THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

CREATE CHANGE

Drivers of underrepresentation in Australian higher education

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1. Introduction

This document reviews drivers of underrepresentation in higher education (HE) participation and attainment, and effective approaches for reducing such underrepresentation in the context of The Queensland Commitment. The Queensland Commitment is an initiative by the University of Queensland (UQ) to break down barriers to higher education for underrepresented groups with a focus on people from low socio-economic status (low SES), people from regional, rural or remote areas (RRR), and Aboriginal and Torres Strait Islander people (Indigenous). People with disability (Disability) are also an emergent group of interest to The Queensland Commitment.

Drivers/barriers to participating and succeeding in higher education studies can be conceptualised in various ways and there is great variety in applying terms such as 'barriers' and 'enablers' in this context. Section 2 provides a high-level conceptualisation of such drivers for the purpose of The Queensland Commitment. This takes account of the underrepresented groups of interest as well as the 'reach' of higher education institutions, that is the areas, which they can influence by their operations. Section 3 and 4 identify and discuss the drivers for underrepresentation for the groups of interest in more detail with Section 3 focused on the socio-economic and cultural environments of students' source communities and families, and Section 4 focused on HE institutional drivers of underrepresentation. The final Section 5 outlines effective approaches to reducing HE underrepresentation in participation and attainment as they have been suggested in the literature.

2. Conceptualising drivers of underrepresentation for The Queensland Commitment
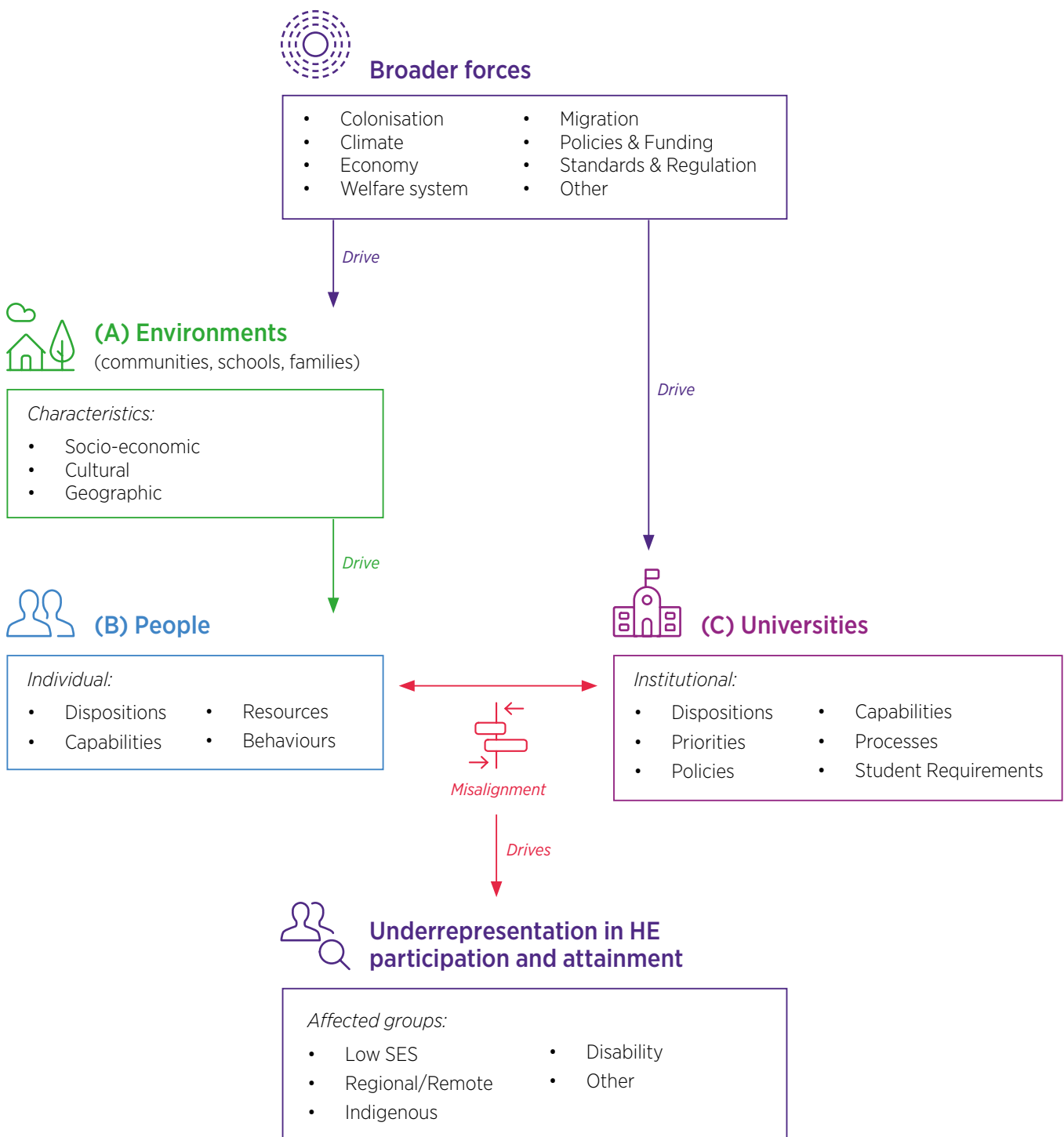
For the purpose of The Queensland Commitment, drivers for underrepresentation in higher education studies can be seen to emerge out of the interaction between circumstances that affect individuals and features of the higher education system. Figure 1 simplistically depicts the generation and re-production of underrepresentation in higher education participation and attainment as they are expressed in the Australian HE equity discourse: socio-economic and cultural characteristics of communities, schools and families influence individual capabilities (including academic, non-cognitive, digital skills), dispositions (related to views, attitudes and health) and behaviours (such as related to post-school pathway and course selections, support seeking and extra-curricular employability activities), as well as material, social and cultural resources available to individuals belonging to the groups of interest over their life courses. HE institutions in parallel develop and reproduce dispositions and behaviours and codify those into their requirements and operational processes. The discrepancy or misalignment between the latter and the dispositions, capabilities and resources of people, their families and communities drives the underrepresentation of these groups in higher education. For example, material barriers, as commonly discussed in the equity discourse, emerge when material circumstances of individuals interact with the material resources required to successfully participate in higher education. Similarly, cultural barriers arise from the differences of cultural norms in individuals' family and community environments, and those defined by educational institutions.

Many equity actions including most activities funded as part of the Higher Education Partnership and Participation Program (HEPPP) attempt to influence individual dispositions, behaviours, resources and/or capabilities of people who belong to underrepresented groups (ACIL Allen Consulting, 2017) so that these better align with expectations and requirements of higher education institutions. This has attracted criticism of taking an individual 'deficit' perspective with some researchers and advocates promoting a counter approach that attempts to change the dispositions, behaviours and processes of higher education institutions, and reduce the misalignment this way (e.g., Armstrong and Cairnduff, 2012; Burke, Bennett et al. 2016; Naylor & Mifsud, 2019). The articulation of the rationale of The Queensland Commitment, such as through its Draft Program Logic, acknowledges that universities, through their requirements and processes in areas of admission, enrolment, teaching, services and others contribute to underrepresentation of certain groups in their student and graduate populations.

The conceptualisation suggested here provides different (levels of) levers for change – levers at the community, school and family level, the individual student level, and the level of higher education institutions. The following sections on drivers of underrepresentation and on effective practice for improving representation will be oriented on these different leverage points.

There are broader forces at play that influence the socio-economic and cultural characteristics of communities, families, schools and higher education institutions, however, these are out of scope of HE institutions' reach of operations (although HE institutions can undertake research on the broader forces and advocate for relevant change, such as in HE policy and funding) and are only indicated in the figure to complement the picture.

Figure 1: Drivers for underrepresentation in HE participation and attainment

Broader forces

- Colonisation
- Climate
- Economy
- Welfare system
- Migration
- Policies & Funding
- Standards & Regulation
- Other

Drive

(A) Environments
(communities, schools, families)

Characteristics:
- Socio-economic
- Cultural
- Geographic

Drive

Drive

(B) People

Individual:
- Dispositions
- Capabilities
- Resources
- Behaviours

Misalignment

(C) Universities

Institutional:
- Dispositions
- Priorities
- Policies
- Capabilities
- Processes
- Student Requirements

Drives

Underrepresentation in HE participation and attainment

Affected groups:
- Low SES
- Regional/Remote
- Indigenous
- Disability
- Other

The concept of drivers for underrepresentation requires a reference point, an idea of 'success' and associated conditions and attributes that lead to successful outcomes. HE success is commonly, although not always[1], defined as participating in, completing, and benefitting from, HE studies and sometimes by preceding and concurrently occurring enabling factors. A success model that outlines the desired educational, developmental and administrative outcomes of individual learners at different points over the educational life course that lead to successful completion of HE studies is given in Table 1.

