



**Exploring the Retention and Success
of Students with Disability**

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The views and opinions expressed in this document are those of the research team and do not necessarily reflect those of the National Centre for Student Equity in Higher Education.

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ACRONYMS

ADCET	Australian Disability Clearinghouse on Education and Training
ATN	Australian Technology Network
DAP	Disability Action Plan
Go8	Group of Eight
IRU	Innovative Research Universities
LAP	Learning Access Plan (also known as Access Plan)
NDCO	National Disability Coordination Officer
NDIS	National Disability Insurance Scheme
RUN	Rural Universities Network

Background

The number of students with disability in higher education is increasing. National data reveal differences in the retention and success of these students across Australian higher education institutions but the reasons for this are not clear. The overarching aim of this study was to explore the relationship between supports and university adjustment for students with disability, and their retention and success.

Method

This exploratory study used a mixed methods approach. Institutional-level data from 2007 to 2013 from the Higher Education Student Data Collection were analysed by total disability students, by disability types and by the student disclosed need for services. Disability types were hearing, learning, mobility, visual, medical and other. Data were analysed using SPSS version 23, in terms of commencing and enrolled students, retention and success. Table A and one Table B providers were then categorised according to overall performance of students with disability, into high, medium, inconsistent and low. Three institutions from each category were invited to participate in semi-structured interview to identify similarities and differences in terms of their policy and practice approaches to the provision of adjustments for students with disability. Data were also collected from a desktop audit of all Table A and B providers via their disability service website, to provide an overview of policy, practice and institutional culture in relation to disability across the institutions.

Findings from National Data

Institutional-level data from 2007 to 2013 from the Higher Education Student Data Collection revealed that:

1. The percentage of both commencing students and total enrolled students with a disability at Australian universities increased from 2007 to 2013.

2. There are no real changes in the distribution of disability types across the years.
3. Smaller universities with 10000-30000 students have a larger proportion of commencing and enrolled students with disability, compared to large universities with more than 30000 students.
4. Students who identified as having a hearing disability were consistently the lowest group of commencing student while students who identifies as having a medical disability were consistently the largest group of commencing students across the seven years.
5. Students with disability have slightly lower success rate than the total student population.
6. Students who identify as having learning, other, or medical disability and requiring services consistently performed less well than total disability students across the years.
7. Students with disability are retained at a consistently lower rate than the total student population.
8. Students who identify as having learning disability were consistently retained at a higher rate than total disability students.
9. Students who identify as having other disability and requiring services were consistently retained at a lower rate than total disability students.
10. There were no consistent significant differences in student enrolment, retention or success between university groupings.
11. Success rates of students with a disability according to university size have converged over time.

Findings from Website Audit and Interviews

Past performance as reflected in the quantitative, national data cannot necessarily be explained by current practice, as explored in the qualitative data. There were fewer differences between institutions in terms of policies and practices for students with disability, than the quantitative data would suggest. Differences across institutions were largely in relation to the maturity or stage of development of their inclusive policies and practices.

1. Most institutions described socially inclusive policies and practices and supportive leadership.
2. A number of institutions did not have a current disability action plan (DAP).
3. Few institutions involved students with disability in policy development.
4. Service units for students with disability were usually located within a broader student equity/support/wellbeing structure and disability support was generally a responsibility shared throughout institutions, and not just the responsibility of the disability support team, indicating the move from a medical model to an inclusion model.
5. Recruitment mechanisms that involve external linkages with schools, disability networks or others can assist in the transition of students with disability.
6. Collaborative approaches involving internal and external stakeholders can assist improve retention and success of students with disability.
7. The widespread implementation of learning access plans (LAPs) suggests an increasing importance being placed on formalised procedures for identifying and meeting student needs.
8. The provision of more services and better support for students with a mental health disability and those with autism is an area requiring further university investment.
9. Inconsistent categorisation of students with mental health disability in national and institution data collection makes targeting services and tracking institutional performance challenging. A socially inclusive framework that includes the concept of universal design is a mitigating strategy.
10. More training for academic and non-academic staff to better support students with disability is required, including participation in national training in relation to mental health.

Recommendations

1. A nationally consistent approach to categorising students with disability is required. In particular, students with mental health disability should be encouraged to identify in a single category.

2. Changes to policy and practice would increase enrolment, retention and success rates of students with disability toward the rates for all students. Higher education institutions should consider the following guiding principles for good practice when developing and implementing strategies and plans designed to support the enrolment, retention and success of students with disability.
 - a. Operate under a whole-of-university inclusive framework that includes the concept of universal design.
 - b. Ensure the policy framework supporting students with disability is current, flexible and relevant to the institutional context.
 - c. Ensure that financial resources, as well as human resources, are identified and flexible enough to fit student requirements, including the specific requirements associated with different disability types.
 - d. Ensure disability support services are integrated with mainstream student support services.
 - e. Have specialist disability support staff who have the knowledge and experience to identify appropriate adjustments.
 - f. Provide regular training for disability practitioners and other staff with responsibility for supporting and advising students with disability.
 - g. Develop a training and awareness communication strategy in relation to students with disability for all staff who have contact with students, and ensure sessional staff are included.
 - h. Set up mechanisms to facilitate interpersonal relationships in three domains: between disability support staff and students; between disability support staff and both academic and professional staff, and amongst students with disability.
 - i. Develop an appropriate and sensitive mechanism to identify those students with mental health disability to allow those students with a mental health condition who wish to disclose, or who have not considered disclosing before, to do so.
 - j. Develop an appropriate and sensitive mechanism to identify those students with autism spectrum disorder to allow those students with autism spectrum disorder who wish to disclose, or who have not considered disclosing before, to do so.

- k. Regularly monitor student outcomes by collecting data on retention and success at course and faculty level, including at the level of disability type, and act on results of the data.
- l. Offer inclusive student wellbeing programs that promote and improve self-management and resilience.
- m. Develop formalised (written) learning access plans collaboratively with students that are owned by students. With the agreement of students, put mechanisms in place to ensure appropriate dissemination of plans to relevant staff.
- n. Consider students with disability from the perspective of the student lifecycle model, including recruitment and outreach strategies, and career transition strategies.
- o. Partnerships with external organisations that leverage resources are fundamental. Consider developing MOUs and service-level agreements with key disability organisations and stakeholders such as mental health, allied health and autism bodies, and NDCOs.
- p. Consider students with disability in the development and use of online learning resources (e.g. captioning, audio capture, audio description), as well as in learning support services.

Further Research

1. 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.
2. Further research into the impact of relationships between NDCOs and universities on the recruitment of students with disability is recommended.
3. More research is needed into institutional and other factors that impact on the retention and success of students with 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.

Education plays an important role within society by increasing opportunities and assisting individuals and communities to achieve their economic potential. It is imperative to ensure that education is available to all, including equity groups such as people with disability. The proportion of higher education students with disability is increasing (Department of Education and Training, 2014). Australia has committed to a number of international and national instruments intended to improve participation of people with disability in society and there have been several reforms within the disability sector itself that may have influenced the participation and success rates of students at university.

In 2008, Australia joined other countries in ratifying the United Nations Convention on the Rights of Persons with Disabilities, which is a global effort to promote the equal and active participation of all people with disability. In 2010 the Australian government committed to the National Disability Strategy (Department of Social Services, 2011), which is a national approach to supporting people with disability to maximise their potential and participate within Australian society. Additionally, Australian universities have been encouraged to provide inclusive educational opportunities by the *Disability Discrimination Act 1992 (Cth) (DDA)*, the *Disability Discrimination and Other Human Rights Legislation Amendment Act 2009 (Cth)* and the *Disability Standards for Education 2005*.

In 2013, one of the most significant reforms to the disability sector as a whole was the introduction of the National Disability Insurance Scheme (NDIS). The NDIS supports people with a permanent and significant disability that affects their ability to take part in everyday activities. The NDIS will fund support for personal care, specialist transport, permanent aides and necessary equipment, factors which may previously have prohibited people with significant disability from accessing higher education. As this reform is in the early stages of implementation it is difficult to assess its likely impact on the higher education sector, but as the NDIS becomes embedded it seems likely there will be an increase in the number of students with significant disability seeking higher education.

The broadening of higher education participation since 2007 has seen generally rapid rates of growth in enrolments of equity group students across Table A higher education providers, with

enrolment growth among students with disability of 43.5%, over double that of the entire system (Koshy & Seymour, 2015). Within Australia the reported prevalence of disability is one in five people (4.2 million people or 18.5% of Australians) (Australian Bureau of Statistics, 2009). The proportion of higher education students with disability has increased from 4.4% in 2007 to 5.8% in 2014 (Koshy & Seymour, 2015), an increase that is almost double the enrolment growth of the whole system.

Universities have obligations under the *Disability Standards for Education 2005* to ensure students with disability can access and participate in education on the same basis as other students. They are required to anticipate and plan for the inclusion of students with disability and make responsible adjustments and provide support services. There have been significant improvements in the participation rates of people with disability within work and further education but there is still a significant gap between students with disability and those without in the attainment of year 12 or equivalent, vocational education and training qualifications, and participation in university studies (Department of Social Services, 2011).

Despite clear guiding policy, variation in support offered to these students across states and institutions exists (Koshy, 2014). These differences are evident across university grouping and geographical location, with Innovative Research Universities (IRUs) and Regional Universities Network (RUN) universities, as well as regional universities, having higher than average participation rates (Koshy, 2014). There is also variation across institutions in the retention and success of the disability equity group. In 2012, just under half of Australia's universities reported retention rates for students with disability below the national rate of 77.27%, and 83% had retention ratios less than 1.0, indicative of a lower retention rate than that of non-equity group students (Department of Education and Training, 2014). In 2013, approximately half of Australia's universities reported a success rate for students with disability lower than the national rate of 81.23%, and 85% had success ratios less than 1.0, indicative of a lower success rate than that of non-equity group students (Department of Education and Training, 2014). Around half of Australia's universities reported attainment rates for students with disability in 2013 that were below the national rate of 4.35% (Department of Education and Training, 2014).

In order to ensure retention and success of students with disability at the tertiary level, it is important to understand the variety of factors that affect these students' ability to complete their courses. This research examines factors that influence retention and success for students

with disability as an equity group by student disability type¹ (or nature of impairment) by using institutional-level data sourced from the Higher Education Student Data Collection (Department of Education and Training, 2014). Using a strengths-based and comparative approach, this mixed methods exploratory study considers the role of institutional policies and practices in relation to the nature and provision of supports and adjustments for students with disability, and the level of congruence between the two. It also considers the influence of other contextual factors such as the impact of Australian government policy at a state and national level.

Clarification of terminology

For the purposes of this study, the shorter term disability is used, but this is understood to encompass disability and ongoing health conditions. Success is defined in terms of academic performance (passed, failed, withdrawn). Data on success rates were accessed from the Higher Education Student Data Collection, which compared units passed with units attempted.

Retention refers to continuation with studies from the previous year. Retention rate data were accessed from the Higher Education Student Data Collection, and measured the proportion of students who continued their studies from the previous year.

¹ Classifications of disability or impairment types differ depending on the purpose of data collection and the collection agency, which provides challenges for researchers. Population surveys categorise disability according to type of disability or impairment, such as the Australian Institute of Health and Welfare Disability Services National Minimum Data Set, which identifies four broad categories: intellectual/learning, physical/diverse, sensory/speech and psychiatric, along with a number of sub-categories. The Higher Education Student Data Collection requests information across six types of impairment: Hearing, Learning, Mobility, Vision, Medical and Other, and these categories form the basis for this study.

Introduction

To account for the differences in outcomes for students with disability, various contributing factors are described in the literature including individual factors such as self-determinism (Herbert et al., 2014) and factors external to university such as academic, personal and social skills, socioeconomic and ethnic background, first generation, demographics and factors internal to university such as housing, financial support, psychological support, social support, and physical access to university infrastructure and technology.

For the purposes of this study, this literature review focuses on research regarding the role of institutional policies and practices, including supports and services, for students with disability, and the level of congruence between the two. It will also look at studies that consider the influence of other contextual factors.

Factors Affecting Retention and Success

The literature indicates that a variety of factors contribute to the success of students with disability studying at universities and shows that there are a variety of ways these factors can be considered. There are several papers (Murray & Wren, 2003; Hennessey, Rumrill, Fitzgerald, & Roessler, 2008; Herbert et al., 2014; Koch, Mamiseishvili, & Higgins, 2014; Lombardi, Gerdes, & Murray, 2011; Mamiseishvili & Koch, 2011; Mamiseishvili, & Koch, 2012; McEathron & Beuhring, 2011; Pascarella & Terenzini, 1991; Pingry O'Neill, Markward, & French 2012; Quick, Lehmann, & Deniston, 2003; Wallace, Winsler, & NeSmith 1999; Wessel, Jones, Markle, & Westfall, 2009; Wright & Titus, 2013;) that describe different groupings of the factors affecting students with disability in addition to the wide variety of factors that affect the success and retention of university students with disability. For example, Beal and Noel (1980) group factors influencing retention and success into three broad categories: student characteristics, environmental characteristics, and interaction. Murray and Wren (2003), on the other hand, examine cognitive, academic and attitudinal characteristics of students. Other authors examine factors from the perspective of a student lifecycle model (Tinto, 1993) or rites of passage (Van Gennep, 1960)

namely separation, transition and incorporation. Retention and success can also be influenced by factors external to the university such as financial issues or family issues (Herbert et al., 2014; Eaton & Bean, 1995).

Because there is no agreed method of grouping factors affecting the retention and success of university students with disability, Plotner and Marshall (2015) offer one of the more effective descriptions of how all of the factors interact and can be grouped. They show the interaction between an individual's personal characteristics and contextual influences that range from family, peers and community to the influence of cultural attitudes and expectations. They also point out that these influences and interactions are not static, but rather are dynamic and change over time (Plotner & Marshall, 2015). They then continue to propose a taxonomy comprising four domains that can be applied to a student with disability's experience at university: academic, vocational, independent living and social. This research will focus primarily on the academic domain.

Factors Internal to Universities

International research (e.g. Vickerman & Blundell, 2010) reports factors that influence participation by students with disability include institutional commitment to socially inclusive curricula, development of support services, and personal development planning. Sachs and Schreuer (2011) found that while academic outcomes for students with and without disability were similar, student experiences differed according to disability type. Specifically, students with a physical disability were more satisfied than students with a sensory or psychiatric disability. Within Australia, it is known that access to specialist support services assists in retention of students with disability, and that academic difficulties are a key factor in withdrawal from study (Long, Ferrier & Heagney, 2006). Academic difficulties are linked to the quality of teaching and teacher engagement and assessment flexibility. Current Australian research is examining student and staff perspectives on the most effective individualised educational adjustments and system-level learning supports for students with disability in one university and TAFE college (Fossey, 2015).

Institutional Approaches that Support Retention and Success

Policies and Programs

The increase in students with disability forms part of the broader widening participation agenda, and occurs within a context of ongoing university deregulation debates, and competing funding demands for universities. Ensuring retention and success of students with disability will require innovative solutions and strategies underpinned by a socially inclusive culture. Universities that aspire to be socially inclusive are likely to share the following high-level principles: high level of community engagement to address inclusion issues; collaborative approaches involving all stakeholders; strong focus on outcomes for students and the community and strong commitment to strengths-based rather than deficit models (Cairnduff, 2011).

Enabling programs, or programs that proved an alternative pathway to higher education, have seen increasing student numbers across Australia. In general, there are two types of these programs: those that provide a pathway to higher education, and remedial programs taken concurrently with undergraduate study for students who are underprepared academically. Andrewartha and Harvey (2014) show that these programs have proved successful in facilitating academic achievement for students from various equity groups including mature age, indigenous, refugee, and first-in-family students as well as students from non-English speaking backgrounds. They did not consider students with disability. An area of future research would be to explore the connection between the presence of an enabling program on campus and the retention and success of students with disability.

The way policy regarding persons with disability at university is developed is also covered in the literature. A participatory or inclusive approach to policy development is often thought to be an effective and preferred method for policy development and evaluation. The literature shows that when it comes to developing and evaluating policy that affects people with disabilities, this practice, while still desirable, is not often followed. Robinson, Fisher and Strike (2014) explain there are reasons why policy has been developed without inclusion of people with disability and discuss obstacles to inclusion and suggest possible ways to navigate around barriers. Thill (2015) also shows that a participatory approach is desirable, but not practised as well as it should be within Australia.

Another area related to policy and the retention and success of university students with disability is the topic of disclosure of disability in order to receive supports or accommodations.

Kranke, Jackson, Taylor, Anderson-Fye and Floersch (2013) conducted a study that looked at factors associated with students' perceptions of faculty and peers that impact these students' disclosure of their non-apparent disabilities in order to access services for academic assistance. They found that there are several reasons why students without a visible disability make the decision to disclose to request accommodations. First, they fear that their disability will greatly limit functioning critical to academic achievement; second, the stability of their non-apparent disability; and third, the stigma associated with disability. The authors say that there are policy and practice implications concerning students' mental health issues and university faculty, administration and campus service providers, and suggest that there are various actions that academic staff as well as disability officers could take. For example, in addition to or instead of formal accommodations, Kranke et al. (2013) suggest that informal accommodations are also an option, where a student forgoes the formal process of meeting with disability officers and approaches academic staff directly to discuss their disability. This had varying results and it is suggested that in addition to strengthening relationships between academic staff and disability officers, more research is needed to understand the academic staff's perspective on informal accommodations or supports.

Focusing on institutional characteristics, Wilson, Getzel and Brown (2000) determined that offices of services for students with disability should offer support services in the following categories: admissions, academic counselling and support, disability-related counselling, assessment and evaluation, advocacy and liaison services, information and referral services. They point out that "Just because access to post-secondary education is increasing for students with disability, it does not always follow that students selecting this option will discover welcoming, supportive campus climates, programming and services that will facilitate choice, independence, and social participation, or adequate supports to promote academic success" (Wilson, Getzel, & Brown, 2000, p. 37). While some institutions offer robust disability supports and services, this is not the case for all universities and, with the increase with students with disability studying at universities, it is important for universities to be prepared to assist these students. Additionally, in 2005, the United Nations Educational, Scientific and Cultural Organization released its report *Guidelines for Inclusion: Ensuring Access to Education for All*, which described provides a historical perspective on the origins of inclusion and describes the shift from integration towards inclusion and provides guidance on how institutions can make that shift.

Support Programs and Services

There is a wide body of literature that examines types of supports and services provided by universities that facilitate the retention and success of students with disability at university. In general, these accommodations can be grouped into three overarching categories including modifying the premises of the education institution, changing or modifying course participation, delivery and assessment, and providing certain equipment and teaching aids (Squelch, 2010). Some studies look at specific supports and services for particular disability types while others discuss supports and services for university students with disability in general. In addition, there are many handbooks written on accommodations by disability type (e.g. Flick-Hruska & Blythe, 1992). Overall, there is general agreement on basic accommodations regardless of disability type that can be provided to support students with disability such as extensions on assignments, audiotaping lectures or extra time provided for examinations.

There are also studies that evaluate the level of satisfaction students find with the various accommodations they receive. For example, in a study conducted by Reinschmiedt, Sprong, Dallas, Buono and Upton (2013), it was found that students are more satisfied with certain accommodations than others and that this varies by disability type as well. Assistive reading technology, testing with accommodation, text conversion services, reader/writer/interpreter and assisted listening technology received the highest satisfaction scores. Overall, this study found that students with mobility disabilities were most satisfied with accommodations, followed by blind/low-vision students and students with ADHD, and finally students with a specific learning disability.

Other studies explore and propose new or repurposed ideas for supporting students with disability. For example, Pereira (2012) describes how occupational therapy services are traditionally used with primary and secondary students, but have many applications for tertiary students as well. These include energy and fatigue management, goal setting and skills building (problem solving, organisational, time management, social skills, resilience and addressing procrastination). This is an example of a type of support that has been used for many years in the workplace, but not to a great extent in a tertiary education setting. Pereira (2012) suggests that students with disability would also benefit from this type of support.

Along the same line, McCloskey (2015, p. 221) supports “the use of mindfulness and meta-cognitive awareness as tools to help students with executive functioning deficits succeed in high-stress academic environments”. This is another technique that has been widely applied in one field, in this case psychology, but almost not at all in the field of education. McCloskey (2015)

describes how Mindfulness-based Cognitive Behavioural Therapy (MBCT) and Mindfulness-based Stress Reduction (MBSR) can help students to improve time management, level of awareness in the classroom and short-term and long-term memory.

Finally, Broadbent, Dorow and Fisch (2006) provide a thorough overview of the various accommodations by disability type. This study examined 111 unit outlines from undergraduate and post-graduate units for the presence or absence of information for students with disability. They found that most unit outlines lacked the information needed to allow students with disability to be self-sufficient. In explaining their research, the authors provide a comprehensive overview of the more common accommodations that one would expect to be offered to university students with disability. In addition to describing general accommodations that could be offered to students regardless of disability type, Broadbent et al. (2006) describe various accommodations for three disability types: hearing impairments, visual impairments and motor disabilities.

Physical Access

Physical access to campus infrastructure and technology is another area that is addressed in the literature. In Australia, the *Disability Discrimination Act 1992* (Cth) provides clear guiding policy stating that students with disability have the right to access educational services. In the case of students with physical disabilities, it may be that buildings or facilities need to be modified in order for these students to gain access. Examples of such modifications could be building a wheelchair ramp or installing automatic sliding doors. Squelch (2010) describes several cases in which students with disability claimed discrimination on the basis of not being able to access educational venues. Squelch (2010) points out that this can be costly to universities and, if the required modifications would create an unjustifiable hardship for the university, an exemption from making the venue accessible can be granted.

