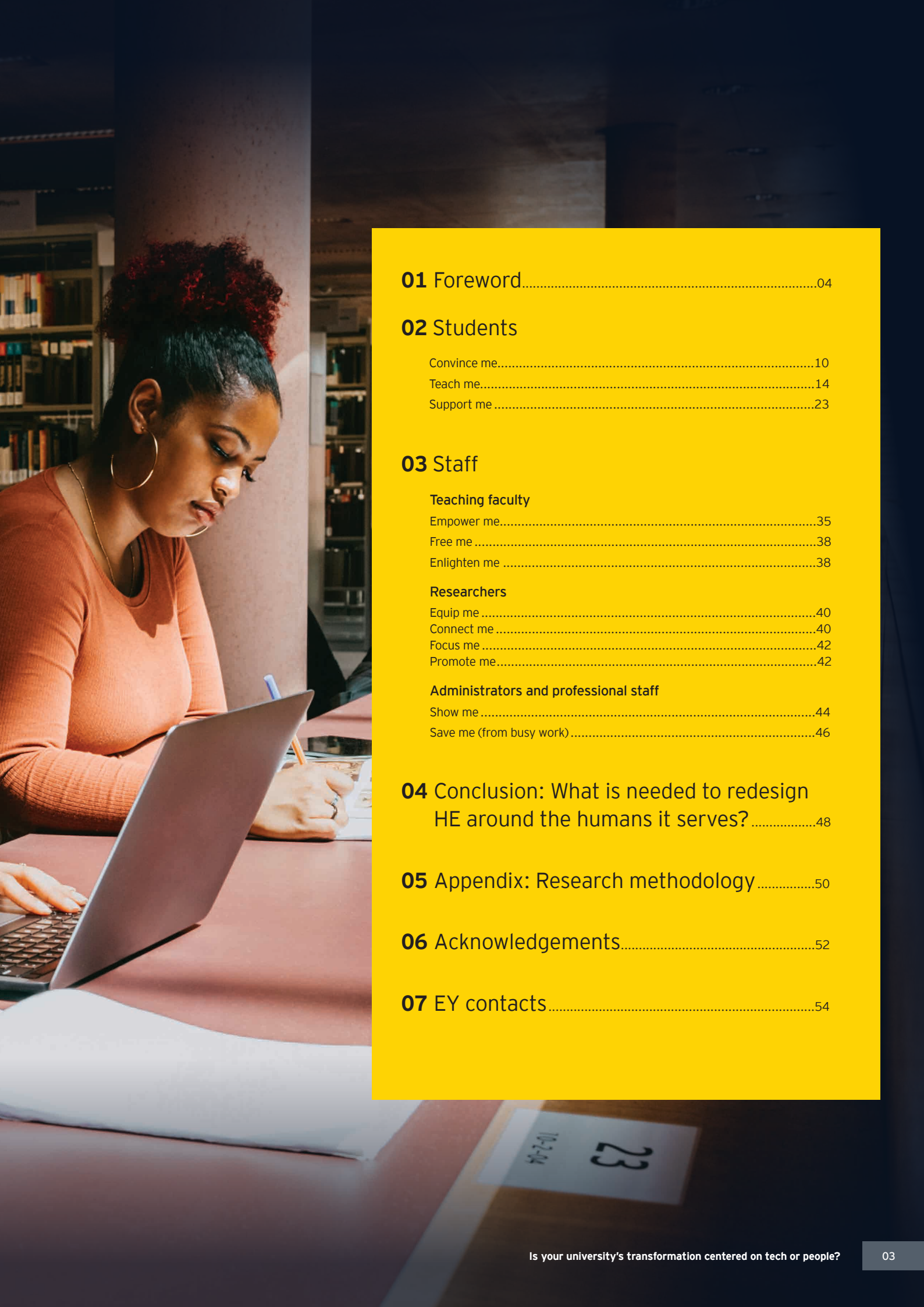
Is your university's transformation centered on tech or people?

Purposefully putting human needs and expectations at the center of higher education digital transformation will improve success

The better the question. The better the answer.
The better the world works.

EY
Building a better working world

contents



Foreword

Higher education (HE) was never designed with humans at the center. Throughout history, universities have been made to serve academic and government requirements. Later, their structures were set in stone by rigid IT systems and inflexible governance models. Students were expected to fit in — and be grateful for the chance to do so.

However, the digital transformation ahead of institutions will require a new way of thinking — one that is designed around the needs of the people they are intended to serve.

The digital transformation of HE has finally arrived

A decade ago, as digital technology seemed set to bring major disruption, the HE sector was warned "**an avalanche is coming**," referring to sweeping transformations that would need to occur to respond to the disruption caused by the online revolution. In reality, growing niche segments of HE – including postgraduate and lifelong learning – have adopted radically new models, from pure online delivery to stackable micro credentials to coding bootcamps. But, until recently, in traditional HE, the pace of change has been glacial.

A few innovators have transformed at pace, especially in Australia and the US, looking to expand their reach and scale by leveraging digital delivery models. But the majority got away with making their existing models work slightly better, with piecemeal investments in new practices and technology.

Why hasn't the digital transformation avalanche arrived? The answer is complex and varies by geography and segment. Until 2019, the old model was saved by benign markets:

- In the US, by rising prices and new online segments
- In the UK, by high initial prices, domestic demographics and international students
- In Australia, by international students and vocational segments

However, as we noted in our paper, **How are you balancing the books for a digital future?** that world has gone. The COVID-19 pandemic forced HE to leapfrog a decade of digital change in just two years. That reality is now bumping into the financial challenges being experienced by providers around the world.

In the next few years, universities will increasingly need to use digital technologies to:

1. Develop the distinctive program portfolios, capabilities and high-quality teaching that will broaden their reach and differentiate them in an increasingly competitive market so they can attract and serve a more diverse student cohort from anywhere in the world.
2. Provide students with the modern learning they expect: seamlessly blending digital content delivery with in-person modes to provide greater flexibility, increasingly personalized support and improved employability.
3. Liberate faculty and professional staff from overwhelming administrative burdens so they can focus on their teaching and research goals.
4. Leverage leading-edge technologies to conduct, manage and collaborate on world-class research.
5. Streamline operating costs (sustainably) to create digital investment capacity in the face of price pressures.

The avalanche may not be here, but the trickle of glacial melt is becoming a torrent — especially as it is now clear that the old model for traditional HE will not be sustainable.

To date, progress against these five objectives has been shallow. Digital content is still often "pdf and lecture capture" (old content on a new platform) rather than designed to enable optimal learning through personalized, digital self-access. Administrative burdens have even been exacerbated by siloed digitalization initiatives. On many campuses, staff and students still battle daily with multiple systems to get simple administrative tasks done.

Universities know that digitalization is essential but, for many universities, the way forward is not clear. Unfortunately, many are responding to this imperative with digital tactics that serve the needs of the institution and its existing structures and processes. Too often, this has resulted in a negative experience for the humans on the receiving end of digital projects. We believe it's time for universities to take a different approach to digital transformation. **This paper contends that institutions would get a far better return on their digital investment by putting the needs of the people they serve at the center of technology efforts.**

Transformation success depends on understanding people

In 2022, **research** by EY and the University of Oxford's Saïd Business School found that organizations in all industries putting humans at the center of their transformation efforts are two to three times more likely to succeed than those that don't.

In 2023, EY set out to find out what the Humans@Center transformation approach will look like in HE by **talking to the humans at the heart of universities**. But before we can discuss HOW universities can approach the transformation challenge with a Humans@Center mindset (the subject of the second report in this series), we first needed to establish WHAT the humans at the heart of universities expect and require from a reimagined university experience.

To answer both of these questions, we worked with Times Higher Education (THE) to survey 3,030 undergraduate and postgraduate students across eight geographies: Australia and New Zealand, Canada, India, Japan, Saudi Arabia and United Arab Emirates (KSA/UAE), Singapore, UK and Ireland, and the US. Participants were recruited from the millions who engage with the THE website and events. THE also conducted a series of online focus groups with 116 teaching faculty and 147 professional staff across the same countries. EY teams conducted in-depth interviews with leaders at 28 universities in these countries. (See Appendix for methodology and respondent demographics)

> "Universities need to be able to transform to survive — they're in a protected state right now because of their prestige. But, for this to be maintained, they need to be good value for money, offer an innovative product, be world leaders. This doesn't seem to be the case as yet.
>
> Canadian teaching faculty focus group

The results surface clear messages to HE leaders from the people that future digital transformation initiatives need to serve:

1. Students

- Convince me to enroll at your university by showing me that I belong, making discovery and enrolment easy, and offering programs that will accelerate my career.
- Teach me effectively using digital technology, with 24/7 access to content and high-quality teaching experiences.
- Support me in succeeding at university by giving me personal support to achieve my goals and making it simple to engage with the university and find connections.

2. Teaching Faculty

- Empower me with evidence, training and support to deliver world-class digital or blended learning.
- Free me to devote more to teaching or research.
- Enlighten me with the data I need to improve learning outcomes for my students.

3. Researchers

- Equip me with the tools I need to conduct world-class research.
- Connect me with my research community to drive better collaboration.
- Focus me on work that matters by removing the burden of research administration.
- Promote me so my research outputs reach a wider audience.

4. Administrators

- Show me the data I need to do my job better and faster.
- Free me from busy work so I can focus on more value-add activities.

This report focuses on clarifying **what** needs to be done to digitally transform universities based on the needs of the humans that transformation will serve. It will be followed by a related paper helping leaders with **how** to lead their transformations successfully, using a "Humans@Center"approach. That paper will also be informed by the experiences of leaders, faculty and staff in our research.

We hope this first report inspires academics and university leaders to listen to and understand the needs of their students and staff – and harness proven digital and pedagogical approaches to better serve the people in their institutions.

> "When the digital masterplan was drawn up, it was just post-COVID. People were sick of digital technology, so we wanted to be very careful NOT to make the plan about the technology. Instead, it was really important to make it all about people.

Dr. Gerard Culley
Director of IT Services,
University College Cork

Students

The COVID-19 pandemic has fundamentally changed what students want from universities. Their educational norms and situations have shifted. Even those fully on-campus expect to be able to access content and administrative processes online, in their own time. More than half of the students in our study are also balancing work and study, increasing demand for convenience, flexibility and self-paced learning.

Universities know there is "no going back," but they underestimate student expectations. **While two-thirds of students are happy with their choice of university, the remainder are neutral at best**. The current cohort of students are looking for their HE institutions to deliver (in this order of priority):

- High-quality teaching
- Improved career prospects and workplace preparation
- Better support to achieve their learning goals.

"How happy am I with my choice of university?"

Convince me...

To stand out and win student choice, universities must better understand what students are looking for from HE, help them to find a way through the vast amount of identical program information, and offer programs that directly support their career goals. To help improve completion rates and student success, universities should also be making every effort to guide prospective students to choose a program that is right for them.

...that I belong in your university

Psychologists have identified the need for "a sense of belonging" as a universal and fundamental human motivation. According to Dr. Maithreyi Gopalan of Penn State College of Education, evidence from **three studies into students' sense of belonging** shows its importance in supporting academic persistence and achievement. When current students experience "belonging uncertainty," they interpret negative experiences as evidence that they do not belong. Imagine how much more powerful this effect is for prospective students wondering if they have what it takes to succeed at university.

The current maze of program information and confusing enrollment processes can overwhelm and put off prospective students, especially those who are first in their family to enter HE. Given their expectations of slick online or mobile customer journeys from the private sector, if students can't find a pathway to something of interest within a few clicks, they will disengage. Universities only need look at examples of high involvement purchasing decisions, like buying a car or securing a home loan, to see what a consumer-grade customer experience should look like.

Universities can increase the likelihood of students completing enrollment by demonstrating from the beginning that they will support students at every turn. Websites should clearly focus on the human – "Tell us about yourself so we can show you programs to support your career goals that you'll be good at" – and then gently guide prospective students through a process that leads them to a program they are likely to enjoy and complete.

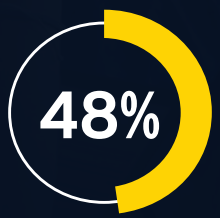
...with career-aligned programs

According to our survey, program offering is the top-rated university selection criterion (closely followed by location). In terms of program selection, students rate career pathways and improving career prospects as the most important criteria, alongside enjoyment of the subject. "Improving my career prospects" and "preparation for the workplace" are also rated the second and third most important aspects of the university experience, behind only teaching quality. (see chart below)

Yet too often, universities are not adequately preparing students for their future careers. Not meeting expectations around improving career prospects and preparing students for the workplace are key drivers of overall unhappiness with university choice. A concerning 21% of final year undergraduates say their university experience does not meet their expectations regarding preparation for the workplace.

> "Stop telling students they belong, show them instead that they belong.
>
> **Dr. Maithreyi Gopalan*, Penn State College of Education**

"This is the main reason I chose my program"



To qualify for a chosen career or improve my career prospects.

To study something I enjoy.

To gain in-depth knowledge of my chosen subject.

* *Source:* https://tll.mit.edu/sense-of-belonging-matters/

What this means for HE

- **Review program portfolios through the career lens**
  Universities need to assess future demand for competencies and skills, and ruthlessly cull and adapt portfolios to match program offerings with student needs. This provides the added benefit of generating cost savings that could be invested in high-quality learning content, delivery or research.

- **Tie programs to employability**
  Beyond, for example, medicine, law and nursing, universities need to create clearer employment pathways. A starting place might be to clearly link curricula to workplace outcomes. Students should be able to assess programs based on the percentage of graduates gaining employment, in what professions and at what starter salaries. This might incentivize curriculum development that more closely delivers the skills industry needs, offers clearer pathways to employment and is, therefore, selected more often by students.