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[1] *Successful outcomes are sometimes seen in educational and personal development regardless of achieving formal educational requirements or completions.*

Table 1: Student Success Model

Stage	Sub-stage	Outcomes/milestones for successful higher education participation
Pre-access	Early childhood	• Development in a number of domains (physical, social, emotional, language and cognitive skills, communication)
	Primary/ Junior secondary	• School attendance, development of literacy and numeracy skills, as well as socio-emotional skills, technical skills, and personal skills • Accumulation of knowledge
	Senior secondary	• School attendance, further development of technical skills, knowledge, and personal skills and attributes • Knowledge of occupational and educational pathways • Development of HE-embracing identity and occupational aspirations • Subject selection for Year 11 and Year 12 that facilitates relevant post-school options • Subject achievements (particularly in subjects that count towards ATAR or are relevant as pre-requisites for later study options) • ATAR rank • Knowledge about tertiary application processes
Access	School and non-school pathways	• Further development of technical skills, knowledge, and personal skills and attributes • Gaining lacking/alternative credentials to access HE • Successful application for HE studies • Preparation for HE studies (e.g. organisation, learning, living, understanding expectations) (after securing access)
Participation	HE Year 1	• Adjustment to new life and learning environment • Understanding enrolment and academic requirements • Timely and effective enrolment (that achieves relevant credits) • Social and cultural integration • Development of academic literacies • Motivation and engagement • Learning, development of competencies and performance, particularly in relevant disciplinary area • Re-enrolment/retention
	HE later years	• Similar to above with added emphasis on choosing specialisations/majors and gaining employability related experiences and skills, such as through work integrated learning and industry engagement • Degree completion • Networks
Post-uni		• Gaining suitable employment • Having good employment prospects • Life satisfaction

Sources: Adopted from Kubler et al., 2020.

The success model illustrates that participating and succeeding in HE studies is influenced by matters along people's life-courses that can reach back into their early childhoods. It is the outcomes and milestones for successful HE participation included in Table 1 that are undermined by the socio-economic, geographical and cultural circumstances in which underrepresented groups grow up and live in, in the context of cultures and operations of HE institutions.

Nation-wide, more than half of undergraduate commencing students take a non-school pathway to undergraduate studies, accessing university studies after vocational education or training, and/or time spent in the labour market, and/or after taking an enabling course. The Access phase in the model in Table 1 can therefore vary considerably in length. There is also a fluidity between the HE participation and post-participation phase with non-graduates and graduates returning to university to continue old, or commence new, studies. This fluidity will increase as more and more micro credentials and flexible study options are introduced, and as more and more people realise life-long learning that involves multiple stints at HE institutions throughout the life course.

While individual equity groups were (also) defined to emphasise the particular factors that affect their underrepresentation, e.g., economic factors for people from low SES backgrounds, social/cultural factors for Indigenous people (but also First in Family students who are sometimes considered separately from Low SES), and distance/spatial factors for RRR people, there is considerable intersectionality between the different groups, for example, Indigenous people are commonly from regional or remote backgrounds and/or low SES backgrounds, so that multiple types of factors often combine. The following section outlines the role of economic, socio-cultural and geographical factors in people's environments (component A from the diagram in Figure 1) and how these affect individual people's dispositions, behaviours, capabilities and resources (component B) and relevant milestones from Table 1. Section 4 outlines institutional factors of universities (component C) that are part of the drivers for underrepresentation before Section 5 presents information on effective approaches to reducing underrepresentation.

3. Socio-cultural, economic and geographical environment

The socio-economic, geographic and cultural environments in which people grow up and live in has played a vital role in defining equity groups in Australia. Communities, schools and families impart knowledge, information, norms and attitudes. The latter can invest material and social resources into their offspring's educational and other journeys. It is communities', schools' and families' capabilities, cultures and resources that shape, to a considerable degree and particularly at younger ages, people along the life course, including their dispositions, behaviours and influence their access to economic, social and cultural resources. The *economic*, the *social geographical* and the *cultural* aspects are often inextricably linked, and are therefore commonly combined in some way in the literature. In this document, the social aspect is combined with the cultural further below.

3.1 Economic environment

Traditional economic theories postulate that socio-economic differences in the accumulation of human capital can be attributed to inequality in families' ability to finance investments in their children's human capital (Becker & Tomes, 1994). This not only concerns the development of academic, but also non-cognitive skills (Lundberg, 2013).

In the Australian context material resources have been particularly discussed as barriers for accessing and succeeding in HE for people from low SES (e.g. James et al., 2008; Bexley et al., 2013; Bradley et al., 2008; Sellar & Gale, 2011; Edwards & McMillan, 2015), Indigenous people (Anderson et al., 2008; Asmar et al., 2011; Rigney & Neill, 2018), but also for people from regional and remote areas in the context of necessary relocation costs (James, 2001; Naylor et al., 2013) or the quality of schools (Lamb et al., 2014). Their importance has also been pointed out for people with disability whose adjustment needs can add considerable costs to higher education participation, such as for purchasing assistive technology (Jacobson, 2012; Hersh & Mouroutsou, 2019), and who can also come from low SES backgrounds (Pitman, 2022). Further to that, students with disability especially rely on sources of income support as their disabilities can preclude them from employment. As pointed out in Section 2, economic drivers emerge in the interaction between students' situations and requirements for successful HE participation. There is a particular role here for interactions between students' situations, the requirements of federal income support programs and HE scholarships because financial support programs offered by universities are usually neither designed nor administered to work in harness with Government income support programs, and because they often require full-time studies that are unrealistic for the situations that underrepresented students find themselves in, in the context of their access to economic resources.

3.1.1 Pre-access and access phase

In the pre-access phase, variations in family material resources influence the access to quality early childhood and school educational institutions, and the quality of available learning resources and commercial learning support, such as private

tutoring. Material resources further influence the quality and adequacy of housing (including adequate study spaces), clothing, nutrition, internet access, access to extra-curricular activities, the extent to which children have other family commitments, such as helping with care and/or household maintenance, and affect the health of household members as well as access to quality health care. All of these have implications for the conditions and spaces for learning and can impact on developing relevant capabilities for post-school university pathways.

In the Australian context, differential access to quality educational institutions including childcare, primary and secondary schools have been variously commented on, with low SES student populations focused in low SES, often public, schools (Redmond et al., 2014; Jennings et al., 2015, Rowe & Perry, 2022). Studies have shown that students, regardless of their SES, achieve higher academic performance in high SES schools and are more likely do go to university if they attend such schools (e.g., Chesters, 2019; Perry, Saatcioglu & Mickelson 2022). This demonstrates one dynamic by which material family resources influence relevant outcomes for successful HE studies, but also illustrates how the SES-school segmentation in Australia influences the chances for developing capabilities and aspirations. Because schools are instrumental in developing student capabilities that are imperative for successful student trajectories into and out of HE institutions, they have also been suggested as a criterion that defines equity groups in Australia (James et al., 2008).

Material resources in the family also influence perceptions and decisions about post-school choices (Gore et al., 2015) as economic family pressures may be perceived to be better (or more immediately) met by employment rather than tertiary education, which also applies to many Indigenous families (McLisky & Day, 2004; Fredericks et al., 2022).

Individual attributes related to self-perceptions, non-cognitive attributes, such as perseverance and self-esteem, and aspirations that develop in the pre-access phase can further be influenced by experiences of shame and/or not belonging that are triggered by situations related to the material family context (Bilo, 2017; Bosma et al., 2014). For example, people may feel embarrassed/as not fitting in because of their clothing, the quality of their learning resources, or as a result from actually being excluded from activities that need to be paid for by parents.

As indicated earlier, while socio and economic aspects are presented separately in Section 3, both dimensions are usually intertwined. The point raised here relates to what Plantinga (2019) calls 'financial shame'. There are other socio(-economic) influences, such as parental nurturing or expectations in school contexts (see Section 3.2.1), on the development of individual capabilities and attributes.

3.1.2 HE participation phase

Once students commence university studies, many young people make a transition to university straight from secondary school and depend financially on the support provided by their families (Lamb et al., 2004). Material resources that university students can then draw on affect the ability to pay for the costs of living, which influences the parameters of living and learning, such as the quality of accommodation and food, the location of accommodation and associated distance and travel options to campus, the quality of private learning resources, private learning spaces, available internet, and private access to assistive technologies. They affect the need for employment that, in the case of underrepresented groups, takes away focus on studies for people for whom such a focus would be particularly valuable (Trowler, 2020). Financial pressures in the participation phase can also worsen mental health of students (Wierenga, Landstedt & Wyn 2013).

Financial pressures that result in the need to work to generate income can also reduce participation in work integrated learning activities and extra-curricular activities reducing the accrual of employability attributes and the generation of social networks (Harvey et al. 2017, also see Section 3.2.2)

3.2 Social and cultural environment

The social and cultural environment influences which values, opinions and behaviours individuals are exposed to over their lives. It influences how people see the world, what objectives and ways to achieve them they define, and how they speak and behave. This includes views on the value of education but also dispositions towards educational institutions and professions.