Summary

Overall, there is a wide body of literature on the topic of retention and success of university students with disability. Much of the literature is from the United States, but there are also numerous studies from the UK and Australia. There are many aspects to this topic as it applies to the entire student lifecycle model and can be affected by factors from multiple spheres of influence. This literature overview focused mainly on the period of time when the student is attending classes at a university. Future literature reviews could examine other parts of the

student lifecycle model such as recruitment and outreach or the transition to a vocation or career after a student has completed university studies.

This exploratory study used a mixed methods approach to explore the retention and success of higher education students with disability. There were three research questions:

1. How do universities compare in retention and success of students with various disability types?
2. How does student retention and success compare in terms of policy and practice approaches to the provision of adjustments and supports for students with various disability types?
3. What approaches should universities take in the provision of adjustments and supports for students with various disability types?

The study received ethics approval from the Tasmania Social Sciences Human Research Ethics Committee (approval H15025).

Quantitative data

Higher Education Student Data Collection

In order to compare institutional performance in terms of retention and success of students with various disability types, institutional-level data from 2007 to 2013 on commencing and enrolled students, retention and success were requested from the Higher Education Student Data Collection (Department of Education and Training, 2014). These data were broken down into six disability types: hearing, learning, mobility, visual, medical and other. Data also separately identified students who said they needed services². From these data, forty Table A and Table B higher education providers were included in the analysis. One Table A provider was omitted from the analysis due to very small enrolment numbers.

Quantitative data were analysed using SPSS version 23. Consistent with statistical conventions to utilise data where a score of less than five was given, data was normalized to an average value of

² For the purposes of this report, terminology consistent with the data collected by the Australian Department of Education and Training (2014) will be used to group students with disabilities into the following categories: hearing, learning, mobility, vision, medical, and other. This leaves students with many non-apparent disabilities and/or mental health disabilities grouped together in the 'other' category, which creates difficulty for researchers to carefully examine retention and success of students with these types of disability.

2.5. Commencing and enrolment data for students with disability were examined as percentages of total student and total disability student commencement and enrolment. Data are presented as mean \pm standard deviation. Data on disability types and need for services were examined as percentages of total students with disability as well as the total student population. Retention and success data were analysed as a ratio of total student retention and success (total student retention/success = 1.0). Data on disability types and need for services were analysed as a ratio of total disability student retention and success (total disability student retention/success = 1.0). Retention data were received for six years only (2007–2012). There were no retention data for students who identified as having a visual disability.

A series of tables was produced comparing institutional performance across the years 2007 to 2013 with a focus on three variables: disability type and need for services, university grouping and university size (total enrolments). Data were considered significant when $p < 0.05$.

Performance Categories

Analysis of the quantitative data also informed a broad categorisation of Table A and Table B higher education institutions according to overall performance in terms of retention and success of students with disability. Four categories were developed: high, medium, inconsistent and low by using a weighted average. This was developed by examining the retention and success data across all categories and determining the number of times the providers scored above the average, on average, below the average or were inconsistent in their results. An above-average score received a multiplier of 4, on average a 3, below average a 1 and the inconsistent group received a multiplier of 2. These scores were then totalled and ranked in ascending order. Broad groups were distinguished by the grouping of total scores.

These performance categories are notional and were developed for purposes of the study, to allow the researchers to select institutions with varying levels of performance in relation to students with disability. They are not intended as a ranking of higher education institutions. Given that categories were determined from historical data, categories only represent a point in time for each institution.

Qualitative Data

Qualitative data were collected to examine how policy and practice approaches in relation to students with disability compared across selected institutions and to identify the approaches

universities should take in the provision of adjustments and supports for students with various disability types.

Desktop Audit of Institutions

A desktop audit of Table A and Table B higher education providers was conducted, utilising publicly available information within the disability section of each institution's website.

The purpose of the audit was to quickly gain an overview of policy, practice and institutional culture in relation to disability across the institutions. In terms of policy, the audit documented evidence of the following areas: current disability policy, registered disability action plan, formal learning access plan process, documentation for learning access plan. In terms of practice, the audit documented evidence in relation to specialist services offered for disability types and availability of access rooms. In terms of institutional culture, evidence was collected in relation to availability of enabling programs, title of the disability practitioner and location of the disability team within the university structure. A spreadsheet was prepared, and answers to each area of enquiry were coded as 0 (no), 1 (yes) or 2 (unknown). Results of the desktop audit also informed selection of institutions to participate in an interview (see following section), although the audit did not directly influence the categorisation of institutions according to the overall performance of students with disability. Because this audit only used information accessible on each university's website, the information may be incomplete and should not be considered a comprehensive overview of each institution's policy and practices in relation to students with disability.

Individual Interviews with Disability Practitioners

Qualitative data on policy and practice approaches that influence retention and success of students with disability were then collected through individual interviews with disability managers from selected higher education institutions. Institutions were purposively selected to try to ensure a mix in terms of five criteria: performance category (see earlier section on how the four institutional performance categories were determined); size (total enrolment numbers); university grouping; state/territory, and specialist programs for students with specific disability types. Purposeful sampling is an important part of the qualitative research design because it allows researchers to learn more about issues that are central to the research topic (Patton, 2015).

Australian Disability Clearinghouse on Education and Training (ADCET) staff circulated information on the study and an invitation to participate, on behalf of the researchers. Twelve institutions were invited to participate; of these, nine agreed to participate and three did not reply. Participating institutions were asked to nominate a disability manager or similar, to participate in the interview. There were some differences in the level of responsibility of staff nominated: some nominated the manager of the disability service; others nominated a more senior manager with overarching responsibility for all of the institution's equity and student wellbeing programs. Responses to interview questions were shaped by the role of the nominated spokesperson.

A semi-structured interview schedule was developed and reviewed by a small number of disability practitioners before use. Semi-structured interviews provide a depth of data that are difficult to gather by other means (Fontana & Frey, 2003).

The interview schedule was informed by the literature review and by the desktop audit (described earlier). It comprised open-ended questions in four broad categories: leadership and governance; procedures and policy; practice, and institutional priority. Participants were also invited to make final comments. See Appendix 2 for a copy of the schedule.

Two members of the research team conducted interviews. Interviews were audio recorded with participants' permission. Highlights, key issues and relevant participant quotes were later transcribed by the two interviewers.

Consistent with a qualitative approach, interview notes were coded thematically (Creswell, 2014). While themes were generated from the data, consistent with an inductive analytic approach (Ryan & Bernard, 2000), they were also shaped by questions in the interview schedule. Themes were then combined into a smaller number of overarching categories that provided a framework for representing the major findings.

Guiding Principles

Following analysis of the interview data, a set of draft guiding principles of good practice to support retention and success of students with disability was developed. Draft guiding principles were forwarded to study participants by email and to other university disability practitioners through the Aust-Ed listserv, for validation. The Aust-Ed list is an initiative of the Australian Tertiary Education Network on Disability (ATEND). The list facilitates discussion and information sharing for those with an interest in post-secondary education and training issues for students

with disability. There are 393 subscribers to the list, comprised of 280 individuals from universities, 68 from TAFE, and 45 from other organisations. Thirty-nine universities and 21 TAFE institutions are represented on the list. Six provided feedback, and although this was only a small number the feedback was generally positive. Feedback was incorporated into a final version of the guiding principles which is presented in the discussion, conclusions and recommendations section of this report.

Commencing Students with Disability

The percentage of commencing students with disability increased from a mean of $3.67 \pm 1.52\%$ of total commencing students in 2007 to a mean of $5.04 \pm 1.77\%$ of total commencing students in 2013 (Figure 1). All means and standard deviations for commencing students with disability for total students and by disability type are in Table 2, Appendix 1. Paired samples t-tests revealed significant increases between 2008 and 2009 ($t_{39} = -2.51, p = 0.017$); between 2009 and 2010 ($t_{39} = -3.58, p = 0.001$); and between 2011 and 2012 ($t_{39} = -3.06, p = 0.004$, Figure 1).

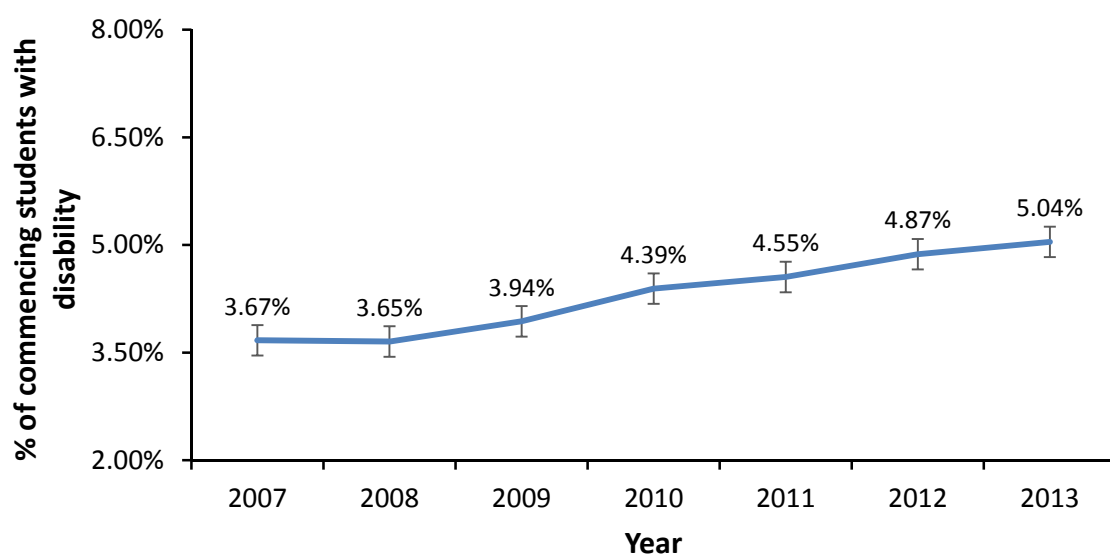


Figure 1 The percentage of commencing students with disability of the total commencing student population from Table A and Table B higher education providers from 2007–2013.

Universities were separated according to their group membership: Group of Eight (Go8, $n = 8$); Australian Technology Network (ATN, $n = 5$); Innovative Research Network³ (IRU, $n = 7$); Regional University Network ($n = 5$); and Unaffiliated ($n = 15$). No significant differences were found between university groupings for percentage of commencing students (Figure 18, Appendix 1). There was also no significant effect when university groups were collapsed into two groups: Group of Eight and Australian Technology Network ($n = 13$) and Others ($n = 27$). The relationship between the university groupings was further examined with a 2 (university group) \times 7 (year)

³ Please note that University of Newcastle left the IRU in 2014 and is now unaffiliated.

mixed factorial ANOVA which revealed a significant main effect of year ($F_{3.73, 141.55} = 18.68, p < .001$) following a Greenhouse-Geisser correction (Figure 2). No significant effects or interactions were found for university group ($F_{1,38} = 1.84, p = .183$) or between university group and year ($F_{3.73, 141.55} = 1.41, p = .238$).

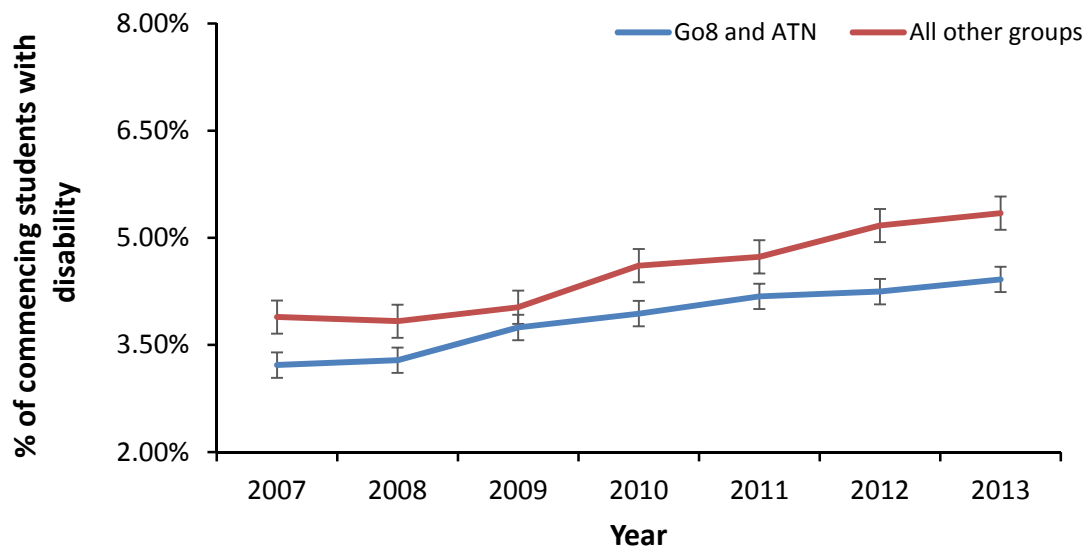


Figure 2 The percentage of commencing students with disability for university groupings where the Group of Eight and the Australian Technology Network were compared ($n = 13$) against all the other groups (including: Innovative Research Network, Regional University Network and Unaffiliated, $n = 27$).

Universities were then separated by total number of enrolled students to determine any effect of university size: 0–10,000 students ($n = 5$); 10,000 to 15,000 students ($n = 6$); 15,000 to 20,000 students ($n = 6$); 20,000 to 25,000 students ($n = 6$); 25,000 to 30,000 students ($n = 4$); 30,000 to 35,000 students ($n = 5$); and 35,000 plus students ($n = 8$). A 7 (year) x 5 (university size) mixed factorial ANOVA discovered a significant main effect of year ($F_{3.55, 116.97} = 29.47, p < .001$) following a Greenhouse-Geisser correction (Figure 3). There was also a significant main effect of university size ($F_{6,33} = 3.44, p = .009$) however, the Levene’s test of equality of variances was significant for 2007 and 2013, so this significant effect should be interpreted cautiously. There was a significant interaction effect between year and university size ($F_{21.3, 117.0} = 1.711, p = .038$) following a Greenhouse-Geisser correction. Posthoc comparisons determined the significant difference to be between the 15,000–20,000 group and the 30,000–35,000 ($p = .046$) and 35,000 plus ($p = .004$) groups. This indicates that universities with between 15,000 and 20,000 students have a significantly higher percentage of commencing students with a disability than universities with over 30,000 students. There were no significant differences between any of the remaining groups.

A further analysis of university size was conducted by grouping the universities into two groups, 10,000 to 30,000 and >30,000 students. A 2 (university size) x 7 (year) mixed factorial ANOVA revealed a significant main effect of year ($F_{4.06, 134.09} = 17.84, p < .001$) following a Greenhouse-Geisser correction (Figure 4) and university size ($F_{1,33} = 10.76, p = .002$) as well as a significant interaction between the two ($F_{4.06, 134.09} = 3.17, p = .017$).

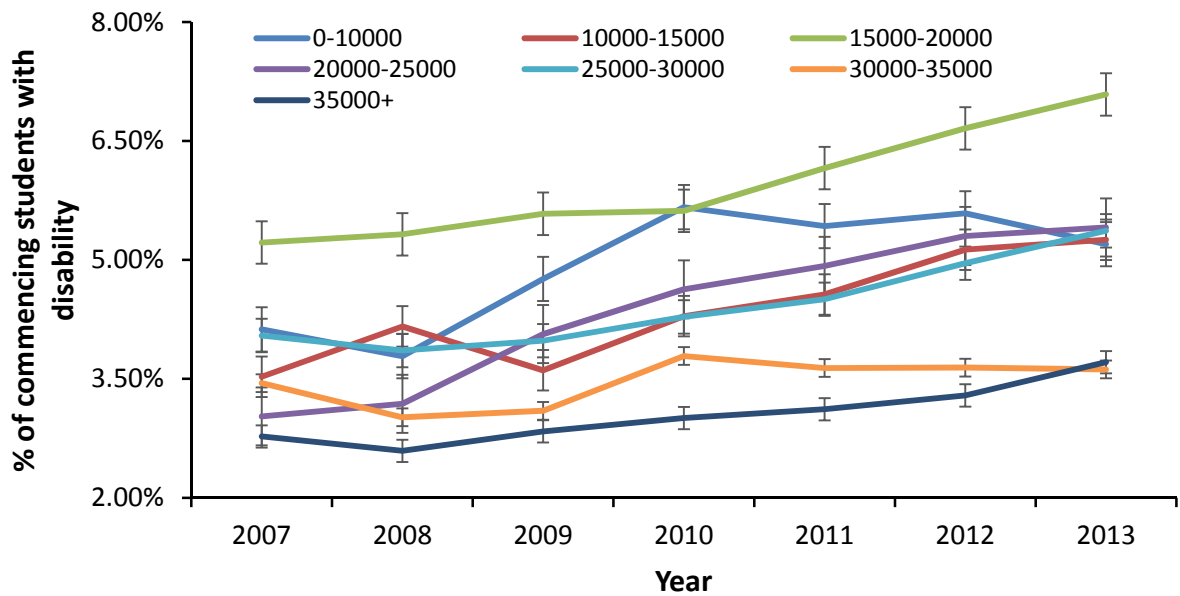


Figure 3 The percentage of commencing students with disability for Table A and Table B providers broken down by university size (number of enrolled students) for 2007–2013.

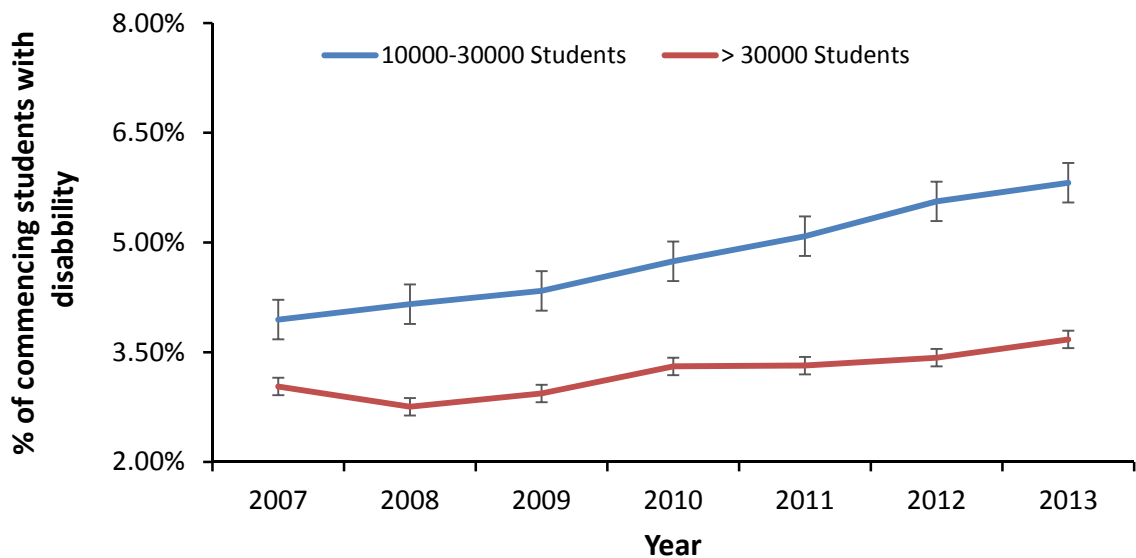


Figure 4 The percentage of commencing students with disability for Table A and Table B providers broken down by university size (10,000 to 30,000 and over 30,000 enrolled students) for 2007–2013.

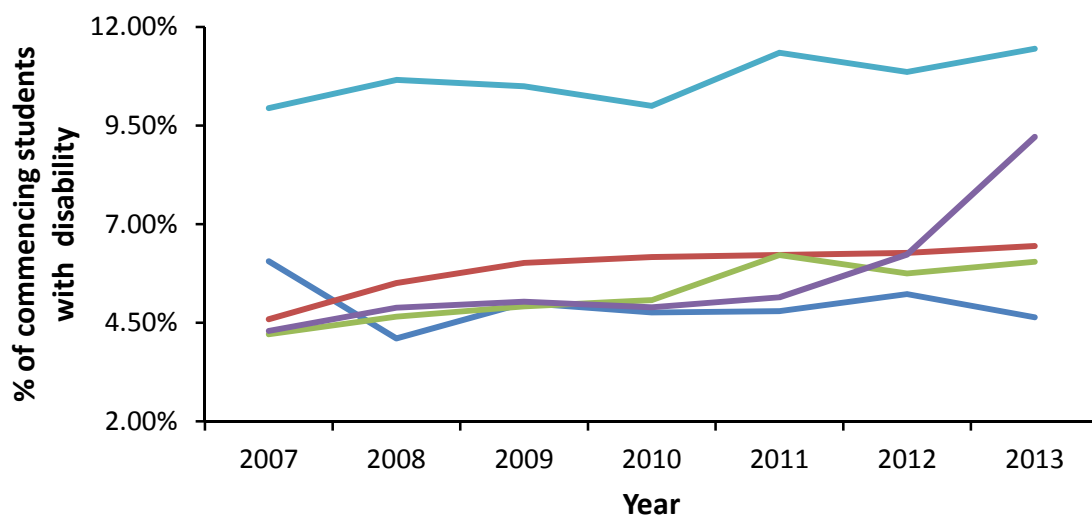


Figure 5 The percentage of commencing students with disability for Table A and Table B providers in the 15,000–20,000 enrolled students group from 2007–2013. Identifiers have been removed so as not to identify individual universities.

Further investigation of the 15,000–20,000 group revealed that one university had a far greater intake of disability students than any other, consistently reaching 10% of commencing students (Figure 5). Upon removal of this university from the analysis, there remained a significant difference between the 15,000–20,000 group and the 35,000 plus group ($p = .015$). A further difference was revealed between universities with fewer than 10,000 students and those with more than 35,000 students, with the percentage of commencing students with a disability significantly higher for universities with fewer than 10,000 total students than those with more than 35,000 total students ($p = .02$)

Commencing Students by Disability Type

The percentages of commencing students with each disability type were examined as percentages of the total number of commencing students with a disability (Figure 6, mean \pm standard deviations are available in Table 3, Appendix 1). Students who identified as having a hearing disability were consistently the lowest group of commencing students, with the mean ranging from 8.24% to 12.42% of the total disability population across the seven years. Students who identified as having a medical disability were consistently the largest group of commencing students, with the mean ranging from 38.14% to 46.89% of total disability population across the seven years. Students who identified as requiring services to assist them in their studies ranged between 46.63% and 51.44% of total disability population across the years.