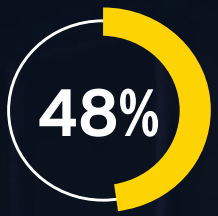
- **Connect with industry**
  Universities need to work more closely with the commercial sector to better understand the in-demand workplace skills and industry skills gaps, and then adapt program offerings, curricula and content accordingly, potentially partnering with industry bodies to fund program development or scholarships.

- **Allow students to see and experience different jobs while learning**
  Networking and building relationships within one's prospective industry is important for career preparedness. Internships or work placements help students to develop much-needed workplace skills and awareness of potential career choices. In the digital world, opportunities include making use of digital internships – even with companies in other countries.

- **Teach workplace technical and behavioral skills**
  Many university leaders told us that a key priority is to build students' digital fluency to equip them for the increasingly digitally driven workplace. A certain level of digital competence is also required for students to successfully access the university's digital learning and administrative resources. Some faculty complained that they spend too long teaching students how to use the technology and online systems, giving them less time to focus on their subject matter. Being a digital native does not automatically mean students can navigate learning platforms with ease or that they have adequate Excel skills. Given levels of digital fluency may vary depending on age or socioeconomic background, there is also an equity driver for digitally upskilling students. Is it time for universities to require bridging classes in basic digital tools?

  While digital upskilling is critical, we also suggest expanding this ambition to include behavioral skills – communication, critical thinking, emotional intelligence, time management and flexibility – that equip graduates with a well-rounded professional skill set.

- **Offer self-access to detailed transcripts**
  Students are keen to have online access to their own formal record of attainment or transcript to monitor their own progress and prove their credentials to a potential employer. The sector should also consider evolving current transcripts from just providing a subject grade to offering students the option of having a rating of all the competencies (academic, technical and behavioral) they have demonstrated during their years of study. New digital tools, coupled with advanced analytics and cognitive systems, allow education providers to collect in-depth knowledge on students' behaviors, interests and capabilities to provide a broader diagnostic of individual performance. For example, during digital collaborative assignments, platforms can capture data points on engagement, leadership and contribution. Using this data, universities can credibly comment on whether a graduating student is a reliable team player who consistently goes above and beyond in collaborative projects. Such attributes are of tremendous interest to employers. An institution offering rich data transcripts will be attractive to students whose priority in HE is to advance their career prospects.



of students say they would find a learning progress tracker or dashboard very useful (and 42% say it would be somewhat useful).

Universities could provide access to interactive digital tools, which monitor the local job market, analyzing the in-demand roles and skills. These tools can help students to choose careers based on their skills, competencies and interests, and find study programs to fill skills gaps and that translate to employment opportunities. Institutions can also use the data from these tools on in demand skills and employment trends to pivot as needed to meet job market and learner demand.

How universities are better meeting industry skills needs

For the University of New Brunswick, Canada, a key part of its mission is to provide the skills and talent needed to support the digital future of the province. The institution is creating a digital campus to expand UNB's online offerings. In addition, the University will be expanding its graduates in computer science and engineering to meet local demand. To offer the required skills and experience to students, the university is partnering with industry in the province to provide more experiential learning and drive commercially focused research and innovation.

Singapore Management University (SMU) has a new College of Integrative Studies, where students can design their own degree program — an Individualized Major or an Individualized Second Major (alongside a major from another part of SMU) — with a faculty advisor guiding students to build the right program to support their career goals. Students graduate with a Bachelor in Integrative Studies and a transcript describing the substance and scope of their individualized degree. When generative AI can support the advice component of this approach, it will be easy to implement at scale.

In Ireland, a national government project provides a free personalized careers program for anyone seeking to upskill. The **MyCareerPath.ie** online platform uses AI to identify motivators, strengths and transferable skills, and suggest HE programs to meet career and learning objectives. The program targets six personas based on life stage and offers four one-to-one mentoring sessions with career and learning pathway advisors.

Teach me...

...effectively using digital technology

All the universities we spoke to pivoted to online learning during COVID-19, with varying degrees of preparedness. As they did, many students experienced a drop in teaching quality.

For students in our survey, quality of teaching is the most-cited reason for both happiness and unhappiness with their choice of university. **Students rate teaching quality as the number one most important aspect of their university experience, but it only comes in fifth in terms of satisfaction.** Fourteen percent say it does not meet their expectations.

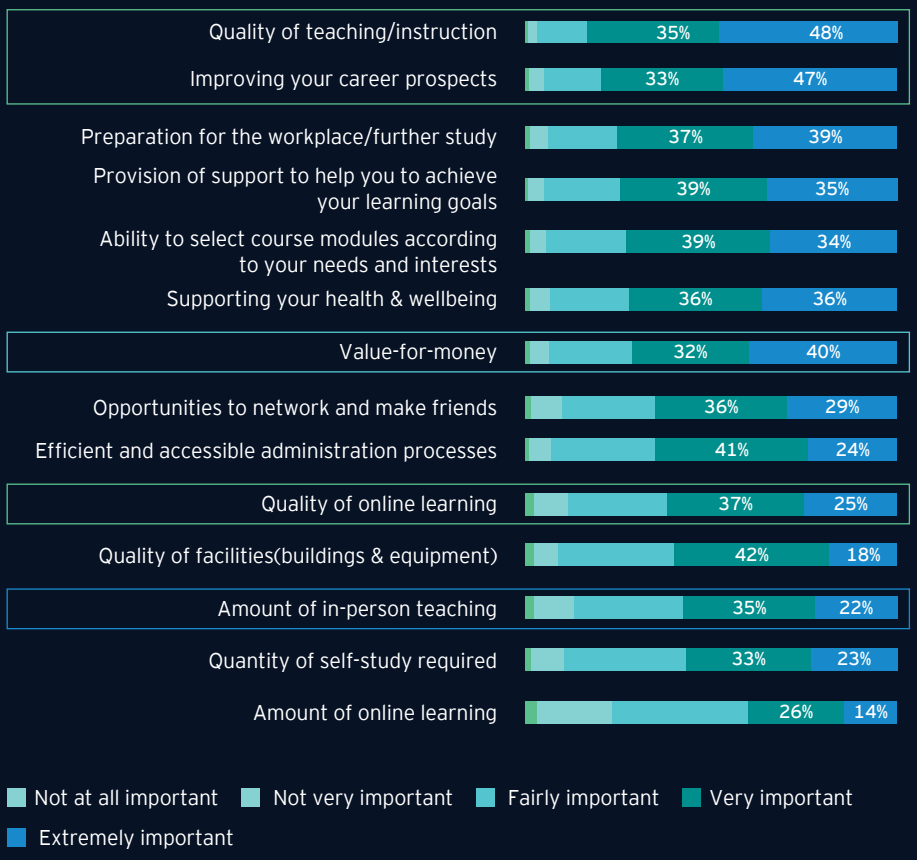
Students also give low ratings to their experience of quality of "online learning" – putting it at the bottom of all surveyed aspects of university life in terms of satisfaction. One in five students say the quality of online learning does not meet their expectations at all (although they are much less concerned about the amount of online learning).

The level of dissatisfaction is almost as high for mainly remote students (18%) as it is for mainly campus-based students (21%).

What's missing from the digital learning experience is engagement. Although students rate the availability, quality of production and accessibility of digital learning materials reasonably well, they give low ratings to its ability to engage, motivate, enable collaboration or check understanding. This reflects the fact that many universities are still simply recording lectures and posting lecture notes and reading lists online.

"What I want"

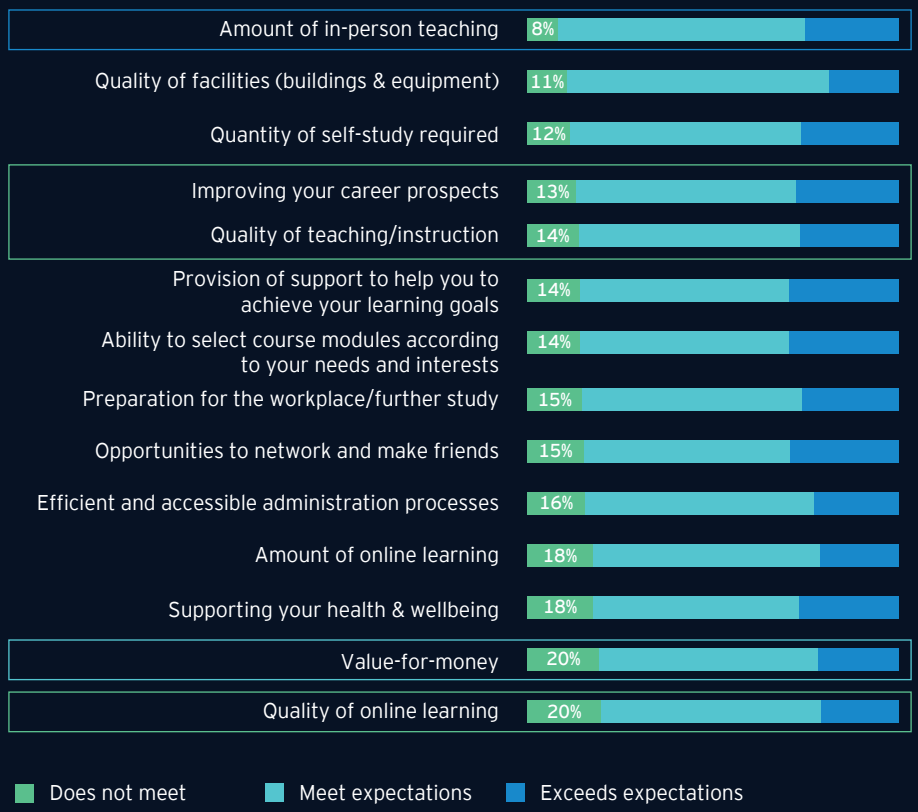
Importance of aspects of the university experience N=3030



That said, it's clear from our country-level ratings that the sector is improving. Student satisfaction with quality of online learning rises with a country's digital maturity. Satisfaction with quality of online learning is highest in the more digitally mature markets of Singapore, Australia and the US, and lowest in India and Japan where digital uptake in HE has been slower.

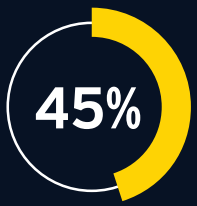
However, even in mature markets, more work is needed, not just in developing digital learning materials for asynchronous delivery, but in training teachers to create effective digital learning experiences and teach effectively using both digital and face-to-face modes. In fact, students say that training teachers to deliver digital learning more effectively should be a university's top technology investment priority, rather than upgrading hardware, platforms or systems (See chart to the right). The research findings could not be clearer: students value high-quality teaching that is complemented by digital learning – not replaced by it.

How well does your university experience meet your expectations? N=3030



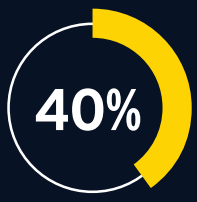
> "I do a lot of online learning, but it is not very interactive, which is frustrating because I often feel like I am paying for a course I am teaching myself.
>
> Student in Australia

"If funds were available, I would like to see my university invest more in these technology areas."



Training teachers to deliver digital learning more effectively.

Developing better digital learning materials.



Providing more support to students with effective digital learning.

What this means for HE

- **Move to flipped learning**
  Student preferences are clear. In-person, mass lectures must give way to a flipped learning model, with asynchronous digital learning occurring before synchronous, interactive engagement. Both experiences should shift students from passive consumption to active learning. By introducing students to digital content outside of class, students can learn at their own pace and accommodate their own learning style and schedule. By working with faculty in interactive activities and discussions during class time, students can gain a deeper understanding of the content, while developing critical thinking and other higher-order cognitive skills, such as analysis, synthesis and evaluation.

> “Digital is all about getting the darned lecture out of the way so you can spend time on the coaching and learning part. It’s also, of course, about convenience and the ability to pause and rewind or go deeper if you haven’t understood.
>
> Prof. Sanjay Sarma
> Founder and former VP of MIT Open Learning

- **Invest in high-quality digital content**
  Effective digital content incorporates a variety of multimedia elements, including videos, audio clips, images, animation and interactive simulations. These elements improve learning outcomes by using stories and analogies to explain complex concepts, engaging multiple senses, demonstrating real-world relevance and catering to different learning styles. Content must be bite-sized, searchable and designed to constantly check understanding via mini assessments and quizzes. Universities can enrich content with panel discussions, expert interviews or access to current postgraduate research projects and outcomes. Educators are also beginning to use augmented and virtual reality technologies to help their students learn complex content or provide experiential learning that would not otherwise be possible, such as students learning medical procedures. Universities will need to carefully evaluate what content they should buy in vs. create in-house and where augmented or virtual reality technologies truly add value.