3.2.1 Pre-access and access

Families, communities and schools, based on their capabilities and motivations can provide relevant information, stimuli and academic/developmental support to ensure children achieve relevant milestones in early childhood and school, such as achieving high school attendance and learning engagement. This also entails information on tertiary and career pathways as well as tertiary application processes.

Parents/families are the main *Influencers* when children are at school (Kilpatrick et al., 2022) having a major bearing on their children's aspirations and relevant decisions during that phase. Communities and schools too affect how children perceive post-school expectations and influence aspirations. For example, role models who reflect higher education pathways and associated occupations in the community are lacking in many regional, rural, remote as well as Indigenous communities

(McLisky and Day, 2004). They are also lacking in many communities for people with disability as pointed out by disability experts in recent consultations for the *Targeted Student Equity in Higher Education Review.*

Furthermore, HE institutions and HE studies are not always valued within Indigenous communities, which is influenced by the westernised cultures of HE institutions that have no or little regard for Indigenous knowledges and cultures (Cameron and Robinson, 2014). There is also a perceived lack of benefit of HE studies to the community (as well as the individual), which is shaped by available job opportunities, but also past negative educational experiences (Kippen et al., 2006; Gore, 2017). The latter more broadly applies to communities in many regional and remote regions. Indigenous community attitudes towards western HE institutions have to be seen in the context of colonialism, dispossession and intergenerational trauma (Cunningham et al., 2016c).

Where HE studies were not experienced by family members, where communities lack an economic structure that has notable room for HE-pathways and associated occupations, people are more likely to grow up with lacking information about HE pathways and occupations. 'Hot knowledge' (knowledge gained through experience) about pathways, HE application processes and HE institutional processes and experiences by family members influences post-school decisions (Smith, 2011).

As mentioned earlier, schools in Australia have a role in steering students towards or away from higher education pathways, not only via their influence in setting conditions for learning and academic achievement, but also by conveying stereotyped expectations through teachers and career advisers (Cunninghame et al., 2016a).

Social environments in schools and communities can be the source of harassment, bullying and discrimination, which are matters that have been particularly associated with Indigenous people (Biddle & Priest, 2015) and people with disability (Graham et al., 2016; Chrysanthos, 2023). Experiences of that nature affect individual attributes, such as perceptions of worth and confidence, identity and aspirations and people's mental health.

3.2.2 HE participation

Social and cultural resources further matter in the HE participation phase. They affect how well students are informed about HE requirements and processes, how well they are prepared for HE studies, how confident they are, how well they can be academically and pastorally supported by friends and family while being an HE student, and how isolated or integrated they feel at university.

Because students from disadvantaged backgrounds are more likely to encounter frictions with their social and cultural environments in HE institutions, whether that relates to navigating the HE environment and life as a student more broadly, understanding enrolment and assessment requirements or fulfilling academic requirements, they are seen to particularly benefit from pastoral, academic and financial supports, however, adequate support by family and friends can be lacking (Wierenga et al., 2013; Karimshah et al. 2013).

The concept of sense of belonging has gained prominence in western literature surrounding student success and retention (e.g. Baumeister & Leary, 1995; Hoffman et al., 2002; Maestas et al., 2007; Krause & Armitage, 2014; Morieson et al., 2013), and students from disadvantaged backgrounds have been commonly identified as having more difficulties with forming and retaining a sense of belonging in the pre-access and HE participation phases. The small proportion of Indigenous students in many HE institutions, for example, is one aspect that makes it harder for them to find a sense of belonging (Cunningham et al., 2016c).

Indigenous students' cultural obligations that require they attend to kinship matters outside university can conflict with institutional HE inflexibilities that demand their ongoing participation in HE studies (Evans, 2017). Indigenous students are also more likely to experience racism and discrimination, with the latter also applying to students with disability (which is also mentioned in Section 4).

Students from low SES backgrounds have also been seen to have more caring responsibilities towards children, siblings or elderly family members (Trowler, 2020), which could be more economically driven.

As mentioned in Section 3.1.2 in the context of economic circumstances, students from some underrepresented backgrounds tend to access employability-building experiences less than other students when at university.

"For example, our own research on 'study abroad' experiences revealed the extent to which such experiences are typically dominated by higher socio-economic, metropolitan students (Harvey & Sellar et al., 2016). Similarly, research shows that work-integrated learning (WIL) experiences, access to careers advisers, and other employability activities are likely to be skewed against students of lower socio-economic status, those with a disability, from regional areas, from non-English speaking backgrounds, or from other under-represented groups (Australian Collaborative Education Network, 2015; Doyle, 2011; Greenbank, 2007; Harvey & Reyes, 2015; Martin, 2012; Simpson & Ferguson, 2013; Urbis, 2011). Inequitable access to employability experiences at university may partly explain why some equity group students typically report poorer graduate outcomes than other students." (Harvey et al., 2017, p6)

Students social and cultural resources play a role in these outcomes, for example, a lack of information or understanding of the importance of extra-curricular employability-building experiences (beyond academic achievement) is more common among equity students. For students with disability, concerns about experiences of exclusion and discrimination or about physical limitations can prevent participation in such experiences (Harvey et al., 2017). The terminology of 'social closure' has been applied (also) in the higher education context to refer to mechanisms by which disadvantaged students are prevented from extra-curricular experiences that build employability attributes (Lehmann, 2012). Important in this argument is also the distinction between career-related work experience and income-supporting jobs, which are not career-related with the former more associated with benefits for future graduate careers than the latter (Moreau & Leathwood, 2006). Under-represented students often do (need to) work to support their studies and their families, but often not in roles that are related to their higher education studies or associated professional careers. In fact, and perhaps somewhat paradoxically, low-skilled employment during higher education studies can be a detriment to building employability attributes for professional careers in the higher education participation phase.

3.3 Geographical factors

Geographical factors for underrepresentation are constituted by geographical distance to HE institutions, which is associated with economic and social costs as well as cultural distance to universities. Geographical barriers in Australia are often perceived for people from regional and remote areas (James et al., 2008; Burnheim & Harvey, 2016) and Indigenous people (Kippen et al., 2006; Anderson, Bunda and Walter, 2008).

3.3.1 Pre-access and access

Where HE institutions are far away it is more difficult to develop aspirations for HE pathways. Geographical factors are also seen as being entangled with lower socio-economic character of regional, rural or remote communities. There can be a lack of role models, but also a lower accessibility of quality services, e.g., in areas of education, health or internet connections affecting the development of aspirations and capabilities.

Distance to higher education campuses creates costs, in terms of financial relocation and travel costs and times, and costs of social and cultural dislocation (Alloway et al, 2009; Gore, 2017). These costs can already be anticipated prior to HE participation and influence post-school decisions. "Physical distance, cost, and emotional distance remain influential factors for many regional and remote young people" (Fray et al., 2020).

3.3.2 HE participation

The material, social and cultural costs from relocation then also constitute barriers to successful HE participation where students do relocate to distant places as they define support needs and the potential to be effectively supported by social networks.

The recognition of such costs was the basis for the concept of Regional University Study Hubs. Similar costs can also arise for students living in outer suburbs of metropolitan cities with no higher education institution nearby. This has been acknowledged recently by the Accord Panel in its Action Plan, which suggests setting up more University Study Hubs including in outer suburban areas (Australian Universities Accord Action Plan).

Another type of potential barrier associated with geography is that regional campuses often offer a lesser breadth of study choices, making it harder for regional residents to pursue their preference more locally. This was expressed in consultations with HE experts (Kubler et al., 2022).

Students can also participate in HE through remote studies, however this also comes with limitations, one of which is that remote study mode does often not generate the learning engagement associated with face-to-face delivery and that remote studies are commonly lacking adequate student support services (Lodge et al., 2022).

3.4 Intertwined conditions and compounding impacts on individuals

While economic, social/cultural and geographical factors were presented in individual sections for conceptual clarity, these factors are commonly intertwined, and people experience the intertwined conditions of their economic, social-cultural and geographical community, school and family environments. They all combine to affect the development of individual dispositions, behaviours and capabilities, and access to economic, social and cultural resources throughout the student life course, with repercussions for academic performance and reaching educational milestones (see Figure 1).

There has been much literature that evidences the variation in individual attributes and achieved milestones (see Table 1) for the groups of interest and this was alluded to in the previous sections. Only some examples for factors at the individual level that play a role in HE underrepresentation are given here to somewhat flesh out that level (component B in Figure 1). These examples refer to different dimensions of individual attributes and/or different stages of the student cycle:

- Socio-economic variations in the development of cognitive skills at early childhood (e.g. Dickson et al., 2016), socio-economic variations in the development of non-cognitive skills (e.g. Kautz et al., 2014), poorer school performance for people from low SES (James et al., 2008; Harvey et al., 2016), for Indigenous people (Craven & Dillon, 2015; Mahuteau et al., 2015) and people from regional and remote areas (Burnheim & Harvey, 2016) have all been reported.

- Lower HE aspirations in the pre-access phase have been a focus of equity research and intervention in Australia in relation to people from low SES (James et al., 2008; Harvey et al., 2016), people from regional and remote areas (Alloway & Dalley-Trim, 2009; Naylor et al., 2013; Cardak et al., 2017), Indigenous people (AIHW, 2014; Kinnane et al, 2014; Craven & Yeung, 2015) and in relation to women's aspirations towards non-traditional areas of study (Little & León de la Barra, 2009).