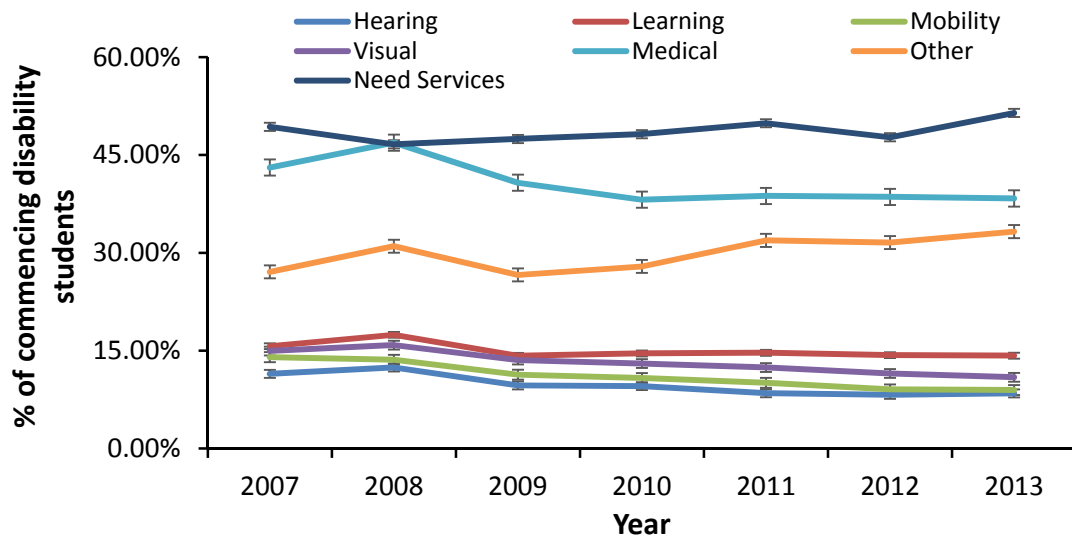


Figure 6 Mean \pm standard deviations of commencing students with each disability type (as a % of commencing students with a disability).

Enrolled Students with Disability

The percentage of enrolled students with disability increased from a mean of $4.38 \pm 1.67\%$ of total enrolled students in 2007 to a mean of $5.62 \pm 1.78\%$ of total enrolled students in 2013 (Table 4, Appendix 1). Paired samples t-tests revealed significant increases between 2008 and 2009 ($t_{39} = -2.07, p = .045$); between 2009 and 2010 ($t_{39} = -4.43, p < .001$); between 2010 and 2011 ($t_{39} = -4.47, p < .001$); between 2011 and 2012 ($t_{39} = -2.94, p = .005$); and between 2012 and 2013 ($t_{39} = -4.44, p < .001$).

Universities were then separated according to their group membership: Group of Eight ($n = 8$); Australian Technology Network ($n = 5$); Innovative Research Network ($n = 7$); Regional University Network ($n = 5$); and Unaffiliated ($n = 15$). No significant differences were found between individual university groupings for percentage of enrolled students with a disability (Figure 19, Appendix 1). Further analyses of the university groups were conducted and the universities were again grouped into two groups: Group of Eight and Australian Technology Network ($n = 13$) and all the others ($n = 27$). A 2 (university group) \times 7 (year) mixed factorial ANOVA found a significant main effect of year ($F_{1,95, 74.23} = 24.48, p < .001$) following a Greenhouse-Geisser correction (Figure 7), suggesting that the proportion enrolled in the Group of Eight and Australian Technology Universities had declined relative to other universities in recent years. A non-significant main effect of university group ($F_{1,38} = 1.58, p = .216$) and a non-significant interaction between university group and year ($F_{1,95, 74.23} = 1.05, p = .355$) were also determined.

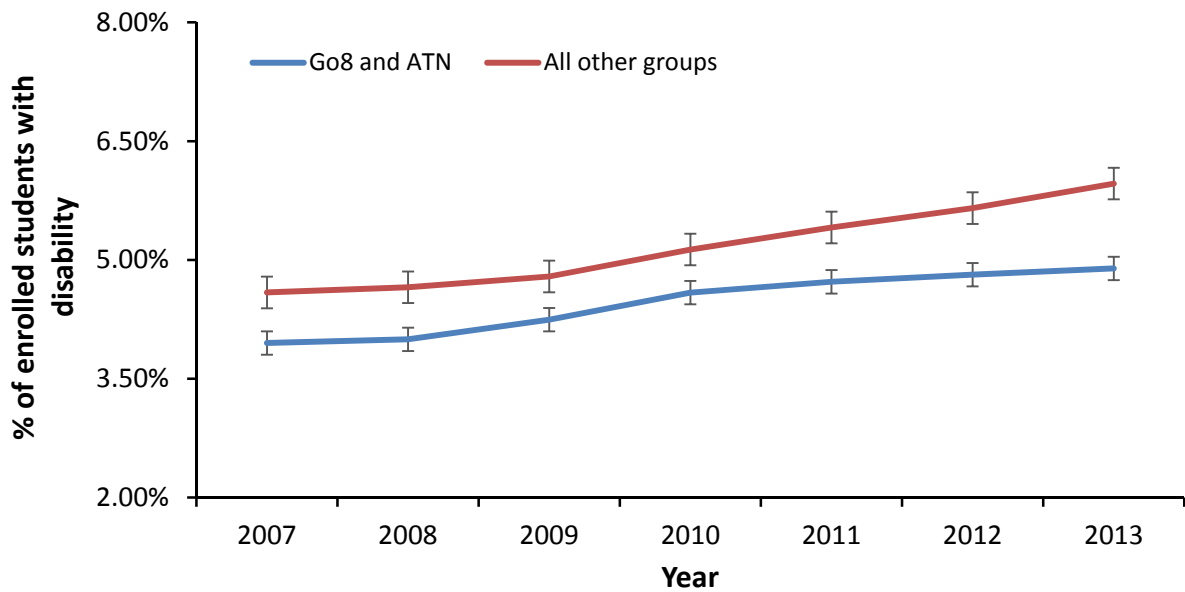


Figure 7 Enrolled students with disability as a percentage of the total student population by university groupings from 2007–2013.

The total number of enrolled students was examined to determine the effect of university size: 0–10,000 students ($n = 5$); 10,000 to 15,000 students ($n = 6$); 15,000 to 20,000 students ($n = 6$); 20,000 to 25,000 students ($n = 6$); 25,000 to 30,000 students ($n = 4$); 30,000 to 35,000 students ($n = 5$); and 35,000 plus students ($n = 8$). A 7 (year) x 5 (university size) mixed factorial ANOVA found a significant main effect of year ($F_{2.11, 69.60} = 34.47, p < .001$) and university size ($F_{6.33} = 3.31, p = .012$) following a Greenhouse-Geisser correction (Figure 8). However, there was not a significant interaction between the two ($F_{12.66, 69.60} = 1.86, p = .053$). Post hoc comparisons revealed a significant difference between the 15,000–20,000 group and the 35,000 plus ($p = .004$) group, indicating that universities with between 15,000 and 20,000 total students have a significantly higher percentage of enrolled students with disability than universities with over 35,000 total students. There were no significant differences between any of the remaining groups. When data from the 15,000–20,000 students group was examined, one university had a far greater enrolment of disability students than any other, consistently reaching 10% of commencing students (Figure 9).

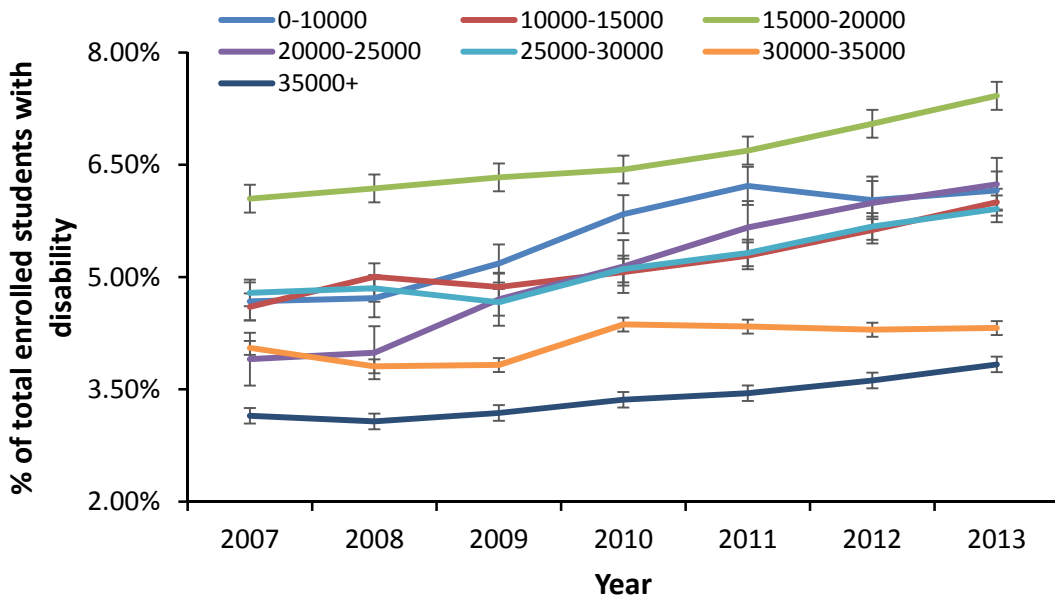


Figure 8 The percentage of enrolled students with disability for Table A and Table B providers broken down by university size (number of enrolled students) for 2007–2013.

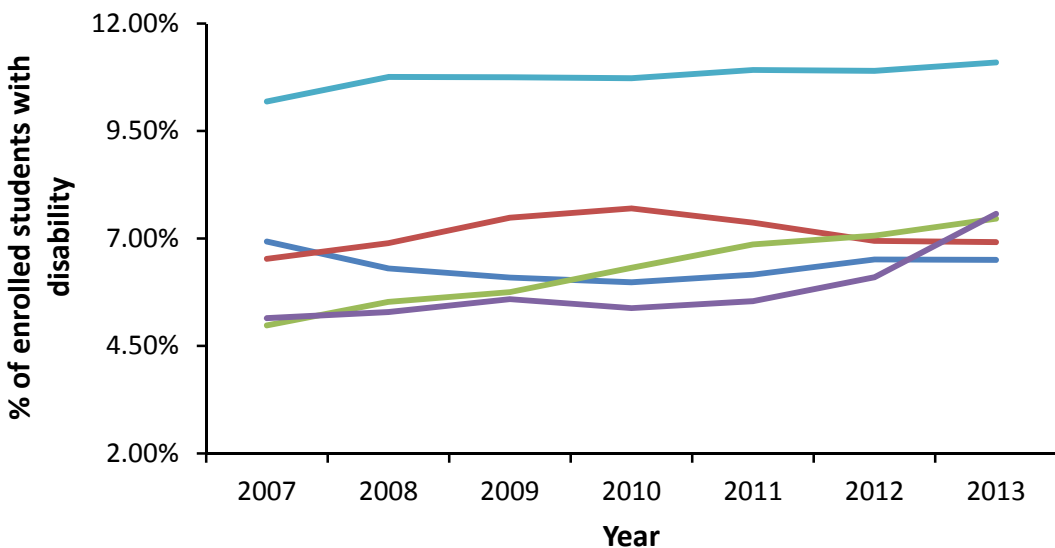


Figure 9 The percentage of enrolled students with disability for Table A and Table B providers in the 15,000-20,000 enrolled students group from 2007–2013. Identifiers have been removed so as not to identify individual universities.

When this university was removed from the analysis, there remained a significant difference between the 15,000-20,000 group and the over 35,000 group ($p = .028$). Universities were then further grouped into two composite groups of 10,000–30,000 students ($n = 22$) and over 30,000 students ($n = 13$). A 2 (university size) x 7 (year) mixed factorial ANOVA found a significant main effect of year, ($F_{1,98, 65.48} = 20.41, p < .001$), university size ($F_{1,33} = 3.99, p = .001$) and an interaction between the two ($F_{1,98, 65.48} = 3.17, p = .024$) following a Greenhouse-Geisser correction (Figure 10).

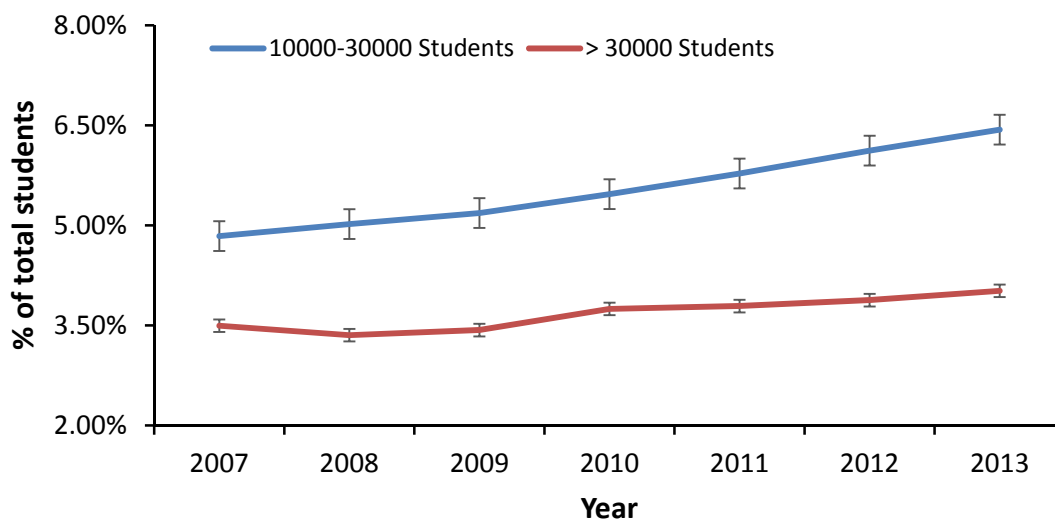


Figure 10 The percentage of commencing students with disability for Table A and Table B providers broken down by university size (10,000 to 30,000 and over 30,000 enrolled students) for 2007–2013.

Enrolled Students by Disability Type

The percentages of enrolled students with each disability type were examined as percentages of the total number of enrolled students with disability (Figure 11, means \pm standard deviations are available in Table 5, Appendix 1). Students who identified as having a hearing disability were consistently the lowest group of enrolled students, with the mean ranging from 8.22% to 11.84% of the total disability population across the seven years. Students who identified as having a medical disability were consistently the largest group of enrolled students, with the mean ranging from 39.95% to 48.42% of total disability population across the seven years. Students who identified as needing services to assist them in their studies ranged between 47.99% and 52.21% of total disability population across the years.

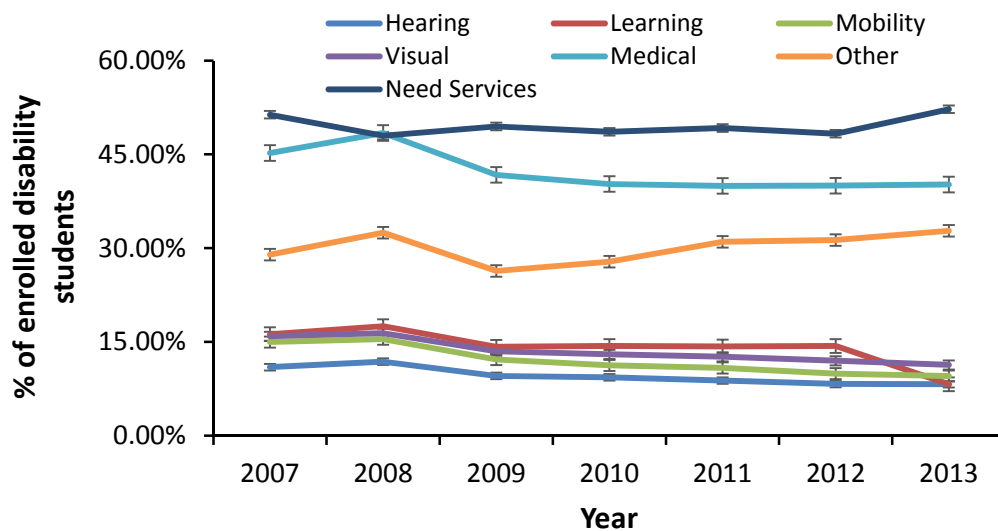


Figure 11 Mean \pm standard deviation of enrolled students with each disability type (as a % of enrolled students with disability).

Success

Success for disability students was measured as a ratio of success of the total student population with total student success = 1. The success rate of students with disability maintained a constant level of 0.94 to 0.95 of total student success (Figure 12, means \pm standard deviations for success rate of students with disability can be found in Appendix 1 (Table 6)). One-sample t-tests revealed a significant difference between the success of disability students and success of the total population in all years (Table 7, Appendix 1). This indicates that, across the years, students with disability consistently display lower success rates than those of the total student population.

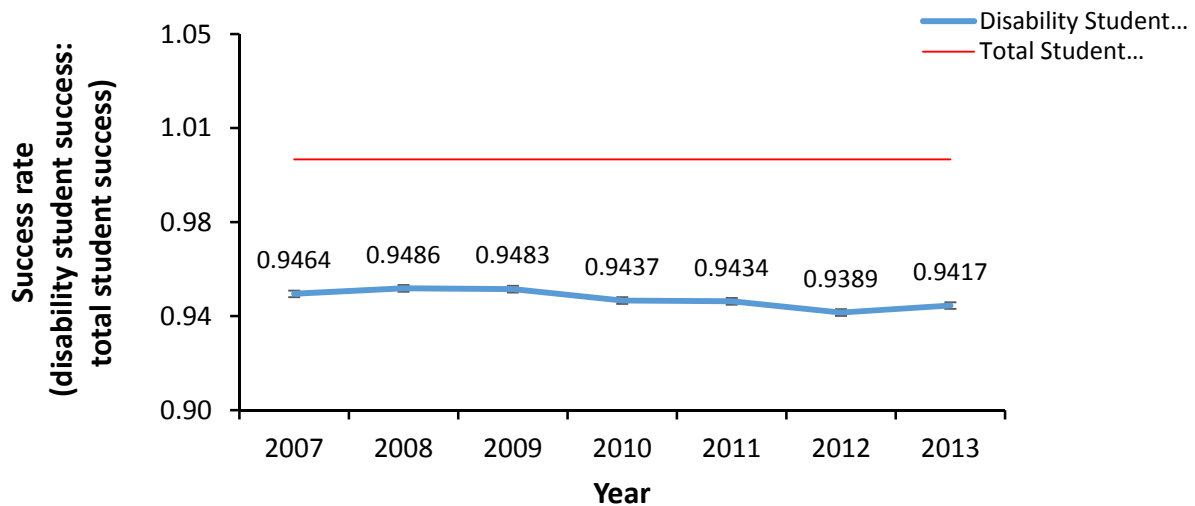


Figure 12 Disability success rate of students with disability compared to the success rate of the total student population.

Universities were separated according to their group membership: Group of Eight ($n = 8$); Australian Technology Network ($n = 5$); Innovative Research Network ($n = 7$); Regional University Network ($n = 5$); and Unaffiliated ($n = 15$). No significant differences were found between university groupings for success of students with a disability (Figure 20, Appendix 1). Further analysis of the success of students with disability and university group was conducted and universities were put into two groups; the Group of Eight and Australian Technology Network ($n = 13$) group and all others group ($n = 27$). This further analysis did not reveal any further differences between the university groupings.

Universities were then separated by total number of enrolled students to determine any effect of university size: 0–10,000 students ($n = 5$); 10,000 to 15,000 students ($n = 6$); 15,000 to 20,000 students ($n = 6$); 20,000 to 25,000 students ($n = 6$); 25,000 to 30,000 students ($n = 4$); 30,000 to 35,000 students ($n = 5$); and 35,000 plus students ($n = 8$). A 7 (year) x 5 (university size) mixed factorial ANOVA found a significant main effect of year, ($F_{3.67, 121.26} = 2.80, p = .033$) following a Greenhouse-Geisser correction (Figure 13). No significant main effect of university size ($F_{6,33} = .540, p = .774$) or interaction between year and university size, ($F_{22.05, 121.26} = 1.46, p = .102$) was found. Further analysis on the effect of university size on the success of students with disability was conducted by grouping universities into two combined groups: 10,000–30,000 students ($n = 22$) and over 30,000 students ($n = 13$). This analysis did not reveal any further differences between the sizes of the universities.

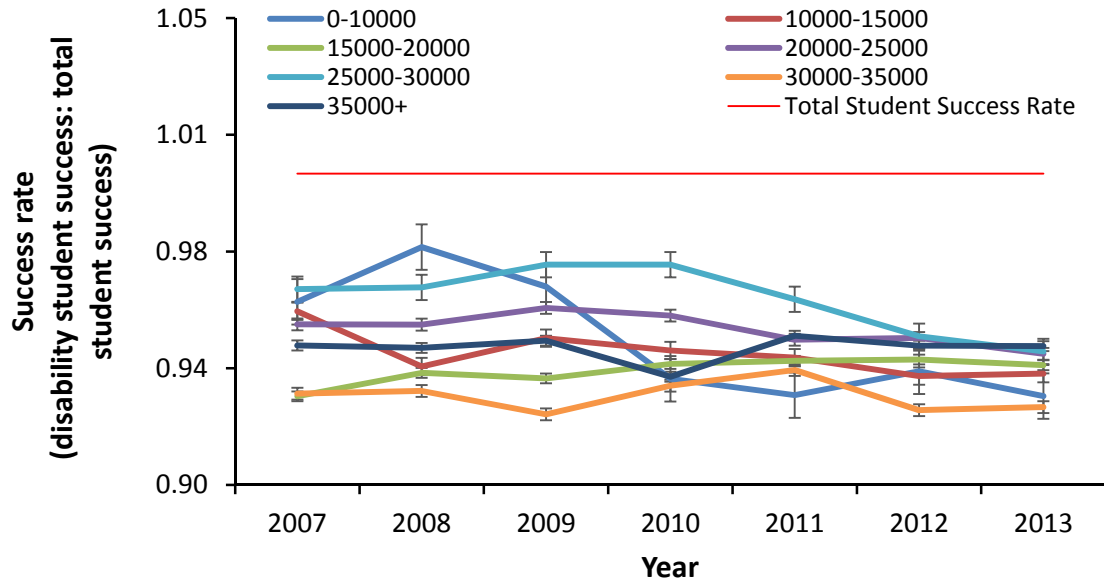


Figure 13 The disability success rate of students with disability for Table A and Table B providers broken down by university size (number of enrolled students) for 2007–2013. The red line indicates the total student success rate.

