

New Perspectives on the Student Experience

Report authors

Hamish Coates, Paula Kelly, Ryan Naylor

Project team

Hamish Coates (Director), Marian Mahat (Manager), Vic Borden, Linda Corrin, Paula Kelly, Jason Lodge, Phil Long, Kelly Matthews, Sid Nair, Ryan Naylor, Damian Powell, David Wilkinson, Helen Zimmerman



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Introduction

An overview of this report

I would describe my identity as a student as invisible...I was never given any choice over my education throughout my whole degree

Fourth year full-time student at a research university

Surely everyone engaged in higher education wants students to have an intellectually engaging and personally fulfilling experience. Yet higher education today is a huge venture and really meaningful experiences which once flowed serendipitously must now be programmed explicitly into broad education designs. While in a really small-scale community students and teachers will tend to naturally interact, in today's very large tertiary institutions which are deploying increasingly distributed forms of education it can even be hard to know when students are flat-lining. There are also instrumental reasons to care, given that higher education in Australia is shifting from being a highly regulated and supply-driven system to a more deregulated venture which must be increasingly sensitive to the needs of students. We must continue to explore new approaches for helping each student succeed.

This document is the interim report from a project being undertaken to stimulate new ways of thinking about the higher education student experience. The report has been drafted to provoke reflection and discussion about the nature of data-informed leadership that can best help students succeed. The report presents outcomes of detailed project planning and background research, and validation involving wide-scale consultation with individuals and institutions both nationally and internationally. The following sections first progress an imaginative distillation of new perspectives, take stock of current circumstances and, finally, examine strategies for leading the change that will be needed to advance this field. Prompt questions to stimulate dialogue are designated by arrows throughout the report.

This interim report has been drafted for a broad audience and is not intended as a highly referenced research review nor as a final summative 'solution'. Rest assured, however, that the observations which follow build on substantial reviews of scholarly and applied literature (principally on the student experience, on education data, and on tertiary leadership), and on substantial fieldwork. For instance, 31 higher education institutions are engaged in the study, of which 18 are universities and 13 other kinds of providers. Thirty-four student interviews have been conducted so far, ranging across six states and territories, capturing insights from people between 18 and 53 years of age, covering eleven universities and three other institutions, and spanning a range of other dynamics. As well, six in-depth site visits have been conducted to inform detailed institution case studies. Of course, the large project team brings together people with diverse expertise and perspectives, we have consulted with hundreds of experts spanning dozens of countries, and we have consulted with an international advisory group as well as the project evaluator and officers from the Australian Government's Office of Learning and Teaching.

Our broad frame of interest

I don't think very much happens with student data....I suspect it languishes somewhere on a computer service

Fifth year full-time student at research university student

As flagged, this interim report signals a step-change in how we think about and lead higher education student success. Working from detailed and ongoing research of contemporary thinking and practice, it advances new qualities and profiles for understanding the undergraduate student experience, explores expanded data sources and analytical approaches, and lays foundations for leading reform. It seeks to raise awareness of student identities and expectations, evoke different conceptions and dialogues about students, more effective means for monitoring and enhancing education, and setting foundations for substantial further development.

The new perspectives are prompted by critical constraints challenging current circumstances. While the student experience is obviously highly individual in nature, prevailing myths and sector norms emphasise crude group-level generalisations. Compared with other service sectors higher education is lagging, stuck in batch-like mindsets that undervalue the agency and potential of these core participants. The dominant methods used to study the student experience have waning utility. Student survey response rates are low and shrinking, variance explained is small, and more effective electronic footprints seem available. As well, while most work on this front is framed within the context of institutions and fields, higher education is increasingly trans-disciplinary and trans-institutional in nature and there is a need to break through bureaucratically entrenched barriers and look instead through the eyes of the student. There are practical problems, particularly in terms of the capacity for insights into the student experience to shape practice. Institutions and stakeholders are increasingly unresponsive to results from student surveys, which in many instances are detached from lived practice and increasingly used for external purposes. This is very confusing territory for students given the many diverse reporting platforms. It is difficult for students to know where to look and what to believe. As a result, we seriously lack insights into just who students are, how people approach higher education, the ways in which they learn, and how people change as they progress.

This state of play provokes myriad uncertainties and questions. What are students seeking to achieve? What are the best strategies for moving beyond stereotypes about students and forming more nuanced perspectives? What data exists or could be used to better understand students? How can technical analysis explain more variation in the experience, particularly at the individual level? What steps can be taken to improve leadership of the student experience? What are effective means for conceptualising the success of programs and institutions? Most broadly, what can be done to link concepts, techniques and practices to forge more evidence-driven and cogent leadership of the future student experience?

This study was designed in response to these challenges, uncertainties and questions. The study aims to prompt sustainable strategic change through improving institutional capacity to enhance the student experience by building new concepts for understanding students, identifying new data sources and approaches, and engaging institutions in enhancement work. Hence the study focuses on creating and embracing opportunities for helping

students succeed. By blending earlier work on students with more contemporary perspectives the study validates new concepts and new methods for helping institutions lead the student experience. Conceptually, it investigates who students are and what they expect from higher education—inquiry that goes beyond stereotypes, generalities and assumptions about demography and contexts. Methodologically, the study proposes new approaches to measure and report on these new constructs and profiles by developing the field of education analytics and by helping institutions leverage under-utilised existing data for quality enhancement.

New perspectives on the student experience

Nine qualities for student success

As an international student paying really high fees I don't think I can justify the value of higher education in terms of employability alone... but if I encompass everything including friends and life experience I guess you could say yes

Second year international student living and studying at a research university

We propose nine qualities for leading student success. The intersecting qualities discussed below are asserted boldly as a means for developing new perspectives and advances on the student experience. They distil insights from the literature, from students and from institutions. These qualities combine into what we tentatively badge the 'nine qualities model' of the student experience. For explanatory purposes these nine qualities are grouped into three broader clusters:

- Student views;
- Student outcomes; and
- Student supports.

Student views of their experience encompass these three qualities:

- Value;
- Belonging; and
- Identity.

Value should be returned from higher education. While seemingly simple and self-evident this proposition masks myriad complex and difficult considerations. Often, value is segmented into different categories like financial, social, educational, professional or personal. A common though complex distinction is almost made between private value for individuals versus public value for industries or society as a whole. In terms of an important quality of the student experience, value is defined as people seeing that higher education was worth the cost, time and effort. This definition puts emphasis on monetary and opportunity costs as well as broader forms of cognitive, emotional and behavioural effort. This embraces academic and broader supports in as much as people will see their experience as valuable if these have been deployed effectively. The term 'worth' also signals interest in understanding the return on investment from higher education.

Belonging to a community has long been seen as an important quality of higher education, associated with many forms of constructive experiences and outcomes. The concept of belonging taps into part of what is embraced by research into student engagement—that is, people's support to participate in educationally purposeful practices—but more specifically pinpoints people's orientation and inclusion into and recognition by communities. Importantly, belonging signals the absence of alienation whereby people feel detached or even lonely in a crowd.

Forming **identity** is an important rationale for participating in higher education. Higher education offers people opportunities to extend or change themselves, either in localised or more expansive ways—to become more responsible citizens. Simply put, it is expected that people who study medicine or engineering or accounting graduate not just with new knowledge and skills but also with new personae. Similarly, mathematics and history graduates should have a sense of what they have learned and how to apply this to future opportunities. Identity formation is codified explicitly in many professional programs, for instance as ‘bedside manner’, ‘clinical skills’, or ‘management capability’. In other courses ‘professional attributes’ are defined (e.g. ‘ethics’ or ‘integrity’) in more general ways. The presentation of ‘graduate attributes’ by institutions in recent decades has signalled an even more diffuse and pervasive form of identity development. Recent enthusiasm regarding entrepreneurialism is relevant here, signalling interest in higher education helping learners build a sense of themselves as leaders of new ideas.

