approaches to equity through existing research and the development of a forward research program to fill gaps in knowledge
 - > translating these learnings into practical advice for decision-makers and practitioners alike.

Student Equity and Participation

The NCSEHE's key purpose is "to inform public policy design and implementation, and institutional practice, to improve higher education participation and success for marginalised and disadvantaged people."

In keeping with its purpose, the NCSEHE is connecting Commonwealth student equity policy with the activities of higher education institutions and national equity outcomes, through its input into comparative assessment of institutional strategies, systemic assessments of policy achievements and assessments of national policy-making in view of this evidence.

The Centre's focus is based on three programs of research activity:

1. Equity Policy and Program Evaluation

The Centre is providing leadership and support in developing a national approach and resources to evaluate the impact of initiatives to increase participation of people from low SES backgrounds and other equity groups in higher education.

2. Equity Policy and Planning Research

The Centre is furthering equity policy and planning in Australia, sharing knowledge and capabilities developed in Australia, and providing evidence on the impact of policy on equity outcomes in the system. By enabling national research and engagement on higher education policy and practice, the Centre ensures its research includes analysis of all student equity groups, including people from low SES, Indigenous, remote and rural communities, and people with disability.

3. Student Equity Data

The Centre conducts analysis of higher education datasets from a student equity perspective. This encompasses:

- compiling and analysing national equity data and survey data on student transition to higher education
- managing a website that presents data on student equity performance in higher education; in particular, the mapping of higher education participation data in Australia
- providing access to sources for data and data-driven research on equity policy and programs from around Australia and the world.

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