Student Success by Disability Type

The mean and standard deviations of success of students with disability by disability type are displayed in Figure 14 (means \pm standard deviations available in Table 8, Appendix 1). Analysis of individual disability success rates revealed that students who identify as having learning, other, or medical disability consistently performed worse (6.4 %, 8.7%, 6.2%, respectively) than total disability students across the years when compared to the total student population. This difference was significant for learning disability only in 2007. For medical disability, this difference was significant for five of the seven years of data and for other disability, this difference was consistently significant across the seven years of data (Table 9, Appendix 1). Students who identified as requiring services to assist in their studies consistently scored below the average of total students with disability across the seven years. This difference was significant in 2007, 2009, 2011, 2012 and 2013. (See Table 9, Appendix 1 for results of one-sample t-tests for individual disability types.)

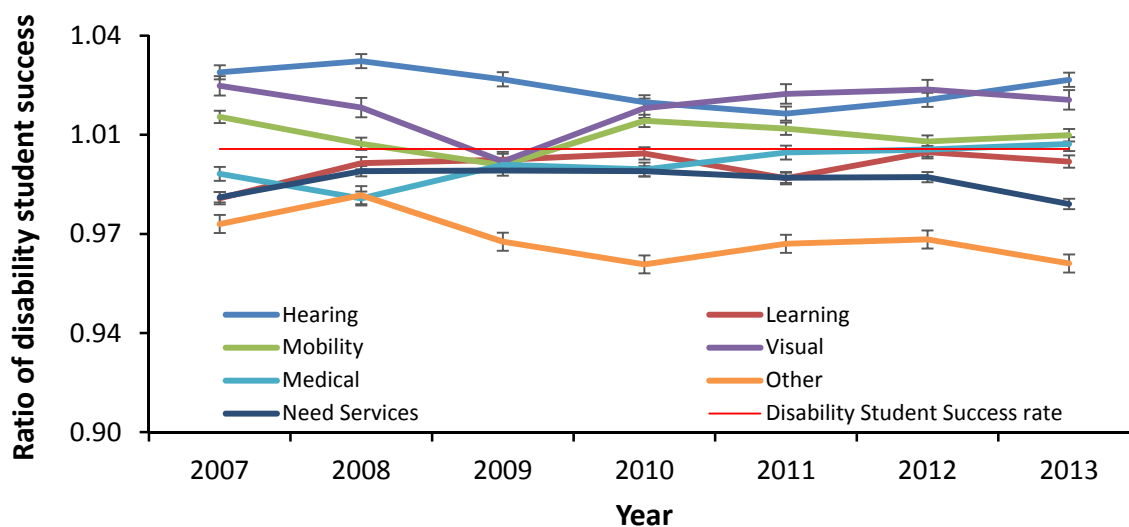


Figure 14 Mean \pm standard deviations of success of students with each disability type (as rate of total success of students with disability).

Retention

Retention of disability students was measured as a ratio of retention of the total student with disability population with total student retention = 1. The retention rate of students with a disability ranged from between 0.95 to 0.99 of total student retention (Figure 15, means \pm standard deviations for retention rates of students with disability can be found in Appendix 1 (Table 10)). One-sample t-tests revealed a significant difference between retention of disability students and retention of the total population in all years (Table 11, Appendix 1) indicating that across the years, students with a disability are retained at a consistently lower rate than the total student population.

Universities were separated according to their group membership: Group of Eight ($n = 8$); Australian Technology Network ($n = 5$); Innovative Research Network ($n = 7$); Regional University Network ($n = 5$); and Unaffiliated ($n = 15$). No significant differences were found between university groupings for retention of students with a disability across 2007, 2008, 2009, 2010 or 2011. A significant difference was found between university groupings for retention of students with a disability in 2012 ($F_{4,35} = 2.88, p = 0.036$, Figure 16). Post hoc analysis of the data revealed a significant difference between the Australian Technology Network ($mean \pm SD = 0.950 \pm 0.02$) and the Unaffiliated Universities ($mean \pm SD = 0.997 \pm 0.041, p = .042$). Further analysis on the retention of students with disability and university group was conducted and universities were put into two groups; the Group of Eight and Australian Technology Network ($n = 13$) group and

all others group ($n = 27$). This further analysis did not reveal any further differences between the university groupings.

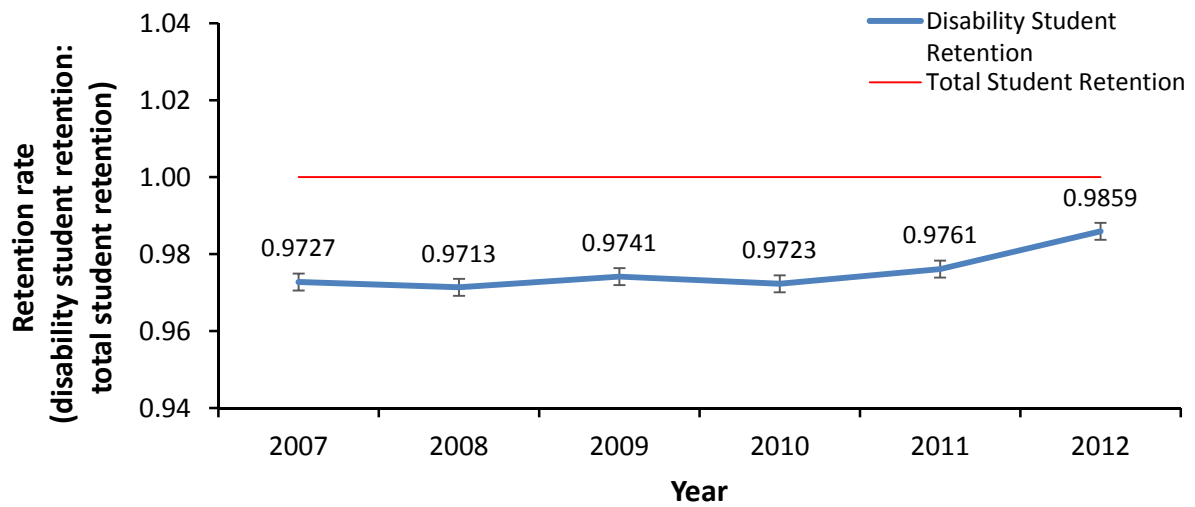


Figure 15 The retention rate of students with disability compared to total student retention for 2007–2012.

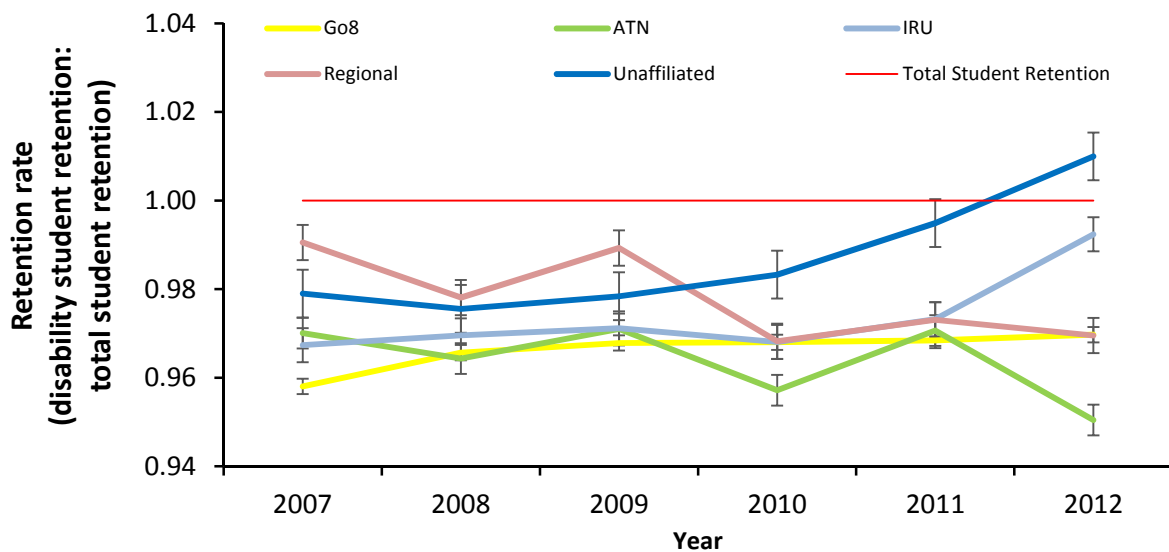


Figure 16 The retention rate of students with disability compared to total student retention for 2007–2012. The retention rate is broken down by university groupings.

Universities were then analysed by the total number of enrolled students to determine any effect of university size: 0–10,000 students ($n = 5$); 10,000 to 15,000 students ($n = 6$); 15,000 to 20,000 students ($n = 6$); 20,000 to 25,000 students ($n = 6$); 25,000 to 30,000 students ($n = 4$); 30,000 to 35,000 students ($n = 5$); and 35,000 plus students ($n = 8$). A 6 (year) x 5 (university size) mixed factorial ANOVA found a no significant effects for year or university size or interaction between the two (Figure 21, Appendix 1). Further analysis on the effect of university size on the retention of students with disability was conducted by grouping universities into two combined

groups: 10,000–30,000 students ($n = 22$) and over 30,000 students ($n = 13$). This analysis did not reveal any further differences between the sizes of the universities.

Student Retention by Disability Type

The means and standard deviations of retention of students with disability by disability type are displayed in Figure 17 (data is also available in Table 12, Appendix 1). Analysis of individual disability retention rates revealed that students who identify as having “learning disability” were consistently retained at a higher rate than total disability students across the years, although this difference was only significant in 2008 and 2009. Students who identified as having “other disability” were consistently retained at a lower rate than total disability students across the years, although this difference was significant only in 2009, 2010, 2011 and 2012 (Figure 22, Appendix 1). Students who identified as “requiring services” were consistently retained at a lower rate than total disability students across the years, although this difference did not reach significance. (See Table 13, Appendix 1 for results of one-sample t-tests for individual disability types.)

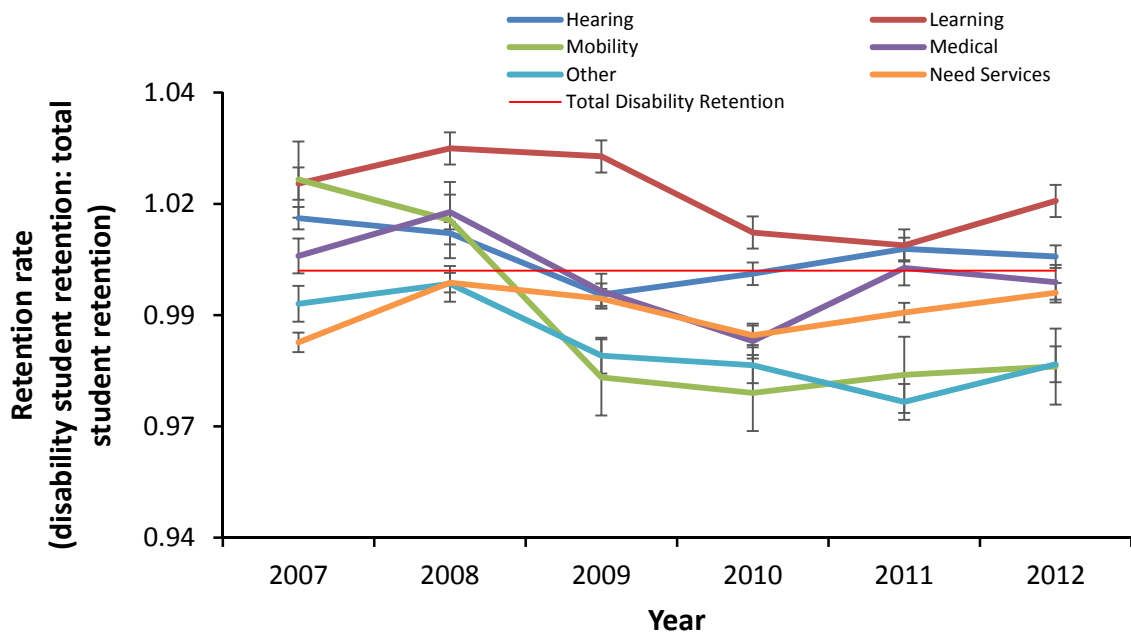


Figure 17 Mean \pm standard deviations of retention of students with each disability type (as rate of total retention of students with disability).

The following section describes results from the desktop audit and semi-structured interviews. The common themes that emerged are described below and supporting details from interviews are provided for each theme. While maintaining the anonymity of interviewees, labels are attached to details and quotes to identify patterns regarding the university grouping and the performance category assigned to the university, as described previously in the methodology section.

Desktop Policy Audit

The desktop policy audit of Table A and B providers was conducted to quickly gain an overview of policy, practice and institutional culture in relation to disability across the institutions. Because this audit only used information accessible on each university's website, information here should not be considered comprehensive and may be incomplete. In terms of policy, it was found that all universities have at least one disability policy, with some universities having multiple policies that pertain to disability. Registered disability action plans were also noted and it was found that of the 41 Table A and B providers examined, five did not have registered Disability Action Plans. Of the registered Disability Action Plans, three were expired. When looking at Learning Access Plans (LAPs) and similar documents, 13 universities either did not have a formal process to develop LAPs or it was not possible to determine this from their website. Of those universities that had a formal process to develop LAPs only three did not require medical documentation as part of that process.

Another area examined by the desktop policy audit was whether or not the university offered specialist services. Only four universities provided this information on their websites. Of these four, one university described services it offered for two different types of disability (mobility and autism). The other three universities described a service that was available for one type of disability (hearing, mobility, medical).

Institutional culture was the final area covered in the desktop audit. The first factor examined was the presence of an enabling program at the university which have been found to improve retention and success of some equity groups (Andrewartha and Harvey, 2014). Nineteen

universities had information easily accessible on their websites that indicated the presence of an enabling program. Another factor looked at in this category was the location of the disability team within the university structure. This was difficult to determine from the website, however many teams appeared to be located in Student Support or Student Services, indicating a move away from the medical model towards a model of inclusion.

Governance Structures that Promote Inclusion of Students with Disability

The desktop audit showed that most of the Table A and B higher education providers located their service unit for students with disability within a broader student equity/support/wellbeing structure. All of the institutions participating in the interviews were structured in this way and indicated that responsibility for students with disability lay within a senior academic or student support portfolio. In the past this had not necessarily been the case for some institutions. Two interviewees described how the same department had responsibility for both staff and students with disability (ATN Medium, IRU Inconsistent). Another explained that prior to 2013 disability sat with counselling (RUN Low). This interviewee explained how the restructuring of disability services provided a break from a medical model and a move towards inclusion:

We can now do a whole raft of stuff that we could not previously do. A disability advisor is very different to a counsellor. You don't go to a counsellor to get reasonable adjustments. A disability advisor does this. New roles were created. This demonstrates the support the university has for disability. (RUN Low)

Another interviewee described a more collaborative approach by student services which were quite "siloes in the past and now they have put all of the student services under two umbrellas so there is more collaboration now. It was a good move" (Go8 Medium).

Inclusive Institutional Framework and Culture

In keeping with the shift away from the medical model of disability, most interviewees indicated their institutions had embraced a more inclusive framework in terms of recruitment, curriculum, support, monitoring and retention of all students. They identified a broader equity or inclusion focus, which included students with disability but did not highlight them as a specific priority group over other student groups (2 x Unaffiliated High, IRU Inconsistent, RUN High, IRU Inconsistent, ATN Medium). One noted: "if it's accessible for students with disability then it's of

benefit for all students” (Unaffiliated High). Another commented: “the goal is to make the environment inclusive rather than making special arrangements for people” (IRU Inconsistent).

When asked about broader university recruitment of students with disability, some interviewees said that students with disability were not specifically targeted in promotional and recruitment materials which were inclusive of all students (2 x Unaffiliated High, RUN Low), however this may also reveal some disconnect between recruitment units and disability service units.

A theme running through most interviews was that disability support was a shared responsibility throughout the institution, and not just the responsibility of the disability support team (Unaffiliated High, ATN Medium, IRU Inconsistent).

One interviewee explained that while support from senior management was vital, cultural change and changes to practice were dependent on increasing knowledge and understanding: “What does inclusion mean and what does it look like? We do a lot of talking about this. Having someone in learning and teaching that can help with this.” (RUN Low).

Others identified the importance of institutional culture in facilitating an inclusive climate. A positive institutional culture communicates to staff, students and other stakeholders the value that the institution places on inclusion and should withstand organisational restructures. The following interviewee notes, despite the changes:

...there has always been a good culture of supporting students in general and there wouldn't be a week goes by when I wasn't surprised at what somebody's done to help accommodate a student in a course. (IRU Inconsistent)

A number of interviewees indicated their institutions were working towards an inclusive culture (RUN Low, Unaffiliated High) but that more work was needed across a range of key areas such as staff training (discussed in a later section) and widespread development of inclusive teaching materials (RUN Low, IRU Inconsistent). As one interviewee noted, cultural change takes time and “We are just waiting for the trickle down effect to happen” (RUN Low).

Disability-Related Policies

Disability Action Plans (DAPs)

Disability action plans were not seen as significant, with most interviewees either not aware of the existence of their university's disability action plan (DAP) or indicated that their DAP had expired and it had not been updated since the original document had been developed. One university (ATN Med) said they had a current plan in place, but despite having undergone three revisions, "in my view it hasn't actually played a very significant role in the way the university has developed its processes around this...it has been more of a lip service" (ATN Med). "The DAP [is] not specific in areas that might drive change [e.g. online accessibility] so these areas are driven by other strategies (e.g. digital strategy)" (ATN Medium).

Most institutions noted ongoing support at senior management levels, including provision of resources to enhance the student experience. This support continued despite institutional restructures and lapses in the disability action plans of many:

I think we have adequate resources now but I've seen other universities slash their resources and I don't want to go that way, not that I think we will because our senior management are very supportive of our service. (IRU Inconsistent)

...support is there and management has not cut back in these areas which they could have done. In all the restructures we have been through this has essentially remained intact. (Unaffiliated High)

While we don't have a current disability action plan this doesn't mean we are not proactive...we conducted accessibility audits and implemented \$1-million worth of adjustments to one campus. (IRU Inconsistent)

One of the few participating institutions that had a current disability action plan noted that their recently revised plan specifically focused on responsiveness to change, with an emphasis on capacity building and resourcing, and that this was a significant departure from earlier iterations that focused on identifying actions and responsibilities (IRU Inconsistent).

Learning Access Plans (and Similar Documents)

Of the universities interviewed, only one did not produce formal written documentation of arrangements for support. At this university, arrangement for support provision was negotiated between relevant stakeholders and the student on a case-by-case basis, but no written learning

action plan (LAP) was produced. All other universities interviewed did produce a formal written document describing the supports/accommodations that would be provided by the university, but there was variation in who was involved in the development of the document and who was responsible for its distribution. This is summarised in the following table.

Table 1 Method of LAP development and distribution by institution ranking.

Institution Ranking	Who was involved in development?	Who distributes the document?
UA High	Student, Disability Advisor registrar approval	Student, Disability staff on request
UA High	Student, Disability Advisor, Associate Dean Learning and Teaching sign off	Student, Disability staff on request
RUN High	Student and Disability Adviser, no sign off	Student
Go8 Med	Student and Disability Adviser	Disability Adviser, electronically to academic departments
ATN Med	Student, Disability Adviser, course coordinator	Student, copy provided to course coordinator by disability services
IRU Inconsistent	Student and Disability Adviser	Student
IRU Inconsistent	No formal LAP — accommodations negotiated with relevant stakeholders	N/A
ATN Low	Student and Disability Adviser	Student
RUN Low	Student, Disability Adviser, Associate Dean of Teaching and Learning approval	Disability Services via secure electronic server with student approval (new process)

Policy Development Processes

Most interviewees indicated that the *Disability Discrimination Act* (DDA) largely drives the policies in place at their universities. “The underlying principle is the DDA which is the driving factor under which students and staff are covered” (Unaffiliated High). However, the methods used to develop the policies varied across universities.

Universities that were ranked as “high” described policy development processes that included a small number of people from either the same section or another administrative section. They described limited consultation with disability staff, students and others (2 x Unaffiliated High). Others said they had no formal mechanisms, such as focus groups or committees, for student consultation, although disability advisers periodically consulted with students around issues and fed this into discussion (Unaffiliated High, ATN Medium).

Universities that were ranked as “low” described policy development processes that were highly participatory, involving committees with a wide variety of representatives. Universities that were ranked medium or inconsistent described inconsistent policy development processes.

As noted in the literature review, Robinson, Fisher and Strike (2014) explain that for cognitive disabilities, there are reasons why policy might be developed this way. For all other disabilities, Thill (2015) shows that a participatory approach is desirable, but not practised as well as it should be within Australia.