In the reconceptualization being advanced here, **student outcomes** encompass these four qualities:

- Discovery;
- Achievement;
- Connection; and
- Opportunity.

Discovery is an essential quality of students’ experience of higher education. Even in very epistemologically convergent areas of ‘training’ or development, people relish experiences where they have the opportunity to encounter but even better create new ideas. Ultimately, discovery seems cognitive in nature and provoked by intrinsic motivators, though it can be mediated socially and behaviourally and associated with various forms of emotion such as stimulation, intrigue and delight. Discovery experiences in higher education are varied such as research experience, building understanding, generalising transferable ideas and skills, building emotional capability, or creating social networks. As this survey of potential experiences conveys, we do not see this quality as ephemeral but as tapping into experiences which may take years of persistent work or tinkering to achieve.

Achievement plays a formative role in the student experience. Much student experience work has focused on learning and development processes, but outcomes are what really count. Somewhat separate policy and research traditions have emerged around education processes and education outcomes, yet students do not see the distinctions forged by governmental and institutional policies and practices. Instead, both students and experts cite achievement as critical to a positive student experience. Achievement means really concrete things such as getting into higher education, passing units, getting good marks, completing courses, articulating to other qualifications, and getting a job.

Connection is something people seek from higher education, even in very theoretical moments. What we mean by connection is whether institutions, teachers, fellow students and support staff help learners make connections between ideas and people and experiences. Practically, such connection plays out in terms of learners establishing new networks within and outside their institutions, going on academic exchanges, joining-up

ideas across activities and academic learning, building cultural sensitivity to differences in orientations, collaborating with communities, and linking with professional communities as well as those on campus.

Opportunity is a reason that people embrace higher education. Academic and professional opportunities are principal among such interests, but there are others like enhancing health, social and culture prospects. The kind of opportunity being defined involves social linking and the provision of helpful insights into prospects, and building people's sense of being personally enriched and empowered. Hence there are a broad range of activities and conditions in play, ranging from personalised perceptions of accomplishment to tangible vocational achievement.

In terms of student supports, people should feel that their experience is:

- Enabled; and
- Personalised.

Higher education should **enable** people. It should help people acquire new competencies and also the broader self-regulatory and meta-cognitive capacities that will help them flourish in the future. Empowering students in this way comes from formal education but also from broader experiences and conditions which affirm people's development and participation in organisational activities. Sitting on committees and boards, for instance, offers excellent experience in governance and leadership.

Growing relevance is being placed on a **personalised** higher education experience. Such experience is commonly characterised as 'just-in-time', 'just-enough', and 'just-for-me'. People receive information, support and guidance as they need it, rather than when the institution schedules to deliver it. This does not imply the lack of curriculum and broader organising structures, but rather that such structures are nimble and responsive to different circumstances. Such personalised experience can be contrasted against industrialised batch approaches like large lectures, scheduled paper-based exams and place-fixed learning have serviced a means for scaling higher education from elite to mass to university levels. Perhaps surprisingly, it seems likely that higher education is one of the least personalised facets of contemporary life given the technological reform of many industries and organisations.

The above paragraphs sketch the nine qualities which we propose map out important pictures of the future student experience. In articulating these nine qualities we don't pretend they are either exhaustive of the area or mutually exclusive. The terrain is too complex and dynamic for any such claims to be made. Rather, we suggest that they mark out a suite of worthy agendas and carry potential to create discourse that helps students and their institutions succeed.

The qualities step beyond prevailing terms used to define and operationalise student experience and related constructs. For instance, while 'student satisfaction' has become somewhat entrenched, there is ample evidence that beyond stamping out woeful practice it offers substantially diminishing returns to improving higher education. Worse, it sucks

energy and attention away from things that really count as articulated in the nine qualities above. Major organising phrases such as ‘teaching quality’ and ‘student support’ and ‘student services’ are also becoming less relevant as team-based computer-mediated teaching and facilitation become more pervasive. Rather than fixate on what are really supply-centric concepts, we instead project qualities that signal new co-created conceptualisations of higher education.

These qualities are designed to be equally meaningful to many diverse stakeholders, including people such as those who haven’t thought about higher education, prospective students, students, graduates, employers, teachers and support staff. Given the transparencies and efficiencies afforded by new technologies and knowledge it makes little sense to design ideas about education or quality for segmented or partitioned audiences, as has been the case in the past. Instead, we see that common and suitably nuanced information can be provided to myriad stakeholders. What this means in concrete terms is that the same data in aggregated form could flow through to academic leaders as is used to produce personalised reports for individuals.

A suite of strategies have been used to create and test these qualities, as touched on in the introduction. The background research helped tease out emerging ideas and perspectives on who students are and how they are experiencing higher education. This research informed production of the institution inventory, which yielded very rich insights and commentary from dozens of reflective thinkers. Detailed review of these inventories by three analysts derived a shortlist of underpinning forward-looking ideas. These ideas were tested in several consultations with academic leaders and student affairs experts, and in student interviews.

➔ ***Question 1: To what extent do these nine qualities frame useful perspectives on the future student experience?***

Individual transitions

Higher education is important not just to gain disciplinary knowledge but to develop the ability to evaluate yourself and your future

Third year full-time international student from non-university institution

The nine qualities map out facets of a successful student experience and for each of these it would be helpful to identify thresholds that signal transition from one level of experience to another. This exposes our adherence to a fundamental measurement assumption that gradations of ‘increasing experience’ can be specified for each quality. This does not imply that every student proceeds stepwise or even necessarily through each threshold, or that each threshold is even meaningful for each student. It does imply a fundamental structure which underpins each quality and is relatively invariant across environments and people. This is uncontroversial if the thresholds are defined in sufficiently general ways than are able through the process of measurement to be particularised in relevant and helpful ways.

The process of defining these thresholds typically involves an iterative sequence of steps which involves:

- For each quality conceptualising experience transition thresholds—that is, for instance, clarifying what characterises low, medium and high forms of personalisation or value or opportunity;
- Identifying or creating relevant data elements that have desirable technical properties—for instance, compiling information from student surveys and related systems into reporting resources;
- Aligning data elements with each of the transition thresholds, giving consideration to appropriate assessment and reporting analyses and protocols;
- Validating the alignment of data with qualities using validation and psychometric review;
- Testing and refining the model in small-scale applications; then
- Scaling the model for use in more general contexts.

The approach sketched above reflects the straightforward application of assessment science to build technical foundations for the nine qualities. It is important to follow such process in developing new student experience infrastructure, though this does not mean that the solution must be complex. The field of higher education student experience has a history of searching for more precision in evidence than is often warranted by quality of data (the pervasive (mis-)use of satisfaction data being a primary case in point). Identifying robust but parsimonious indicators of these facets of the student experience will do more to advance practice than searching for decimal-place differences on current metrics will ever achieve.

As well as this growth dimension, it is important that the transition through thresholds is interpreted in an individualised manner. People do not move at the same pace or even in the same way through common educational experiences. Hence as flagged directly in one of the qualities, we assert the need for a highly individualised interpretation of student identity as part of the proposed model of student success. For this, we invoke the idea of hyper-intersectionality, which is about using intersecting vectors of relevant information to build complex pictures of who people are. Such identity delineation already abounds for anyone with an online presence, yet is just starting to emerge in higher education. Taking this approach helps move beyond bundling people into simplistic groups/boxes which fails to provide the nuance necessary for helping individuals succeed.

