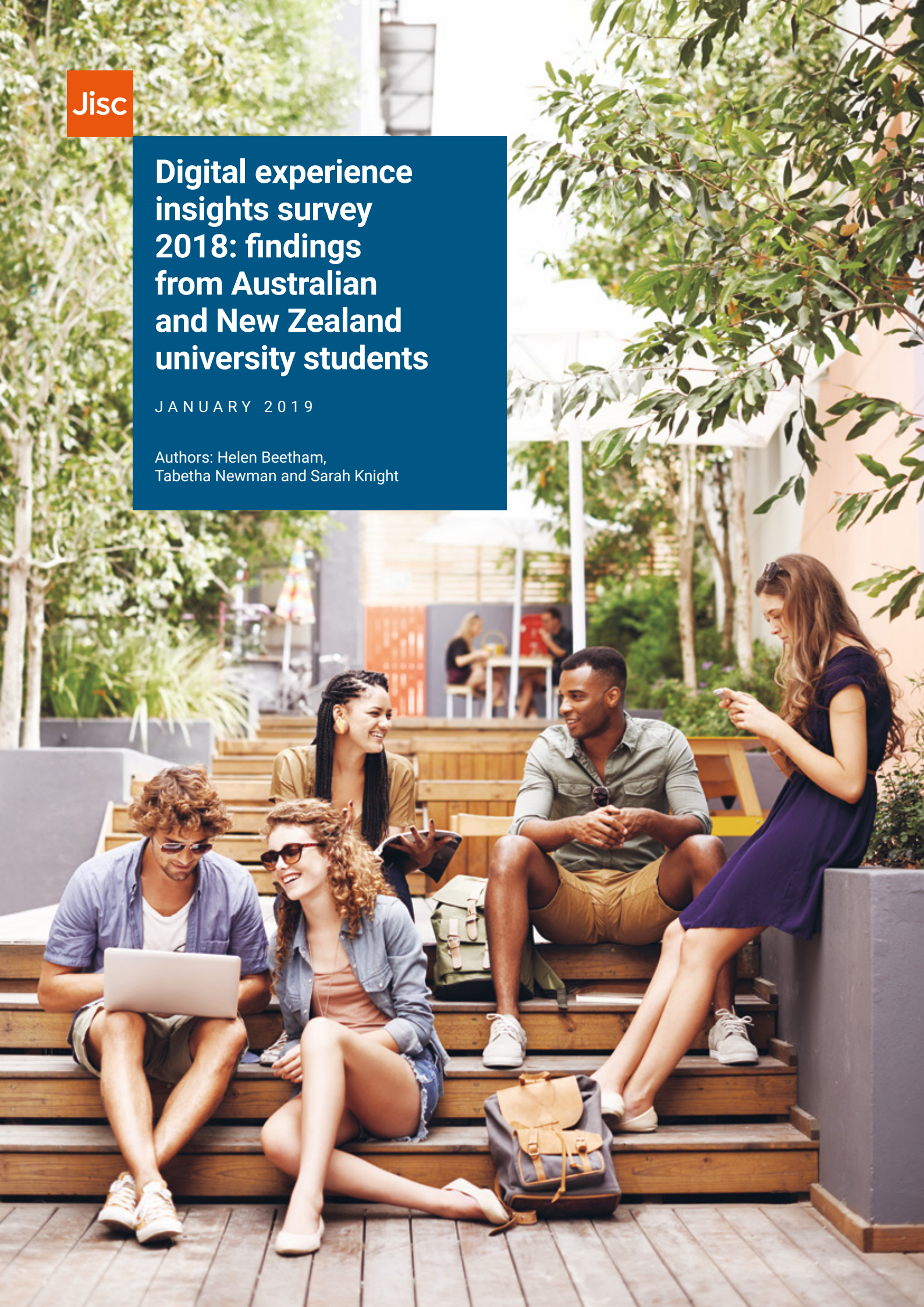


Digital experience insights survey 2018: findings from Australian and New Zealand university students

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Foreword



I am delighted to share with you a summary of the findings from the Jisc digital experience survey 2018: insights from Australian and New Zealand university students. This report provides an insight into how students are using technology in universities in Australia and New Zealand, and offers comparisons with students studying in universities the UK.