- Behavioural differences have also been noted. For example, when people apply for university studies applicants from low SES backgrounds were found to be less ambitious in their portfolio selections than other applicants, and they were less likely to make changes to these portfolios after publication of ATAR results (Cardak, et al., 2015). Once at university, First in Family students were found to be less willing to seek assistance from university staff and services, but also less able to cope with the stresses of university study (Scevak, et al. 2015). Not all students with disability disclose their disability status for reasons of stigma. This can effectively mean they do not seek (available) support when support is conditional on such disclosure (Cunninghame et al, 2016b). Especially students from lower SES backgrounds are less likely to participate in extra-curricular activities that build employability attributes while at university (Harvey et al., 2017).

- Some studies have identified that underrepresented groups lack understandings of academic institutions and their requirements. For example, Indigenous students are more unfamiliar with, and lack of confidence in, academic requirements (Andersen, Bunda and Walter, 2008).

- More financial, relationship, mental and physical health stressors were found to be experienced by low SES students at the University of Queensland (Karimsha et al., 2013), and nationally, there is substantial evidence of lower retention and completion rates for all groups of interest (e.g. Tomaszewski et al., 2018). There is also strong evidence for compounding effects on HE participation and completion when people and students fall into multiple groups (low SES and/or RRR and/or Indigenous and/or Disability) (Tomaszewski et al. 2020).

- Low SES graduates and graduates with disability have a lower likelihood of employment in the initial years after graduation. Low SES graduates are also less likely to work in professional or managerial occupations and to have a high salary if in full-time employment. Indigenous graduates and graduates with disability report lower physical and mental health and life satisfaction than their respective peers over a longer (15-year) period post-graduation (Tomaszewski et al., 2019).

3.5 Longitudinal dynamics

In the US it is now well established that disadvantages in earlier life influence chances of being disadvantaged in later life (Heckman, 2006; Sawhill et al., 2012; Heckman & Mosso, 2014; Fishkin, 2014). The Mitchell Institute has documented some of those patterns for Australia for which suitable data to investigate such patterns is sparser. Figure 2, which is copied from Lamb et al., 2020, estimates the proportions of low and high SES people who do not achieve a developmental milestone in different stages of the life course. The proportions are notably higher for low SES people for all defined milestones in every one of the defined life stages. Similar patterns apply for Indigenous people and people from rural areas although the contrast between low and high SES is particularly stark (ibid).

Using earlier data, the Mitchell Institute also estimated the proportions of people who fail a milestone and still achieve another one later. This showed that 'catching up' – achieving a milestone after failing to meet an earlier one was possible, however more so for advantaged learners (Lamb et al., 2015).

The lower chances of developing individual attributes and achieving educational milestones over the student life course for people from underrepresented groups outlined in Section 3.4 and 3.5 reflect the often ongoing nature or influences of the economic, social-cultural, geographical and institutional barriers they have experienced.

Figure 2: Percentages not succeeding on key educational opportunity indicators for high and low SES

	Successful lifelong learners		Creative and confident individuals		Active and informed citizens	
Entry to school Age 0-8	Developmentally on track on all key domains	Developmentally on track in literacy and numeracy	Developmentally on track in social competence	Developmentally on track in emotional maturity	Developmentally on track in respecting others and social behaviour	
High SES	**14.7%**	**9.1%**	**18.7%**	**18.2%**	**11.4%**	
Low SES	**33.3%**	**25.7%**	**32.5%**	**29.4%**	**19.9%**	
Middle school years Age 9-14	Performs above the national minimum standard in both literacy and numeracy	Performs at or above the international benchmark standard in science	Exhibits behaviours indicative of creativity	Possesses a strong sense of self-efficacy or belief in self	Keeps informed about current events and has awareness of global issues	Views key civic engagement activities as important to being an active and good citizen of Australia
High SES	**8.7%**	**15.0%**	**19.3%**	**27.8%**	**31.6%**	**33.4%**
Low SES	**49.4%**	**57.0%**	**36.4%**	**37.5%**	**40.4%**	**38.5%**
Senior school years Age 15-19	Attains a Year 12 certificate or equivalent	Meets or exceeds international benchmark standard for age in maths, science and reading	Exhibits high level proficiency in creative problem solving	Possesses a strong sense of self-efficacy or belief in self	Keeps informed about current events and has awareness of global issues	Views key civic engagement activities as important to being an active and good citizen of Australia
High SES	**8.2%**	**13.8%**	**21.0%**	**18.7%**	**15.0%**	**28.6%**
Low SES	**33.2%**	**51.4%**	**50.0%**	**32.3%**	**39.0%**	**39.8%**
Early adulthood Age 20-24	Engaged fully in education, training or work	Gains post-school qualification	Adaptable to change and open to new ideas	Confident in self and the future	Keeps informed about the world	Active in the community
High SES	**18.0%**	**13.7%**	**27.7%**	**23.7%**	**24.0%**	**29.6%**
Low SES	**49.2%**	**47.1%**	**36.8%**	**35.2%**	**44.0%**	**44.6%**

Source: Figure 6-2 in Lamb et al., 2020.

So far, economic, social-cultural and geographical factors, and individual dispositions, capabilities and resources relevant for participating and succeeding in HE studies have been outlined. These interact with requirements for and conditions of HE studies. Some of these are influenced by Government policies, for example, those that regulate tuition fees and debt repayments, set standards for formal qualifications or the conditions and levels of income support for students. Within parameters set by Government policies, sector-wide standards and regulation, HE institutions develop their own dispositions, behaviours and define processes and requirements that contribute to driving underrepresentation in HE participation and attainment in Australia. These are outlined next.

4. Institutional factors for underrepresentation

Universities reproduce cultural views and practices concerning ways of speaking, thinking and behaving, which can manifest as barriers for those socialised into different social and cultural worlds (Devlin, 2013). Institutional barriers have been particularly debated in the context of Indigenous people (AIHW, 2014; Bradley et al., 2008; Schofield et al., 2013), people from low SES (James et al., 2008; Bok, 2010; Devlin, 2013) NESB (Dobson et al., 1996; Mestan, 2016) and WINTA (Bell, 2016) and people with disability (Brett 2016; Cunninghame et al., 2016b).

The following sub-sections break down areas of university operations as they have been identified as contributing to underrepresentation of these groups. They point to aspects of UQ operations that could be made more equity friendly.

4.1 University entry requirements

University entry requirements can form significant barriers for parts of the population to access Higher Education, or particular HE programs (Armstrong & Cairnduff, 2012). To the extent that they are primarily defined by previous academic achievement, they generate and re-generate the 'bottleneck' status of key milestones in the primary and secondary education system, whereby educational milestones at school structure later opportunities for HE participation (Chambers 2009; Fishkin 2014; Lamb et al., 2015).

4.2 Enrolment and course completion requirements

Academic calendars, among other things, define the last dates by which students can withdraw, from a course, or change a program of study, without financial and academic penalty. These dates enshrine a structure for decision-making, which constrains student flexibility. This can particularly affect students from underrepresented groups who experience more situational pressures because of being lesser prepared for university life and study, and lesser resourced, also in the context of their social and cultural responsibilities (Trowler, 2020).

Completion requirements, for example, for nursing degrees entail placements, which are often unpaid and/or conditional on intense time commitments over several weeks. These requirements too impact particularly on underrepresented groups who cannot afford such commitment due to economic (work) or social (care) responsibilities and/or geographical distance (Hewett et al., 2023).

4.3 Student support requirements

Some student supports including equity-specific supports, such as equity scholarships programs are commonly conditional on full-time studies and/or limited in duration and/or dependent on continued enrolment in the same program. Any of these conditions constrain flexibilities that could be particularly beneficial for, or needed by, students from underrepresented groups: part-time studies to accommodate economic circumstances, and social and cultural responsibilities; a change in program when students realise it is not what they want to study or do after university; and extended study times that account for possibilities of part-time study, switches in program and study breaks. Widening access to such services has been expressed by equity stakeholders as a promising avenue for improving equity at universities in recent consultations for the *Targeted Student Equity Review.*

Support services that are designed based on a needs-based principle can also be designed in non-attractive/discriminatory ways by necessitating intrusive needs tests. Students with disability, for example, commonly need to disclose their disability to confirm their need/entitlement of support. Due to the administration of support services and possibly also to the potential temporary nature of disabilities, some students need to undertake multiple disclosures of that type during their HE participation (Cunningham et al., 2016b).

Contact or operational hours, response times and modes required to engage with support services can effectively reduce access for equity students (ibid.).

4.4 The Content of Student Support Measures

What student support services and support measures entail influences the extent to which students can be effectively supported. There are a multitude of ways in which the content of support services can be insufficient or inadequate for equity students, such as the extent of material support provided, the adequacy of academic or counselling services, or individual adjustments offered by universities to students with disability.