The ideas of profiles and journeys are useful tools for conveying this approach. Simply put, a profile can be envisaged as a dynamic complex of diverse attributes which portray an individual in relation to a successful student experience. A journey is a multiple branching pathway through a higher education process, from beginning to end. The idea of profiling ‘movements through journeys’ steps well beyond the idea of shifting ‘batched groups through lifecycles’. Together these two approaches may seem on first glance to unleash infinite complexity for conceptualising and managing each student’s experience, but the history in other industries implies otherwise. After initial reworking in terms of new processes, effective digitisation has been shown to yield substantial increases in productivity and quality of people’s purposeful interactions with organisations.

Different players will of course interface with this information in different ways. Indeed, understanding differences in perspectives and interpretation has proved to be an important

part of how new forms of data are being positioned and developed in traditional/existing higher education structures (which are often changing themselves). It is important to design new approaches taking very seriously the demands of consequential validity. Technical development can then be driven by a clear sense of what should be achieved. The approach enacted in this study—involving reviews and discussions about research and practice, have sought to design an approach that yields meaningful insights to key stakeholders such as students, teachers, support staff, managers, leaders and the public at large. Understanding how these and other actors best harmonise is an important facet of the next phase of the project.

→ **Question 2: In what ways would higher education be improved by further articulating individual journeys?**

Evidence to underpin new perspectives

The most rewarding aspects of being a student are self-improvement and self-discovery, having more freedom to learn and have ownership over your life. The ways students learn and engage and definitions of success are different from 10 years ago
Part-time student in seventh year at a research university student

A suitable suite of data is essential to giving life to the nine defined qualities of a successful student experience. Articulating these nine qualities has the potential to be intellectually fruitful though of little practical import without a feasible means for operationalising the ideas.

We embrace the field of education analytics as a means for defining and capturing the data required to propel the new model of the student experience. Education analytics is a contemporary term which ranges across the derivative areas of people analytics, education informatics, learner analytics, learning analytics, and a host of other forms of institutional and governmental analysis and reporting. Each of these subfields speaks to particular areas of focus, analysis and interest, all of which we sweep up into education analytics. Rather than limit the use of data to micro-level interactions with students in the form of academic interventions or support, the term ‘education analytics’ encompasses and extends the utility of data to enhance and customise as much of the student experience as feasible. Therefore, while this report acknowledges analytical developments focussed on teaching and learning interventions, the term education analytics purposefully proposes new perspectives on how data could be used to enhance a broader conception of the higher education experience.

Hence an essential plank in the model is a suite of available, relevant and reasonably robust data that support and advance the defined qualities of a successful student experience. Drawing together the consultations and fieldwork conducted in this study, an initial stocktake is provided in Table 2 (see last two pages). As this shows, desired data could flow from a range of sources which, rather than being reported by source, are instead compiled and delivered via conceptually driven and validated lens for leading student success. What this means is that institutions can map existing and plan new data sources using this lens as a template. Students can seek information about potential, current or delivered higher education using a lens which speaks to their needs rather than the structure institution of

market dynamics of the industry. The lack of available data or the limitations of aggregation and currency of collected data relevant to a particular area of experience, for instance, would send a message to students and signal to institutional leaders and other stakeholders that further information is required for performance and improvement. For example, while aspects of the qualities can be sourced from survey data, the limitations of lagged, aggregate and in some cases unexplained data are highlighted. As well, the following articulation frames discrete surveys are subordinate to broader student-oriented perspectives, rather than as dominating entities in their own right.

→ ***Question 3: Thinking broadly, are there other information sources that would be helpful to take into account?***

A picture of current practice

Introduction

The preceding section imagines a future architecture for the student experience, and the analysis which follows focuses on the current state of play. We combine existing research with insights from the consultations, student interviews and institutional inventories. The empirical institutional data presented in this section mostly reflects information from 31 Australian higher education institutions including 18 universities and 13 other kinds of providers. Flowing from the analytical structure taken to the fieldwork, the discussion focuses on three dimensions which are the building blocks of the architecture outlined above: student success, student identity, and education analytics. The analysis of each dimension is organised using four maturational stages, which then underpins the broader discussion of leadership that follows.

Contemporary approaches to student success

To help me succeed the University could provide more targeted information about events that I am interested in an accessible form

Third year full-time student at a research university

Student success lies at the heart of the student experience. Student success is conceptualised and plays out in many complex and often highly subjective ways. Building on prior research and current insights, we extend a more integrated developmental understanding which frames student success as being unformed, narrow, broad or expansive.

The empirical work in this study is designed to probe and shape new concepts of the student experience rather than yield any kind of sector-wide ‘baseline data’. Even so a reasonably large number of institutions contributed insights, offering modest generalisability with the majority of institutions being evenly distributed among three of the four more developed stages. In this study the institution is the primary unit of analysis. While institutional respondents along with broader interviews and consultations and site visits have helped unpack the variation within institutions—which is often larger than the variation between institutions—specifically delving deep into within-institution differences has been beyond current scope and is a next step for future research.

An **unformed** perspective on student success, the least mature, is where the institutions and students are unable to define student success beyond formal definitions of retention and passing as defined by external authorities.

Within the ‘nine qualities model’ of student success proposed above, an unformed perspective most closely maps to a sense of achievement. However, it should be noted that

this perspective does not map well onto our model. The formal definitions of success as retention and passing subjects are inherently taking an institutional (instrumentalist, and some might say, paternalistic) perspective. The nine qualities model instead highlights the importance of approaching the concept of success from a student perspective. Within all four stages of this conceptual framework, achievement, and to a lesser extent, employment opportunities were clearly the dominant concepts.

This is an uncommon position in Australia today. Nearly all of the institutions which participated in this project had more developed approaches to student success. Only one institution, of the institutional sample of 31, was found to have a definition that didn't rise beyond formal definitions. This is not unexpected, given the community and sector focus on employability in recent years, the pressures on providers to explain the value of higher education (particularly private providers, although none have been immune in the face of the deregulation of student fees), and broader community debates around the contemporary purposes of higher education.

A **narrow** approach to student success involves institutions and students typically reading success in terms of achieving a qualification and employability. The focus is quite instrumental, and broader or deeper aspects of success are not engaged.

The most commonly reported aspects of student success from an institution's point of view were having the knowledge necessary to practice in the field. This was mentioned in 16 of the 31 inventories. Employment in the field following graduation was mentioned by a further nine institutions. This was expressly identified as inappropriate for all three non-university providers involved in the creative industries, although they instead indicated 'professional or public recognition for work' which might be considered an industry-specific version of the same thing.

Traditional or formal definitions of success continue to have significant influence on the sector, however. Progression through the course or passing subjects was mentioned by 13 institutions, retention by 12, and course completion by 10. Within the proposed nine qualities model, the narrow perspective therefore maps most closely onto the qualities of achievement and opportunity (perhaps with an implicit understanding of value for students). Again, this is quite an instrumentalist view, although it is notably more student-focused than an unformed perspective.