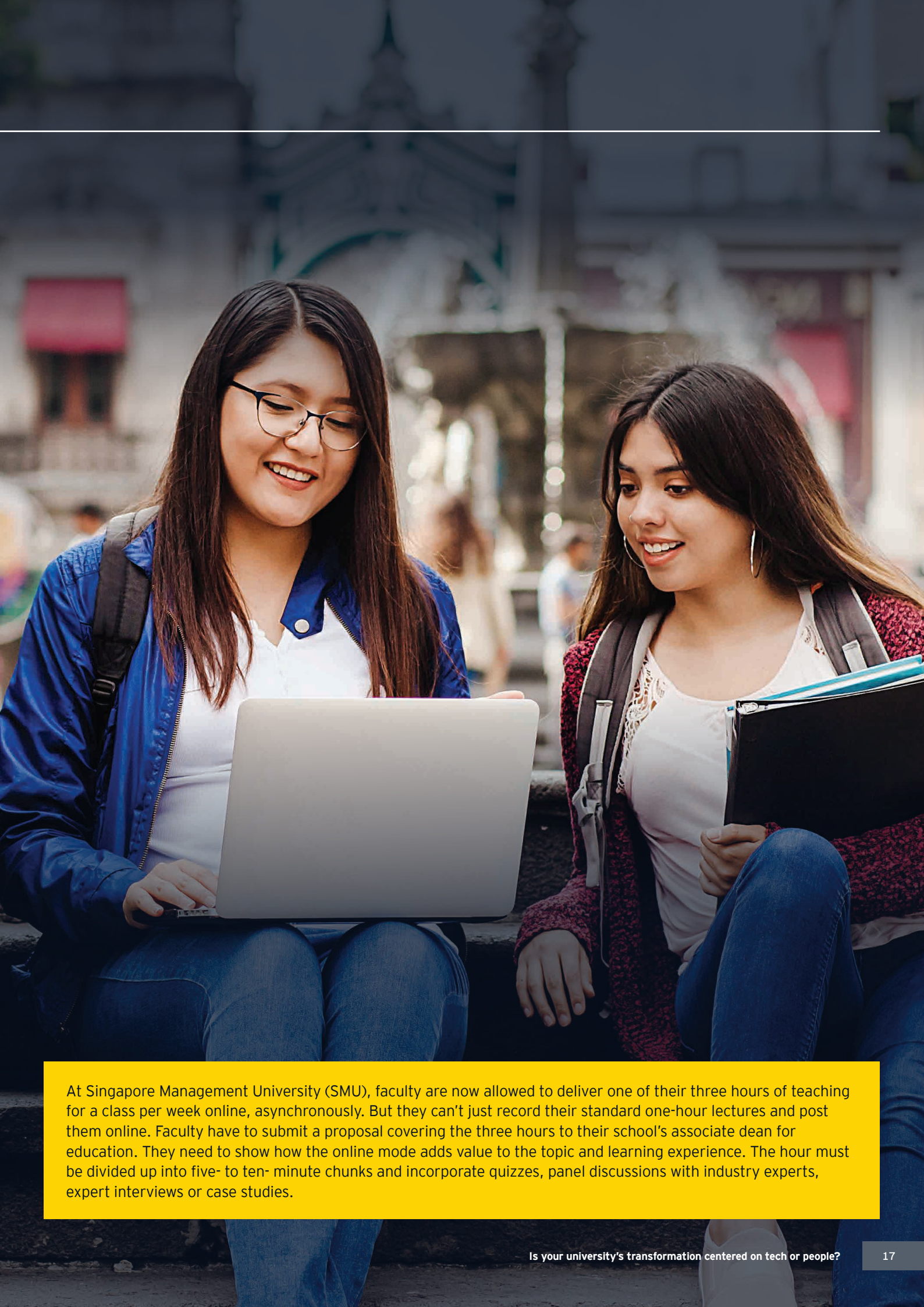
- **Offer differentiated instruction**
  Increasingly, as HE access continues to broaden out, universities need to cater to a mixed ability undergraduate cohort. In addition, in our survey, 16% were overseas students, 17% reported some kind of disability and 9% were aged 25 or over and may have been returning learners. Different students learn at different paces, have different aptitudes and enter classes with different experiences and background knowledge. Maximizing the potential of each student relies on a differentiated, customized learning approach, tailoring teaching methods, content and assessment strategies to accommodate the diverse learning needs, preferences and abilities of individual students. Digital learning is ideal to support the varied content delivery and flexible pacing of differentiated instruction. Bespoke learner analytics technology allows universities to tailor content and teaching methods, moving to a world in which education is adapted to each student’s individual needs.

For many institutions, these changes will represent a major transformation.

The concept of a flipped classroom is broadly accepted but often poorly delivered. Faculties are simply posting recorded lectures onto a learning management system, together with additional learning materials, assignments and assessments.

Not all university leaders or faculty are convinced of the pedagogical merits of incorporating digital learning into HE. In our focus groups, some faculty expressed concern that increasing digitalization is reducing students’ critical thinking and social skills. In fact, executed in line with best practice, a flipped classroom model, with well-facilitated, in-person debate, will actually improve both.

Part of the problem is that not all teaching faculty, even brilliant academics, are necessarily good teachers.



At Singapore Management University (SMU), faculty are now allowed to deliver one of their three hours of teaching for a class per week online, asynchronously. But they can't just record their standard one-hour lectures and post them online. Faculty have to submit a proposal covering the three hours to their school's associate dean for education. They need to show how the online mode adds value to the topic and learning experience. The hour must be divided up into five- to ten- minute chunks and incorporate quizzes, panel discussions with industry experts, expert interviews or case studies.

Too often, they continue to deliver one-way lectures with impenetrable slides from which students rapidly disengage. Faculty are also rarely trained in digital pedagogy, including how to reinforce and check understanding, and support productive and inclusive debate and discussion.

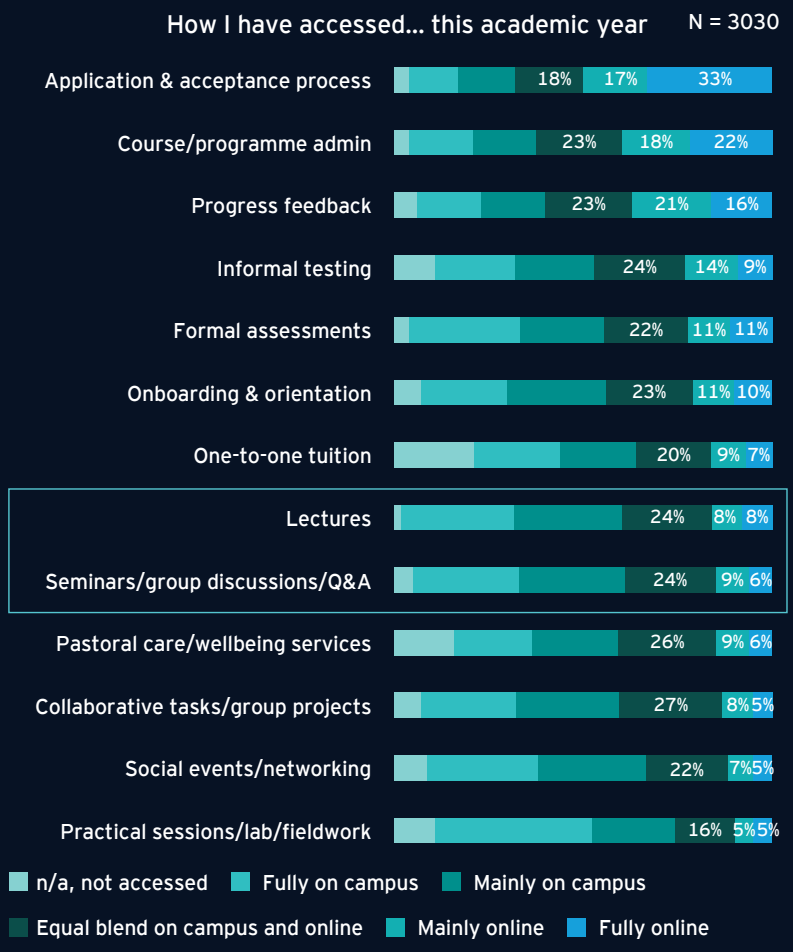
Often, teaching faculty also need to be upskilled to develop formative assessment strategies and offer tiered assignments and scaffolded learning. This will require a huge, concerted effort and significant cost and culture change.

> “I think the issues around resource and time required for creation of quality teaching are fundamental, paired with failure to prioritize staff skills development and support, aligned with student skills development.
>
> UK professional staff focus group

...with 24/7 access to content

Contrary to reports from many universities about students wanting to get back to in-person teaching, the amount of in-person vs. online teaching appears to be of low importance to the students in our survey. As shown in the chart on p14, the amount of in-person or online teaching rates 12th and bottom respectively in terms of importance to students, while satisfaction with the amount of in-person teaching is generally high. For most students, the amount of online self-study vs. in-person learning also makes little difference as to whether a student is happy or unhappy with their university experience. The *quality* of learning provision is a much greater factor.

“This is how I prefer to access my university experience”

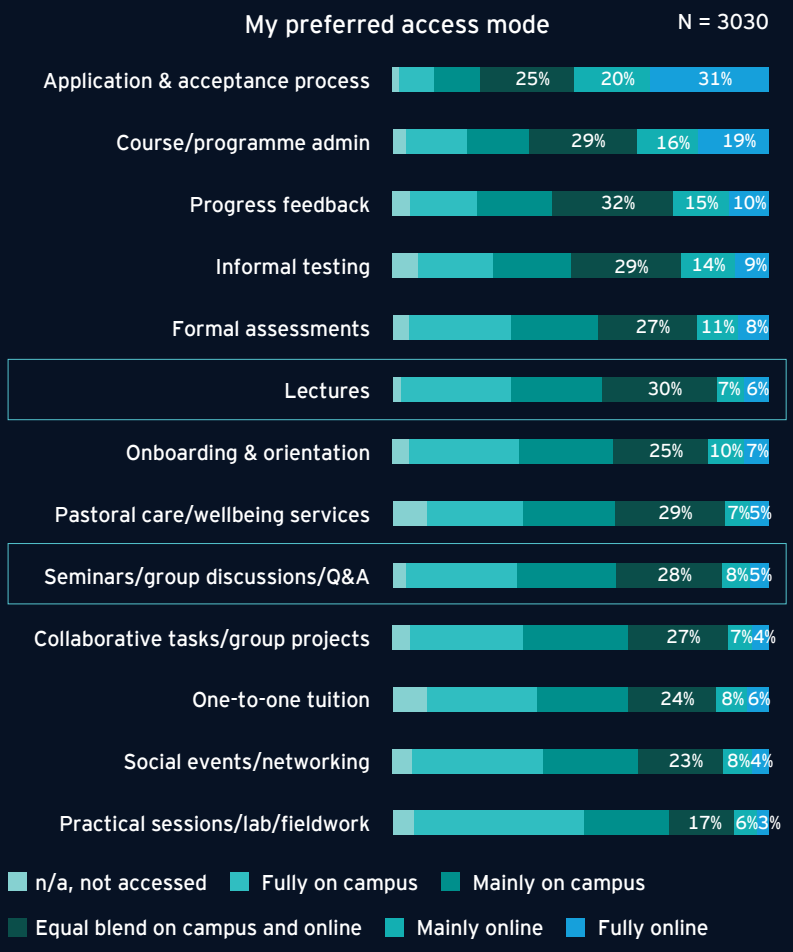


Among our surveyed students, two-fifths (39%) say they are accessing at least half of their lectures online and 43% would welcome at least an equal blend of in-person and online lectures. Surprisingly, a similar proportion (41%) say they would prefer at least an equal blend of online and in-person seminars and group discussions. Even among full-time, campus-based students, the preference for online modes is almost as high – with 39% saying they would prefer at least an equal blend of online and in-person lectures, and 35% for seminars and group discussions. Students overwhelmingly told us that the top benefits of online learning are convenience and self-paced learning (56% and 53% of students respectively chose these among the top three benefits).

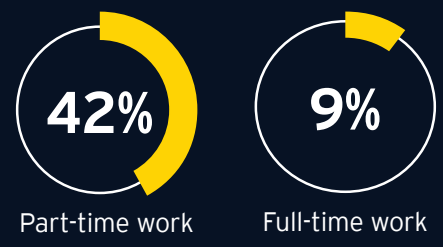
Online testing and assessments are even more widely experienced and accepted.

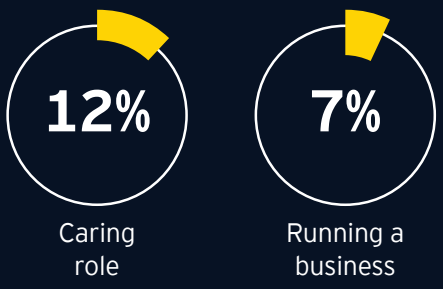
Just over half (52%) of surveyed students would prefer at least an equal amount of online vs. in-person informal testing, and 46% would prefer this for formal assessments. Almost a quarter (23%) would prefer informal testing to be carried out mainly or fully online (19% for formal assessments).

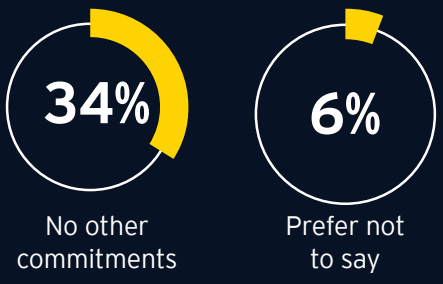
Students' desire for greater flexibility is driven, in part, by their commitments outside of university. One in five students are managing some kind of work or family commitment (see chart opposite).

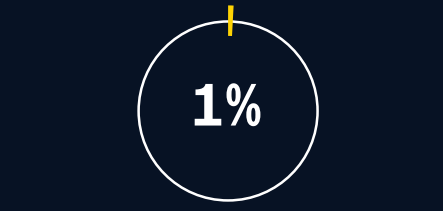


"I juggle my studies with other commitments"









What this means for HE

- **Phase in asynchronous learning and phase out pure in-person teaching models**
  No matter what faculty and parents believe, for students, pure in-person teaching is no longer the gold standard of HE. Students do not perceive quality online learning to be of lower value, as long as they are given opportunities for valuable interpersonal connection. Asynchronous learning has the potential to bring huge benefits, giving students more timely, accessible, personalized learning experiences and enabling universities to deliver a more cost-effective service. Asynchronous offerings also support self-paced learning at a time and place of a student's choosing, improving accessibility.