4.5 Course content, design and delivery

Universities can define different value for different types of knowledge, which influences the content of curriculum, which can influence the accessibility of the curriculum from underrepresented groups (Burke et al., 2016; Burke et al., 2017). Cultural insensitivities of course content have also been observed in university teaching in Australia (Cameron and Robinson, 2014). The role of western-centric course content as barriers for HE access and success has been particularly noted for Indigenous people (Rigney & Neill, 2018), but also people from low SES and regional/remote backgrounds who are less likely to see their experiences reflected in course content (Burke et al., 2017).

Accessibility of course content is further influenced by modes of content delivery: requirements of physical presence and/or working with other students as part of course participation can be particularly challenging for students who need to combine work with study, have caring responsibilities, live far away from HE institutions, or have particular disabilities or health conditions, such as those that affect mobility, or dispositions towards, and behaviours in, social interactions. More recently,

such barriers have been pointed out for neurodiverse students, such as those with forms of Autism Spectrum Disorder (ASD) (Owen et al., 2016) or Attention- Deficit/hyperactivity disorder (Sedgwick-Mueller, 2022).

Somewhat contrasting with the above is the observation that collaboration-oriented "Indigenous cultures do not align with Western pedagogical values of self-driven, task-focussed, grade-oriented learning practices" (Cunningham et al., 2016, p18c). Productive learning conditions for some equity students, such as those with ASD then seem to contrast with those for Indigenous students.

Staying with students with ASD, digital platforms that are overly complex, visually stimulating, and illogically structured can present significant challenges to participation (Owen at al., 2016).

4.6 Assessment modes and schedules

Like enrolment and completion requirements, and course design and implementation, assessment requirements and structures impose conditions that can affect students negatively in similar ways: they constrain flexibility in learning and assessment preparation and participation, which particularly impacts students with work or caring needs, students who live far away from campus and students with certain types of disability. Online assessment may lessen difficulties for some but also require reliable and fast access to the internet.

4.7 Employability strategies

With the massification of higher education credentials in the Australian population, employability-building experiences beyond those available in core-curricular processes have become increasingly important in competitive graduate labour markets where the relative value of a degree has declined for some time (Marginson 1995).

As was briefly outlined in Section 3.2.2, students from underrepresented backgrounds have less access to employability experiences that shape later chances for professional work and careers in the labour market. A group of researchers led by Andrew Harvey identified institutional barriers in Australian universities in this context. These were primarily seen as rooted in a lacking understanding of how employability strategies affect different student groups and lacking intent or perceived need to address inequities in graduate outcomes. (Harvey et al., 2017).

Beyond the roots of institutional barriers two aspects of institutional barriers were highlighted:

- "a 'silo mentality' within universities, including apparent disconnect between university management, careers services, equity units, Indigenous centres, and student unions;

- a lack of relevant data to inform linked employability and equity strategies, including no systematic monitoring of the extra-curricular participation or graduate outcomes of equity groups." (Harvey et al., 2017, p52)

Some more is drawn from this study here because the study is relatively recent, its methodology allows generalisations for the Australian higher education sector, and some of the institutional barriers the authors identify also reflect such barriers in other areas of university operations:

"The overall picture emerging from our research is concerning. As graduate outcomes remain highly uneven and reflect the inequities well-documented by broader research, many institutional employability strategies may be offering little to reduce these inequities. Indeed, some strategies may even be exacerbating student inequity by: focussing overly on particular types of capital, e.g. cultural capital, for example through employer-driven activities that emphasise 'cultural fit' and networking, and the exclusive recognition of particular types of 'volunteering' and other contributions; rewarding and/or requiring extra-curricular participation, to which some groups have limited access; reflecting isomorphic tendencies, by which (often relatively homogeneous) university staff and/or employers reward people who resemble themselves, without sufficient attention to diversity; uncritically promoting experiences which are expensive and/or time-consuming, such as outbound mobility, without consideration of how to ensure participation by those low on time and/or money; marginalising the student voice within the development of institutional strategy; and failing to inform diverse groups of students of the importance of extra-curricular and new, non-traditional, requirements for attainment of post-graduation employability." (Harvey et al., 2017, p54).

The authors conclude with a warning:

"If universities do not begin systematically addressing student equity within employability, several risks will grow. The gaps that currently exist in graduate outcomes may well widen, with low socio-economic and some other under-represented students increasingly disadvantaged as employment depends on experiences to which they lack access, beyond the holding of formal credentials. Other gaps will remain masked by attrition data – those who do not complete degrees do not appear in the graduate destination data, but typically have poorer employment outcomes than graduates." (ibid, p7).

4.8 Career advice

Underrepresented students can face a number of barriers and may fail requirements, encounter dramatic changes in their environment, and gain different understandings of careers/fields of study or their preferences, which can all lead to changes in career aspirations at various points in time. The younger students are aged when entering HE, the more likely they are to experience changes in their career perspectives and interests. Career advice is particularly important for disadvantaged students as they are less likely to have social capital to gain HE relevant career advice. Both these statements are supported by drop out patterns and relevant survey responses (Harvey et al., 2017b). Access to quality career advice throughout the pre-access, access and HE participation phases has been a common recommendation in the equity discourse in recent years to improve access and completion outcomes (Department of Education and Training, 2017).

4.9 Physical campus environment

Like features of content design and delivery, building and campus designs can constitute barriers for people who face mobility limitations (Brett, 2016) or have neurodiverse conditions to the extent that parameter of the physical campus infrastructure create sensory overload and/or contribute to unwanted social interactions (Owen et al., 2016).

More generally, spatial configurations and architectural symbols on university campuses influence students' sense of place, their social interactions and sense of belonging (Samura, 2018; Askarizard et al., 2021). Whether students frequent spaces and interact can come down to minor-seeming aspects, such as the design of doors, whether they are open or closed or what the opening mechanism is.

While some references may be found in relation to sandstone campuses (of Go8 universities) contributing to alienation of students from disadvantaged backgrounds in the Australian equity literature, and while UQs Country Design Framework is an attempt to make UQ campuses more attractive for Indigenous students, the relationship between campus and building designs and student behaviours (which could also entail accessing support services) and dispositions appears under-considered in the Australian equity discourse, possibly because this kind of research has been more naturally in the domain of urban planning and architecture.

The availability/unavailability of accommodation on campus, traffic connections to and from campus, the availability and cost of parking, food and services on or near campus can all create barriers to successfully participating in HE for students with little material resources and/or time and/or a seat of residence that is distant to the campus.

4.10 Staff representation and staff capabilities, behaviours

Cultural barriers that manifest in interactions students have with the university, whether that be in processes of administration, teaching or support, are also rooted in relevant university staff capabilities. So are, at least in part, institutional barriers entrenched in course and support services design and delivery, administrative processes and (student) requirements, which were sketched out above.

For example, university staff often lack knowledge on disability standards (Cunningham et al., 2016b), indigenous knowledges and cultural sensitivity and awareness (Cameron and Robinson, 2014). Fundamentally, they can lack an understanding of the principles underlying equity policies, such as the rationale of reasonable adjustments in the context of notions of course integrity and equality of opportunity (Cunningham et al., 2016b).

Several observers have noted that university cultures are affected by traditionally low staff representation of equity groups and some of drawn a direct link between staff and student representations on campuses, particularly for Indigenous people (Liddle, 2016; Frederiks et al., 2022) and people with disability (although there is less reliable information on the representation of people with disability in the HE sector). This not only affects staff capabilities but also generates a lack of role models that students from underrepresented groups could try to emulate, and a lack of seeing their own identities reflected in university staff populations, which impacts on students' sense of belonging.

4.11 Administrative processes and communications

Similar to course content, course delivery and student services, administrative processes and surrounding communications for applications, enrolments and other matters related to the curricular and extra-curricular spheres can be designed in ways that are particularly unhelpful or distancing for students from underrepresented backgrounds. Unnecessary complexities in administrative processes and language, and non-inclusive elements in processes and communications will be particularly 'felt' by those students. This can compound the substantive barriers that administration processes are built around, such as the enrolment and completion conditions because students are more at risk of missing deadlines or administrative actions that lead to academic and/or financial penalisation as was also observed for the US (California State University, 2022).

4.12 Students

Other students also play a role in the HE participation phase as, for example, negative attitudes of non-Indigenous students (see Farrington, Daniel Di Gregorio and Page, 1999), and harassment, bullying and racism are part of underrepresented student experiences (Frederiks et al., 2022).

4.13 Analysis, assessment and program design

Equity programs have been designed and implemented in Australian universities for many years. There has often been no robust evaluation attached to the many programs designed and implemented at local levels, which has been likely affected by short-term equity funding cycles. In the past, programs at local levels were commonly designed and put in place based on practitioner-led knowledge, educated guesses, 'inertia' and/or service delivery principles, which can be in tension with evaluation-informed delivery. To date, there has been little rigorous evidence for the workings of equity-specific programs. This likely reflects that equity programs at the level of HE institutions, such as those that are funded by HEPPP, are strongly influenced by short-term funding streams, but it is also an indication for (at least some) universities not having given equity a high strategic priority.