Monitoring of Retention and Success

Regardless of university performance, the monitoring of retention and success of students with disability was either not being done or not being done well (RUN Low, ATN Low, ATN Medium, IRU Inconsistent, Unaffiliated High). In general, whole-of-university reporting on disability statistics as required by the government was being completed. Monitoring was an area where most interviewees expressed a desire for improvement, as demonstrated by the following examples:

“No good data on this” (ATN Low).

“Don’t know if any monitoring is being done at faculty, course or unit level.” (RUN High)

“These [Higher Education Student Data Collection] statistics [are] not seen as a comprehensive picture and are not necessarily an accurate representation of some universities’ performance ...” (IRU Inconsistent)

“Some schools know their students very well and they’ll know who needs what and who has a LAP and who doesn’t...if there’s a LAP, that tends to be a flag for most staff to say ‘this person has a LAP therefore we just need to check they are tracking OK.” (Unaffiliated High)

“There is no specific tracking of students with disability. There is tracking of students at risk, but those students do not necessarily have a disability.” (RUN Low).

This same university was

“just starting to commence to create a disability dashboard where we can track students with disability from year to year and their academic progress. Through the registration progress we can keep tabs on them, but apart from the Commonwealth reporting we don’t have any way to track. The dashboard should be finished within the month and we will be able to specifically check on the academic progress of our students”.

Relationships and Connections

Interpersonal Relationships

The importance of relationships was emphasised in several interviews. These relationships were credited with contributing to the success and retention of students with disability. “Small institutions with a smaller number of students with disability allows for personal approach where each student is known to staff and is not a number” (Unaffiliated High). “There is a very open relationship with all parts of the university. Most people feel quite comfortable approaching and asking questions” (Go8 Medium).

The interactions **between disability advisors and students** with disability were often highlighted as an area of success (Unaffiliated High, ATN Medium, Go8 Medium, IRU Inconsistent, ATN Low). The “need for personal interaction for students with disability” (Unaffiliated High) was often described, with one interviewee talking about a “general university philosophy where we’re more like a family, we know who the students are, they’re not just a number” (Unaffiliated High). Another credited the size of their university as an asset in accomplishing a high level of pastoral care: “Being a smaller university, the personal service for our students is excellent. We can develop close relationships with our students” (RUN High). Another interviewee described how they did “campus visits so students with disability can have face-to-face meetings. We deal directly with the staff on those campuses to make sure adjustments are appropriate” (RUN Low).

Another type of connection mentioned was **between disability advisors and staff**, both academic and professional. Positive relationships between disability advisors and academic staff were found in universities in the High and Medium categories. In these universities academic staff felt comfortable contacting the disability service if, for example, they did not know what to do with a LAP (Unaffiliated High). In the universities classified as Inconsistent, positive relationships with academic staff were due to the proactive approach of disability staff. Most

interviewees indicated that staff from the disability services unit were available to provide one-on-one support and advice to academic staff, usually in relation to the provision of adjustments outlined in students' learning access plans (Unaffiliated High, ATN Medium, Go8 Medium, ATN Low). One-on-one sessions operated in parallel to formal training sessions, although one institution indicated one-on-one sessions were most commonly used as there was very little formal training available (RUN Low).

One university in the Low category mentioned that the relationship between academic staff and disability advisors was difficult due to constant turnover of academic staff. The same university reported good relationships with professional staff, particularly "the library and parking offices where we have a person we can contact and we can rely on the structure in that service to filter down" (ATN Low).

Another type of interpersonal relationship that was highlighted by a couple of universities was the **peer-to-peer relationship**. Those who mentioned this generally felt that positive peer-to-peer relationships were important. "Deaf students have a strong sense of community which is important whereas others (e.g. those who are blind or have mental illness) may not have a sense of community; this empowers them in providing feedback on services which increases their satisfaction with services" (IRU Inconsistent). "Tech room good for community building too — students can easily meet other students with disability. It is nice" (Go8 Medium). "Need to do more in the area of peer-to-peer support" (ATN Medium).

Face-to-Face vs e-Communications

Most of the universities in the high and medium categories had incorporated face-to-face communication in addition to relying on e-communications. This included the physical presence of the disability team at events such as open days, enrolment days and orientation (Unaffiliated High, RUN High, ATN Medium, Go8 Medium, IRU Inconsistent). Those who relied solely on e-communications and brochures were in the low category (ATN Low).

Partnerships

Partnerships between universities and external mental health organisations were also seen as beneficial. For example, two universities described how hosting the National Disability Coordination Officer (NDCO) helped to create a disability focus because part of their role is to raise the awareness of disability and assist in the transition to tertiary education (Unaffiliated High, ATN Medium). There is a suggestion that universities which host NDCOs may have a better

understanding of their activities and their impact on higher education transition rates for students with disability, and may be able to better capitalise on this relationship. Further research into the impact of relationships between NDCOs and universities on recruitment of students with disability could assist in furthering our understanding.

Similarly, one university described how “We are attracting a lot of students with autism lately because we have an autism program that is funded by [peak autism body], so through the awareness of that program and links with [peak autism body], we are attracting students” (ATN Low).

A specific strategy used by some institutions to recruit students with disability was school outreach and transition programs (IRU Inconsistent, Go8 Medium, RUN High). One interviewee described the benefits of their school outreach which “provides for engagement with local school students prior to university entry to get an idea of their needs plus provision of professional learning to staff from local schools about the context of higher education” (IRU Inconsistent). According to the literature on aspiration shaping (Austin & Heath, 2010), such mechanisms are effective in unsettling deficit views and negotiating local supports and interventions, which are logically important stages in the recruitment process for students with disability.

Recruitment mechanisms that involve external linkages with schools, disability networks or others offer opportunities to get information out early:

We are engaged with local disability networks and attend meetings regularly. We try to get the word out that support for students with disability is offered early/sooner in the process [rather] than later. (RUN High)

Multi-Campus Effects on Provision of Supports

Most interviewees were from multi-campus institutions with one or several regional campuses (2 x Unaffiliated High, ATN Low, RUN Low, RUN High, IRU Inconsistent).

A multi-campus structure provided challenges in terms of supporting students with disability. There were several different models to ensure timely provision of services. For some institutions, staff were located in only one or several campuses rather than all campuses, and provided support to students in all locations (ATN Low, Unaffiliated High, RUN Low, IRU Inconsistent), sometimes electronically (Unaffiliated High, IRU Inconsistent) or by travelling to other campuses (RUN Low) or a mix of the two. For others, there were staff located in all

campuses (ATN Medium, IRU Inconsistent). Where staff were located in all regional locations, one interviewee described how disability advisors had an expanded brief which covered other equity group students as well (IRU Inconsistent).

As identified by two interviewees, the key to multi-campus service provision was close working relationships between disability services staff and other (academic) staff to ensure adjustments are appropriate (RUN Low, Unaffiliated High). As one commented:

I think our disability staff does a great job in really working with the students and academic staff. There's a real ongoing relationship. We've had such good feedback from students and schools about the work that the disability advisors do and the level of detail in the access plans and that academics can easily call advisors and discuss things. We don't have the high numbers of students disclosing that other unis do, but on a service level we do that very well. (RUN Low)

Another university noted that

We are committed to our students. From a social justice perspective, we do that very well. Being a smaller university, the personal service for our students is excellent. We can develop close relationships with our students. The staff we have are every passionate and committed to ensuring that our students are supported to the best our capacity will allow. (RUN High)

Provision of Supports for Students with Disability

Several institutions articulated their strong commitment to the student lifecycle model, explaining that consideration needed to be given to all stages of the student journey, including transition into and out of university (IRU Inconsistent, IRU Inconsistent, ATN Medium).

Recruitment and transition of students with disability was considered in an earlier section on partnerships. Two interviewees specifically mentioned the need to support the transition of students with disability out of university, and described recruitment of equity group students for jobs on campus and for graduate internships (IRU Inconsistent) and the need for their institution to do more work on employment/graduate outcomes of students with disability (ATN Medium).

Resourcing Issues

Most institutions noted ongoing support at senior management levels, including provision of resources to enhance the student experience. However, interviewees indicated differences in

the way resources were allocated within universities, which may have impacted on the student experience. An interviewee from one institution talked about the funding boundaries, suggesting that this resulted in less flexibility to provide holistic support to students with disability (Unaffiliated High). This person noted that funding was allocated primarily for the provision of academic support so students can succeed in their study. This is difficult when students have a range of other needs that indirectly impact on their study (e.g. personal care, support person to help them get to class on time) but which the university cannot fund, noting that “often these are the issues that ultimately have the most impact on their capacity to study” (Unaffiliated High). Several others mentioned that insufficient resourcing limited the extent to which they could provide face-to-face programs, including customised programs for students with disability such as autism (ATN Low, RUN High).

For other institutions, there was no indication that the student experience was negatively impacted by resourcing issues. One said they had a different funding model, in that they could determine whatever equipment and services were required and could put them in place immediately. As a result, they reported no waiting lists and no services in short supply. They said that their institution “trusts the service” and has never questioned the types of supports they provide (Go8 Medium). Yet another noted that as more government funding became available “that made it a bit more straightforward to get resources to purchase equipment” (ATN Medium).

Impact of Student Characteristics

At least one interviewee made the point that poor performance and student attrition were sometimes due to students’ personal circumstances, and not because of their disability or because of insufficient support to meet their particular requirements (IRU Inconsistent). Others noted that students who were not proactive did not have a positive experience, and that this could impact on satisfaction and subsequent retention. Delayed or irregular engagement with services was cited as a factor, especially where students did not give sufficient notice of their requirements (ATN Low, Unaffiliated High). One interviewee suggested that some of those students with disability who had “sporadic [as opposed to regular] contact [with the disability service unit] may have felt dissatisfied with the service” (IRU Inconsistent). Another concluded: “The challenge is to make students advocates of themselves and to think ahead of what they need to be successful” (IRU Inconsistent).

In general, lack of student proactivity, rather than lack of resources, was cited as a reason for waiting lists for services, although two interviewees did note the need for more staff (ATN Low, RUN High). However, most interviewees identified no or short waiting lists to see an advisor or to receive services, suggesting this was not an issue affecting student retention or success (Unaffiliated High, ATN Medium, IRU Inconsistent, Unaffiliated High, Go8 Medium, IRU Inconsistent).

Supporting Students with Specific Types of Disability

In general most institutions indicated that mobility issues have been addressed fairly well in terms of accessibility of buildings and facilities. Several institutions reported replacement of some disability-specific services with more universal and flexible solutions, such as replacing dedicated technology rooms with relevant software on all computers (ATN Low, RUN Low).

Two specific areas of disability were identified in the interviews as requiring more attention: mental health and autism. Both are areas in which universities reported considerable student growth.

A small number of institutions interviewed indicated they were satisfied with the range of supports and specialist services they were providing for students with mental health disability (Go8 Medium) or autism (Go8 Medium, ATN Low). Knowledge about mental health services in one institution was influenced by a general campus culture in which “there is lots of talk on campus about supporting people with mental health disabilities; [the]student association is doing wonderful work...the president of the student association is very active in providing support and visibility across the campus” (G08 Medium). It may be that this general culture of acceptance encouraged students to disclose, with the institution noting “our numbers are high for mental health”.

However, some other institutions expressed frustration in their ability to enhance the retention and success of students with these disabilities (ATN Medium, Unaffiliated High), citing non-disclosure of students and inadequate data collection systems as reasons for this frustration.

There is a body of students who may require or benefit from adjustments but who do not receive them because they are not known to the disability service. Interviewees speculated there could be quite large numbers who did not disclose for various reasons (Go8 Medium, ATN Low, Unaffiliated High, ATN Medium). As one interviewee noted: “the effectiveness of any processes rests on the student disclosing” (Unaffiliated High). There was speculation amongst

some interviewees that there were relatively large proportions of students with mental health conditions in particular who were not receiving support because they had not disclosed. Several reasons for non-disclosure were given and are discussed below.

were partly linked to inadequate admission forms which did not allow for detailed data collection relating to disability type, and partly linked to concerns around terminology and stigma of disclosure. In most cases admission forms utilised categories of disability derived from Commonwealth data collection processes, which contained no categories for mental health or autism, leaving students to either not disclose, or to use the category Other or Medical which could also include a range of other disabilities.

...anecdotally mental health is one of the big issues affecting student retention and we don't necessarily pick up those students in the official statistics. (ATN Medium)

Lack of specific data also posed a problem for monitoring retention and success, with several interviewees noting the inadequacy of Commonwealth data collection and reporting processes in relation to students with different disability types, so that "it is not seen as a comprehensive picture" (IRU Inconsistent). Herbert et al. (2014) also found that one limitation when comparing outcomes of tertiary students with disability across studies is that there is no consistent terminology used.

Non-disclosure was also related to stigma and to lack of sensitivity or what one interview termed "exclusionary language" around disability:

...and I hazard a guess that many people living with a mental health condition would never consider themselves as having a disability so...do not contact the service...we have a fundamental issue about terminology and how you communicate that... (Unaffiliated High)

This suggests that more research is needed into appropriate methods of disclosure and data collection, including Commonwealth data collection and reporting, so that statistics more accurately reflect retention and success for those students. The above also suggests that creation of a more inclusive university environment and more inclusive practices will help to reduce the stigma of disclosure.

Support and Training for Academic and Professional Staff

Interviewees reported varying levels of support and training for academic and professional staff in how to best work with and support students with disability. Most institutions reported a mix of face-to-face training or information sessions coupled with provision of, or referral to, additional resources available electronically. Most institutions offered regular or semi-regular in-house training that was largely internally driven, including general disability awareness sessions, and specific sessions on institutional services and the provision of adjustments to students. Some institutions also talked about the inclusion of a section on disability and equity in their staff induction program services (Unaffiliated High, IRU Inconsistent, RUN Low). Some institutions offered sessions on demand to academic staff in faculties (ATN Low, Unaffiliated High, ATN Medium, Go8 Medium, RUN Low), although only one interviewee identified specific provision of training to casual academic staff “because this group of staff often misses out on training” (IRU Inconsistent). Only one mentioned the resource base available through ADCET (Unaffiliated High) so it is not clear to what extent this material is supporting professional learning at an individual or institutional level.

National Training Programs

In general, those institutions categorised as High or Medium said they had accessed or were in the process of accessing national training materials in relation to disability (the Heads Up program) to increase awareness and understanding of the *Disability Standards for Education* amongst staff (Unaffiliated High, ATN Medium, RUN High, RUN Low). The inclusion of a university categorised as Low indicates the proactive steps being taken by that university to implement strategies to increase retention and success of students with disability. These institutions reported a feeling of hope that Heads Up would be an important step forward in staff training, although they acknowledged that they still had work to do in order to incorporate materials into their own online staff training programs (Unaffiliated High, RUN High).

Several of the institutions categorised as High or Medium also reported they offered the national Mental Health First Aid Training program (2 x Unaffiliated High, ATN Medium) and one identified they had engaged the services of a national expert in autism to run a series of workshops for program and academic staff (Go8 Medium).

Training Gaps

Most interviewees identified staff training as an area for further action. Some identified the need to develop a culture of participation in training, suggesting this might include making disability training mandatory for staff (ATN Medium, RUN High, ATN Low, IRU Inconsistent):

...[the] same group of staff participate in organised sessions – if training is not mandated then academic staff are less likely to participate. (ATN Medium)

Others identified the need to allocate resources to provide more training opportunities for staff (RUN High, Unaffiliated High). One in particular identified the need for more in-service training for staff working in the disability unit, as there seemed to be little available once they had gained their original qualifications (Unaffiliated High). Another noted that the experience and perspectives of staff within their disability unit influenced whether they approached their role from a medical or more inclusive model (IRU Inconsistent), which suggests that more in-service training would benefit these staff.

Discussion, Conclusions and Recommendations

Discussion and Conclusions

The study's quantitative findings are based on data from the years 2007 to 2013, while the qualitative findings from the desktop audit and interviews provide evidence related to 2015. The qualitative findings revealed considerable recent change in the sections of universities responsible for services to students with disability and their related policies. This means that past performance as reflected in the quantitative data cannot necessarily be explained by current practice. The lower performing institutions in the interview sample were making significant improvements to their services. Nonetheless, the sections below provide a useful discussion that can inform future policy and practice.

How do Universities Compare in Retention and Success of Students with Various Disability Types?

The findings confirmed that across the years 2007 to 2013, students with disability are retained at consistently lower rates and have lower success rates than the total student population, suggesting that higher education institutions need to do more to redress this situation.

An examination of disability types showed there were no real changes in the distribution of disability types across the study years. This is surprising given that disability practitioners reported a progressive increase in the numbers of students disclosing disabilities relating to mental health and autism. The qualitative data strongly suggests that this is most likely explained by the lack of clarity regarding the parameters of the medical and other disability categories identified in the Higher Education Student Data Collection. A specific category does not exist for students with a mental health disability and if they choose to disclose they are assumed to select either other or medical. Furthermore, interviews with disability practitioners suggested that a number of students with a mental health disability may not disclose at all. It is difficult to know how many students do not disclose, but evidence from disability practitioners interviewed suggests that it may be as high as 50% of students with a disability (ATN Low) and it could be assumed that many of these are likely to have a mental health disability. The lack of

data in relation to these specific disability types clearly has implications for resourcing, service provision and monitoring of student retention and success.

The study provided some evidence that disability type does affect retention and success. Students in the Learning disability category were consistently retained at a higher rate than total disability students, while students in the other disability category and students who nominated that they required services were consistently retained at a lower rate than total disability students. The higher retention rates of students with a learning disability could be linked to Reinschmiedt et al.'s (2103) findings regarding student satisfaction with adjustments and accommodations such as assistive reading technology and testing with accommodation, although Reinschmiedt et al. also found that students with mobility and visual disabilities were more likely to be satisfied with adjustments and accommodations provided than students with a specific learning disability.

In terms of success, students in the learning, medical and other disability categories, as well as those who indicated they required services, consistently performed less well than total disability students. It was not possible to determine from the data the proportion of students from each disability category who indicated they required services. The findings suggest a possible mismatch between services required and services received, and a subsequent negative impact on retention and success. As discussed above, the composition of the other category is uncertain although it is speculated that a number of these students may have a mental health disability. This would seem to support findings from Sachs and Schreuer (2011) who found that students with psychiatric disability tend to be less satisfied than students with a physical disability. As might be expected, some universities feel less well equipped to provide sufficient support services to meet the needs of the reported increasing numbers of students with a mental health disability. Nearly all those interviewed identified this as an area for further development within their institution.

The desktop audit only revealed a small number of institutions offering specialist services for particular disability types (hearing and autism). It is acknowledged that the audit only focused on each institution's disability services web pages and not the full website, although it is reasonable to assume that universities offering specialist services and programs targeting particular disability types might promote those on their disability services web pages. When compared with all universities, those universities with specialist services did not appear to have better retention and success rates for students with disability, although it may be that those students

receiving specialist services were more satisfied with their experience, as reported elsewhere in the literature (Long, Ferrier & Heagney, 2006).

The study suggested a possible link between university size and grouping, in terms of the proportion of commencing and enrolled students with disability, in that larger universities (over 30,000 students) and those in the Go8 and ATN university groupings have lower proportions of commencing students with disability compared with other universities. However, the differences between universities in terms of retention and success of students with disability in general and by disability type were far smaller than expected. If anything, the study revealed broad similarities across institutions rather than significant differences, and this finding from the quantitative analysis was supported by the qualitative findings. The findings suggest that more detailed qualitative research may be needed into institutional performance according to disability types and the reasons for it, something which was beyond the scope of this six-month study.

How does Student Retention and Success Compare in terms of Policy and Practice Approaches to the Provision of Adjustments and Supports for Students with Various Disability Types?

The qualitative findings provided a snapshot of the policy and practice approaches of a small number of universities. The sections responsible for services to students with disability in many of the participating universities were in a state of flux due to institutional restructures and subsequent leadership and staffing changes. However, despite these changes, the institutions in the study indicated broad similarities in terms of current or proposed policy and practice approaches, regardless of whether they were classified as high, medium, inconsistent or low in terms of retention and success of students with disability. Differences across institutions were largely in relation to the maturity or stage of development of their inclusive policies and practices.

Consistent with the literature, the participating universities articulated how socially inclusive policies and practices (Cairnduff, 2011; Vickerman & Blundell, 2010) and supportive leadership underpinned the provision of adjustments and supports for students with disability. While collaborative approaches involving internal and external stakeholders were acknowledged as important to improved retention and success of students with disability, some institutions reported more extensive partnerships than others. Some were still working on developing strong relationships across the university involving students, disability support staff, and academic and

professional staff; others had moved beyond internal collaborations to seek external collaborations with peak disability bodies and networks (e.g. ATN Low) that had the potential to further support recruitment, transition, retention and success of students with disability. All displayed progress towards the sort of integrated and holistic services and supports recommended by Wilson, Getzel and Brown (2000) that include admissions, academic and disability counselling and support, assessment and evaluation, advocacy, information and referral.

It was evident from the qualitative data that the existence of policy and approaches to policy development varied across institutions, although few institutions involved students with disability in these processes. This confirms the literature which shows that a participatory approach to policy development for students with disability is not practised as well as it should be in institutions (Thill, 2015). Unexpectedly, the qualitative data show that institutions ranked in the low category (in terms of retention and success of students with disability) were more likely to have participatory approaches to policy development when compared with those in the medium or high categories. It is not clear why this is, although one possible explanation is that the low universities are actively involved at present in implementing a raft of changes to policy and practice designed to improve retention and success, and participatory policy development may be one of these strategies.

It was surprising that a number of institutions interviewed did not have a current disability action plan (DAP) and at least one of the interviewees from a high university was not aware of the existence of the institution's DAP. This suggests that disability action plans may not be a key driver of retention and success of students with disability as might have been anticipated, or as may have been the case in the past. The findings suggested that in order for disability action plans to drive change, they needed to be flexible and responsive to changing circumstances, and to focus less on documenting actions and responsibilities and more on capacity building and resourcing (IRU Inconsistent).