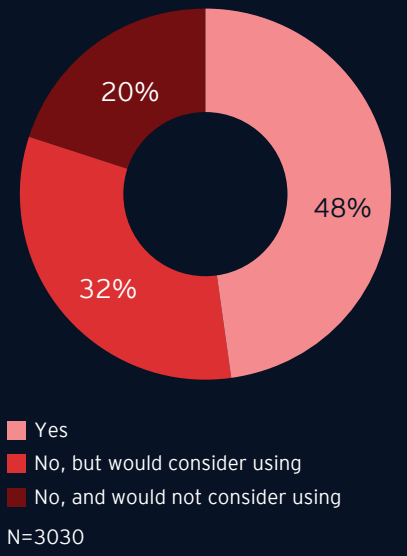
- **Move to hybrid/HyFlex delivery**
  A HyFlex (hybrid-flexible) program combines face-to-face and online learning, incorporating successful practices from flipped, blended, remote and distance learning to intentionally create learner-centered, profoundly personalized, relevant and engaging experiences. Students have the option to attend classes in-person or participate live online – and switch as needed. This blended learning environment allows students to experience a variety of teaching methods and interact with peers in different ways. HyFlex platforms often provide data on student participation and engagement, allowing instructors to identify trends and tailor their approach to better support student learning. As many careers involve remote work and virtual collaboration, experiencing a HyFlex learning environment can also help students to develop workplace skills.

- **Rethink assessment**
  Continued advances in technology will expand the use of ongoing, formative, diagnostic and embedded assessments that are more useful for improving learning. Through the use of embedded assessments, faculty will see real-time evidence of the student's thinking during the learning process, ensuring all students have the best opportunity to demonstrate their knowledge and skills or identify and address gaps.

  Universities also need to decide how best to **address student access to generative AI** when completing assessments. Most institutions have already realized that banning the use of generative AI will not work and are instead seeking to understand its potential uses to support learners, including providing students with acknowledged potential shortcuts in assessment tasks. Early guidelines for educators, including those from Ireland's **National Academic Integrity Network**, recommend replacing or modifying assessments that could be completed satisfactorily by a person using AI who lacks an appropriate level of subject knowledge. New types of assessments should focus on demonstrating a student's ability to apply and think critically about the subject matter.

"I have used AI tools to support my learning"

Have you used ChatGPT, Grammarly, DALL-E, Writesonic or any other artificial intelligence (AI) tools to support your learning?



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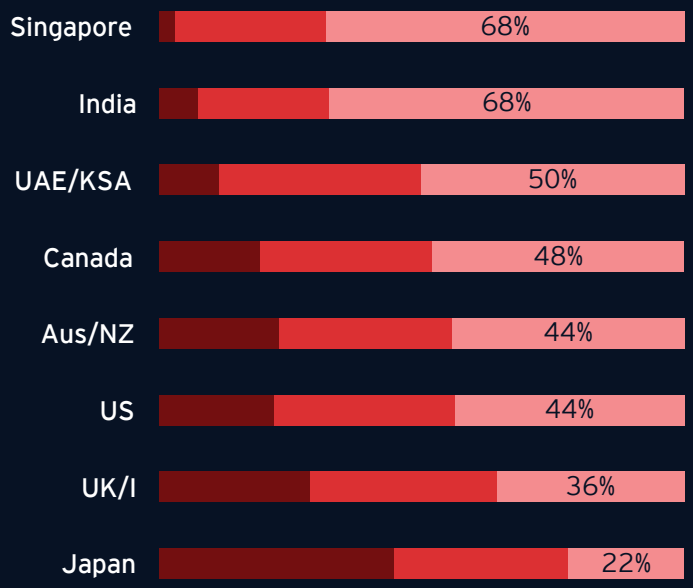
Use of AI tools by country



When it comes to digital or blended learning, universities need to catch up with student expectations. Many of the universities we spoke to are still assessing what online learning elements to keep or improve and how best to integrate digital technologies into a new way of learning. Some are determined to keep on-campus and pure online offerings distinct, although most are at least making materials available online for campus-based students. Some are only offering online content as a supplement to classroom teaching (if at all), not as an equal alternative – except for postgraduate or vocational programs.

Several of the universities we spoke to are adopting a HyFlex approach. However, they run into technical challenges as they try to provide the same user experience whether the person is at the front of the class, the back of the class or participating remotely. Classrooms need to be properly equipped with microphones that will pick up student discussions, as well as the voice of the lecturer. Remote students also need to be able to see and hear audio and visual materials used during the session, as well as being able to participate in the live discussion. Universities will, therefore, need to invest in the technology to enable this, as well as training staff to teach in this mode.

The gap between student expectations and what universities are offering often comes down to a lack of willingness to adapt to digital modes. Despite ample evidence to the contrary, our interviews suggested a pervasive skepticism about the pedagogical

> "The faculty require proper training. We are seeing some resistance from faculty to using technology in both online formats and in-person teaching.
>
> UAE & KSA faculty focus group

merits of digital learning. This must be overcome, given digitalization and data are essential if universities are to provide differentiated instruction, and personalized or scaffolded learning.

Part of the issue is that the effectiveness of digital learning depends on quality program design, instructor engagement and technological infrastructure. Unless all three are in place, universities will not get a good return on their investment in digital transformation. **Using old pedagogies on a new platform does not enable powerful learning.** And having sophisticated digital learning resources will not help if teachers are not adept at deploying them effectively.

Implementing digital learning badly (i.e., as an emergency sticking plaster during the COVID-19 pandemic) and then pointing to its failure as evidence of pedagogical shortcomings is disingenuous. University leaders need to get teaching faculty over the line. This problem requires a human-centered solution, which starts with being very deliberate about what activities should be virtual, what should be conducted face-to-face and what approaches work in a hybrid environment. This needs to be followed through by investing in uplifting staff understanding of, and capabilities in, digital learning – as well as implementing contemporary digital and hybrid learning infrastructure.

> “Academics are not trained in technology by default. So, when designing course content, it’s extra work and they still don’t know if it’s the ideal way of teaching.

Australia & New Zealand faculty focus group

> “Staff lost trust in online learning after their experiences during COVID-19. They saw grade inflation during the period of 100% remote learning, partly due to lack of control over assessment situations and potential for cheating. And then when everyone went back to the classrooms, grades went down, and it became clear that there were learning gaps. So, whilst students appreciated the convenience and ease of online learning, questions were raised about its effectiveness and suitability.

Saudi faculty member

Support me...

... to succeed at university...

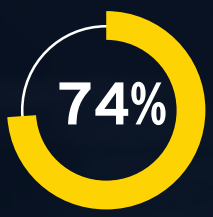
Students ranked learning and wellbeing support fourth and sixth respectively in importance out of 14 aspects of their university experience. Almost three-quarters (74%) of the students in our survey rate support to achieve their academic goals as very or extremely important. However, they rank provision of learning support sixth in terms of satisfaction. Fourteen percent say it does not meet their expectations – with very little difference between modes of study. Lack of support was also a key reason for students being unhappy with their choice of university, especially among mid- and final-year undergraduates.

A contributing factor to feeling unsupported is the leap from a highly scaffolded high school environment to one without homework checks or reminders about incomplete work or falling behind. Gone are the days when universities could rely on an intake of academically gifted and motivated undergraduates who will "figure it out." For a mixed ability cohort that includes people managing multiple commitments or facing external pressure, current support structures are often inadequate. Struggling students can easily fall between the cracks. Some only become aware they are in trouble at the point of failure.

Some of the more forward-thinking university leaders stressed the importance of providing personalized academic support – a kind of coach or mentor to care about, inspire and guide students. This kind of support positively impacts a student's engagement, sense of belonging and ultimately retention and success rates. The challenge is offering this level of personalized support at scale. However, the coach does not have to be an academic – and personalization can be informed and enabled with AI and analytics.

> "The role of a coach is critical when you are teaching at scale. Students don't need more contact with the instructors, but they do need a mentor, a coach. Someone who cares about them as a person, and can help them with their academic issues, but also their life issues. In the online mode, they might not see the same instructor twice, but their academic advisor stays with them throughout their time at the university and really gets to know them.
>
> **Dr. Paul LeBlanc**
> **President, Southern New Hampshire University**

"I need more learning support"



"I think it's very or extremely important that my university supports me in meeting my learning objectives."

"My university does not meet my expectations of learning support."

What this means for HE

As well as having staff specifically tasked with providing individual learner support, the sector needs to increase its use of digital technologies and data to make teaching more learner-centered and to adapt support to cater for students with mixed abilities or complex lives. Data makes a student more than a number, helping universities to boost engagement and success – and engender a sense of belonging.

- **Provide learning progress trackers**
  Learners want to be able to track and manage their own learning progress by having access to their own learner record online. Nine out of ten surveyed students say they would find a learning progress tracker somewhat or very useful. The biggest demand was in the US, Canada and UK/Ireland, where 55%, 52% and 49% respectively say they would find a learning tracker very useful, compared with only 33% in Singapore and 35% in Japan. Only 44% have access to such a tracker. Provision is most likely in Australia/NZ, the US and Singapore.\

- **Offer time management apps**
  Some universities are creating mobile apps, bringing together tailored information for the individual learner. Students can personalize these apps with their calendar, timetable, program materials, assignments schedule and digital payments, creating bespoke alerts and reminders according to their needs and interests.

- **Use data analytics to identify red flags of early struggles. Predictive analytics can identify a learning issue long before it becomes a problem.**
  In a personalized learning system, student performance is tracked to identify at-risk students so faculty can take timely steps to address any performance problems. Some universities in our survey say they are already using data and analytics to monitor learning progress and engagement, flag issues early and generate actionable interventions. A few are even experimenting with using eye movement assessment to gauge engagement and understanding during digital learning. One university in our interview group already has a single system that captures information on a student's background, progress and wellbeing. When academic advisors, career counselors or instructors interact with students, they do so with a better understanding of their situation.

- **Elevate personal learning coaches**
  Universities recognize that personal relationships and individual coaching are critical to helping students to achieve their goals. More universities are providing personal learning coaches – some in-person, some online. For students, the channel is less important than the contact being personalized. Students need to feel that their coach "knows and cares about me." This can be facilitated with the use of integrated data and AI, to combine insights on anything from missed assignments to potential financial difficulties. Formalized peer-to-peer learning support is also becoming more common, with facilitated discussion groups led by experienced students.

- **Offer individual learning support**
  Different learners require different starting points and levels of support. New digital tools coupled with advanced analytics and cognitive systems allow education providers to collect in-depth knowledge on learners' capabilities. Two universities in our interview group are already considering the potential to use AI and machine learning (ML) to assess a learner's competence more thoroughly at enrollment to allow for tailored (accelerated or remedial) pathways. Learner analytics can make intelligent use of big data obtained from the teaching and learning process to allow educators to personalize learning support for each of their students. For instance, if learner analytics are showing a student is struggling to absorb and understand content, the system will offer them a customized learning pathway and resources. In the same way that learner analytics allows teaching staff to make proactive decisions about student academics, AI programs can learn and predict what the optimal work and subject load is for individual students, progressively feeding them customized learning content depending on their responses.

- **Put boundaries around virtual office hours**
  Several focus group participants said that the use of virtual office hours and meeting scheduling tools has made it easier for faculty to connect with students one-on-one – and that some students feel more comfortable in this mode. However, without clear boundaries, the use of digital tools can create the expectation of tutors' 24/7 availability to answer students' questions.

Students

Our interviews found that university leaders recognize that different learners have different needs. Some are concerned that teachers are not focusing enough on engaging with students, mentoring, coaching and guiding them.

In a flipped classroom model, less time spent lecturing could give teaching faculty more time to support and guide learners. However, coaching does not have to come from top academic staff.

Peer or post-graduate support can be a next best option. Another option is to invest in a dedicated nonacademic learner support team.

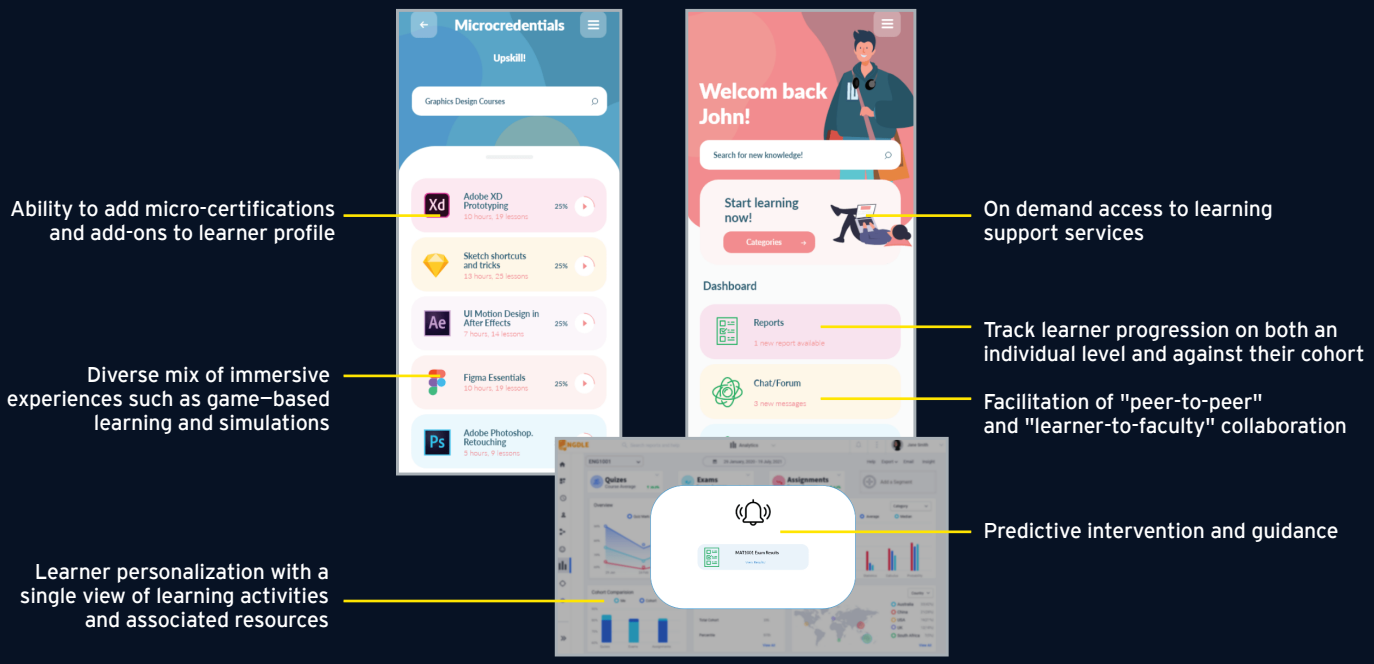
Institutions are exploring ways to offer greater personalization and one-on-one support at scale. But the stumbling block is having joined-up access to good-quality academic and nonacademic data on the learner. Providing individual pathways will also require universities to get better at measuring competence and assessing what students can do vs. what knowledge they have acquired.