A key impediment to effective monitoring and evaluation is the lack of stable and meaningfully defined operationalisations of the groups of interest – operationalisations for low SES and disability as they are often applied in the HE sector in particular have major shortcomings to the extent that they cannot clearly indicate trends over time.

4.14 Institutional governance and strategic objectives

The role of staff characteristics and staff capabilities in the underrepresentation of groups in student and graduate populations, the lack of professional approaches to program design and evaluation cycles in the equity space, institutional barriers such as those related to employability strategies identified by Harvey et al. (2017) point to other institutional matters of governance, strategic objectives, planning, staff recruitment and professional development. Student attitudes and behaviours, especially when these relate to what happens on campus, in the classroom or on work placements are also in scope of HE institutions' realm of influence.

In a report investigating the impact that equity policies in higher education have had in a number of countries Salmi identified five key challenges for Australia. Two of those have particular relevance for The Queensland Commitment:

- "Comprehensive equity promotion policies in higher education have not been enough to offset structural inequality of outcomes in secondary education, even though Australia has lower financial barriers to entry than most other countries." (Salmi, 2019, p45)

- "The lack of continuity in national leadership, policy direction, and funding in recent years, which limits the availability of university places, presents risks for the enduring success of equity policies in higher education." (Salmi, 2019, p46)

The first challenge alerts to the structural nature, and the persistency, of the problem even in the light of policies that were categorised as "comprehensive" by the author, at least relative to some other countries included in the review. It is also presented here to emphasise the role of the secondary education system in creating inequities in higher education studies and the limited reach that an individual university, such as UQ has into this sphere.

The second point directly speaks to the area of governance and equally applies to an individual institution. Without a substantial and longer-term institutional commitment that is reflected at all levels of the institution including its leadership, The Queensland Commitment objectives will not be achieved.

Brett (2018) highlighted a number of additional national challenges in relation to achieving equity outcomes in Australia, some of which also fall into the realm of governance and will have potential application at the UQ institutional level:

- a lack of effectively framing *accountability* for student equity; and

- a lack of student equity as adequately featuring in the *regulatory environment.*

When contemplating the implementation of the Bradley low SES target for undergraduate students of 20% for 2020 Putnam and Gill (2011) predicted "that some higher education institutions will welcome this change, while others may fight to maintain traditional ways of operating. For the latter, the transition from elite to mass education may be viewed as relinquishing their position of power." (Putnam & Gill, 2011, p. 188). Further: "...until these issues are addressed, the Bradley report's recommendations and targets will not be achieved and higher education will continue to be stratified, favouring the traditional student and reproducing class inequalities." (ibid.)

Putnam and Gill's predictions were confirmed a few years later when the Department of Education attempted to set institution-specific targets to achieve the low SES national target of 20%:

"Despite the reality of the Government's calibrated approach to widening participation, the Go8 publicly represented it as a damaging, one-size-fits-all policy…. This approach was part of a sustained attack by the Go8 against the current policy of access and participation, which in its view was restricting the availability of funds for research in preference to 'enrolling [low-achieving school leavers] directly into Bachelor degree programs' (Go8, 2012). Whilst affirming its support for higher education equity in the abstract, the Go8 called for replacing sector-wide targets with more meaningful mission-based compacts under which universities 'could be funded to do different things, and to do them well' (Go8, 2013b). That the compacts were actually designed this way was an inconvenient truth overlooked by the elite universities." (Pitman 2014, p285).

Pitman's observation from 2014, and the empirical equity data for Go8 universities over consecutive years, add to the significance of achieving effective governance arrangements at UQ for The Queensland Commitment in the context of its historical institutional dispositions and behaviours, and a general lack of understanding and articulating how equity objectives and academic (research) excellence can be integrated and pursued in unison.

Several recent submissions to the Australian Universities Accord highlighted the need for a common definition of student equity as well as a coordinated approach to designing and implementing equity policies and programs across different levels, sectors, portfolios and stakeholders in Australia. Similarly, equity policies at the institutional level, such as The Queensland Commitment, would benefit from concepts of equity and associated objectives that are shared across the institution as well as a coordinated design and implementation of associated policies and programs. In the context of employability policies Harvey et al. (2017) identified institutional shortcomings in Australian universities that will similarly apply to, and effect, other areas of policy:

- "a 'silo mentality' within universities, including apparent disconnect between university management, careers services, equity units, Indigenous centres, and student unions;

- a lack of relevant data to inform linked employability and equity strategies, including no systematic monitoring of the extra-curricular participation or graduate outcomes of equity groups."

Table 2 (for the pre-access and access stages) and Table 3 (for the HE-participation and post-participation stages) map some of the environmental and HE institutional drivers for underrepresentation that were outlined in Section 3 and Section 4 against outcomes of the student access model from Table 1.

Table 2: Student Student Success Model and Social Environmental and HE Institutional Drivers/Barriers

Drivers/barriers for achieving outcomes and milestones for successful higher education participation		
	Economic, socio-cultural and geographical context (community, family)	University operations
Pre-access and access	- Access to quality early childhood institutions and schools - Access to quality learning resources, internet, commercial tutorial support - Quality of housing, including learning spaces - Quality of clothing and nutrition - Family health and access to health services - Family commitments/obligations such as care and household maintenance - Family financial pressures - Family/community values of education and educational institutions - Role models in community, school and family - Family informal learning support - Access to information about HE paths and related occupations - Access to familiarising with higher education institutions - Access to information about tertiary application processes - Experiences of bullying/discrimination	- Structure, scale and targeting of outreach programs to schools and communities - Partnerships with schools, TAFEs and communities - Marketing, messaging and recruitment - Admissions criteria/available pathways into and through university - Complexity, rigidity, and documentation of application processes - Application support services - Bridging and preparatory programs

Outcomes for successful higher education participation

- Development in a number of early childhood domains (physical, social, emotional, language and cognitive skills, communication)
- Development of literacy and numeracy skills, socio-emotional skills, technical skills, substantive knowledge, and personal skills and attributes
- Knowledge of occupational pathways and associated tertiary education options
- Development of higher education path-embracing identity and occupational aspirations
- Subject selection for Year 11 and Year 12 that facilitates higher education post-school options
- Subject achievements (particularly in subjects that count towards ATAR or are relevant as pre-requisites for later study options)
- ATAR rank
- Gaining lacking/alternative credentials to access university studies
- Knowledge of higher education application processes
- Successful application for HE studies

Table 3: Social Environmental and HE Institutional Drivers/Barriers and successful outcomes in the participation and post-participation phases

Drivers/barriers for achieving outcomes and milestones for successful higher education participation		
	Economic, socio-cultural and geographical context of origin	**University operations**
University studies and beond	• Relocation costs – social and material • Distance to campus, quality of housing, including learning spaces • Travel costs to and from campus • Quality of clothing and nutrition • Access to quality learning resources, internet, commercial tutorial support • Financial pressures and associated need to work • Family responsibilities/obligations such as care and household maintenance • Familiarity with academic culture, information about processes and standards • Family informal learning and emotional support • Friends at university and associated support networks • Experiences of bullying/discrimination (during studies)	• Enrolment and course completion requirements • Orientation programs • Course content, design and delivery • Assessment design and conditions • Accessibility and design of support services (e.g. career and academic advice, financial, technical and other support) • Accessibility and design of employability programs • Campus and building designs • Administrative systems, processes and surrounding documentation and communications • Staff and student attitudes and cultural capabilities • Services for graduates and alumni
	Outcomes for successful higher education participation (and graduate employment)	
	• Timely and effective enrolment (that achieves relevant credits) • Social and cultural integration, sense of belonging • Motivation and engagement • Development of competencies and performance, particularly in relevant disciplinary areas • Re-enrolment/retention • Participation in employability related including extra-curricular experiences and skills • Social and professional networks • Completion of qualification • Later tertiary studies, skilled employment	

5. Effective approaches to improving representation

Figure 1 shows the different points of intervention that have, to varying degrees, been discussed and tried in equity practice. Universities can 'intervene' at the level of communities, families, schools, and at the level of individuals. They can attempt to change access to resources and influence dispositions, capabilities and behaviours at all these levels, and they can attempt to do so in the pre-access, access and participation phases (see Table 1).

Universities can also change their own dispositions, behaviours, processes and associated requirements to modify access to, and student experiences of, university studies. Finally, universities can undertake equity-relevant research, generate effective practice models, and influence stakeholders and lobby governments and communities.

This section provides an overview of literature on effective practice to improving underrepresentation for the groups of interest. There are various references to 'best practice' in the equity literature. At times, advice under that label is deduced logically from empirical data. For example, it was found that larger $ values of scholarships tend to generate better retention outcomes for disadvantaged students than lower $ value scholarships, so effective practice scholarship programs should provide higher value scholarships (Recommendation 3 in Whiteford & Trinidad, 2016). It is also common though that the language of 'best practice' is applied when researchers and/or practitioners develop some more ad-hoc-seeming principles or models of practice that respond to assumed understandings of drivers/barriers. Such models may be informed by evidence of disadvantage and/or ineffective solutions to some extent, but they have themselves 'only' face validity without being proven models in an empirical sense.