The widespread implementation of learning access plans (LAPs) across participating institutions suggests an increasing importance being placed on formalised procedures for identifying and meeting student needs. There were some differences across universities in how the plans were disseminated and an acknowledgement by most disability practitioners that some students were reluctant to advise lecturers of their learning access plan themselves. Interestingly, one of the most innovative responses to this issue came from a university in the Low category which was trialling a new process to disseminate LAPs to all relevant staff via secure electronic server, with

the approval of students. The same institution was also developing new procedures for monitoring students with disability via a disability dashboard, suggesting a strong and proactive commitment to implementing a range of strategies to increase the retention and success of students with disability within the institution.

The fact that very few disability practitioners specifically mentioned adjustments to facilitate access for students with a mobility disability, unless specifically prompted, may suggest that issues of mobility and physical accessibility are now integral to university planning. By contrast, a number of disability practitioners highlighted the issue of mental health disability and identified the provision of more services and better support for students with a mental health disability as an area requiring further university investment. Interestingly, there was particular recognition among the high and medium universities of the importance of participation in national training in relation to mental health, suggesting more may be needed in terms of promoting the uptake of nationally consistent training amongst other universities. Non-disclosure by students with a mental health disability was a commonly held concern amongst most participating universities, consistent with the literature (Kranke et al., 2013), suggesting the need for government education departments and higher education institutions to work with disability professionals to review current systems and devise more supportive and innovative approaches to encourage disclosure. In terms of training in general, it may be that staff would benefit from more widespread use of existing resources, including those provided by ADCET, which were only mentioned by one disability practitioner in the study.

Most universities identified similar areas for further improvement. In addition to better supporting students with mental health disabilities (as discussed above), these included better institutional monitoring and reporting leading to improved processes and practices in relation to students with disability, and more training for academic and non-academic staff to assist them to better support students with disability.

What Approaches should Universities take in the Provision of Adjustments and Supports for Students with Various Disability Types?

Findings from the study demonstrate a strong focus on an inclusive model of disability support which includes all equity groups and, beyond that, all students. This is a significant shift from a medical model of disability support that once prevailed. The study suggests that approaches likely to increase retention and success of students with disability will be characterised by flexibility to respond to changing needs and to fit the institutional context, and will recognise the

expertise of specialist practitioners as well as value partnerships and collaborations within and external to universities. It is suggested that that improvements in retention and success of students with disability will require national consistency and agreement on a set of guiding principles of good practice.

Recommendations

1. The study has identified the need for national consistency to categorising students with disability is required. In particular, given the prevalence of mental health issues and the potential impact of these on student retention and success, there is a need to encourage students with mental health disability to identify in a single category.
2. Changes to policy and practice have the potential to increase enrolment, retention and success rates of students with disability toward the rates for all students. A set of guiding principles has been developed to guide future discussion and consultation across the disability sector, with a view to supporting a good practice approach. Higher education institutions should consider these guiding principles when developing and implementing strategies and plans designed to support the retention and success of students with disability.

Guiding Principles for Universities of Good Practice to Support Retention and Success of Students with Disability

- a. Operate under a whole-of-university inclusive framework that includes the concept of universal design.
 - [Rationale: Institutions that are effective in meeting the needs of students with disability have moved beyond a medical model of service provision to a model of inclusion for all.]
- b. Ensure the policy framework supporting students with disability is current, flexible and relevant to the institutional context.
 - [Rationale: Some institutions have disability action plans that are not current. Institutions should review and update their disability action plans or replace them with current policies that fit their institutional context.]

- c. Ensure that financial resources, as well as human resources, are identified and flexible enough to fit student requirements, including the specific requirements associated with different disability types.
- [Rationale: The effectiveness and sustainability of supports is linked to commitment at a senior level that ensures funding and human resources are quarantined.]
- d. Ensure disability support services are integrated with student support services.
- [Rationale: Under an inclusive model, services that support positive student experiences are integrated.]
- e. Have specialist disability support staff who have the knowledge and experience to identify appropriate adjustments.
- [Rationale: Generalist support staff may not have the knowledge or experience to identify and ensure provision of adjustments that best meet the differing requirements of students with disability.]
- f. Provide regular training for disability practitioners and other staff with responsibility for supporting and advising students with disability.
- [Rationale: Participation in regular in-service training for staff who work directly with students with disability will maintain the currency of staff knowledge and skills and will encourage innovative approaches to the development of programs and provision of adjustments. Staff would also benefit from more widespread use of existing resources, including those provided by ADCET.]
- g. Develop a staff training and awareness communication strategy in relation to students with disability, and ensure sessional staff are included. Training should include general disability information and legal obligations under the *Disability Standards for Education (DSE)* and, for relevant staff, information about learning access plans, inclusiveness and universal design. Multiple opportunities for professional learning should be offered, including induction, professional development programs and other sessions such as staff meetings.
- [Rationale: There need to be clear points of contact for academics, faculty officers and other professional/administrative staff who require more information about students with disability. Professional learning should be underpinned by an

understanding of compliance obligations under the DSE, such as that provided through the Higher Educators Advancing the Disability Standards - Universities online Project (HEADS-UP).]

- h. Set up mechanisms to facilitate interpersonal relationships in three domains: between disability support staff and students; between disability support staff and both academic and professional staff, and amongst students themselves.
 - [Rationale: Students with disability are more likely to choose smaller institutions where interpersonal relationships may be easier to establish and maintain. Regardless of size, institutions can set up mechanisms to develop supportive relationships that encourage a greater sense of belonging. Establishment of such mechanisms needs to be an intentional strategy.]
- i. Develop an appropriate and sensitive mechanism to identify those students with mental health disability to allow those students with a mental health condition who wish to disclose, or who have not considered disclosing before, to do so.
 - [Rationale: There is a growing number of students with mental health disability. Provision of adjustments for these students is dependent on their disclosure. Two issues provide challenges: students who choose not to disclose, and data collection based around Higher Education Student Data Collection statistics that do not make provision for disclosure of mental health as a disability type or condition. At present such students may be included in either medical or other disability categories. The Higher Education Student Data Collection needs to adopt a common definition of mental health that is sensitive to student hesitancy to disclose, and that can be publicised to students.]
- j. Develop an appropriate and sensitive mechanism to identify those students with autism spectrum disorder to allow those students with autism spectrum disorder who wish to disclose, or who have not considered disclosing before, to do so.
 - [Rationale: There is a growing number of students with autism spectrum disorder. Provision of adjustments for these students is dependent on their disclosure. Data collection based around Higher Education Student Data Collection statistics does not make provision for autism spectrum disorder as a disability type. At present such students may be included in either medical or Other disability categories. The Higher

Education Student Data Collection needs to adopt a common definition of autism spectrum disorder that can be publicised to students.]

- k. Regularly monitor student outcomes by collecting data on retention and success at course and faculty level, including at the level of disability type, and act on results of the data.
- [Rationale: Institutions need to supplement Higher Education Student Data Collection statistics with additional institutional data which are collected, analysed and reported on an annual basis, and which provide evidence and stimulus for action at an institutional level.]
- l. Offer inclusive student wellbeing programs that promote and improve self-management and resilience.
- [Rationale: Students must self-disclose a disability in order for the institution to provide appropriate adjustments. Non-disclosure may hide many students with disability. Inclusive student wellbeing programs are an opportunity to reach all students; students do not have to disclose to participate. Programs would be holistic, and would cover a wide range of areas including stress management, time management, self-management, health and mental health, resilience, sleep, access and disability. Innovative programs could include trained student wellbeing ambassadors.]
- m. Develop formalised (written) learning access plans collaboratively with students that are owned by students. With the agreement of students, put mechanisms in place to ensure appropriate dissemination of plans to relevant staff.
- [Rationale: While some students feel comfortable distributing learning access plans to staff, others do not distribute them. This means that staff are not always aware of students with plans, or do not receive this information in a timely manner. Depending on the institution, disability support staff could, with the student's permission, distribute learning access plans to academics and other relevant staff either individually, or through a central system that flags the existence of a learning access plan to academic staff.]
- n. Consider students with disability from the perspective of the student lifecycle model, including recruitment and outreach strategies, and career transition strategies.

- [Rationale: The student lifecycle model has been adopted across a number of higher education institutions, including transition into and out of university. Students with disability have poorer graduate outcomes when compared with all students. Inclusive higher education institutions should ensure students with disability have equitable access to career transition strategies, such as on-campus employment and graduate internships, to increase graduate outcomes. Innovative and far-reaching recruitment and outreach strategies will contribute to a smoother transition process for students with disability.]
- o. Partnerships with external organisations that leverage resources are fundamental. Consider developing MOUs and service-level agreements with key disability organisations and stakeholders such as mental health, allied health and autism bodies, and NDCOs.

[Rationale: By providing support, legitimisation and raising awareness, external organisations and key disability stakeholders have a key role to play across a range of areas, including recruitment and transition of students with disability, program promotion and resourcing, and staff professional learning.]

- p. Consider students with disability in the development and use of online learning resources (e.g. captioning, audio capture, audio description), as well as in learning support services.
- [Rationale: Good practice in inclusive education means a focus on online and blended learning and the design of appropriate learning resources that promote social inclusion. Students with disability have lower retention and success rates compared with all students. Inclusive and accessible learning support services will contribute towards increased retention and success rates for these students.]

Recommendations for Further Research

The study has identified several areas in which further research is needed.

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.

It would seem that NDCOs may have a greater role to play in terms of recruitment of students with disability. Further research into the impact of relationships between NDCOs and universities on the recruitment of students with disability is recommended.

Outcomes from this study will form the basis for a large-scale study into the impact of institutional policies and practices on the retention and success of higher education students with disability. However, more research is needed into institutional and other factors that impact on the retention and success of students with 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.

References

Andrewartha, L., & Harvey, A. (2014). Willing and enabled: The academic outcomes of a tertiary enabling program in regional Australia. *Australian Journal of Adult Learning*, 54(1), 50–68.

Austin, K., & Heath, J. (2010). Using DEMO to evaluate and enhance schools outreach programs: An example from the South Coast of New South Wales, 2nd Annual Student Equity in Higher Education Conference (pp. 1–10). Australia: National Centre for Student Equity in Higher Education.

Australian Bureau of Statistics. (2009). *Disability, Australia, 2009* (cat. no. 4446.0). Retrieved from <http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/4446.0main+features42009>

Australian Institute of Health and Welfare. (2014). *Towards a performance measurement framework for equity in higher education*. Cat. no. IHW 129. Canberra: AIHW.

Beal, P. E., & Noel, L. (1980). *What works in student retention: The report of a joint project of the American College Testing Program and the National Center for Higher Education Management Systems*. Iowa City, IA: American College Testing Program.

Broadbent, G., Dorow, L. G., & Fisch, L. A. (2006). College syllabi: Providing support for students with disabilities. *The Educational Forum*, 71(1), 71–80. Retrieved from <http://doi.org/10.1080/00131720608984569>

Cairnduff, A. (2011). *Working with HEPPP*. Paper presented at the 3rd Annual Social inclusion in Education Conference, 7–8 September, Stamford Plaza, Brisbane.

Creswell, J. (2014). *Research design: Qualitative, quantitative and mixed methods approaches* (4th ed). Los Angeles: Sage Publications.

Department of Education and Training. (2014). *Appendix 5: Equity performance data for 2013*. Retrieved from <http://docs.education.gov.au/documents/2013-appendix-5-equity-performance-data>

Department of Education, Science and Training. (2005). *Disability Standards for Education 2005*. Canberra: Attorney-General's Department.

Department of Social Services. (2011). *National Disability Strategy 2010–2020*. An initiative of the Council of Australian Governments. Retrieved from https://www.dss.gov.au/sites/default/files/documents/05_2012/national_disability_strategy_2010_2020.pdf

Disability Discrimination Act 1992 (Cth). Act No. 135 of 1992 as amended. Retrieved from <http://www.comlaw.gov.au/Details/C2015C00147>

Disability Discrimination and Other Human Rights Legislation Amendment Act 2009 (Cth). Act No. 70 of 2009 as amended. Retrieved from <https://www.comlaw.gov.au/Details/C2009A00070>

Eaton, S. B., & Bean, J.P. (1995). An approach/avoidance behavioral model of college student attrition. *Research in Higher Education*, (6), 617.

Flick-Hruska, C., & Blythe, G. (1992). *Disability accommodation handbook*. Retrieved from <http://eric.ed.gov/?id=ED358880>

Fontana, A., & Frey, J. (2003). The interview: from structured questions to negotiated text. In N. K. Denzin & Y. S. Lincoln (eds), *Collecting and interpreting qualitative materials* (pp. 61–106), Thousand Oaks, CA: Sage Publications.

Fossey, E. (2015). *Supporting students with disabilities: Exploring individual and system-level approaches*. Retrieved from http://www.ncver.edu.au/wps/portal/vetdataportal/restricted/researchProgramContent!/ut/p/a1/xZFPTwIxEMW_Ch44Ni3s2q3HFajdopiIRrYXMrZddhC6y7agfnuLMeGEf07OaSZ5M_N-eVTROVUO9riEgI2D9WFW

Genep, A. V. (1960). *The rites of passage*. London: Routledge & Kegan Paul.

Hennessey, M. L., Rumrill, P. D., Fitzgerald, S., & Roessler, R. (2008). Disadvantage-related correlates of career optimism among college and university students with disabilities. *Work*, 30(4), 483.

Herbert, J. T., Welsh, W., Hong, B. S. S., Soo-yong Byun, Atkinson, H. A., & Anne Kurz, C. (2014). Persistence and graduation of college students seeking disability support services. *Journal of Rehabilitation*, 80(1), 22–32.

Koch, L. C., Mamiseishvili, K., & Higgins, K. (2014). Persistence to degree completion: A profile of students with psychiatric disabilities in higher education. *Journal of Vocational Rehabilitation, 40*(1), 73–82. Retrieved from <http://doi.org/10.3233/JVR-130663>

Koshy, P. (2014). *Student equity performance in Australian higher education: 2007 to 2012*. National Centre for Student Equity in Higher Education (NCSEHE), Perth: Curtin University.

Koshy, P., & Seymour, R. (2015). *Student equity performance in Australian higher education: 2007 to 2014*. National Centre for Student Equity in Higher Education (NCSEHE), Perth: Curtin University.

Kranke, D., Jackson, S. E., Taylor, D. A., Anderson-Fye, E., & Floersch, J. (2013). College student disclosure of non-apparent disabilities to receive classroom accommodations. *Journal of Postsecondary Education and Disability, 26*(1), 35–51.

Lombardi, A., Gerdes, H., & Murray, C. (2011). Validating an assessment of individual actions, postsecondary supports, and social supports of college students with disabilities. *Journal of Student Affairs Research and Practice, 48*(1), 107–126.

Long, M., Ferrier, F. & Heagney, M. (2006) *Stay, play or give it away? Students continuing, changing or leaving university study in first year*. Melbourne: ACER.

Mamiseishvili, K., & Koch, L. C. (2011). First-to-second-year persistence of students with disabilities in postsecondary institutions in the United States. *Rehabilitation Counseling Bulletin, 54*(2), 93–105. Retrieved from <http://doi.org/10.1177/0034355210382580>

Mamiseishvili, K., & Koch, L. C. (2012). Students with disabilities at 2-year institutions in the United States: Factors related to success. *Community College Review, 40*(4), 320–339.

McCloskey, L. E. (2015). Mindfulness as an intervention for improving academic success among students with executive functioning disorders. *Procedia - Social And Behavioral Sciences, 174* (International Conference on New Horizons in Education, INTE 2014, 25-27 June 2014, Paris, France), 221–226. doi:10.1016/j.sbspro.2015.01.650

McEathron, M., & Beuhring, T. (2011). Postsecondary education for students with intellectual and developmental disabilities: A critical review of the state of knowledge and a taxonomy to guide future research. *Policy Research Brief, 21*(1). Retrieved from <http://eric.ed.gov/?id=ED517501>

Murray, C., & Wren, C. (2003). Cognitive, academic, and attitudinal predictors of the grade point averages of college students with learning disabilities. *Journal of Learning Disabilities, 36*(5), 407–415.

Pascarella, E. T., & Terenzini, P. T. (1991). *How college affects students: Findings and insights from twenty years of research*. San Francisco: Jossey-Bass Publishers.

Patton, M. Q. (2015). *Qualitative research and evaluation methods: Integrating theory and practice* (4th ed.). Thousand Oaks, CA: Sage.

Pereira, R. B. (2012). The potential of occupational therapy services for students with disabilities within tertiary education settings. *Australian Occupational Therapy Journal, 59*(5), 393–396. Retrieved from <http://doi.org/10.1111/j.1440-1630.2012.01037.x>

Pingry O’Neill, L. N., Markward, M. J., & French, J. P. (2012). Predictors of graduation among college students with disabilities. *Journal of Postsecondary Education and Disability, 25*(1), 21–36.

Plotner, A. J., & Marshall, K. J. (2015). Postsecondary education programs for students with an intellectual disability: Facilitators and barriers to implementation. *Programas de Educació’n Postsecundaria Para Los Estudiantes Con Discapacidad Intelectual: Facilitadores Y Barreras Para La Implementació’n.*, 53(1), 58.

Quick, D., Lehmann, J., & Deniston, T. (2003). Opening doors for students with disabilities on community college campuses: What have we learned? What do we still need to know? *Community College Journal of Research and Practice, 27*(9-10), 815–827. Retrieved from <http://doi.org/10.1080/713838274>

Reinschmiedt, H. J., Sprong, M. E., Dallas, B., Buono, F. D., & Upton, T. D. (2013). Post-secondary students with disabilities receiving accommodations: A survey of satisfaction and subjective well-being. *Journal of Rehabilitation, 79*(3), 3–10.

Robinson, S., Fisher K., & Strike, R. (2014). Participatory and inclusive approaches to disability program evaluation. *Australian Social Work, (67)*4, 495–508.

Ryan, G. W., & Bernard, H. R. (2000). Data management and analysis methods. In N. K. Denzin & Y. S. Lincoln (eds), *Handbook of qualitative research* (2nd ed) (pp. 769–802). Thousand Oaks, CA: Sage Publications.

Sachs, D., & Schreuer, N. (2011). Inclusion of students with disabilities in higher education: Performance and participation in student's experiences. *Disability Studies Quarterly*, 31(2). Retrieved from <http://dsq-sds.org/article/view/1593>

Squelch, J. (2010). Reasonable accommodation of university students with disabilities. Retrieved from <http://search.informit.com.au/documentSummary;dn=498712457339743;res=IELHSS>

Thill, C. (2015). Listening for policy change: How the voices of disabled people shaped Australia's National Disability Insurance Scheme. *Disability & Society*, (30)1, 15–28.

Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed.). Chicago: University of Chicago Press.

UNESCO (2005) *UNESCO Guidelines for inclusion: Ensuring education for all*. Retrieved from <http://unesdoc.unesco.org/images/0014/001402/140224e.pdf>

Vickerman, P., & Blundell, M. (2010). Hearing the voices of disabled students in higher education. *Disability & Society*, 25(1), 21–32. Retrieved from <http://doi.org/10.1080/09687590903363290>

Wallace, B. A., Winsler, A., & NeSmith, P. (1999). Factors associated with success for college students with ADHD: Are standard accommodations helping? Retrieved from <http://eric.ed.gov/?id=ED431350>

Wessel, R. D., Jones, J. A., Markle, L., & Westfall, C. (2009). Retention and graduation of students with disabilities: Facilitating student success. *Journal of Postsecondary Education and Disability*, 21(3), 116–125.

Wilson, K., Getzel, E., & Brown, T. (2000). Enhancing the post-secondary campus climate for students with disabilities. *Journal of Vocational Rehabilitation*, 14(1), 37–50.

Wright, S. A., & Titus, D. S. (2013). Experiences and perceptions of students with disabilities concerning factors influencing participation in recreational sports at a University in the Western Cape Province, South Africa. *African Journal for Physical, Health Education, Recreation & Dance*, 19(4-2), 1146–1157.

Bibliography

- Agarwal, N., Calvo, B. A., & Kumar, V. (2014). Paving the road to success: A students with disabilities organization in a university setting. *College Student Journal, 48*(1), 34–44.
- Albertini, J. A., Kelly, R. R., & Matchett, M. K. (2012). Personal factors that influence deaf college students' academic success. *Journal of Deaf Studies and Deaf Education, 17*(1), 85–101. Retrieved from <http://doi.org/10.1093/deafed/enr016>
- Banks, J. (2014). Barriers and supports to postsecondary transition: Case studies of African American students with disabilities. *Remedial and Special Education, 35*(1), 28–39.
- Barnard-Brak, L., Davis, T., Tate, A., & Sulak, T. (2009). Attitudes as a predictor of college students requesting accommodations. *Journal of Vocational Rehabilitation, 31*(3), 189–198. Retrieved from <http://doi.org/10.3233/JVR-2009-0488>
- Berry, G., Mellard, D., & Kansas Univ., L. C. for R. and L. (2002). *Current status on accommodating students with disabilities in selected community and technical colleges (Fall 1999–Spring 2001)*.
- Betts, K., Welsh, B., Pruitt, C., Hermann, K., Dietrich, G., Trevino, J. G., Watson, T., Brooks, M. L., Cohen, A. H., & Coombs, N. (2013). Understanding disabilities and online student success. *Journal of Asynchronous Learning Networks, 17*(3), 15–48.
- Brinckerhoff, L. (1996). Making the transition to higher education: Opportunities for student empowerment. *Journal of Learning Disabilities, 29*(2), 118–136.
- Chaney, B., Muraskin, L. D., Cahalan, M. W., & Goodwin, D. (1998). Helping the progress of disadvantaged students in higher education: The federal Student Support Services Program. *Educational Evaluation and Policy Analysis, 20*(3), 197–215. Retrieved from <http://doi.org/10.2307/1164492>
- Cocks, E., Thoresen, S. H., & National Centre for Vocational Education Research. (2013). *Barriers and facilitators affecting course completions by apprentices and trainees with disabilities. Research Report* (No. 9-781-9220-5643-6). National Centre for Vocational Education Research (NCVER).