Many universities are hampered by siloed systems that prevent data sharing and reduce data quality. In these IT environments, faculty have to consult multiple sources to get a single and comprehensive view of a student.

Tailoring teaching and learning experiences to individual needs

Through sophisticated learner analytics, students can be supported through areas of the curriculum that they find challenging – but can also be stretched by extension activities .

As the sector moves to automated, personalized prompts and interventions, user experience teams must endeavor to make such interactions appear supportive and helpful – not critical, overbearing or disruptive. Allowing students to opt in to or customize prompts will help to create a positive user experience with apps and learning trackers.



> Personalized learning pathways only work if the outcomes are the same. Be clear about the expected outcomes — this is what a graduate of this course should be able to do. But then how they get to that point can be customized, based on their starting point, learning style, needs and preferences.

Dr. Paul LeBlanc
President, Southern New Hampshire University

...with a digital campus

For almost two-thirds (65%) of our surveyed students, efficient and accessible administrative services are very or extremely important. But 16% find this aspect of the university experience does not meet their expectations (see charts on p.14 & 15). Students generally prefer to access such tasks online, especially application and acceptance processes (51% prefer to do this fully or mainly online) and program administration (35% prefer to do this fully or mainly online – see chart on p19). Many universities told us that students want to access all their learning and services in one place, via apps with a single sign-on. They do not want to have to navigate numerous different apps to get the information and services they need. Nor do they expect to have to re-enter the same data into multiple systems repeatedly to conduct their university business. Ideally, they want a consistent user experience across the institution.

> “Students desire everything they need to be in a central immersive experience that they can customise and personalise to reflect their needs. Much like Instagram or internet banking.
>
> **Jason Cowie**
> **CIO, Curtin University**

What this means for HE

- **Take a digital campus approach**
  Universities need to move to a central online platform where students can access "tell me once" and access joined-up services through a single login. Online student support services should include academic advice, counseling, technical assistance and career guidance, with chatbots providing immediate responses to common queries. The platform should also include entry points to virtual classrooms, learning resources, discussion and collaboration forums, personalized dashboards and virtual office hours with faculty.

- **Harness intelligent automation**
  High-volume, low value-add business processes should be automated or handled using AI/ML, allowing more human time to be focused on helping students. Some universities in our interview group are already using robotic process automation (RPA) to speed up processing in enrollment and accommodation applications, reducing the administrative load.

- **Enhance cybersecurity**
  Data security, data governance and cybersecurity become even more critical when universities join up and provide access to individual learners' data. Institutions have a lot of sensitive information about staff and learners – and a duty of care to prevent data breaches. As hackers get smarter, cybersecurity must be two steps ahead to predict and address system vulnerabilities. Robust identity and access management is critical to support one-stop access from a single sign-in. This is a particular challenge in universities, where thousands of users enter and leave the system, or change roles or departments, every academic year.

Digital maturity varies greatly across the sector. Many universities are still working on the basics, digitalizing processes and moving away from paper-based or in-person services, enabling online payments or replacing paper forms and phone-calls with online forms. Others are working to centralize and unify their systems and processes to create a seamless and consistent user experience across the whole university, implementing apps or portals to integrate administrative functions for students, researchers and faculty.

Increasingly, universities are using digital platforms to provide personalized communications to students "where they are," via text or in-app alerts and social media. Universities are also keen to use data and analytics to support individualization, including by identifying learning gaps or needs and adapting content accordingly.

However, current systems do not always support this, and many business processes need to be improved before they can be digitally optimized. Data is often siloed, and systems are not interoperable. In many cases, different functions and departments have created their own systems, replicating duplications and inefficiencies online. The lack of streamlined integrated information systems was one of the biggest staff pain points mentioned in our focus groups. Until universities solve this issue, students, researchers and faculty will continue to waste time battling to find the information they need or complete simple administrative tasks.

The starting point to a human-centered digital transformation is to understand how technology decisions impact the user experience. For example, some staff members complained that content digitization has led to a proliferation of sources of information that students, academics and staff need to consult. The creation of multiple SharePoints and Teams sites makes it impossible to keep track of everything. Students get frustrated trying to find answers to their questions and risk missing important information.

> "The key principle is to be learner-centric ... The idea is to create a one-stop shop where learners can find all the services they need and can easily navigate to what they are looking for.

Prof. Jennie Shaw
Deputy Vice-Chancellor and Vice-President, Academic and Student Engagement, University of Adelaide

How universities are resolving system fragmentation

At India's Manipal Academy of Higher Education, multiple digital initiatives led to a disparate tangle of systems and tools. Today, its focus is on creating an integrated data system that can provide real-time access to data across all these systems, while ensuring data safety. As Vice-Chancellor, Lieutenant General Dr. Venkatesh, explains, "It's all about bringing all the different systems together in a single login and providing tailored communications, information and services."

...to find connection

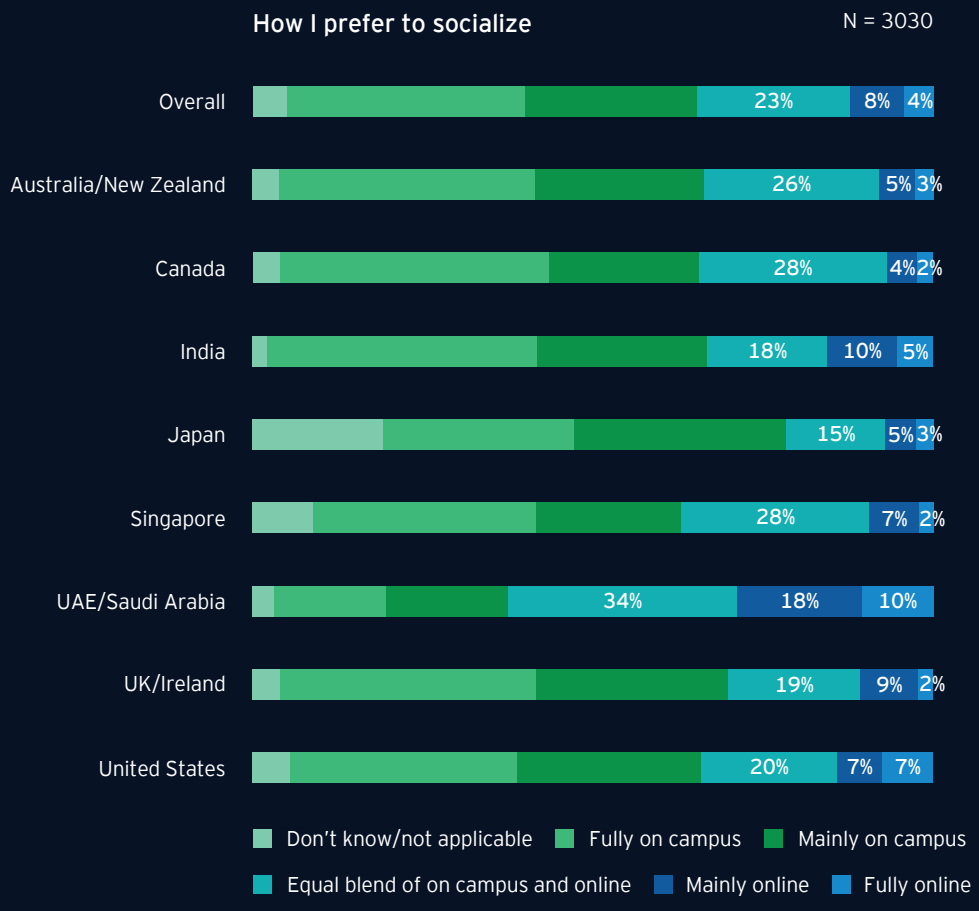
For most students, attending university is a formative time where they make lifelong friends, build social networks, explore new interests and develop their interpersonal skills. But the COVID-19 pandemic temporarily robbed students of this opportunity, reducing their social confidence. "Social life and networking" was the second most-cited reason for happiness with their choice of university – especially for first-year students. More than 90% of surveyed students, whether campus-based or mainly online, have participated in some form of university social or networking events during that academic year. Of these, only 12% said they had done so mainly online.

For almost half of students who are mostly remote or online, location remains a top-three reason for choosing their university. This suggests the campus is not dead, but its role

"Exeter has introduced the idea of "Engagement for Life" — making it easy for a student to carry out all the tasks throughout their entire lifecycle, from application to alumni, providing a seamless, one-stop shop for the whole lifecycle, ensuring that people don't need to be handed off between departments.

Lisa Harris
Director of Digital Learning, Exeter Business School, University of Exeter

"How I prefer to make connections"

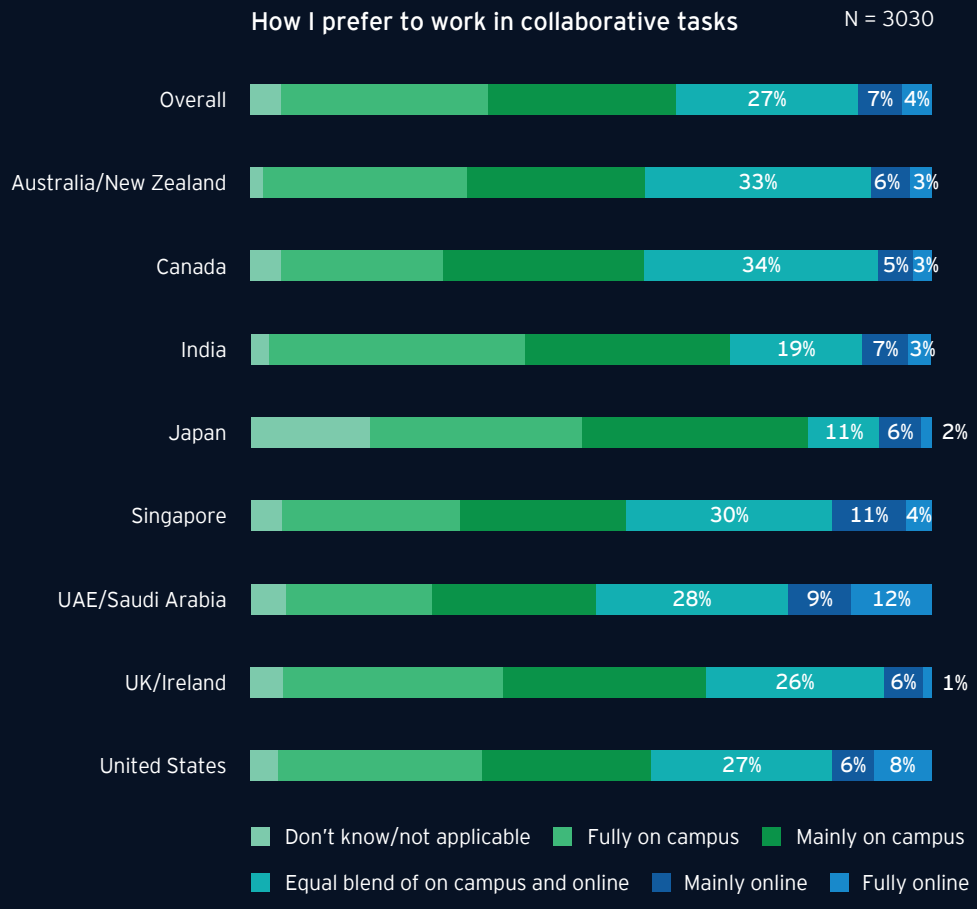


may need to be reimagined. Three in five (59%) students say the campus is where they prefer to access social events and networking, compared with 12% whose access preference is online and 22% who prefer to use an equal blend of online and on-campus access. Even among mainly online and remote students, 70% say they had participated in social or networking events on-campus and only 22% had done so mostly or fully online.

Similarly, collaborative tasks and group projects tend to be mainly conducted in-person (58%) compared with just 9% fully or mainly online.

For both socializing and collaborating, student behaviors and preferences differ significantly by country. For example, students in UAE/KSA and Singapore are most likely (see chart on p30) to access online social interactions, whereas students in Japan and UK/Ireland are the least likely.

Most surveyed students (63%) say they have access to communications apps such as Zoom or Teams, and most (92%) find them useful. More than a quarter say online learning helps them contribute more to discussions. However, only 35% report having access to collaboration platforms, despite 88% thinking this would be useful. Students also give low ratings to the collaboration and community-building aspects of their program's online learning offerings.



"Digital connectivity enables collaboration — it short-circuits the need for travel. And it mimics the working world. Everyone is meeting virtually these days.

Prof. Liz Johnson
Senior Deputy Vice-Chancellor of Academic, Deakin University

What this means for HE

- **Don't discount the campus**
  Even institutions offering completely online programs still need a campus where students can come in to access labs and equipment, play sport, connect socially or visit teaching faculty. Many students are keen to meet professors in person at least once before programs start. If there are fewer in-person lectures but more need for collaboration and networking spaces, the purpose of the campus and use of its buildings may need to be reconsidered.