Of the eight institutions in this category only two were universities. An understanding of student success focused on employability and program completion may therefore represent specific institutional missions or roles as much as a wider philosophy of success in higher education. However, this is not consistently the case: one might assume that pathway colleges, for example, were likely to have the most instrumentalist understandings of success, given that they have a clear endpoint and goal for students, in obtaining access to the partner university. This was not the case. Two non-university pathway colleges analysed revealed quite broad senses of student success. We therefore argue that this perspective is a matter of conceptual maturity rather than institutional mission, while still acknowledging that some institutions may legitimately see success primarily in terms of achievement and employability.

A **broad** approach to student success embraces a much larger range of facets and acknowledges more diverse stakeholder perspectives. Student conceptions of success, however, are more narrowly focused.

Institutions in this category were evenly composed of universities and other institutions. Although employability and achieving qualifications remained important for these providers' conceptions of student success, other factors were also mentioned, such as personal growth (noted by 13 institutions), engagement with campus or extracurricular life (8 institutions), developing broad employability skills (8 institutions), critical thinking and inquiry skills (6 institutions), gaining access to higher education (4 institutions), or engaging with peers and making friends (2 institutions).

Despite the range of measures of student success mentioned at an institutional level (most institutions mentioned between 3 and 6 factors), a common theme was a narrow perception of students' views of success. Most institutions stated they believed that students primarily measured success in terms of course completions (15 of 31) or passing subjects (10 of 31), employment in the field (14 of 31) and grade point average (13 of 31).

A broad perspective therefore brings to the institutional perspective the qualities of discovery, identity, connection, belonging, and enabling, as well as achievement and opportunity, from the proposed experience model. A sense of value is again implicit. It is interesting, however, that these institutions have a relatively impoverished view of what students consider to be success in higher education. Many of these institutions spoke about having student-centred approaches to delivery, but still possess a relatively limited view of what their students want from their educations. One must question why an institution would consider a sense of community important to them, but not to their students. Despite the rhetoric placing students at the centre of the relationship, a residual sense of students as objects rather than agents.

An **expansive** approach to student success engages multiple aspects, incorporating a broad range of perspectives from institutions, students, and a range of other stakeholders including broader communities.

Most of the 13 institutions in this category were universities. Again, this may represent a legitimate difference in the purposes of universities compared to other providers rather than a difference in maturity of scope per se. However, the presence of several non-university providers in this category suggests this may not always be the case.

Case study of student success

An expansive conceptualisation of student success is reflected in a case study university that is moving towards an individualistic conceptualisation of student identity. Although institutional data systems are not fully matured to allow individualistic engagement, there is a move towards developing internal systems which are aligned to well-developed conceptions and institutional cultures surrounding student success. To assist in understanding and supporting student relationships with different aspects of the university, students complete an introductory survey regarding their motivations for study. This is supported by a study contract, to promote individual responsibility and self-reflection, which is in turn driven by a theoretical model of student success. A problem currently being grappled with is reaching and engaging all students. For example, students who are not considered 'at risk' or 'academic high achievers' may not be experiencing the full range of opportunities and supports offered by the university. Although this university is making efforts to increase its institutional reach to engage these students through interactive student portals and experiences, staff are aware that there were still students who may not have strong relationships with the university. Plans for personalised student portals or 'skins' are being considered to facilitate the student experience, foster community, and provide services. Implicit in the way these opportunities are delivered is a conception of students and their relationship to the university.

As with the previous category, these institutions recognised a broad range of factors for success (typically between 4 and 11 aspects). They also included an even broader understanding of the beneficiaries of successful education. Aspects of success such as developing an understanding of citizenship (mentioned by 5 of institutions), good societal outcomes (5 institutions), and having graduates that exhibited rather than simply possessing the graduate attributes (5 institutions) were all mentioned and unique to this category. Being personally engaged with the course and the overall student experience were also more common among submissions from these institutions than those in other categories. These institutions' beliefs about students' understandings of success were also broader. Aspects such as engagement with peer and making friends (10 of 31) and personal growth (7 of 31) were mentioned, although employability, grade point average, and achievement of qualifications remained important.

It must be acknowledged that these broader senses of social value do not fit neatly within the nine qualities model. In creating the model, we have expressly taken the student perspective as our starting point. While individual students may consider these values important (we have placed them loosely within the qualities of connection, belonging, enabling and identity), they operate on a broader scale than the individual student. We therefore acknowledge this is an area where success as achieving an aspect of the institutional mission differs from success at the level of individual students. While it does not therefore fit neatly into our model, we acknowledge its importance to institutions. There is, however, a tension that must be acknowledged between an institutional desire to develop these graduate attributes (to make graduates a particular 'type' of person, to put it crudely) and the concept of personalised, individually-led education that may not result in these qualities. It may well be productive in terms of their personal growth and intellectual and social engagement for both students and institutions to acknowledge this tension.

Within the sub-types of institutions, faith-based institutions and newer universities were more likely to report societal outcomes and (for faith-based institutions) exhibiting the graduate attributes than other groups. Metropolitan universities were more likely to report

personal growth, whereas research institutions were more likely to report engagement with teachers, peers and extracurricular programs and having a personal engagement with the course. Regional universities were more likely to report pass rates, retention and course completion than other types of institution. Even within an expansive perspective of student success, however, the concept of value remained largely implicit, and there was little sense of personalisation in what counts as success. Similarly, there was only basic acknowledgement that student success might change over time through personal growth or progression through the system.

→ **Question 4: In what specific ways could this stagewise perspective on student success be improved?**

Institutional capacity to understand students

The institution could help with options for the future—not just bums on seats now, then graduation. Assistance [is needed for]what you want to do as an individual

Fourth year full-time student at a metropolitan university

How students are understood plays a fundamental role in how they and their institutions can lead their experience. Partly because of rapid expansion, but also likely due to sector characteristics, higher education remains fond of batching people into groups. Lip service may be given to individual diversity, but such groups still dominate core administrative and academic facets of higher education and all members of the group are treated as having the same needs or desires. Such groups are traditionally characterised using basic socio-demographic categories, often formed in terms of deviation from elite-era stereotypes, and scant regard is given to quite important psychological factors.

Most institutions in this study fell into one of two, relatively traditional understandings of student identity. However, a handful of institutions suggested that there is a need for more nuanced, personalised or individually focused understandings of students within the sector, rather than lumping students into monolithic groups

A **disorganised** approach to student identity is one in which an institution is unable to identify a typical student, or identify any features of identity that contribute to student success. This is hopefully a very uncommon state of play, but it remains useful to distinguish even if only as an anchor for the steps that follow. Only a single institution on the study did not provide enough information to display a disorganised understanding of student identity.

A **traditional** perspective on student identity is one in which the institution is able to articulate a typical student and identify a narrow range of identity factors (typically conventional demographic features) that contribute to student success. These demographic factors link with government reporting requirements, particularly concerning equity groups. Thus, age, cultural background, gender, socioeconomic status, first in family status, disability status were identified, as was employment status.

Although most of the institutions in this group were not universities, some universities also reported a lack of diversity among their students. While this may be true for small non-

university providers, this seems unlikely to be the case in any large institution, particularly if conceptions of 'student identity' are broadened beyond demographic factors.

The **batched** perspective is one in which an institution is able to identify particular groups and subgroups of typical students, and can identify a broad range of significant features of identity that move beyond demographic features.

Most universities, and a small number of other kinds of providers, fell into this category. Most institutions also reported that their student body had grown more diverse in recent years. There were few common themes in these changes beyond the increasing numbers of less prepared students entering the sector, and changes in country of origin of international students.