College syllabi: Providing support for students with disabilities. (2006). *Educational Forum*, 71(1), 71.

Couzens, D., Poed, S., Kataoka, M., Brandon, A., Hartley, J., & Keen, D. (2015). Support for students with hidden disabilities in universities: A case study. *International Journal of Disability, Development & Education*, 62(1), 24.

Cowden, P. A. (2010). Preparing college students with moderate learning disabilities with the tools for higher level success. *College Student Journal*, 44(2), 230–233.

Da Silva Cardoso, E., Dutta, A., Chiu, C.-Y., Johnson, E. T., Kundu, M., & Chan, F. D. (2013). Social-cognitive predictors of STEM career interests and goal persistence in college students with disabilities from racial and ethnic minority backgrounds. *Rehabilitation Research, Policy, and Education*, 27(4), 271–284.

DaDeppo, L. M. W. (2009). Integration factors related to the academic success and intent to persist of college students with learning disabilities. *Learning Disabilities Research & Practice*, 24(3), 122–131. Retrieved from <http://doi.org/10.1111/j.1540-5826.2009.00286.x>

Dickson, E. (2007). Disability standards for education and reasonable adjustment in the tertiary education sector. *Australia & New Zealand Journal of Law & Education*, (2), 25.

Dillon, M. R. (2007). Creating supports for college students with Asperger Syndrome through collaboration. *College Student Journal*, 41(2), 499–504.

Duranczyk, I. M., Higbee, J. L., & Lundell, D. B. (2004). *Best practices for access and retention in higher education*. Center for Research on Developmental Education and Urban Literacy (CRDEUL). Retrieved from <http://eric.ed.gov/?id=ED491508>

Fichten, C. S., Asuncion, J. V., Wolforth, J., Barile, M., Budd, J., Martiniello, N., & Amsel, R. (2012). Information and communication technology related needs of college and university students with disabilities. *Research in Learning Technology*, 20(4), 323–344.

Fichten, C. S., Jorgensen, S., Havel, A., Barile, M., Ferraro, V., Landry, M.-È., Fiset, D., Juhel, J. C., Chwojka, C., Nguyen, M. N., Amsel, R., & Asuncion, J. (2012). What happens after graduation? Outcomes, employment, and recommendations of recent junior/community college graduates with and without disabilities. *Disability & Rehabilitation*, 34(11), 917.

- Fisher, K. R., Parker, S., & Purcal, C. (2009). Measuring the effectiveness of new approaches to housing support policy for persons with disabilities. *Australian Journal of Public Administration*, 68(3), 319–332. Retrieved from <http://doi.org/10.1111/j.1467-8500.2009.00642.x>
- Fuller, M., Bradley, A., & Healey, M. (2004). Incorporating disabled students within an inclusive higher education environment. *Disability & Society*, 19(5), 455–468. Retrieved from <http://doi.org/10.1080/0968759042000235307>
- Fuller, M., Healey, M., Bradley, A., & Hall, T. (2004). Barriers to learning: A systematic study of the experience of disabled students in one university. *Studies in Higher Education*, 29(3), 303–318. Retrieved from <http://doi.org/10.1080/03075070410001682592>
- Getzel, E. E. (2008). Addressing the persistence and retention of students with disabilities in higher education: Incorporating key strategies and supports on campus. *Exceptionality*, 16(4), 207–219. Retrieved from <http://doi.org/10.1080/09362830802412216>
- Graham-Smith, S., & Lafayette, S. (2004). Quality disability support for promoting belonging and academic success within the college community. *College Student Journal*, 38(1), 90–99.
- Harpur, P., & Loudoun, R. (2011). The barrier of the written word: Analysing universities' policies to students with print disabilities. *Journal of Higher Education Policy & Management*, 33(2), 153–167. Retrieved from <http://doi.org/10.1080/1360080X.2011.550088>
- Hartley, M. T. (2010). Increasing resilience: Strategies for reducing dropout rates for college students with psychiatric disabilities. *American Journal of Psychiatric Rehabilitation*, 13(4), 295–315. Retrieved from <http://doi.org/10.1080/15487768.2010.523372>
- Hawley, C. E., Cardoso, E., & McMahon, B., T. (2013). Adolescence to adulthood in STEM education and career development: The experience of students at the intersection of underrepresented minority status and disability. *Journal of Vocational Rehabilitation*, 39(3), 193–204. Retrieved from <http://doi.org/10.3233/JVR-130655>
- Herbert, J. T. (1996). Use of adventure-based counseling programs for persons with disabilities. *Journal of Rehabilitation*, 62(4), 3–9.
- Jackson, V., Henderson, D. L., Edwards, J., Dothel W., & Raines, G. M. (2011). Accommodation strategies for health sciences students with disabilities. *Journal of Best Practices in Health Professions Diversity: Education, Research & Policy*, 4(1), 585–594.

Kim-Rupnow, W. S., & Burgstahler, S. (2004). Perceptions of students with disabilities regarding the value of technology-based support activities on postsecondary education and employment. *Journal of Special Education Technology, 19*(2), 43–56.

Lechtenberger, D., Brak, L. B., Sokolosky, S., & Mccrary, D. (2012). Using wraparound to support students with developmental disabilities in higher education. *College Student Journal, 46*(4), 856–866.

Leppo, R. H. T., Cawthon, S. W., & Bond, M. P. (2014). Including deaf and hard-of-hearing students with co-occurring disabilities in the accommodations discussion. *Journal of Deaf Studies and Deaf Education, 19*(2), 189–202. Retrieved from <http://doi.org/10.1093/deafed/ent029>

Lewandowski, L., Cohen, J., & Lovett, B. J. (2013). Effects of extended time allotments on reading comprehension performance of college students with and without learning disabilities. *Journal of Psychoeducational Assessment, 31*(3), 326–336. Retrieved from <http://doi.org/10.1177/0734282912462693>

Lombardi, A. R., Murray, C., & Gerdes, H. (2012). Academic performance of first-generation college students with disabilities. *Journal of College Student Development, 53*(6), 811–826. Retrieved from <http://doi.org/10.1353/csd.2012.0082>

Megivern, D. M. (2002). Disability services and college students with psychiatric disabilities. *Journal of Social Work in Disability & Rehabilitation, 1*(3), 25–41. Retrieved from http://doi.org/10.1300/J198v01n03_04

Meredith, G., Packman, A., & Marks, G. (2012). Stuttering, disability and the higher education sector in Australia. *International Journal of Speech-Language Pathology, 14*(4), 370–376. Retrieved from <http://doi.org/10.3109/17549507.2012.683809>

Mock, M., & Love, K. (2012). One state's initiative to increase access to higher education for people with intellectual disabilities. *Journal of Policy and Practice in Intellectual Disabilities, 9*(4), 289–297. Retrieved from <http://doi.org/10.1111/jppi.12006>

Murray, C., Lombardi, A., Bender, F., & Gerdes, H. (2012). Social support: Main and moderating effects on the relation between financial stress and adjustment among college students with disabilities. *Social Psychology of Education, 16*(2), 277–295. Retrieved from <http://doi.org/10.1007/s11218-012-9204-4>

National Board of Employment, Education and Training. (1994). *Guidelines for disability services in higher education*. Canberra: Australian Government Publishing Service.

Plotner, A. J., & Marshall, K. J. (2014). Navigating university policies to support postsecondary education programs for students with intellectual disabilities. *Journal of Disability Policy Studies*, 25(1), 48–58. Retrieved from <http://doi.org/10.1177/1044207313514609>

Ponticelli, J. E., & Russ-Eft, D. (2009). Community college students with disabilities and transfer to a four-year college. *Exceptionality*, 17(3), 164–176. Retrieved from <http://doi.org/10.1080/09362830903028473>

Prats, M., Kerzoncuf, M., Bensoussan, L., Agresti, J.-P., Delorge, B., Viton, J.-M., & Delarque, A. (2015). A census of students with disabilities and the support provided at the University of Aix-Marseille. *International Journal of Rehabilitation Research*. Retrieved from <http://doi.org/10.1097/MRR.000000000000105>

Reschly, A. L., & Christenson, S. L. (2006). Prediction of dropout among students with mild disabilities: A case for the inclusion of student engagement variables. *Remedial and Special Education*, 27(5), 276–292.

Richardson, J. T. E. (2014). Academic attainment of students with disabilities in distance education. *Journal of Postsecondary Education and Disability*, 27(3), 291–305.

Rojewski, J. W., Lee, I. H., & Gregg, N. (2015). Causal effects of inclusion on postsecondary education outcomes of individuals with high-incidence disabilities. *Journal of Disability Policy Studies*, 25(4), 210–219. Retrieved from <http://doi.org/10.1177/1044207313505648>

Schreuer, N., & Sachs, D. (2014). Efficacy of accommodations for students with disabilities in higher education. *Journal of Vocational Rehabilitation*, 40(1), 27–40. Retrieved from <http://doi.org/10.3233/JVR-130665>

Sharpe, M., Johnson, D., Izzo, M., & Murray, A. (2005). An analysis of instructional accommodations and assistive technologies used by postsecondary graduates with disabilities. *Journal of Vocational Rehabilitation*, 22(1), 3–11.

Stodden, R., Whelley, T., Chang, C., & Harding, T. (2001). Current status of educational support provision to students with disabilities in postsecondary education. *Journal of Vocational Rehabilitation*, 16(3/4), 189–198.

- Summers, J. A., White, G. W., Zhang, E., & Gordon, J. M. (2014). Providing support to postsecondary students with disabilities to request accommodations: A framework for intervention. *Journal of Postsecondary Education and Disability, 37*(3), 245–260.
- Taylor, C. M., & Colvin, K. L. (2013). Universal design: A tool to help college students with Asperger's Syndrome engage on campus. *About Campus, 18*(3), 9–15. Retrieved from <http://doi.org/10.1002/abc.21118>
- Thompson, B., & Mazer, J. P. (2009). College student ratings of student academic support: Frequency, importance, and modes of communication. *Communication Education, 58*(3), 433–458. Retrieved from <http://doi.org/10.1080/03634520902930440>
- Troiano, P. F., Liefeld, J. A., & Trachtenberg, J. V. (2010). Academic support and college success for postsecondary students with learning disabilities. *Journal of College Reading and Learning, 40*(2), 35–44.
- UN General Assembly. (2007). *Convention on the Rights of Persons with Disabilities: Resolution / adopted by the General Assembly, 24 January 2007, A/RES/61/106*. Retrieved from <http://www.refworld.org/docid/45f973632.html>
- Universities Australia (AVCC) guidelines relating to students with a disability - 2006 - ADCET. (n.d.). Retrieved from <http://www.adcet.edu.au/resource/5351/universities-australia-avcc-guidelines-relating-to-students-with-a-disability-2006/>
- Yuen, J., & Shaughnessy, B. (2001). Cultural empowerment: Tools to engage and retain postsecondary students with disabilities. *Journal of Vocational Rehabilitation, 16*(3/4), 199–207.

Appendix 1: Additional Quantitative Results

These results are not statistically significant but do provide some added insight to the results and therefore have been included in the final report.

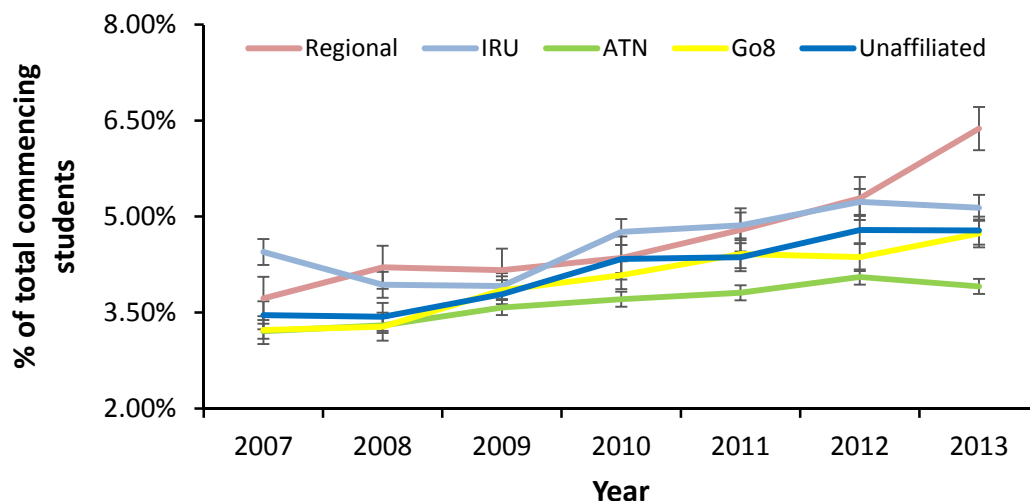


Figure 18 Commencing students with disability as a percentage of the total commencing students for each university grouping from 2007–2013.

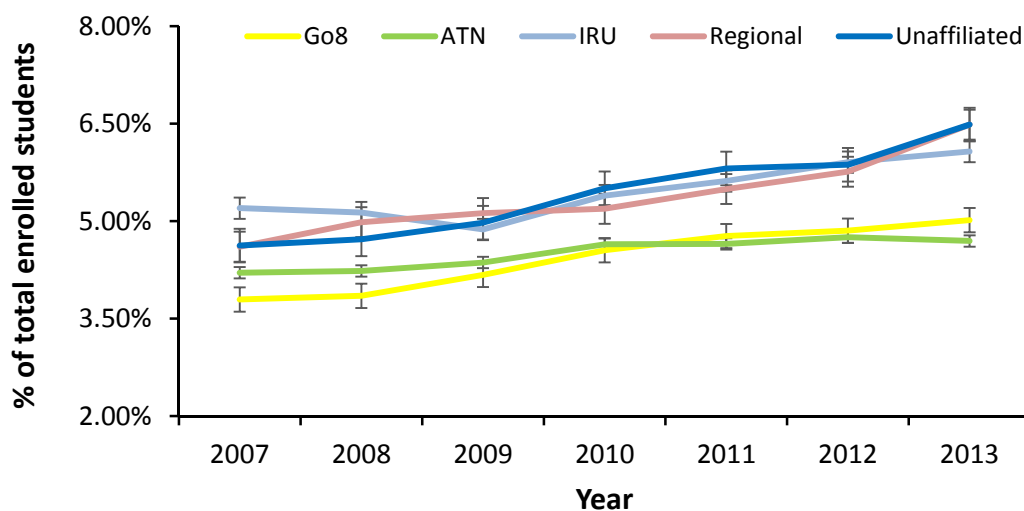


Figure 19 Enrolled students with disability as a percentage of the total enrolled students for each university grouping from 2007–2013.

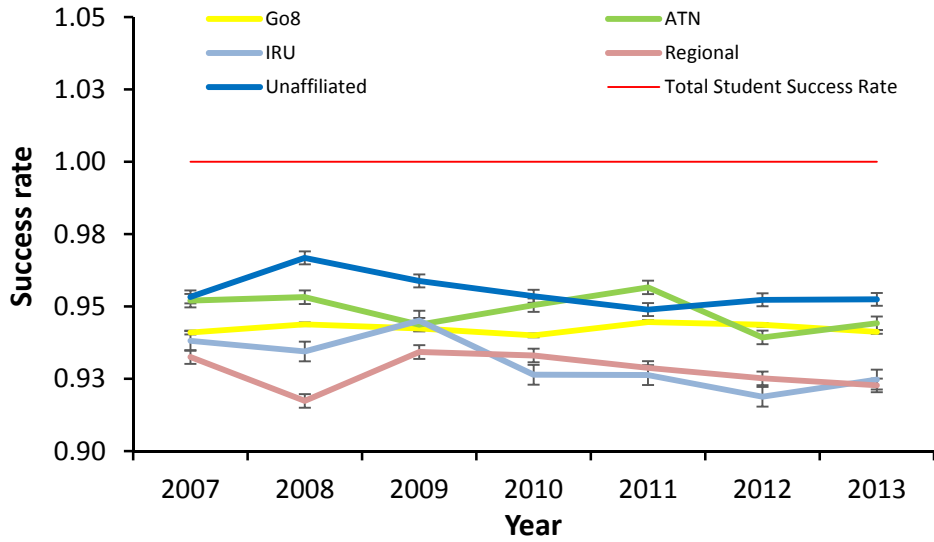


Figure 20 Disability success rate of students with disability compared to the success rate of the total student population for the university groups from 2007–2013.

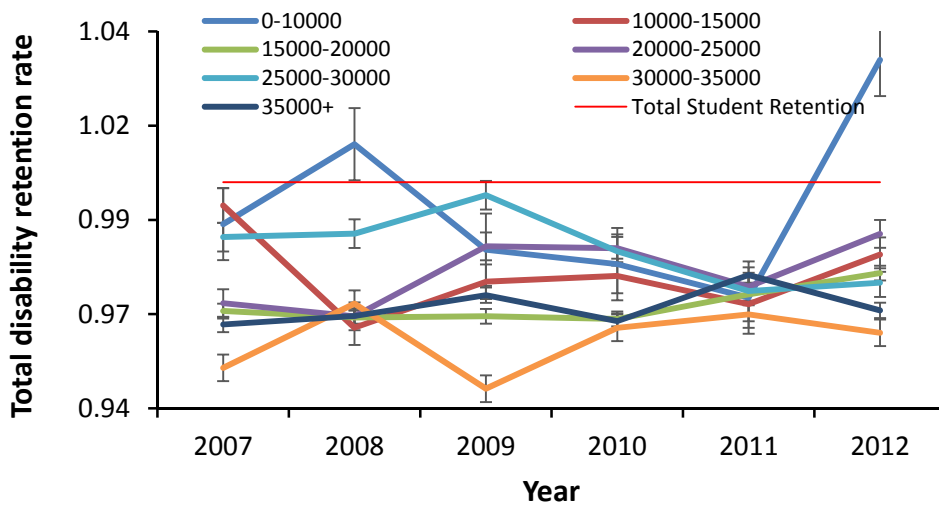


Figure 21 The retention rate of students with disability compared to total student retention for 2007–2012. The retention rate is broken down by university size (number of enrolled students).

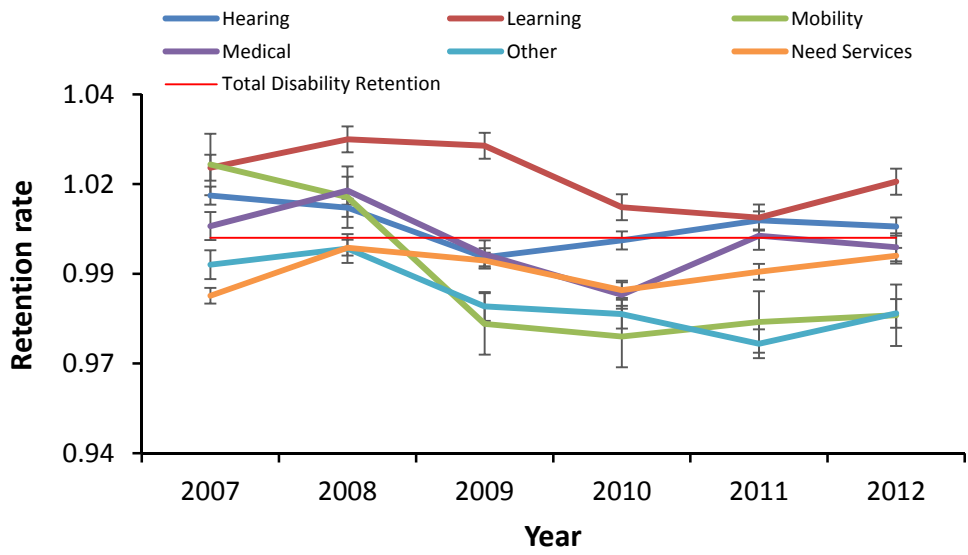


Figure 22 The retention rate of students with disability for each disability type compared to total student retention for 2007–2012.

Table 2 Mean \pm standard deviations of commencing students with disability (as a % of total commencing students) for each disability type.

Disability Type	2007	2008	2009	2010	2011	2012	2013
Total Disability	3.67% (1.52%)	3.66% (1.60%)	3.94% (1.59%)	4.39% (1.63%)	4.55% (1.76%)	4.87% (1.60%)	5.04% (1.77%)
Hearing Disability	0.44% (0.40%)	0.43% (0.28%)	0.38% (0.25%)	0.41% (0.25%)	0.39% (0.36%)	0.39% (0.27%)	0.41% (0.28%)
Learning Disability	0.55% (0.30%)	0.58% (0.29%)	0.54% (0.26%)	0.63% (0.28%)	0.65% (0.31%)	0.68% (0.32%)	0.69% (0.30%)
Mobility Disability	0.52% (0.32%)	0.48% (0.23%)	0.44% (0.22%)	0.48% (0.27%)	0.46% (0.25%)	0.44% (0.20%)	0.45% (0.20%)
Visual Disability	0.65% (1.09%)	0.68% (1.20%)	0.65% (1.15%)	0.68% (1.21%)	0.68% (1.21%)	0.65% (1.09%)	0.65% (1.11%)
Medical Disability	1.52% (0.60%)	1.64% (0.62%)	1.58% (0.61%)	1.63% (0.57%)	1.71% (0.65%)	1.85% (0.71%)	1.91% (0.73%)
Other Disability	0.98% (0.50%)	1.08% (0.56%)	1.01% (0.52%)	1.20% (0.61%)	1.41% (0.71%)	1.51% (0.79%)	1.66% (0.89%)
Need Services	1.76% (0.93%)	1.69% (0.90%)	1.83% (1.07%)	2.05% (1.09%)	2.22% (1.20%)	2.29% (1.18%)	2.52% (1.17%)

Table 3 Mean \pm standard deviations of commencing students (as a % of commencing students with a disability) for each disability type.