- **Create additional connection opportunities**
  Universities need to pay attention to creating opportunities for students to connect with each other and with faculty, both to enhance their learning and for socializing. As learning models evolve, the sector must be mindful of the particular difficulties for hybrid learners to connect to their cohort, given they access their learning at different times. Providing a one-stop shop where students can find and connect with groups with similar interests could be helpful.

- **Create safe spaces for group discussions and support**
  Online moderated peer networks (e.g., via messaging apps) can help students to discuss and debate their learning, as well as provide each other with help and guidance. These groups work best when students have a chance to get to know each other face-to-face first.

There is a real sense that the more virtual the university experience becomes – and the less human interaction there is – the more difficult it is to create real connection, engagement and enjoyment. In this environment, some students are missing out on the chance to improve their social skills and are suffering from isolation, contributing to the mental health crisis.

> "We want to preserve community, collaboration, serendipity, coincidence, vibrancy — those sorts of things that can start to fall away when people are not within proximity to one another … those elements of being together in a community that's devoted to discovery and advancement of knowledge. It's important to preserve that magic that happens in our institutions.
>
> US staff focus group participant

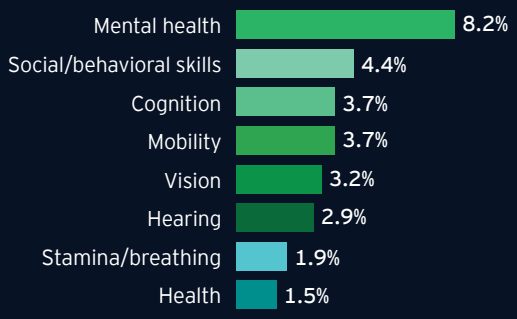
Making it work for all students

For some time, universities have been working to expand access to HE and make it more equitable. Many see digital transformation as key to reaching students who would otherwise be unable to access HE due to affordability, geographic distance, work or family commitments, or factors such as disability.

1 "Accommodate my accessibility needs"

In our survey sample, 17% of students reported having some kind of disability and 16% were overseas students, many of whom may not be native speakers of the language of study. Self-paced access to online learning materials can be particularly useful to these groups. But universities need learning management systems or lecture capture tools that incorporate accessibility aids, such as captioning and translation tools or the ability to repeat sections easily.

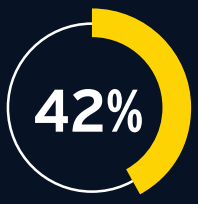
2 "As I study, I also manage impaired"



3 "Understand my technology deficit"

Universities must be mindful that not all learners have fast broadband or access to even basic technology – or the same level of digital skills. Many students access online resources using their mobile phones, yet mobile data costs may limit how much they can download. This is a particular problem in India and UAE/KSA, where 49% and 29% of students respectively say they are affected by this issue.

During the COVID-19 pandemic, many universities had to provide learners with laptops or other devices. With the increasing provision of information and services online, this may need to continue, even for on-campus students. Digital inclusiveness may also mean teaching students digital skills or, in countries such as India, ensuring information and learning materials are accessible via standard (non-smart) phones. In addition to giving students devices, one university in India set up solar-powered wireless networks in remote communities.



"I have issues with poor Wi-Fi connections"

"I don't have a suitable space to do my university work"

"I have problems with the university network"

"I don't have a personal device to access online materials and complete assignments"

"You can be as clever as you like. But if it's not accessible to your entire cohort, it's not worth the paper it's written on.

UK and Ireland faculty focus group

4 "Make me feel like I belong"

Many universities are offering or creating online distance learning programs to enable geographically dispersed, lower-income learners or those in employment, to access programs without needing to come to campus. The more that HE accessibility expands, the more first-generation university students there are who may feel that they do not belong. Imposter syndrome impacts engagement, completion rates and outcomes. For first-generation students, personal support and coaching become even more critical, as well as representation and peer-level support.

"Student centricity is all about students feeling like they matter, like the university knows them and cares about them. Lots of first-generation university students are now entering university, so it's important that the university validates that they belong there ... Give them mentors and role models, give them work experience, so that they can visualize themselves succeeding.

Dr. Paul LeBlanc
President, Southern New Hampshire University

Staff

Teaching faculty

Empower me...

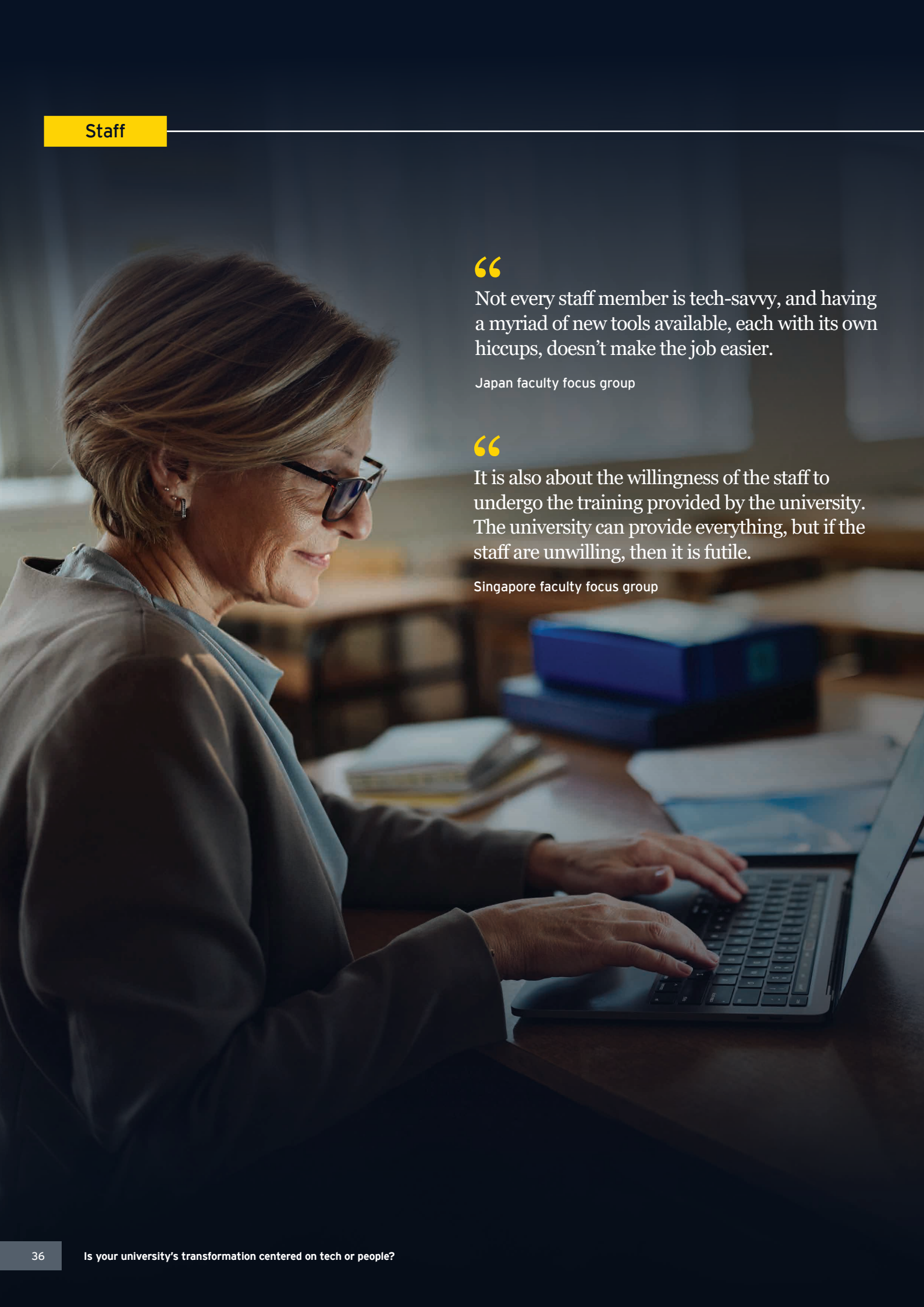
Teaching faculty must be supported in carving out time to design and oversee the development of new curricula and learning materials that incorporate the best of digital and in-person learning modes. Many university teachers urgently need further training in blended teaching best practice. They need to understand how to both develop curricula and content for effective digital or blended learning and deliver teaching and learning support using the chosen modes.

This upskilling process may need to start with convincing teaching faculty of the pedagogical merits of incorporating digital learning into their programs. Many longer-tenured faculty have been teaching the same content in the same way for many years and are resistant to change. They may still equate "digital learning" with the emergency pandemic measures of posting hastily recorded lectures and presentations online and attempting group discussions via mass video calls. Universities can use AI tools to assess faculty skills and capabilities and develop effective training and upskilling modules to help teachers understand the value of digital learning systems and know how to use them effectively.

As well as training faculty in basic digital skills and best practice in digital education, universities need to provide the more digitally inclined teachers with the opportunity to innovate and incentivize them to do so. This may not need to be in terms of monetary rewards but could instead simply involve allowing faculty to carve out dedicated time for digital innovation and offering recognition for successful innovations.

Teaching faculty will need to create differentiated programs with high-quality materials, flexible learning modes and strong professional pathways, incorporating work experience or industry collaborations. They must decide when to buy in third-party content and when it is important to develop differentiated class content in-house. However, overstretched faculty cannot be expected to create digital content. They must be supported by AI tools and a dedicated teaching and learning or digital services team.

Staff



> Not every staff member is tech-savvy, and having a myriad of new tools available, each with its own hiccups, doesn't make the job easier.
>
> Japan faculty focus group

> It is also about the willingness of the staff to undergo the training provided by the university. The university can provide everything, but if the staff are unwilling, then it is futile.
>
> Singapore faculty focus group

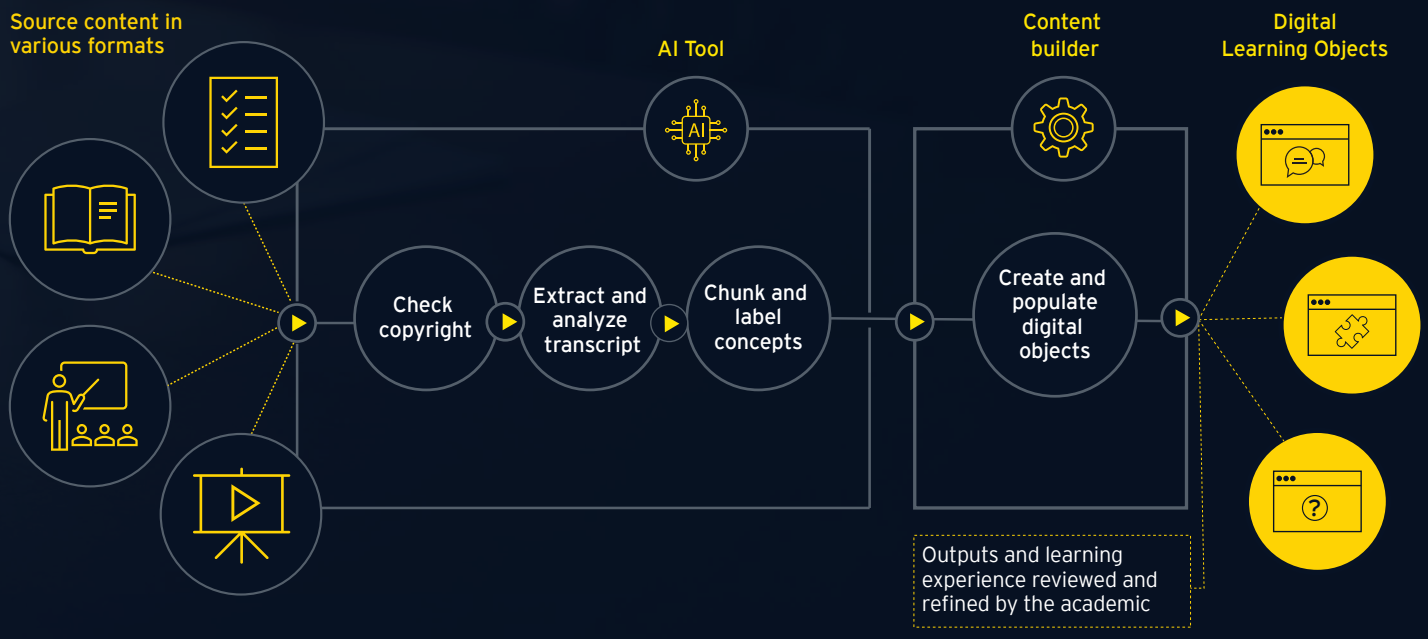
Using generative AI to transform a synchronous live program into a fully asynchronous digital experience

Contemporary AI tools allow faculty more readily to convert existing content into rich digital content with superior learning outcomes. Guided by an AI assistant, the instructor or learning developer uploads current content, including reading materials, slides, recorded lectures or other audio or video content. The tool critically examines the content, chunks it into bite-sized modules, recommends order and identifies gaps.

The tool provides and populates approved digital learning outputs, transforming static content into a dynamic program, including videos, games, quizzes, reading materials, reflection questions, assignments, media and citation lists. The content is published in a format that is accessible from any learning management system. The tool also creates a consistent look and feel across all module units, reading lists, assessments and recordings – rather than having the quality of digital content vary depending on the approach of the department or individual lecturer.

Using AI to digitally optimize existing program content allows faculty to convert their entire portfolios in a fraction of the time it would otherwise take, taking a huge task off their plate, saving their department's money and providing a superior learning experience and better outcomes for students.

The entire conversion process, which used to take six months, can be completed in just four weeks.



Free me...