The most common features reported by institutions were age, cultural background (including Aboriginal or Torres Strait Islander and non-English background status), employment status, academic background, living arrangements and gender. The features most commonly reported as not being important were friendship groups, gender, extra-curricular activities, and online profiles. Again, it is clear that government/regulatory reporting requirements have affected the way institutions view and categorise students, both in terms of the reporting requirements for equity groups and success and retention, but also in the way that the important student groups identified are typically based on factors that may reduce achievement, such as employment status, language competence, or academic background. Even the majority of institutions with broad or expansive conceptions of student success tended to fall back on these measures, despite their previous acknowledgement of the range of facets of success; most institutions seemed to fall back on an understanding of success as academic achievement in their submissions regarding the intersection of identity and success. This was not universally the case—expansive and broad institutions were slightly more likely to identify extracurricular activities as important in success, although interestingly narrow institutions were more likely to identify friendship groups—but it is clear that institutional submissions for this area were more limited than when discussing success.

It is interesting that gender was considered important in as many reports as considered it as unimportant. Providers other than universities were most likely to report that age, gender and extra-curricular activities were unimportant. In contrast, 48 per cent of universities reported gender was important, 73 per cent age, and 37 per cent extra-curricular activities. Faith-based institutions were much more likely to report aspirations were important than other universities. Clearly, there are important differences between types of institutions in what features of student identity are considered important.

Case study of student identity

For a dual-sector higher education institution specialising in disciplinary based undergraduate study, students are diverse with high representation of students identified as being disadvantaged. As a result, greater granularity of information about students is sought by the institution to differentiate within equity categories. The student experience is measured primarily through proxy information and through a range of enrolment data, internal and external surveys, identification of equity status, and through the occurrence and effect of intervention strategies.

The institution collects information through the student journey including pre-admission information, enrolment data, student progression and has strong links with graduates through social and professional online networks and an alumni association. As an institution that focuses on professional practice in industry, information about graduates is particularly important for reputational status, and for strengthening relationships with industry to leverage future opportunities for current students. The institution is currently in the process of a student lifecycle project which will develop student typologies and address limitations currently on the collection and analysis of student data.

The establishment of a data warehouse for integrated protocols has begun and a data scientist is currently cataloguing data points throughout the student lifecycle. While the institution reports that some information is often limited and anecdotal and analysis is often under-utilised a number of initiatives are developing to address these limitations including an inventory of student technology as part of a teaching and learning project to assess usage and preference. While retaining students is a significant aspect of the approach to student success, broader measures that can be used to understand the student experience from multiple data points is currently being development.

With an **individualistic** view on student identity, the institution moves beyond monolithic student groups, and espouses an individually driven view of student identity. One institution characterised this writing that the “view that there is a typical set of students is a legacy mindset... [r]ather, there is a range of students with individual circumstances and choices”.

Only four institutions were in this group. Two institutions described using ‘big data’, particularly behavioural data, to identify novel groups or individual behaviours that contributed importantly to student success, rather than relying on traditional student groupings (such as membership of nationally defined equity groups). One institution mentioned that they were approaching this level, but hadn’t operationalized it yet.

It is interesting to note how rarely personality and motivation were mentioned as important factors in student success (compared to demographic factors). As noted above, this was largely independent of institutional type, and maturity of conceptualisation of success, with the exception of aspirations for faith-based institutions. This is despite considerable research demonstrating that these factors have a profound influence on success at university. Even if one limits the conception of success to academic achievement, conscientiousness has been shown to have as much predictive power for grade point average as intelligence, and that its effect was largely independent of intelligence. Motivation has been shown to have a similar, and mutually compensatory, effect as conscientiousness. The related concept, grit, has also been shown to have a strong positive effect on performance. Other personality factors are likely to affect other aspects of student success, such as agreeableness and belonging or connection, or openness to experience and

discovery or opportunity. These factors are clearly independent of demographic factors, and despite good evidence showing their association with student success, appear to be underused—indeed, not systematically collected—in Australian higher education.

Many institutions administer a survey on admission. This presents an opportunity to collect data on broader identity factors that may be used to productively shape—or at least support—the student experience. While demographic data is assiduously collected, meaningful information on student identity is not, despite the existence of several validated scales that could be used at admissions or (gradually or in one batch) through the student portal. It appears that personality, motivation and identity are not a matter of concern for most institutions.

Of those institutions that brought in the concept of personalisation typically did so through offering personalised support. There appears to be little systematic effort to establish who students are, what they want, and offer them genuinely a personalised education that acknowledges the agency of the student. A possible exception is through programs for gifted students, which tend to be more accommodating of individual interests. It is unclear, however, how much of this information is used to inform institutional processes beyond the specific (usually co-curricular) programs for high achievers. Indeed, much of this data, where it is collected, remains siloed or unused, which appears to be a particular problem for data regarding student identities. This appears to be an area where much lip service is given to personalisation and individual focus, but little is actually done.

→ **Question 5: In what specific ways could this framework for reflecting on student identity be improved?**

The maturity of education analytics

Engaging with other students you form networks which become valuable assets for you in other ventures

Fourth year full-time student at a metropolitan university

Maturity across the sector for integrated and personalised data-driven approaches to enhance student experience is low. However there is wide consensus that this is a strategic area of importance for all institutions, except those very small higher education institutions where knowledge of students is already highly personalised and where investment in data systems is not sustainable. Clearly scale is important. As numbers of students grow the capacity for knowing and understanding each one diminishes, and requires more innovative approaches as face-to-face learning and on-campus activity decreases. Important information such as educational and cultural background, prior academic performance, aspirations and motivations, personal barriers to study and other complex aspects of each individual that frames and influences educational experience over a period of time, is often reduced to enrolment information filled out at admission or first year orientation and transition surveys. Yet it is within this crowded, complex and often under-resourced higher education environment that knowing who our students are at admission, what they want, how they change as they progress, and what they may become beyond their studies, is more important than ever before.

Enhancing the student experience through the collection and analysis of data is a strategic priority across the sector. Acknowledgment that current institutional systems are not fit for purpose is widespread. Yet despite sector-wide system-based challenges where important student information is often disaggregated and stored in siloes within and across institutions, or not captured at all, advances are occurring at greater rates in some areas of the sector. The institutions more advanced in this area reflect investment in more developed systems and increased staff capabilities for collecting and analysing data, and importantly an evolved culture of student supported environments.

It is therefore unsurprising that institutions where the identification of students at risk of failing or dropping out has been an institutional priority advancing the use and collection of student data. Yet, with the goal of enhancing each and every student's experience, not just to retain those that are identified as requiring extra support, much work still needs to be done.

Across most respondents it is recognised that there is a wealth of data to harness about our students but many challenges exist for capturing, integrating and analysing it. Amongst the greatest obstacles to using data to support the student experience is that there is not one single source of truth for data collection and analysis. The use of multiple and non-integrated systems which house various aspects of student information across the student lifecycle are often never joined up or tapped into and lag time means data relating to individual students may not even be still current. Additionally, cultural issues including a lack of agreement within institutions about the validity of collecting data, often considered a proxy, is further complicated by data being used for purposes which do not have staff support. Practically, resources such as time and money are identified as major constraints which prevent the appropriate systems being used by staff with the requisite skills and capabilities for real-time data analysis.

While a frontloading of student data occurs at admission in most institutions, little personalised information is collected as students progress, except academic results and interventions that have occurred due to performance or conduct issues. Other personalised information may exist for those students who excel in a particular area or who perform student representative roles within institutional governance systems such as student led-forums or other committees. This frontloaded top and tail model of data collection means that information collected at admission will distinguish some students into pre-existing categories that will prompt institutional support or outreach services, and only those that fall well below or well above the accepted standard for performance or conduct will come to the attention of the institution through formal mechanics set up for that purpose. Individual data on students who do not represent any risk at admission, and who progress in standard fashion throughout their course is limited. In effect, these students are largely unknown.