Disability Type	2007	2008	2009	2010	2011	2012	2013
Hearing Disability	11.45 \pm 6.56%	12.42 \pm 8.02%	9.67 \pm 4.66%	9.57 \pm 4.52%	8.47 \pm 6.05%	8.24 \pm 5.27%	8.44 \pm 5.86%
Learning Disability	15.69 \pm 7.66%	17.44 \pm 9.03%	14.20 \pm 6.06%	14.57 \pm 5.03%	14.68 \pm 6.23%	14.32 \pm 6.48%	14.23 \pm 5.75%
Mobility Disability	14.00 \pm 6.80%	13.60 \pm 5.42%	11.32 \pm 4.28%	10.80 \pm 4.48%	10.08 \pm 3.58%	9.06 \pm 2.80%	8.96 \pm 3.33%
Visual Disability	14.95 \pm 10.96%	15.86 \pm 11.89%	13.56 \pm 10.85%	13.02 \pm 10.26%	12.42 \pm 10.56%	11.50 \pm 10.26%	10.92 \pm 9.42%
Medical Disability	43.08 \pm 13.06%	46.89 \pm 12.12%	40.74 \pm 10.93%	38.14 \pm 10.21%	38.71 \pm 11.98%	38.57 \pm 11.94%	38.33 \pm 10.95%
Other Disability	27.08 \pm 11.29%	31.01 \pm 14.68%	26.62 \pm 0.03%	27.92 \pm 11.40%	31.91 \pm 12.73%	31.57 \pm 13.16%	33.26 \pm 12.73%
Needs Services	49.32 \pm 22.33%	46.63 \pm 20.74%	47.45 \pm 21.25%	48.19 \pm 19.88%	49.87 \pm 18.03%	47.71 \pm 18.75%	51.44 \pm 19.32%

Table 4 Mean \pm standard deviation of enrolled students with a disability (as a % of total enrolled students) for each disability type.

Disability Type	2007	2008	2009	2010	2011	2012	2013
Total Disability	4.38 \pm 1.67%	4.44 \pm 1.76%	4.61 \pm 1.72%	4.95 \pm 1.79%	5.19 \pm 1.84%	5.38 \pm 1.76%	5.62 \pm 1.78%
Hearing Disability	0.47 \pm 0.39%	0.50 \pm 0.35%	0.43 \pm 0.27%	0.46 \pm 0.34%	0.46 \pm 0.37%	0.44 \pm 0.33%	0.46 \pm 0.39%
Learning Disability	0.66 \pm 0.35%	0.71 \pm 0.37%	0.63 \pm 0.30%	0.69 \pm 0.32%	0.72 \pm 0.34%	0.76 \pm 0.36%	0.46 \pm 0.39%
Mobility Disability	0.65 \pm 0.33%	0.67 \pm 0.34%	0.56 \pm 0.29%	0.56 \pm 0.29%	0.57 \pm 0.30%	0.53 \pm 0.26%	0.54 \pm 0.25%
Visual Disability	0.79 \pm 1.11%	0.80 \pm 1.18%	0.72 \pm 1.16%	0.74 \pm 1.14%	0.75 \pm 1.16%	0.73 \pm 1.14%	0.72 \pm 1.14%
Medical Disability	1.94 \pm 0.76%	2.09 \pm 0.78%	1.90 \pm 0.70%	1.96 \pm 0.71%	2.02 \pm 0.73%	2.13 \pm 0.79%	2.25 \pm 0.86%
Other Disability	1.26 \pm 0.65%	1.39 \pm 0.73%	1.20 \pm 0.65%	1.38 \pm 0.74%	1.59 \pm 0.80%	1.67 \pm 0.78%	1.82 \pm 0.83%
Needs Services	2.23 \pm 1.28%	2.16 \pm 1.26%	2.28 \pm 1.29%	2.39 \pm 1.34%	2.54 \pm 1.44%	2.61 \pm 1.48%	2.92 \pm 1.48%

Table 5 Mean \pm standard deviation of enrolled students (as a % of enrolled students with a disability) for each disability type.

Disability Type	2007	2008	2009	2010	2011	2012	2013
Hearing Disability	10.95 \pm 7.84%	11.84 \pm 9.43%	9.55 \pm 4.64%	9.33 \pm 5.11%	8.81 \pm 5.47%	8.26 \pm 5.27%	8.22 \pm 5.98%
Learning Disability	16.24 \pm 11.09%	17.50 \pm 12.54%	14.20 \pm 5.84%	14.33 \pm 5.43%	14.26 \pm 5.66%	14.34 \pm 6.06%	8.22 \pm 5.98%
Mobility Disability	14.97 \pm 6.25%	15.43 \pm 6.56%	12.17 \pm 4.37%	11.23 \pm 4.16%	10.83 \pm 3.90%	9.92 \pm 3.09%	9.53 \pm 2.92%
Visual Disability	15.89 \pm 10.48%	16.38 \pm 11.66%	13.50 \pm 10.34%	12.99 \pm 10.32%	12.61 \pm 10.33%	11.97 \pm 10.21%	11.31 \pm 9.98%
Medical Disability	45.22 \pm 11.10%	48.42 \pm 10.81%	41.72 \pm 10.36%	40.26 \pm 10.24%	39.95 \pm 11.18%	39.98 \pm 11.11%	40.18 \pm 10.93%
Other Disability	28.95 \pm 10.46%	32.48 \pm 14.74%	26.34 \pm 9.91%	27.83 \pm 10.70%	31.00 \pm 12.18%	31.30 \pm 11.35%	32.78 \pm 11.40%
Needs Services	51.34 \pm 22.92%	47.99 \pm 21.03%	49.47 \pm 21.37%	48.61 \pm 20.41%	49.21 \pm 19.41%	48.30 \pm 19.53%	52.21 \pm 19.68%

Table 6 Mean \pm standard deviations of success of students with disability (1 = success rate of total student population).

Disability Type	2007	2008	2009	2010	2011	2012	2013
Total Disability	0.947 \pm 0.036	0.947 \pm 0.032	0.948 \pm 0.031	0.944 \pm 0.034	0.942 \pm 0.033	0.940 \pm 0.035	0.938 \pm 0.031
Hearing Disability	0.973 \pm 0.063	0.977 \pm 0.061	0.971 \pm 0.053	0.958 \pm 0.061	0.955 \pm 0.053	0.956 \pm 0.060	0.960 \pm 0.062
Learning Disability	0.931 \pm 0.058	0.943 \pm 0.058	0.944 \pm 0.048	0.941 \pm 0.049	0.933 \pm 0.059	0.939 \pm 0.042	0.933 \pm 0.049
Mobility Disability	0.957 \pm 0.055	0.949 \pm 0.061	0.943 \pm 0.059	0.953 \pm 0.049	0.950 \pm 0.065	0.942 \pm 0.064	0.943 \pm 0.058
Visual Disability	0.969 \pm 0.064	0.960 \pm 0.058	0.944 \pm 0.082	0.957 \pm 0.065	0.961 \pm 0.053	0.959 \pm 0.055	0.953 \pm 0.052
Medical Disability	0.937 \pm 0.036	0.930 \pm 0.038	0.943 \pm 0.035	0.936 \pm 0.045	0.942 \pm 0.037	0.940 \pm 0.041	0.939 \pm 0.041
Other Disability	0.922 \pm 0.059	0.932 \pm 0.055	0.918 \pm 0.057	0.904 \pm 0.053	0.912 \pm 0.061	0.909 \pm 0.050	0.899 \pm 0.050
Need Services	0.931 \pm 0.044	0.940 \pm 0.050	0.940 \pm 0.038	0.936 \pm 0.048	0.934 \pm 0.042	0.931 \pm 0.044	0.919 \pm 0.054

Table 7 Statistical significance between the success of disability students and success of the total student population from 2007–2013.

Year	Statistical Significance
2007	$t_{39} = -9.42, p < 0.001$
2008	$t_{39} = -10.61, p < 0.001$
2009	$t_{39} = -10.85, p < 0.001$
2010	$t_{39} = -10.527, p < 0.001$
2011	$t_{39} = -10.93, p < 0.001$
2012	$t_{39} = -10.863, p < 0.001$
2013	$t_{39} = -12.95, p < 0.001$

Significance is measured at $p \leq 0.05$.

Table 8 Mean \pm standard deviations of success of students with each disability type (as rate of total success of students with disability).s

Disability Type	2007	2008	2009	2010	2011	2012	2013
Hearing Disability	1.026 \pm 0.060	1.031 \pm 0.056	1.025 \pm 0.056	1.017 \pm 0.054	1.012 \pm 0.063	1.018 \pm 0.054	1.024 \pm 0.063
Learning Disability	0.983 \pm 0.041	0.995 \pm 0.051	0.997 \pm 0.043	0.999 \pm 0.037	0.990 \pm 0.052	0.999 \pm 0.041	0.996 \pm 0.043
Mobility Disability	1.012 \pm 0.043	1.002 \pm 0.052	0.994 \pm 0.520	1.010 \pm 0.047	1.007 \pm 0.049	1.003 \pm 0.056	1.005 \pm 0.043
Visual Disability	1.021 \pm 0.046	1.015 \pm 0.056	0.996 \pm 0.076	1.014 \pm 0.056	1.019 \pm 0.047	1.021 \pm 0.048	1.017 \pm 0.051
Medical Disability	0.991 \pm 0.022	0.983 \pm 0.030	0.995 \pm 0.029	0.992 \pm 0.029	0.999 \pm 0.027	0.999 \pm 0.026	1.002 \pm 0.029
Other Disability	0.974 \pm 0.044	0.983 \pm 0.038	0.967 \pm 0.038	0.958 \pm 0.037	0.967 \pm 0.045	0.968 \pm 0.036	0.960 \pm 0.037
Needs Services	0.985 \pm 0.026	0.992 \pm 0.033	0.992 \pm 0.023	0.993 \pm 0.028	0.991 \pm 0.028	0.990 \pm 0.025	0.981 \pm 0.050

Table 9 Results of one-sample t-tests for success of students with individual disabilities (compared to total disability students).

Disability Type	2007	2008	2009	2010	2011	2012	2013
Hearing	$t_{39}=2.78, p=0.008^*$	$t_{39}=3.45, p=0.001^*$	$t_{39}=2.78, p=0.008^*$	$t_{39}=1.93, p=0.061$	$t_{39}=1.18, p=0.245$	$t_{39}=2.14, p=0.039^*$	$t_{39}=2.42, p=0.039^*$
Learning	$t_{39}=-2.67, p=0.011^*$	$t_{39}=-0.65, p=0.519$	$t_{39}=-0.52, p=0.607$	$t_{39}=-0.26, p=0.799$	$t_{39}=-1.31, p=0.200$	$t_{39}=-0.19, p=0.849$	$t_{39}=-0.67, p=0.507$
Mobility	$t_{39}=1.69, p=0.099$	$t_{39}=0.18, p=0.856$	$t_{39}=-0.73, p=0.469$	$t_{39}=1.32, p=0.194$	$t_{39}=0.84, p=0.408$	$t_{39}=0.29, p=0.777$	$t_{39}=.71, p=0.484$
Visual	$t_{39}=2.86, p=0.007^*$	$t_{39}=1.66, p=0.105$	$t_{39}=-0.33, p=0.742$	$t_{39}1.57, p=0.124$	$t_{39}=2.57, p=0.014^*$	$t_{39}=2.79, p=0.008^*$	$t_{39}=2.12, p=0.041^*$
Medical	$t_{39}=-2.52, p=0.016^*$	$t_{39}=-3.68, p=0.001^*$	$t_{39}=-1.19, p=0.242$	$t_{39}=-1.68, p=0.100$	$t_{39}=-.18, p=0.861$	$t_{39}=-0.31, p=0.759$	$t_{39}=0.50, p=0.620$
Other	$t_{39}3.70, p=0.001^*$	$t_{39}=-2.85, p=0.007^*$	$t_{39}=-5.44, p<0.001^*$	$t_{39}=-7.21, p<0.001^*$	$t_{39}=-4.75, p<0.001^*$	$t_{39}=-5.74, p<0.001^*$	$t_{39}=-6.87, p<0.001^*$
Need Services	$t_{39}=-4.18, p<0.001^*$	$t_{39}=-1.51, p=0.140$	$t_{39}=-2.10, p=0.042^*$	$t_{39}=-1.64, p=0.110$	$t_{39}=-2.10, p=0.042^*$	$t_{39}=-2.50, p=0.017^*$	$t_{39}=-2.45, p=0.019^*$

* Denotes significance at $p \leq 0.05$. Data should be read as a significant difference for each disability type for each year. No attempt was made to compare across disability types or years.

Table 10 Mean (standard deviations) of retention rates of students with disability (1 = retention rate of total student population).

Disability Type	2007	2008	2009	2010	2011	2012
Total Disability	.973 (.035)	.972 (.037)	.973 (.036)	.972 (.022)	.971 (.022)	.981 (.033)
Hearing Disability	.985 (.092)	.980 (.090)	.968 (.100)	.972 (.068)	.976 (.074)	.985 (.080)
Learning Disability	.991 (.110)	.998 (.085)	.997 (.060)	.979 (.053)	.975 (.047)	.996 (.058)
Mobility Disability	.993 (.095)	.985 (.100)	.949 (.073)	.945 (.094)	.947 (.076)	.960 (.065)
Medical Disability	.975 (.043)	.984 (.036)	.968 (.042)	.956 (.048)	.972 (.038)	.979 (.058)
Other Disability	.966 (.061)	.969 (.048)	.954 (.057)	.951 (.061)	.942 (.053)	.961 (.048)
Need Services	.956 (.070)	.970 (.072)	.968 (.066)	.958 (.068)	.961 (.042)	.976 (.051)

Table 11 Statistical significance between the retention of disability students and retention of the total student population from 2007–2012.

Year	Statistical Significance
2007	$t_{39} = -4.85, p < 0.001$
2008	$t_{39} = -4.81, p < 0.001$
2009	$t_{39} = -4.84, p < 0.001$
2010	$t_{39} = -8.37, p < 0.001$
2011	$t_{39} = -8.19, p < 0.001$
2012	$t_{39} = -3.55, p = 0.001$

Significance is measured at $p \leq 0.05$.

Table 12 Mean \pm standard deviations of retention of students (as rate of total retention of students with disability) with each disability type.

Disability Type	2007	2008	2009	2010	2011	2012
Hearing Disability	1.012 \pm 0.080	1.008 \pm 0.082	0.995 \pm 0.086	1.000 \pm 0.063	1.004 \pm 0.066	1.004 \pm 0.073
Learning Disability	1.019 \pm 0.107	1.028 \pm 0.085	1.026 \pm 0.056	1.008 \pm 0.053	1.006 \pm 0.052	1.016 \pm 0.060
Mobility Disability	1.020 \pm 0.081	1.011 \pm 0.085	0.977 \pm 0.094	0.973 \pm 0.094	0.977 \pm 0.078	0.979 \pm 0.061
Medical Disability	1.003 \pm 0.033	1.013 \pm 0.035	0.995 \pm 0.029	0.984 \pm 0.043	1.001 \pm 0.029	0.998 \pm 0.034
Other Disability	0.993 \pm 0.054	0.997 \pm 0.053	0.981 \pm 0.039	0.979 \pm 0.054	0.970 \pm 0.051	0.979 \pm 0.039
Needs Services	0.984 \pm 0.067	0.997 \pm 0.063	0.994 \pm 0.048	0.985 \pm 0.062	0.991 \pm 0.029	0.995 \pm 0.037

Table 13 Results of one-sample t-tests for retention of students with individual disabilities (compared to total disability students).

Disability Type	2007	2008	2009	2010	2011	2012
Hearing	$t_{39}=0.90, p=0.371$	$t_{39}=0.62, p=0.539$	$t_{39}=-0.39, p=0.700$	$t_{39}=-0.03, p=0.980$	$t_{39}=0.41, p=0.685$	$t_{39}=0.30, p=0.764$
Learning	$t_{39}=1.11, p=0.273$	$t_{39}=2.07, p=0.045$	$t_{39}=2.91, p=0.006^*$	$t_{39}=0.98, p=0.335$	$t_{39}=0.70, p=0.490$	$t_{39}=1.64, p=0.109$
Mobility	$t_{39}=1.54, p=0.131$	$t_{39}=0.78, p=0.438$	$t_{39}=-2.48, p=0.018^*$	$t_{39}=-1.86, p=0.071$	$t_{39}=-1.87, p=0.069$	$t_{39}=-2.23, p=0.032^*$
Medical	$t_{39}=0.58, p=0.568$	$t_{39}=2.37, p=0.023^*$	$t_{39}=-1.14, p=0.261$	$t_{39}=-2.35, p=0.024^*$	$t_{39}=0.27, p=0.787$	$t_{39}=-0.46, p=0.648$
Other	$t_{39}=-0.87, p=0.389$	$t_{39}=-0.39, p=0.700$	$t_{39}=-3.11, p=0.004^*$	$t_{39}=-2.52, p=0.016^*$	$t_{39}=-3.68, p=0.001^*$	$t_{39}=-3.34, p=0.002^*$
Needs Services	$t_{39}=-1.56, p=0.128$	$t_{39}=-0.27, p=0.785$	$t_{39}=-0.86, p=0.395$	$t_{39}=-1.51, p=0.139$	$t_{39}=-1.94, p=0.060$	$t_{39}=-0.94, p=0.351$

* Denotes significance at $p \leq 0.05$. Data should be read as a significant difference for each disability type for each year. No attempt was made to compare across disability types or years.

Appendix 2: Interview Schedule

Exploring the retention and success of students with disability Interview schedule

Institution/Interviewee details *[office use]*

Interviewee role/title	
Interviewee length of time in role	
<i>Section below to be pre filled</i>	
Institution category (ATN, Go8, IRU, Regional Network, Unaffiliated)	
Institution size (enrolment)	
Disability performance grouping (low, inconsistent, medium, high)	
State	
Disability Policy	Yes/No
Disability Action Plan (or similar)	Yes/No
Formal student plan (LAP or other)	Yes/No

Leadership and governance

The first question is about leadership and governance in relation to disability services within your organisation

1. How are services for students with disability structured within your institution?

[prompt: from recruitment through orientation to support for learning - in one unit, spread across multiple units – level of coordination amongst units; reporting lines for disability practitioners; how much at Faculty level; in which senior portfolio do they sit (eg. Equity, DVC Academic)]

Procedures and policy

The next group of questions are about procedures and policies for students with disability

2. How do you ensure that information about procedures for students with disability is accessible: To students? To all staff?

[prompt for promotion/dissemination strategies; any specific strategies to target new students at commencement of the year]

3. How is the performance and retention of students with disability monitored in your institution?
[prompt for strategies at different levels - whole of institution/faculty/course/unit; prompt for frequency of monitoring and actions arising]
4. How were the procedures and policies for assessing and meeting requirements of students with disability developed in your institution?

[prompt for when/how/why – including Disability Policy, Disability Action Plan, Learning Action Plan or similar].
(If no mention of Disability Action Plan) Do you have/will you be developing a Disability Action Plan? Why/why not?]
5. How do you ensure the needs of students with disability are identified and appropriate adjustments put in place?

[prompt for formal action plan eg. LAP - or other alternative?]
(If there is a formal action plan)
- Who owns this plan? [students, disability practitioner or service, faculty, other]
 - Do you think academic staff and any other staff that need to know are aware of which students have a LAP/other action plan?
 - Do academic staff know what to do when presented with a LAP?
 - How do academic staff know what to do when presented with a LAP?
- (If there is not a formal action plan)*
- How do academic staff know which students require adjustments or supports, and how to provide the necessary adjustments and supports?
6. Do your university's disability procedures and policies provide a framework for action?

[prompt for links between Disability Policy, Disability Action Plan and action?]
7. To what extent are students with disability involved in developing and reviewing disability procedures and policies in your institution?

[prompt for mechanisms used to seek student input; frequency of input; satisfaction with level of student involvement]
8. To what extent are staff involved in developing and reviewing disability policies and procedures in your institution?

[prompt for involvement of disability practitioners and other staff; prompt for mechanisms used to seek staff input; frequency of input; satisfaction with staff involvement]

Practice

The next group of questions are about institutional practices designed to support the performance and retention of students with disability

9. Does your institution actively recruit students with disability?

[prompt: are they specifically mentioned in promotional/recruitment/enrolment material]

10. What sort of training and support is provided to staff so they can better identify and meet the needs of students with disability?

[prompt for specific training/support for academic staff and for other staff not directly working in disability unit such as library, student centre; look for mention of Heads Up national program; prompt for staff induction/ongoing PD]

11. How effective are your practices for identifying and supporting students with disability?

[prompt: Are there enough services for students with? Are there ever waiting lists for services and if so, length of waiting list; types of services in short supply; reasons for waiting list]

Institutional priority

The next group of questions are about the priority that your institution places on disability

12. To what extent are the recruitment, retention and success of students with disability priorities for your University?

[prompt for adequacy of resourcing – funding, human resources, infrastructure; high level institutional support]

13. *(Optional – if not answered earlier)* Has the extent to which your institution is able to support the performance and retention of students with disability changed in recent times?

[prompt: what are the reasons for any change in institutional capacity to support the performance and retention of students with disability]

14. *(Optional – if not answered earlier)* How well do you think your institution is doing in terms of supporting the performance and retention of students with disability?

[prompt: What things does your institution do particularly well and why?]

15. *(Optional – if not answered earlier)* What things would you like to see improved or changed so your institution can better support the performance and retention of students with disability?

[prompt for internal and external factors and what would need to change to make these things happen]

Final comments

16. Do you have any final comments about the performance and retention of students with disability in your institution that might be relevant to this study?