For teaching faculty, time is their most precious resource. Digital transformation should enable them to devote more time to their core missions of teaching and supporting students or leading research. Providing more content asynchronously will free faculty from the need to deliver in-person lectures. The use of virtual meetings and online scheduling tools can also help teaching faculty to provide one-on-one student support more efficiently.

Teaching faculty's time can also be freed up by automating simple tasks, streamlining common workflows and securely handling large volumes of student data. Automated systems are supporting tasks such as timetabling and scheduling, answering repetitive student questions, collecting feedback on classes or projects, and tracking student progress. Online assessment and grading tools can reduce the time that teaching faculty need to spend conducting and marking tests. Soon, embedded generative AI will further lift the administrative burden by creating progress reports, sending emails and suggesting opportunities for automating other processes.

> "We are trying to give back time to pedagogy and teaching by making things quicker. It is now easier to design timetables and organise assessments.
>
> UK and Ireland faculty focus group

> "Digitalization has improved the day-to-day services we, as faculty, need to do and saves us time — even though initially we might take time to familiarize ourselves to the system.
>
> Singapore faculty focus group

However, simply implementing new tools and processes will not automatically lead to meaningful time savings. Care must be taken to give faculty sufficient time to learn to use new tools and embed new ways of working. Faculty in our focus groups complained of being faced with a myriad of new systems and tools, which were unintuitive, difficult to use or duplicative. Many complained about the amount of time they are spending on unlearning and relearning new systems.

Enlighten me...

The HE sector in many countries is currently grappling with improving learning outcomes and reducing stubbornly high non-completion rates. While these rates vary considerably between institutions and types of student (e.g., they are higher among adult learners), the revenue losses from students dropping out are significant, so it makes sense that universities are keen to minimize non-completion. Also, given the transition to new modes of teaching and learning, it is more important than ever for faculty to easily assess the effectiveness of their teaching and continuously adjust based on what is working well and what isn't.

Digitalizing education systems generates a lot of data on student interactions, their levels of engagement and their learning progress and attainment. Collating that information into progress dashboards can help faculty track learning progress at an individual, class or program level. Teachers can quickly identify students who require more support or program elements that need to be adjusted.

Applying analytical tools to student data across program modules allows educators to spot students who are disengaging, struggling to learn or at risk of failing. Combining this with data from administrative systems on students' personal or financial circumstances can provide insight into possible drivers of poor performance or disengagement – or provide early warnings of students at risk of failing or dropping out. This could allow teaching staff to offer tailored interventions to help students get back on track and head off larger interventions or failure further down the line.

Teaching faculty, therefore, have a real need for accurate, joined-up, whole-of-student data and analytical tools to provide ongoing insights into what students need to achieve their learning goals.

Several universities told us they are working on this as a priority. Some are implementing AI-driven systems that will not only flag potential at-risk students, but can automatically generate prompts, reminders or warnings, or escalate to a meeting with faculty to discuss the issue.

Data analytics can make it easier to provide interventions to prevent non-continuation. If staff can automatically receive early warnings of potential red flags, they can intervene earlier – spending less time sifting through data to spot the red flags and more time on tailoring appropriate interventions and heading off potential non-completion risks.

However, to be able to use data and predictive analytics to understand how to offer targeted support or improve modules or teaching methods, universities will need to have in place accurate data that is shareable across systems.

How universities are using student data

In New Zealand, the University of Canterbury uses learning management system data on online engagement, assignment submissions and online assessment completions to assess engagement among first year students. Students can view their own engagement profile versus their peer group inside their Analytics for Course Engagement (ACE) dashboard. When students are detected as disengaging, the ACE system automatically triggers a text. If no action is taken, the system follows up with an email and eventually escalates the issue to a meeting with the appropriate responder. Using the text-first approach catches lots of non-engagement and turns around approximately 60% of cases. Very few students end up having to be escalated. The program not only supports effective early intervention, it also shows students that the university sees and cares about them.

> “There is lots of work going on around using data to flag possible risks for dropping out or requiring support. If this were successful, it could be a huge help for teaching staff and students alike — providing better outcomes for students (which is the main thing) but also positive for staff who can dedicate more time to teaching and research.
>
> Australia/NZ faculty focus group

Researchers

While the focus of digital transformation has primarily been on using technology to improve teaching and learning and the student experience, universities are also looking at implementing technology and processes to improve research outputs by making life easier for researchers. After all, leading research and innovation to further society's goals is a core part of the HE mission — and university rankings are still heavily based on research quality.

Several universities admitted to having underinvested in the digital transformation of research recently, partly due to the shift in focus toward improving teaching, learning and the student experience. When considering digital transformation across an institution, it must also take into account the needs of research academics.

Equip me...

First and foremost, researchers need the equipment, technologies and computing power to support leading-edge research. This is particularly true in STEM subjects. But even in humanities fields, researchers need to make use of increasingly sophisticated online resources, such as libraries, large open-source databases, statistical packages and modeling tools. Many universities are focusing on improving their IT infrastructure to support world-class research and innovation. For example:

- Creating a network infrastructure that can handle the computational demands of research, improving data storage and secure sharing
- Deploying tools to enable greater collaboration and data sharing with research partners around the world
- Leveraging AI and ML for scientific discoveries, such as in drug design or genome sequencing, or to explore and analyze large quantities of data

Individual departments have often had control over their own technology investments for research, resulting in pockets of excellence but the lack of enterprise-wide capabilities or a consistent approach.

Universities looking to modernize, centralize and standardize research systems may need to overcome resistance. For example, some researchers are hesitant to store their data in the cloud or host it on enterprise-wide systems, due to the sensitivity of their research data and concerns over data protection and cybersecurity.

> "Some researchers will be resistant [to move to the cloud], saying that their research is too sensitive ... you have to show them that the cloud servers are way more secure than on-campus servers and far less likely to be attacked.
>
> Head of digital transformation at a UK university

Connect me...

In many cases, research and innovation is not a solo effort but a collaborative one. The research community has a particular need to connect, share data and ideas, and work together to solve problems. The use of digital technologies for research is making collaboration within and across institutions much faster, more efficient and effective. This is greatly facilitating international research collaboration, widening the pool of potential research collaborators, which is particularly important in niche fields. Geographically dispersed research teams can now meet, share data and track results remotely, removing the need to travel. Collaboration with industry partners is also easier using digital channels, giving researchers the opportunity to work with companies they might be geographically distant from.

Connecting researchers with similar interests will enable innovation and improve research efficiency. However, some researchers voiced concerns about the loss of the spontaneous on-campus "water cooler" moments, when chance conversations can spark a novel research idea or connect teams working on similar topics. Equally, benefiting from the first-hand experience of working in an industry requires an element of on-site, in-person interaction. As they invest in collaborative platforms, universities should also consider how they will continue to provide opportunities for face-to-face networking and socializing among the research community.

Again, cybersecurity is a key priority when enabling data sharing and collaboration via digital channels, particularly outside of the university. This will require strict protocols and training regarding the secure use of digital tools and platforms.

“

I work so effectively with other researchers all over the world. Our research is being done in different labs in different parts of the world, my co-researchers are able to track results from far away, work with the data, speak to me, speak to my colleagues. It’s a totally different world now, thanks to digital technology.

Research academic, Singapore

Focus me...

A human-centered digital transformation in research should also include providing solutions that allow researchers to spend more of their time conducting and publishing leading-edge research – or guiding students' research projects – and less of their time on the significant level of administration surrounding research.

Universities recognize the abundant opportunities to streamline and automate research administration to make processes more effective and free up researchers' time. Much of research administration is ripe for digital transformation, including grant applications, grants management, risk assessments, scheduling access to shared equipment, results disclosures, reviews, audits, publication and dissemination.

> "A good number of procedures require teams to repeatedly input identical sets of information across multiple documents. We intend to extend our use of digital transformation to ending that type of duplication.
>
> Prof. Yasushi Asami
> Director of Centre for Research & Development of HE,
> The University of Tokyo

Universities are already implementing or improving their pre-award and grants management solutions, as well as post-publication solutions. However, these processes are still often conducted manually or in separate, siloed systems that can be different in each faculty, requiring time-consuming duplicative data entry.

The ideal is to have end-to-end digital systems for the entire research lifecycle and across the whole institution, reducing the amount of manual data entry and allowing researchers and their partners and sponsors to monitor progress in real time. Such a system could provide personalized alerts regarding critical milestones and due dates, and support budget tracking and reporting.

Promote me...

As well as being enabled to conduct valuable and innovative research, of course, research academics want recognition for their research. Researchers – and their institutions – are still primarily rewarded for having their research published in journals and widely circulated and cited.

By using digital channels, some academics have been able to reach much larger audiences for their research outside of the usual academic channels – regardless of location. Getting more information to more people more quickly than ever before improves the impact of research and enhances the reputations of both the researcher and their university. The more widely (and effectively) the research findings are disseminated, the greater the chance of finding real-world applications for scientific advances, thus fulfilling universities' shared mission of advancing society through innovation.

As well as streamlining administrative processes, centralized research management systems can help marketing and communications teams to track and report on the university's research outcomes and impact. Ensuring that all the university's research is acknowledged and reported aids recruitment –not only of postgraduate researchers, but also of faculty and undergraduates.

> "It (digital technology) provides an important opportunity for information sharing more quickly and allows reaching audiences who are far away or who you would have never been able to reach before.
>
> US professional staff focus group

Administrators and professional staff

In many ways, non-teaching, professional and administrative staff are the backbone of a university. These people are also in the front line of implementing digital transformation. Their roles are vital to recruit and onboard students — and support their wellbeing. Administrative services are integral to shaping the student experience and often hold the key to student retention. The efficiency and effectiveness of "back-office" functions is also vital to the effective management of the university and its long-term financial sustainability. Digital transformation must, therefore, not only attend to the needs of students, teachers and researchers, but also help administrators to be effective.

Show me...

The most often-cited challenge among administrative staff is that, too often, the data they need to perform their jobs resides in disparate siloed systems and cannot readily be combined. For example, siloes make it challenging for administrators to report on key metrics without spending large amounts of time manually stitching together data from multiple sources. Administrators are also aware of the issues that siloes cause when one system relies on data in another. They need a single source of truth that feeds into all systems. That way, when data is updated, that change is automatically made everywhere across the institution.

Universities have tended to evolve their systems and processes over time, often buying in best-of-breed solutions for particular processes. Very often, business processes and administrative systems have been developed by individual schools or departments. As a result, universities end up with a patchwork of siloed systems with different access points that are not integrated, cannot share data, and have a very different look and feel, and user experience.

Digital processes generate a wealth of data that administrators are hungry to use, but insights cannot be generated when data resides in siloes. Until data is centralized, universities cannot gain a holistic view of the student, personalize services based on student data or generate remedial actions.

Another key complaint is the proliferation of different sources of information that staff have to consult to perform their roles. If anything, this issue has been exacerbated by the use of digital communications. Just like students, staff would welcome a personalized, one-stop shop for information to enable them to keep track more easily, find accurate information and prioritize tasks.

A key priority, therefore, should be to unify disparate systems and create greater cohesion. This does not necessarily mean implementing one unified system but ensuring that systems can exchange data with each other seamlessly (and securely) and that co-dependencies between systems are understood and accounted for.

Some universities told us they are working toward centralizing business functions, business processes and systems. However, in other institutions, different schools or departments are proudly independent and resistant to centralization. To offer a cohesive, student-centric rather than institution-centric experience, leaders will need to persuade their various departments to follow an institution-wide strategy and implement digital solutions in a joined-up and consistent way.

> "It (the use of digital technology) has overcomplicated my day-to-day working. It is a mushroom city on SharePoint, with lots of pages where no one can find anything. I need an easy way to find data and information.

Australia and New Zealand professional staff focus group

> "Digital transformation will involve unpicking the mess of competing systems across the university to provide cohesion and allow reports to be generated easily, insights to be drawn, action points to be conveyed.

UK and Ireland professional staff focus group

Save me (from busy work)

Our focus groups with administrative staff revealed a cohort that feels increasingly overworked and overwhelmed. Financial pressures on universities mean that resourcing is tight, and staff are being asked to support more work with fewer people. Digitally enabled remote working has helped to free up staff time by eliminating the need to travel or book meeting rooms. Yet there is a real sense that the digital transition is also adding to workload pressures. A key focus of digital transformation for this group should, therefore, be on finding ways to automate as much as possible and reduce low-value, manual tasks, allowing administrative and professional staff to spend time on mission-critical activities.

As Paul LeBlanc, President of Southern New Hampshire University put it, ***"it's about increasing the amount of time staff can spend making a difference to students versus satisfying the system."***

Many universities are looking at how to automate HR, finance and procurement processes across the institution. Others are also automating student-facing tasks, such as processing applications. But some institutions still have very manual processes, and staff spend a lot of time on data collection, data entry and processing.

Some universities are experimenting with using AI-powered chatbots to handle certain tasks, such as international student enquiries, applications, financial aid applications or onboarding new staff hires.

With joined-up information systems, administrators could create dashboards to keep them up to date on progress, flag issues early and even generate automated actions based on insights about a particular individual or function.

One individual involved in student services noted that the use of data could be transformative by reducing the workload required to identify and support students who need specific services, including by using automatic processes to point students in the right direction. ***"We need to figure out how to automatically get ahead of things like getting students to apply for post-graduation work permits, how to find work after you graduate."***

Routine marketing and communications tasks can also be automated. Not just to provide generic communications but using AI and analytics to automatically generate targeted and personalized communications.

With the right systems in place, universities could harness data and analytics to reassess workloads, forecast resourcing requirements and potentially do more with fewer resources. However, to achieve real efficiencies and performance improvements, business processes need to be optimized before they are digitalized and automated. Otherwise, existing inefficiencies will simply be replicated or even exacerbated.