Case study of data-driven leadership

Rather than relying on traditional student groupings, a large metropolitan university has begun interrogating system logs and behaviour to identify more meaningful understanding of student cohorts. Importantly, university leadership see the institution as a 'differentiated university'. This university has attempted to engage, through data, with "the reality of what being a student is", rather than academic perceptions of idealised students. For example, while identity growth is a strong component of the liberal arts tradition, it is based on an assumption that students are school leavers in need of "discovering themselves". Many older students are less interested in this aspect of their education, and their engagement with the university should therefore be different.

While the range of data collected is not unusual compared to other institutions of a similar size, their coordination and analysis attempts to lead the sector. As noted above, they perform 'big data' analyses to identify strategic insights for the university. For example, WiFi data has been used to identify where students are on campus, which has been used in turn to redesign spaces to encourage collaboration, study and an enriched campus experience. It has also begun using student dashboards to inform students about their learning. Rather than using learning analytics to stream or 'quietly manipulate' students, these dashboards are a learning experience in and of themselves, where students can observe their behaviour to change their own practice. This provides students with agency that is lacking in traditional learning analytics, by drawing student attention to things they otherwise wouldn't think about. Because it is performed at the level of the individual, there are also subtleties available that are lost in higher-level institutional reports. The underlying theme is to use data to 'get students to think, not tell them what they are'.

The use of student surveys and focus groups supplements information about students at a point in time and in response to institutionally motivated questions. While surveys can provide rich data for institutions to act on, often the respondents represent less than half of the target group, and the questions spring from an institutional perspective rather than those that may be relevant to current student experiences.

Similarly the use of government data, market and institutional research, and ad hoc internal projects are well utilised across the university sector and within some private higher education institutions to understand current trends in student choice, experience and behaviour. This collection of data for sophisticated institutional use by Business Intelligence Units or equivalent is growing across the sector especially within institutions with long histories of data collection. Yet, while these developments in business intelligence are positive and necessary, the impact on an enhanced personalised student experience may not be felt directly as much as witnessed through institutional wide improvements, such as curriculum reform or facilities upgrade.

The two primary systems used by institutions are designed to store demographic information and support academic coursework resources. Institutionally supported platforms like learning management systems (LMS) are standard and often represent a students' landing page for curriculum resources, information, links to other online sites, assessment submission and feedback, plagiarism software and other features that can be tailored by staff. Yet, as each unit has an individual site which is managed and accessed by relevant staff members, the integration of student data within the one system is often limited. The other primary data systems used by institutions are student information systems (SIS) which house demographic, administrative and personal information. Usually these two systems are not integrated although the emergence of other customer

relationship systems (CRM) to manage individual information for at risk students may utilise data from both. Other well-known commercial platforms appear to be used more for institutional communication purposes including for marketing and alumni, student communication purposes, and class specific purposes initiated by individual academics or students.

There is widespread acknowledgement that students use a multitude of technologies and platforms and an emerging array of media for both study and personal use. This information is confirmed by institutional surveys about technological use from time to time. Despite this, most institutions, particularly large universities focus on existing systems as the most practicable source of individual student data. While social media use can be monitored for clicks and discussion themes, the major opportunity to mine for data is presented in the LMS systems that students are required to engage with for coursework.

While the LMS-type system presents the most fertile site for student data, a number of limitations exist including that most LMS's were not designed to mine for data; data is often a proxy (primarily as evidence of engagement); the information is subject/unit specific and may not be joined up with other study behaviours in other LMS sites or to broader enrolment information for it to be useful.

Those institutions who have found ways to join up data, collect new data from existing systems including log data, broaden the scope of collected data to include known platforms or other media, and have created new mechanisms to collect new types of data (for example, emotional states or personal circumstances) are able to understand more about each student.

But breadth and depth of data collection frameworks and systems will not enhance the individual student experience alone. Analysis capabilities that are resourced and sustainable across the institution to provide new responses to enhance the student experience is essential. This requires staff 'buy-in' and leaders to create the culture to make it happen.

Ultimately, student-facing data represents the next stage of development. While several institutions reported the piloting of student facing dashboards, personalised student information is broadly limited to grade point average, assessment feedback and analytics, cohort analysis, at risk identification and the recommendation of available support strategies.

The smaller the institution the less information exists and therefore does not require sophisticated systems for its capture. For these institutions collection of data is largely to fulfil administrative or regulatory purposes. Larger more complex institutions source richer data about students including information from international agents, and other formalised data through government departments in relation to educational background standards in feeder countries and other socio-cultural factors relevant to the hosting of international students. To be registered to offer higher education to international students greater information requires collection due to regulatory requirements (CRICOS and ESOS). Surveys and other information for these institutions are linked to the design and provision for student support and special needs.

Market research, surveys, focus groups, student representative feedback and ad hoc projects about students are the main sources of student information that supplements enrolment, demographic and administration information for the majority of universities. While there is not a uniform approach to collecting data across the university sector, the difference in practice can be seen by the diversity and number of data sources (including log data) and through analysis of data (including through interaction with systems and media by students).

Case study of new data sources

For one regional university in Australia the mix of online, distance and locally based on-campus students has influenced an approach to the student experience defined by well-being and flexibility to meet the needs of both on-campus and external students. Unique to the university is an online mechanism which collects real time data through student emoticons indicating their feelings towards a particular aspect of the student experience. The online tool also measures engagement with internal systems including LMS usage, assignment submission, support and assistance. Additionally, the university uses word cloud technology which collects information from contributing students who enter words representing their feelings and is updated regularly throughout the day during study periods.

Analysis of this 'well-being' data is both institutional and student facing with weekly reports to the Heads of School about student satisfaction, lack of engagement and reasons for discontinuation; and emails to students who are flagged 'at risk' with recommendations or student support information. Analysis of the word cloud data identifies commonly used words that indicate levels of student well-being and information or student tips are generated in response. For example if the word 'stressed' is used significantly around exam times, resources and recommendations are provided for general use. With a significant proportion of external and online students the system represents a proxy for personalised support and data collection.

Overall, although self-rated maturity seems fairly low over the sector, major initiatives are being developed or piloted that indicate a developing approach to data generally. The main work for education analytics and student-centred data approaches are emerging from those institutions whose cohorts are more diverse in terms of academic ability and demographics, those that use online systems as part of learning more broadly, and those who identify this area as of strategic importance. More established universities and those with external partners (off-shore campuses or pathway providers) utilise data for institutional research purposes in more sophisticated ways than for student success specifically.

Drawing from the above, it is feasible to distil the above analysis in a stage-wise conceptualisation of the maturity of institutional practice. Four stages define the approaches and culture for using data to enhance students' experiences and successes. In general, an overall reading of the data suggests that most universities and more complex higher education institutions are expanding in their use, while a small minority reflect more integrated or strategic practice.

At the **compliant** stage the definition and collection of data is driven by administrative, compliance or external requirements. Student data is limited to personal or demographic details collected at admission and academic results as the student progresses. Data analysis

is restricted to the production of reports for external reporting requirements and to institutional leaders for purposes of resourcing essential student services and facilities.