5.1 Aims for approaches to improve underrepresentation

The aims of approaches to increasing representation of underrepresented groups usually reflect the success factors from the student life course model in Table 1. They are defined as building student confidence, aspiration, capabilities, academic achievement, a sense of belonging and developing effective transitions and pathways (e.g, Cupitt, Costello, Raciti, & Eagle, 2016). Aims can also be explicitly defined as strengthening community or school capabilities or reducing HE institutional barriers as is implied in The Queensland Commitment Draft Program Logic.

5.2 General principles for approaches to improve underrepresentation

There are some general principles about approaching effective equity practice that have been postulated for HE institutions in recent years. These include[2]:

- Having clearly defined education-positive objectives, and a strong research basis;

- Ensuring alignment of equity objectives with HE institutional vision, mission and values (Beltman, Samani, & Ala'i, 2017); institutional equity strategies (Harvey et al. 2017);

- Valuing and promoting the diversity that different groups bring;

- (Strongly) involving underrepresented groups in developing and implementing solutions (Harvey et al., 2017), which was also expressed by Indigenous and disability experts in recent consultations for the *Targeted Student Equity Review.*

- Tailoring programs to particular cohorts of students who are at similar stages of educational development, as well as to students, schools and communities who share common barriers, motivations and backgrounds;

- Working collaboratively via cross-sector programs that begin early in the student journey and are sustained over time;

- Working in partnership with schools and communities to build positive educational cultures;

- Using technologies and communication streams relevant to particular cohorts (Edwards et al., 2013; Gale et al., 2010; KPMG, 2015);

- Systematically collecting, monitoring and evaluating student equity data and programs (Harvey et al., 2017).

Some of the above points tap into the realm of institutional governance arrangements, which were pointed out as vital for achieving equity outcomes in Section 4.14 and which are a core element in setting the institutional foundations for The Queensland Commitment in its Program Logic. While there are references to the importance of governance arrangements in the equity literature, associated recommendations tend to be at a generic level.

There are some further generic elements for effective practice approaches that target equity students and their social source environments throughout the pre-access, access and HE participation face.

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[2] *Unless indicated otherwise, these principles were developed by Cupitt et al., 2016.*

These include[3]:

- Setting clear and realistic expectations about career pathways, career requirements and returns, academic expectations while at university, and expectations of potential employers.

- Providing career and pathway advice throughout the entire student cycle.

- Providing capability development in the areas of academic, non-cognitive and employability throughout the student life cycle.

- Providing financial/material support for students from low SES, as material barriers are ongoing.

- Developing a sense of belonging in HE, a particular university, and/or a particular discipline.

- Providing customised support based on the particular disadvantage characteristics/needs of students.

- Deploying role models and mentors as they can have an effective role in addressing barriers across the student life cycle.

Some of the above advice that relates to across different stages of the student life cycle are a recognition and reflection of the ongoing nature of drivers for underrepresentation.

5.3 Group, student stage and activity-specific effective practice

More detailed elements for equity practice in the pre-access, access and HE participation stage, as well as for scholarships and mentoring programs in particular are compiled in Kubler et al. (2020). There are also guidelines specifically for working with key influencers (parents and teachers) of underrepresented groups (Kilpatrick et al., 2022), and for providing career education for low SES students (Austin et al., 2022).

Harvey et al. (2017) make suggestions for addressing institutional barriers that affect chances for building employability capabilities. This includes a focus on retention as participation in the core curriculum is still a key avenue for building employability capabilities, integrating employability in the mainstream curriculum, but also convincing equity students of the relevance of extracurricular activities (as mandatory rather than optional) for developing employability attributes. Employability strategies should also consider employability capabilities and employment outcomes of non-completers.

Models and directions for equity practice for particular equity groups have also been suggested, such as for Indigenous students (Rigney & Neill, 2018; Fredericks et al., 2015 for accessing HE studies; Frawley et al., 2017 for effective pathways; Fredericks et al., 2022 for successfully completing HE studies; Fleming & Grace, 2016 for Indigenous people with disability; Hutchins & Bodle, 2018 for Indigenous HDR students;), RRR students (Pollard, 2018; Scobie & Picard, 2018 for mental health) and students with disability (Pitman, 2022; Owen et al., 2016).

For example, effective practice models for Indigenous students emphasise community engagement/relationships, family support and identity forming/confirming activities (Cunningham et al., 2016c). Effective practice advice for students with disability emphasises Universal Learning and Building Design and inclusive practice (not just reasonable adjustments) (Pitman, 2022; Cunningham et al., 2016b). Effective practice guidelines for both groups see increases in staff representation as instrumental in achieving changes in institutional cultures that become more attractive to these groups, combined with (at times mandatory) training on cultural sensitivity, disability standards, and other equity-relevant content delivered to all academic and administrative staff (ibid.; Fredericks et al., 2022).

For both groups effective equity practice advice also entails an emphasis on heavily involving/deferring to underrepresented students, staff and/or community groups including Indigenous elders in the design and implementation of programs. Importantly, if HE staff such as academics work on equity initiatives their performance criteria should be adjusted so that this work is formally valued and does not inhibit promotion.

Further to the equity-specific literature, internationally, there has been considerable work in areas of sense of belonging, student retention and student engagement (Tinto, 1975, 98, 2006; Hoffman et al., 2002; Maestas et al., 2007; Jones 2008; Morieson et al., 2013), and this work has often produced general effective practice guidelines or models that could also help underrepresented groups. Australian-based work in that space includes Coates et al., 2016; Krause & Armitage, 2014 and Nelson et al. (2014). For example, Nelson et al. (2014) developed a Student Engagement, Success and Retention Maturity model. UQ-specific work on student engagement is reflected in Oberhollenzer (2015) and the University's Student Retention and Success Strategy 2019-21 (Student Affairs Division, 2019).

There are various units within UQ that are specialised to deliver outreach and student support services and/or to cater specifically for underrepresented groups. These units will have an understanding of the relevant literatures about effective practices, some of which were referred to above. In some cases, effective practice principles or models were defined or co-developed by current UQ staff.

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[3] Kubler et al., 2020

The Queensland Commitment includes an intent to transform the institution more holistically to reduce its institutional equity barriers. The following section outlines approaches that encapsulate more than specialised operational areas of equity practice. This focuses on the notion of universal institutional change.

5.4 Universal institutional change

Among many possible views of approaching and categorising institutional change to increase representation in HE participation and attainment two types of designing institutional change could be seen: group-specific and universal. Group-specific change is targeted and aimed at exclusively changing the situation for specifically defined groups. The creation, expansion and running of Indigenous units or disability-specific service units, or equity-specific scholarships or mentoring programs are examples of this. To the extent that such changes offer something to specific groups that is institutionally not available to others, they could fall under the concept of positive discrimination.

Universal change, regardless of the stimulus or primary intention of the change, would change some condition/situation for all students and all potential students. Changes of the latter nature that would apply to all students or all potential students could occur in some areas of operations outlined in Section 4: admissions criteria, enrolment conditions, curriculum content and delivery, assessment parameters, campus and building designs and underlying staff capabilities, organisational priorities etc.

There is a role for group-specific change and positive discrimination in the evolution of HE institutions, particularly when those institutions are still far away from having representative student and graduate populations. However, group-specific change can be politically charged when resourcing hinges on group definitions and legally problematic when service frameworks and charters enshrine a 'services for all' principle. The effectiveness of such change further depends on effective targeting/ the suitability of student eligibility requirements and associated administrative processes to establish eligibility or recognised need. Such administrative/policing processes also use up funding.

Universal change could be more attractive in these aspects as it can unify advocates and representatives of various groups without investing energies in negotiating and administering eligibility rules. It could also be seen as more profound change or reflecting a higher state of institutional evolution. Two areas of the student experience that imply multiple operational areas of an HE institution in which universal change could take place are briefly outlined below. These may constitute opportunities for universal institutional change at UQ.

5.4.1 Increasing student flexibility

There is large agreement in the equity literature that a significant barrier to successful HE participation by students from all groups of interest here concerns the flexibility with which they can successfully participate in HE studies. As mentioned in Section 4, inflexibilities for the way students undertake their studies and lives are enshrined in enrolment, course participation, assessment and support services requirements. Increasing flexibilities for (all) students in these areas would reduce barriers for all groups of interest here, and would do so regardless of how these would exactly be operationalised in administrative processes. Flexibility applies to HE entry points, HE exit points and everything in between.

5.4.2 Universal designs

Another aspect of HE institutional operations that could become the target of universal change concerns universal designs in learning (UDL) (https://www.teaching.unsw.edu.au/universal-design-learning-udl) and physical and digital infrastructure. While suggestions for universal designs commonly emanate from disability areas of research advocacy (Pitman, 2022; Cunningham et al., 2016b), the central idea behind universal designs is that they work (well) for everyone. In the area of teaching and learning universal design would (further) provide students with flexibility about how and when to learn and study.