> "I would like to be able to automate as much as possible in the acquisition of different types of data. This would save workload and would be useful ... linking data analysis to visualization.
>
> Japan professional staff focus group

> "As a business analyst, it (digital technology) has revolutionized my entire role — it's no longer a case of spending lots of time analyzing data but rather setting up automated reports.
>
> US professional staff focus group

The University of Virginia HR chatbot

The University of Virginia (UVA) is beloved by its students. There is "magic" in the student experience, which starts with an exceptionally warm welcome. In contrast, the staff welcome experience was impersonal and frustrating. During the hiring process, UVA used to send out a six-page email, full of links to forms to be filled out and documents to be uploaded for HR and other functions. Completion rates were poor, and it took a lot of chasing by all of the different functions to get people through all the processes. EY helped the University of Virginia to develop and deploy an AI-driven virtual assistant, CavBot, to provide new staff with a warm and very human welcome. CavBot answers employee queries and assists new hires to complete onboarding tasks, including filling in forms, applying for security badges or parking permits. In the first six months, the agent had around 2,000 conversations assisting individuals with various tasks across all the different functions. The virtual agent has been a boon for new hires, providing a one-stop-shop for the whole onboarding journey. It also reduced the volume of manual outreach and enquiries for HR staff, freeing them up to provide more effective 1-1 support where required.

Conclusion

What is needed to redesign HE around the humans it serves?

The future of HE is moving toward learner- and industry-centric delivery. Technology is a key enabler to sector transformation.

Much of what needs to be done to deliver the new model in HE is known. The underlying technology is mature enough to "just implement," even if there are many examples of poor implementation.

Universities need to move to intelligent operating models, where all digital systems are stitched together. The underlying technology for a digital campus is a collection of human-centric digital platforms that combine applications with analytics and intelligent automation to deliver personalized and adaptive digital user experiences.

To make the changes necessary to serve students and faculty in the contemporary world, universities need to develop intelligent operations in both back-office and student facing processes:

1

Create a fully digital campus to reduce the administrative burden, errors and costs for all students and staff, and provide a better and more consistent user experience. The technology for this is relatively mature: there are well-established platforms and systems available, some of which are bespoke to HE but many of which are common across multiple sectors. The essential capabilities for this are:

- **Core framework** to stitch together and unify all siloed systems and data sources
- **Intelligent automation** to provide smart workflows between apps and services, to synchronize files, get notifications and collect data. This will also support the creation of individual chatbot learning assistants tailored to each student
- **Unified data storage and management platform** for all university information powered by a smart services layer and protected by strong data protection and cybersecurity measures
- **Analytics platform** to develop the analytics and reporting capabilities to improve student assessment and support, program evaluation and operations management
- **Unified interface** across learner and staff portals, learner apps and chatbot messaging

2

Transform toward education 4.0. Put learners at the center of the university using new digital tools coupled with advanced analytics and cognitive systems to collect in-depth knowledge on learners' situations, behaviors, goals and capabilities. Harness generative AI to move to hybrid learning. Convert current content into high-impact, asynchronous digital experiences supported by synchronous interactive teaching in a flipped classroom or HyFlex model and align programs more closely with career pathways:

- **Replace mass lectures** with highly engaging and personalized, digitally native content
- **Leverage AI** to rapidly convert existing course content into high quality, interactive and consistently structured course materials at scale.
- **Repurpose the liberated time and funds** to invest in 'blockbuster' high impact course content, and to provide greater, personalized learning support to enhance the student learning experience.
- **Use in-person time with faculty** and other students to bring learning to life, applying learning to real-life problems and dilemmas or sharing cutting-edge research findings.

- **Provide students with progress tracking mechanisms** to help them understand how they are doing, as well as personalized guidance on potential career pathways and skills gaps
- **Empower students** to ask for help and use data to identify students who need help but aren't asking.
- **Increase students' sense of belonging** by using technology to create connected communities across the university and its industry partners.

Taking a holistic, human-centered approach to digital transformation will not only create a differentiated student experience and improved student outcomes, but also a better experience for staff, an improved reputation and financial position for the institution and ultimately, a more positive impact on society.

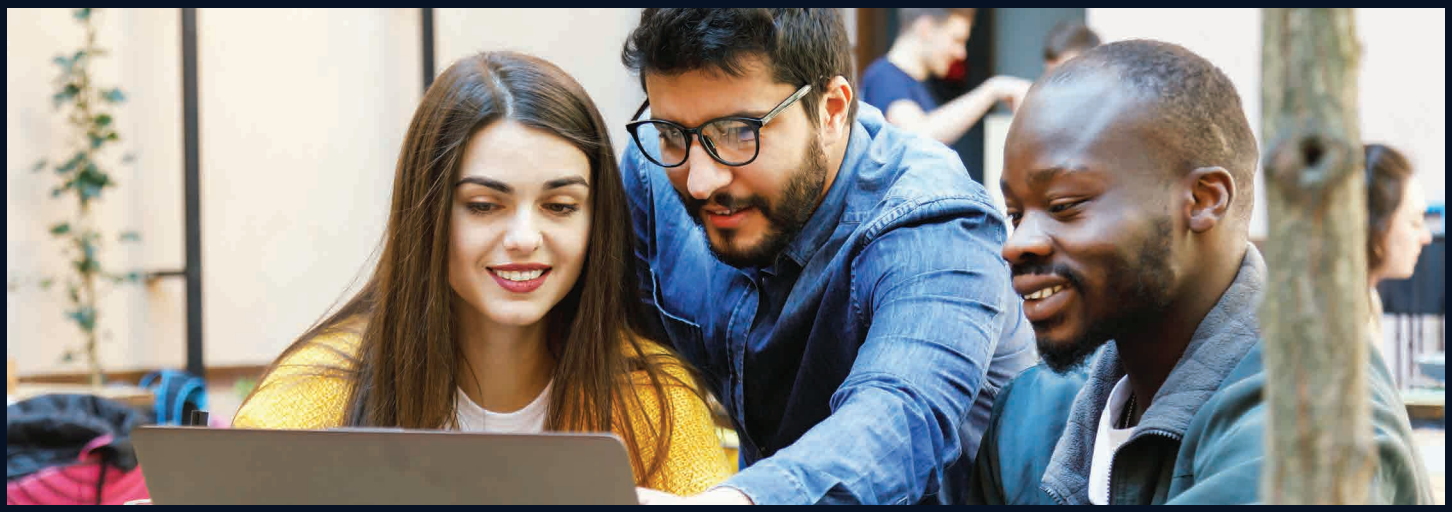
A successful transformation puts Humans@Center

Of course, a successful digital transformation requires far more than just the right technology. Transforming an organization is a unique leadership challenge, which requires significant efforts to inspire and enable the workforce to embrace the technology and new modes of working. It involves equipping and supporting people to shift the way they work, interact, process information and make decisions. And it must recognize the emotional impacts that these changes will have on those affected. We call this people-centric approach to transformation 'Humans@Center'.

In 2022, a **cross-industry study** by EY and the University of Oxford's Saïd Business School found that organizations putting humans at the center of their transformation efforts are two to three times more likely to succeed than those that don't. The research identified six key drivers of successful transformations:

- Lead: adapting and nurturing the necessary leadership skills
- Inspire: creating a vision that everyone can believe in
- Care: re: building a culture that embraces and encourages everyone's opinion
- Empower: setting clear responsibilities and being prepared for change
- Build: using technology and capabilities to drive visible action quickly
- Collaborate: finding the best ways to connect and co-create

Through our interviews with university leaders and focus groups among staff, we explored these success factors, and how – if at all – they are playing a part in universities' digital transformation efforts. How universities can take a Humans@Center approach to their digital transformations is the topic of our forthcoming report.



Appendix: Research methodology

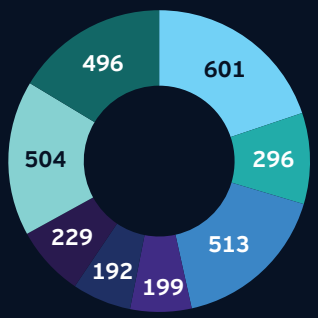
This report is based on insights gathered through three strands of research, conducted by EY teams in collaboration with Times Higher Education (THE) between February and July 2023: a quantitative student survey; a series of focus groups among faculty and administration staff; and in-depth interviews with university leaders.

1 Quantitative student survey

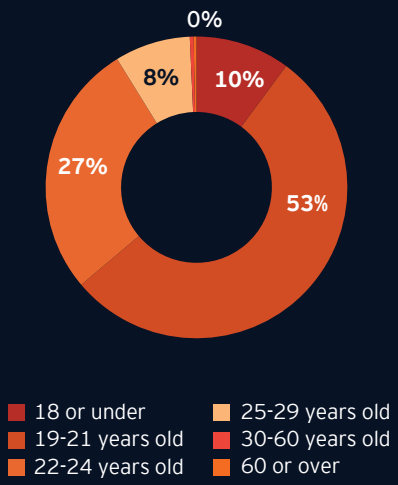
- A quantitative student survey was conducted online by THE during April and May 2023.
- 3,030 students were surveyed across eight geographic regions: Australia and New Zealand, Canada, India, Japan, KSA/UAE, UK and Ireland, US.
See student survey demographics on p56.
- Respondents were all tertiary-level students, including undergraduates and postgraduates, across all disciplines, and including full-time and part-time students.
- Respondents were recruited from THE's student database, which comprises visitors to the THE website, attendees at THE and BMI events, and users of IHE and other acquired databases.

Student survey demographics

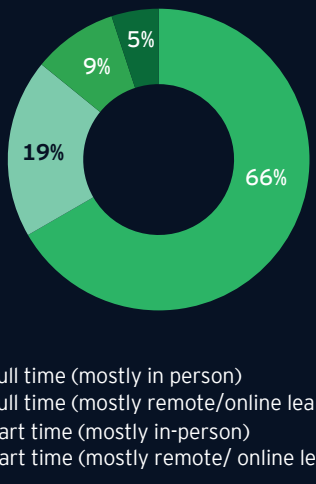
Geographic breakdown



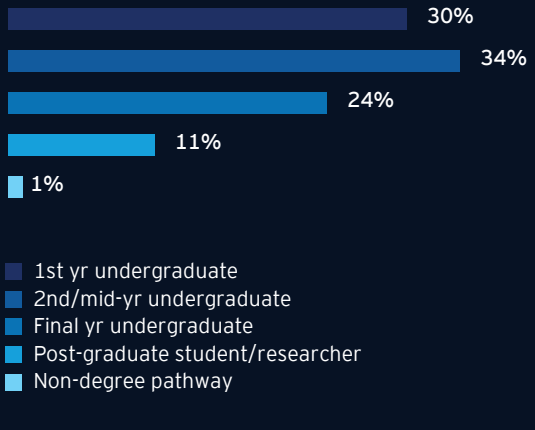
Age breakdown



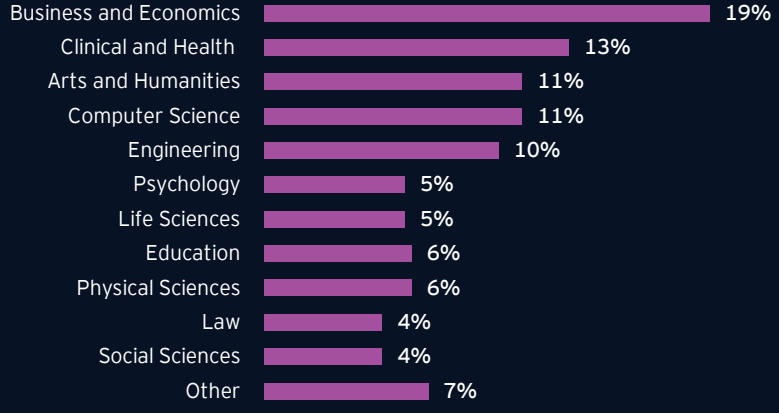
Mode of study



Stage of study



Area of study



2 Focus groups among faculty and staff

- THE conducted virtual focus groups with teaching faculty and with administrative staff across the same eight geographic regions between April and July 2023.
- THE conducted 23 focus groups with teaching staff, with a total of 116 participants:
  - Participants included professors and associate professors, lecturers, instructors, deans and associate deans, heads of department, faculty coordinators, digital education coordinators and student development coordinators.
- THE conducted 26 focus groups with administrative staff, with a total 147 participants:
  - Participants were staff and managers from a wide range of university functions, including HR, finance, operations, IT and data science, teaching and learning development, library, careers advice, student recruitment,student engagement, international and external relations, business analysts, market research and insights.
- The focus group participants were recruited from THE's database, as well as leveraging THE events and word-of-mouth recommendations.

Staff focus group distribution

Australia and New Zealand	KSA/UAE
2 x teaching staff (16 participants)	3 x teaching staff (15 participants)
3 x administrative staff (13 participants)	3 x administrative staff (18 participants)
Canada	**Singapore**
2 x teaching staff (10 participants)	2 x teaching staff (8 participants)
4 x administrative staff (23 participants)	2 x administrative staff (8 participants)
India	**UK and Ireland**
4 x teaching staff (26 participants)	4 x teaching staff (8 participants)
3 x administrative staff (16 participants)	5 x administrative staff (8 participants)
Japan	**US**
2 x teaching staff (5 participants)	4 x teaching staff (8 participants)
2 x administrative staff (11 participants)	4 x administrativestaff (8 participants)

Total
49 groups
23 x teaching staff (116 participants)
26 x professional staff (147 participants)

3 In-depth interviews with university leaders

- EY teams conducted 28 in-depth interviews with university leaders (e.g., presidents, vice-chancellors, CIOs) in each of the eight geographic regions, between February and April 2023.

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Canada

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India

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US

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- Prof. Sanjay Sarma, founder and former Vice-President of MIT Open Learning
- Prof. Stephen Gange, Executive Vice-Provost for Academic Affairs, Johns Hopkins University

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