In the **expanded** stage, the collection of student demographic and performance data is complemented by information from tests, surveys, and market research for specific student-centric purposes. Planned periods and frameworks for collecting data are resourced and exist in differentiated data systems or networks. System capabilities are limited and often require manual manipulation to yield useful information. Reporting is limited to institutional leaders and staff and is used to make institutional improvement to student services or to specific courses based on student feedback.

At the **integrated** stage, student data is defined in broad terms and includes personal, demographic, performance and elements of behavioural or cognitive data. Collection of data is undertaken throughout the entire student experience leveraging information from existing systems, integrating systems or by introducing new system capabilities. Data from various sources is integrated and analysed across different systems and provides predictive information that provides timely information to staff or students identifying areas of support or risk. Student-facing information directs individual students to resources necessary to assist learning and data reported to staff and leaders can assist in developing support strategies tailored to current needs analysis of particular student cohorts.

The **strategic** level of maturity data is used in ways that impact the individual student experience. Many aspects of student experience, including academic and broader experiences, are considered vital to understanding students and data is sourced according to this definition. Data collection reflects broad ranging information including personal, educational and cultural background, current studies, co-curricular, aspirations and post-graduate activity. Diversity of data sources including student supplied and synchronous trace data are collected and integrated dynamically. Sophisticated analysis capabilities provide quantitative and qualitative data from all sources in user-friendly forms including personalised student-facing information for immediate use. The analysis produces new insights to enhance individual student experience.

➔ **Question 6: In what ways could this perspective on education analytics be made more relevant to practice?**

Prospects for enhancing student success

Student success is a personal thing. It's different for everyone.

A second year full-time student at a metropolitan university

As the introduction section conveyed, after imagining a new future for leading each student's experience this report took stock of current thinking and practice relating to the student experience. What is required to shift existing practice towards more evidence-driven leadership of each individual's success? This final section explores pressure points for advancing and uniting the substantive, technical and practical fronts.

Our conviction in the need for advance has been strengthened by flow and outcomes of the study to date. Higher education is moving into a larger and more competitive milieu, and there is an evident need to build capability that will yield required transformations in quality and productivity. Complacency is more hazardous than ever, and opportunities for improvement are substantial.

Each institution participating in the fieldwork phase of the study was located along one of the four maturity stages identified for each dimension. Such allocation is a very loose and indicative process, but it does offer a glimpse into the current state of play. The results are summarised in Figure 1. Broadly, it seems, the institutions are relatively progressed with respect to their approach to student success, middling in terms of thinking more individually about students, and languishing when it comes to sophisticated use of data to identify and cater to individual student experience. While suggestive only such divergence affirms the unproductive disconnectedness identified at the outset of this report.

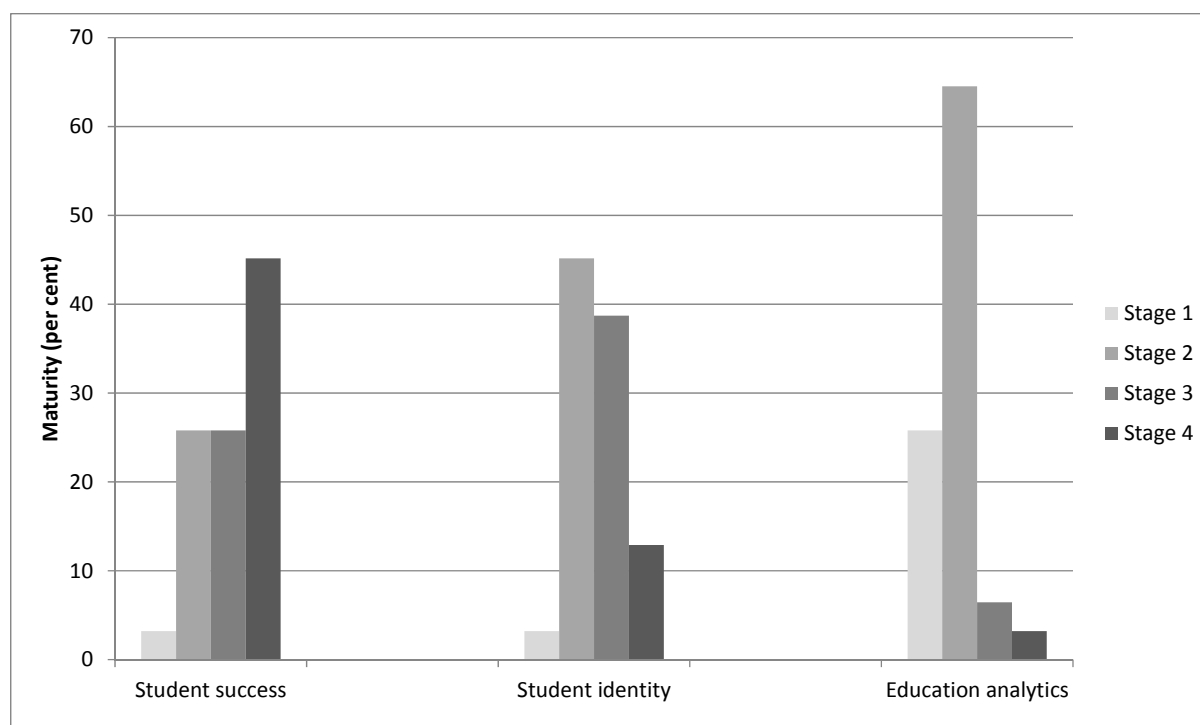


Figure 1: Stocktake of maturity

For each of these areas institutions were asked to identify important factors for executing and sustaining institutional change. Specifically, they were invited to rank the following six attributes:

- Culture—the environment created by the totality of systems, structures and people;
- Structure—the operating framework including governance and management;
- Systems—the operational elements of the institution including IT systems;
- Leadership—the style of management and the strategic direction of the institution;
- Staff—the current breadth and scope of roles responsible for operationalising systems; and
- Skills—the development of staff skills and knowledge required to operationalise institutional systems.

Table 1 summarises the rankings provided by all responding institutions. In terms of substantive experiential matters—success and identity—it is clearly the more humanistic matters like culture and leadership and staffing that are seen to count, whereas systems and skills and staff rank more highly for analytics. The need to build staffing and skills features prominently across each dimension and, conversely, the need to advance governance and management structure was generally seen as low. Again, the divergence between the substantive and technical facets affirms the disconnectedness of current practice. These very broad insights marry with the maturity insights shown above, flagging the need for more fundamental system development on the technical dimension.

Table 1: Importance of change factors

	Culture	Structure	Systems	Leadership	Staff	Skills
Student Success	High	Low	Low	High	Medium	Medium
Student Identity	High	Low	Medium	Medium	High	Low
Education analytics	Low	Low	High	Medium	Medium	High

Looking very broadly, therefore, the need to develop education data systems could be seen as the main constraint hampering progress. Institutions flagged the particular need to develop greater understanding of students in specific areas like educational background, personal circumstances including emotional and mental health, aspirations and motivations for study, participation in non-academic activities and a holistic view of the educational experience. With richer and more granular information, institutions noted the ability to produce more nuanced reports of various kinds to students, to staff and to the broader community.

While student success and understanding students are considered largely influenced by culture and leadership, the collection and analysis of information needed to realise student success and to better understand students is seen as a systems issue. This apparent disconnect between leadership and culture and the development of analytic skills, resources and systems provides insights that stimulate new perspectives for bridging this gap. There is

a particular need for educational rather than solely technical leadership of analytical systems to realise the goal of joining up the substantive, technical and practical facets of the future student experience.