While inclusive design approaches could benefit all students, they could also lessen the need for (needs-tested) individual reasonable adjustments for students with disability.

5.4.3 Other

There are other universal changes that could be implemented to primarily serve particular underrepresented groups but that would also affect all students:

- Increasing representation of equity groups among staff (especially Indigenous and disability), including academic staff;
- Including course content that acknowledges and showcases Indigenous knowledge and equity group's cultures and experiences;
- Applying universal language in student communications;
- Equity-refocusing messages to students, communities and the public;

- Staff training in areas of cultural awareness and sensibility, understandings of equity students' situations, and equity principles in the context of academic excellence.

- Institutional investments in ongoing institutional monitoring, research and evaluation programs in the areas of student recruitment, experience and success. These could also keep an eye on interactions between institutional operations and student situations as conditions for successfully undertaking HE studies change, for example, with changes to cost of living and federal income support programs. And they could also include work on improving operationalisations of underrepresented groups so as to facilitate reliable monitoring of underrepresentation.

5.5 A role for Alumni

There has been increasing interest in involving university Alumni in their previous universities. Alumni can be involved in generating funding and in political change/engagement of the institution. They can volunteer/work pro bono in a variety of areas such as in student mentoring, role modelling, institutional celebrations (Stewart, 2021), admissions processes (Santellano, 2023), employability-generating activities including those that build professional networks for students and graduates (Logan, 2022)

Alumni who utilise their material resources, experiences, skills and networks for achieving better student equity outcomes can provide promising inputs into university processes to achieve such outcomes. However, alumni can have progressive as well conservative influences on universities (Santellano, 2023), and the possibility of such contradicting influences enacted through universities' governance structures, as well as logistical efforts required to involve them meaningfully (Osborn et al., 2015) will need to be considered.

6. What the University of Queensland can do

There are many things the University of Queensland can undertake to improve equity representations in its student and graduate populations. Some of them are outlined in Table 4, which lists possible actions and the reasons why they should be taken. These are derived from the insights in the previous sections while some of the arguments also take account of UQ-specific matters.

Table 4: Possible UQ institutional actions with reasons

Area/stage	What UQ can do	Why it should
Governance & Research	Define equity and its priority in UQ institutional and sub-institutional contexts integrated in the broader UQ vision. Assign clear accountability at different institutional levels for different aspects of achieving The Queensland Commitment in conjunction with adequate funding and regulatory tools. Internalise equity commitments in institutional structures. Improve data and research infrastructure to facilitate ongoing monitoring and evaluation to support strategic and annual operational planning.	The failure of achieving the national low SES Bradley participation target in the past, and the consistently low proportions of low SES, RRR and Indigenous students at UQ are largely the result of lacking long-term commitment at national and institutional levels partially driven by (political) differences in framing and prioritising equity. Without a long-term (genuine) institution-wide commitment based on a shared framing and prioritisation of equity, as well as an understanding of the deeply structural nature of it, and without adequate institutional funding and focus, these proportions will not change much. Linked to this, there is room for installing a more systematic equity research program in the UQ context that exploits the already existing administrative (e.g. application, admission, enrolment, Blackboard, staff) and national (e.g. SES, GOS) and local survey data sources, as well as incorporates new data collections in the context of assessing needs and evaluating programs. Barriers to, and enablers for, equity in disciplinary areas like medicine or law may look very different to those in areas such as social work and teaching at UQ. Local intelligence will uncover such variations and build a more reliable basis for interpretations and interventions at UQ.
Pre-access & Access	Redefine and effectively market the identity of UQ in line with institutional changes towards becoming more inclusive and representative of Queensland's population.	Universities have established catchments and markets defined by historical connections to schools, communities and families, which are influenced by family aspirations and perceived institutional images. For realising The Queensland Commitment targets, UQ needs to widen its appeal to non-traditional UQ communities.
	Review, improve and widen outreach/recruitment activities. This relates to the scale, the targeting, content and integration of (different) outreach and recruitment programs.	Commencing undergraduate students at UQ predominantly come from higher SES, often private and selective public schools, and with a relatively (very) high ATAR distribution. To change the demographic profile of its domestic students and graduates, UQ will need to pro-actively widen and shift its target market while becoming more effective in recruiting and preparing students from non-traditional UQ backgrounds.
	Review and redefine admissions criteria to shift focus of recruitment away from ATAR. This entails the task of translating 'academic potential' into alternative criteria, which may vary for different disciplinary areas.	Dominant ATAR pathways have been repeatedly identified as significant barriers preventing non-traditional students from accessing universities. Compared to the national average, UQ recruits higher proportions of school leavers, who also feature comparably (very) high ATAR distributions. A key challenge for UQ lies in redefining academic potential and excellence, also for non-school leavers, while departing from ATAR-dominated perceptions of it.
	Widen access to, and improve effectiveness of, preparatory programs.	Preparatory programs can successfully bridge entry into undergraduate studies for non-school leavers including those who come from a TAFE/vocational pathway, which tend to have lower academic and retention outcomes at UQ. As such, they can be instrumental in shifting equity shares of UQ student and graduate populations.

Area/stage	What UQ can do	Why it should
Participation	Review and redefine enrolment and completion criteria.	Current criteria and associated administrative timelines that trigger academic and financial penalties constrain and/or penalise students' decision-making, which particularly limits and penalises students that would benefit from more flexibility. Calendars are also based on Christian holidays without allowing similar off-periods for students and staff from other religions or Indigenous backgrounds.
	Review and re-design course content and delivery to accommodate wider student dispositions and experiences.	Western-centric curriculum and insensitive deliveries can create cultural distance to equity students and inflexible deliveries constrain especially equity students who would benefit from more flexibility. Given UQ's historical focus and identity and the attributes of (academic) staff it has attracted, it is likely that barriers in curriculum content and delivery are prevalent.
	Review and redesign assessment modes and schedules.	Assessment density and inflexible modes will, in conjunction with completion/fail criteria, have especially negative repercussions for equity students.
	Review and redesign employability measures and market their importance to all students.	Extra-curricular activities that are costly in terms of money and time can prevent access by equity students. Lower access to extra-curricular activities by equity students is exacerbated by them often being unaware of their importance for postgraduate employment and careers. Such activities are now de-facto imperative for being competitive in the labour market post-graduation.
	Scale up access to, and improve the quality of, career and academic advice throughout the participation phase	Career and academic advice are particularly important for disadvantaged students as their earlier study selections may be based on less solid informational foundations, as they can be more impacted by dramatic changes in their circumstances, as they are more likely to fail course requirements, and as they are less likely to have social resources that could provide relevant academic and career advice. Career and associated academic advice could make the difference between re-enrolling in (another) program and dropping out of UQ.
	Review and redesign (other) student support services to widen access and improve effectiveness for equity students.	Access to student support services is commonly hampered for those who need them as a result of eligibility criteria (e.g. full-time study, maximum study durations), unattractive access processes (e.g. disclosure of disability or need) or behavioural barriers. Larger equity populations will increase material, academic and other student support needs at UQ.
	Design, establish and normalise (further) exit options that allow students to exit university with recognised (non-degree) credentials that can be used when transferring to other tertiary education options or employment.	As students from underrepresented groups are more likely to need to interrupt or exit universities prior to degree completion, this could particularly benefit them. With increasing equity student populations, these exit options would become more relevant over time.

Area/stage	What UQ can do	Why it should
Participation	Review and redesign the physical campus environment (including a reflection on symbolic values) so that students from all backgrounds feel they belong.	Campus and building designs can variously influence access and experiences by students from equity groups and can generally influence student behaviours with impacts on sense of place, identity, social networks and belonging. Although there were some developments in that space at St Lucia over recent years, students still appear some distance from 'owning' the campus.
	Further contribute to improving inclusive institutional culture by providing relevant training to staff and students, running campaigns, recruiting more staff from equity backgrounds.	There is not only an empirical correlation between equity staff and equity student proportions at universities. Equity staff can be role models for equity students, drawing on their own experiences can better connect with such students and have a more intuitive understanding of their dispositions, constraints and needs. Because of this, they can be effective mentors to equity students, equity culture shapers and active contributors to reducing institutional barriers and optimising university operations for the benefit of improving equity outcomes.
	Review, simplify and improve administrative systems and associated notifications for students. This concerns how information is structured, worded and displayed, when and where, so that relevant information can be perceived and understood by students in time. Administrative systems could also entail nudges informed by behavioural economic insights.	Administrative systems should, from a student's point of view, facilitate effective enrolments, withdrawals, applications and other things. Effective here means that the executed processes are intended by the student and timely to achieve intended outcomes, for example, that they lead to enrolments in courses needed for a degree (rather than enrolling in courses that do not result in credits for the degree), that students withdraw in time to avoid academic or financial penalties, or that they apply in time to be considered for scholarships or employability measures. Because the social environment of equity students can make them less prepared and supported when negotiating administrative processes that are vital for successfully participate in HE studies, designing such processes and systems in a user-friendly way would particularly benefit those students.

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