To summarise, institutions need to better understand students to enhance their experience. Broader and more meaningful information on each student throughout and beyond their higher education experience is considered important for student success. As student numbers increase so too do the institutional challenges of being aware of helping people succeed. The challenge of integrating and analysing disparate pieces of information about each student and using it strategically to individualise and enhance their experience is significant. Yet, from the perspective of the student, these disparate bits of information existing in different institutional systems or not being captured in full, are artefacts of a personal educational experience.

Understanding each student through data-driven approaches requires a harmonising of strategic priorities with institutional operations and systems. To be sure, there are multiple challenges in re-orientating collection and use of data from an institutionally-led frame to a more dynamic and individualised approach. Digitising student profiles and journeys in ways that make sense to institutions, and institutions using the ideas sketched in this report, may well evoke altered approaches to higher education. But much work is underway in pockets of the sector to increase system capability, analytical functions and data-warehousing. In the medium term certain institutions and fields will advance more quickly than others until a critical mass of educational infrastructure reaches a tipping point that invokes fundamental reinvention of the student experience. This report has offered a modest roadmap of a potential way forward.

➔ *Question 7: Is this a useful agenda for advancing leadership of the student experience?*

The prompt questions are listed below to close out this interim report:

- ➔ Question 1: To what extent do these nine qualities frame useful perspectives on the future student experience?
- ➔ Question 2: In what ways would higher education be improved by further articulating individual journeys?
- ➔ Question 3: Thinking broadly, are there other information sources that would be helpful to take into account?
- ➔ Question 4: In what specific ways could this stagewise perspective on student success be improved?
- ➔ Question 5: In what specific ways could this framework for reflecting on student identity be improved?
- ➔ Question 6: In what ways could this perspective on education analytics be made more relevant to practice?
- ➔ Question 7: Is this a useful agenda for advancing leadership of the student experience?

Quality	Associated indicators	Data availability	Data needs
Value	Specific indicators include: graduate outcomes; institutional finances and forecasts; course fees; course duration; timetabling; staff to student ratio; staff qualifications, research profile and numbers; work experience opportunities; physical and online facilities and services; perceptions of teacher quality; and the usefulness of student information.	Based on audit of existing information, lagged data is available from national student, graduate and employer surveys. Additional information could be gained from institutional performance, financial and planning systems, staff data; student service use and incidence of attendance, facilities audit data, course data, exit interviews, institutional alumni systems and social media platforms.	Adequately assessing this quality would involve making available, formalising and integrating data collected by national surveys, institutional systems and records, and commercial platforms.
Belonging	Specific indicators include: feeling welcome; awareness and participation in groups, forums and clubs; participation in online and face-to-face curricular and non-curricular activities; and forming and maintaining relationships.	Based on audit of existing information, lagged data is available from national student and graduate surveys. Additional institutional systems that log participation, attendance and duration of experience on campus or online could be used in conjunction with records that indicate attendance at orientation events, membership and participation in groups. Other new forms of data could include real-time student feedback about perceptions or swipe card data. Alumni information and commercial online profiling offer other data.	Adequately assessing this quality would involve making available, introducing, formalising and integrating data collected by national surveys, institutional systems and records, student behaviour and perceptions, and commercial platforms.
Identity	Specific indicators include: goal oriented learning, leadership skills; cultural awareness; emotional intelligence; self-reflectiveness.	Based on audit of existing information, lagged data is available from national student and graduate surveys. Institutional systems including administrative data including admission and exit interviews and others that house assessment items including reflective and practical journals, capstone experiences and exchanges. Data that identifies participation in mentoring, leadership or orientation events or peer assisted programs. Information about student awards and recognition and volunteer roles for both curricular and non-curricular activities could be captured. Other commercial online systems or personal blogs offer additional data sources.	Adequately assessing this quality would involve making available, and integrating existing data collected by national surveys, institutional systems and records, and commercial platforms and harnessing new personal, behavioural and reflective information from both institutional systems and commercial platforms.
Discovery	Specific indicators include: development of new technical, generic and personal skills; problem-solving; develop cultural awareness; production of a body of creative or academic work; understanding academic culture and expectations; awareness of other disciplines; access to information repositories; awareness and access to emerging research; acquisition of new interests and new ideas.	Based on audit of existing information, lagged data is available from national student and graduate surveys. There is a shortage of collected data that measures students' capacity for discovery however internal data points including curriculum and assessment systems, information facilities and archives, research performance data. Commercial online profiling platforms would yield rich information about student discovery.	Adequately assessing this quality would involve making available and integrating data collected by student surveys, institutional systems, performance data and commercial platforms.

Quality	Associated indicators	Data availability	Data needs
Achievement	Specific indicators include: admission; passing; retention; learning outcomes; completion; and articulation into other qualifications.	Based on audit of existing information, lagged data is available from national student surveys and data collections, state-based admissions agencies. There is a shortage of publicly available information on learning outcomes.	Adequately assessing this quality would involve making available and integrating data collected by public agencies, and developing a learning outcomes indicator.
Connection	Specific indicators include: exposure to industry events, speakers and networks; undertaking work placements; student exchange and volunteering; and forming academic, collegial, and social networks.	Based on audit of existing information, lagged data is available from national student surveys. Additional information could be gained from institutional systems work integrated learning experiences, online discussion boards, interaction in student groups, and commercial networks used in course work. New collections that log students attendance or participation in industry or academic events. Subscriptions, membership, and participation in professional or academic networking platforms, organisations and chat rooms would indicate connectedness.	Adequately assessing this quality would involve making available, formalising and integrating data collected by national surveys, institutional systems and records, and commercial platforms.
Opportunity	Specific indicators include: relevance of curriculum to personal goals; course design; course outcomes; awareness of career opportunities and strategies; further study readiness; graduate employment; developing new skills; participating in collaborative networks; forming collegial relationships; and doing experiential learning or leadership roles.	Based on audit of existing information, lagged data is available from national student, graduate and employer surveys. Additional information could be gained from course data and descriptors, admission agencies and institutional alumni information and systems. There is a shortage of collected data that measures opportunities seized by individual students however, participation in institutional events, leadership roles, experiential activities could be logged.	Adequately assessing this quality would involve making available, formalising and integrating data collected by national surveys, institutional systems and records, and commercial platforms.
Enabled	Specific indicators include: student aid; student fees; scholarship availability; teacher quality; assessment feedback; academic support; online and physical resources and facilities; appropriate staff profile; student development and career sessions; student facing data; accessible, relevant and correct student information; awareness and understanding of institutional systems	Based on audit of existing information, lagged data is available from national student and graduate surveys. Information from tertiary admission centres, and institutional scholarship data could be used. Institutional information including staff data, student information platforms, facilities systems and financial data could be harnessed to measure this quality. Additional institutional systems that record incidence of support services, attendance at non-compulsory curricular events, use of online and physical resources including careers advice or utilisation of digital systems would provide information. Institutional information about alumni and commercial online profiling offer other data sources.	Adequately assessing this quality would involve making available and integrating data collected by national surveys, institutional systems and records, and commercial platforms.
Personalised	Specific indicators include: staff engagement with students; tailoring curriculum and teaching to students; experience/advice that is tailored to individuals; student dashboards; and provision of real-time assessment.	Based on audit of existing information, data is available, or could be made available, from national student surveys and institution systems on the extent to which staff and infrastructure are personalised. There is more information available on commercial platforms.	Adequately assessing this quality would involve making available and integrating data collected by institution systems, national surveys, and commercial platforms.

Table 2: Initial mapping of qualities, indicators and data availabilities and needs