Between November 2017 and May 2018, 12 universities – ten in Australia and two in New Zealand – ran our digital experience survey and collected 21,095 responses from their students. When combined with the over 37,000 participants drawn from 83 higher and further education organisations in the UK, this is the largest sample of data looking at students’ digital experience of its kind.

Students studying in Australian and New Zealand universities, described in this report as ANZ, have very similar expectations and experiences of technology to those of our UK students. This emphasises the robustness of the survey instrument and a joint focus on the importance of the ‘student digital experience’ as well as highlighting structural and cultural similarities between the two higher education sectors.

There were however, some interesting differences which are explored in this report.

This report offers leaders across the globe an opportunity to keep abreast with international trends on the student digital experience – an increasingly important aspect in a complex digital world where education is not bound by geographical borders.


I am proud that Jisc can continue to play a pivotal role in supporting educational institutions to provide a world class digital environment for their staff and students.

Paul Feldman
Chief executive, Jisc

Executive summary

This report covers the final phase of a three-year project to understand students' expectations and experiences of digital technology in their learning.


21,095
RESPONSES


30%
UNIVERSITIES

ACROSS
THE TWO
NATIONS

The pilot was developed and based in the United Kingdom (UK) and most of the data was collected there. However, the pilot instrument and supportive guidance were also offered internationally and were keenly adopted by universities in Australia and New Zealand (NZ). Between November 2017 and May 2018, 12 universities – ten in Australia and two in NZ – collected enough data from their students to be included in the pilot. They represent approximately 30% of all the universities in the two nations. Participation rates at each university were different, reflecting different approaches and conditions. In all, 21,095 students based in Australia and NZ contributed data to this report.

Findings from the two datasets – described in this report as 'Australia and New Zealand (ANZ) students' and 'UK students' – were extremely similar. This may reflect the robustness of the survey instrument and the underlying concept of the 'student digital experience' or it may reflect the structural and cultural similarities of the two higher education (HE) sectors. Nevertheless, we found three statistically significant differences, reported in more detail in the relevant sections of the full report.

1. ANZ students take part in significantly more digital activities than UK students, both on their courses and while studying independently
2. They are significantly more likely to agree that the use of digital technologies has a negative impact on their studies, especially on their distraction and attendance, even though this is still a minority view
3. They are significantly more likely to want digital technologies to be used less on their course. Free-text comments supported and added detail to this finding

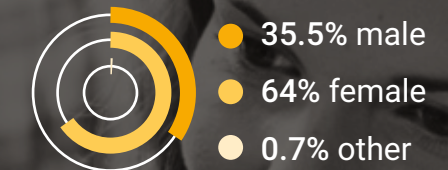
In the UK, we have produced a number of additional resources based on our findings, including student 'personas' to support decision making, an organisational toolkit and briefings for different stakeholder groups. Because of the many similarities between the two sets of data, these resources may be of interest to stakeholders in ANZ. See digitalinsights.jisc.ac.uk for the full 2017-18 findings from UK students and for access to all the additional resources.

As the three-year pilot project has now come to an end, Jisc is offering the survey as part of its digital experience insights service which is available to universities and colleges internationally from September 2018.

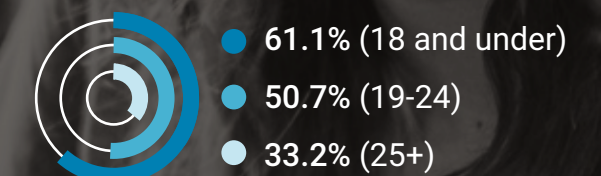
ANZ participation



Gender Spilt



Age Groups

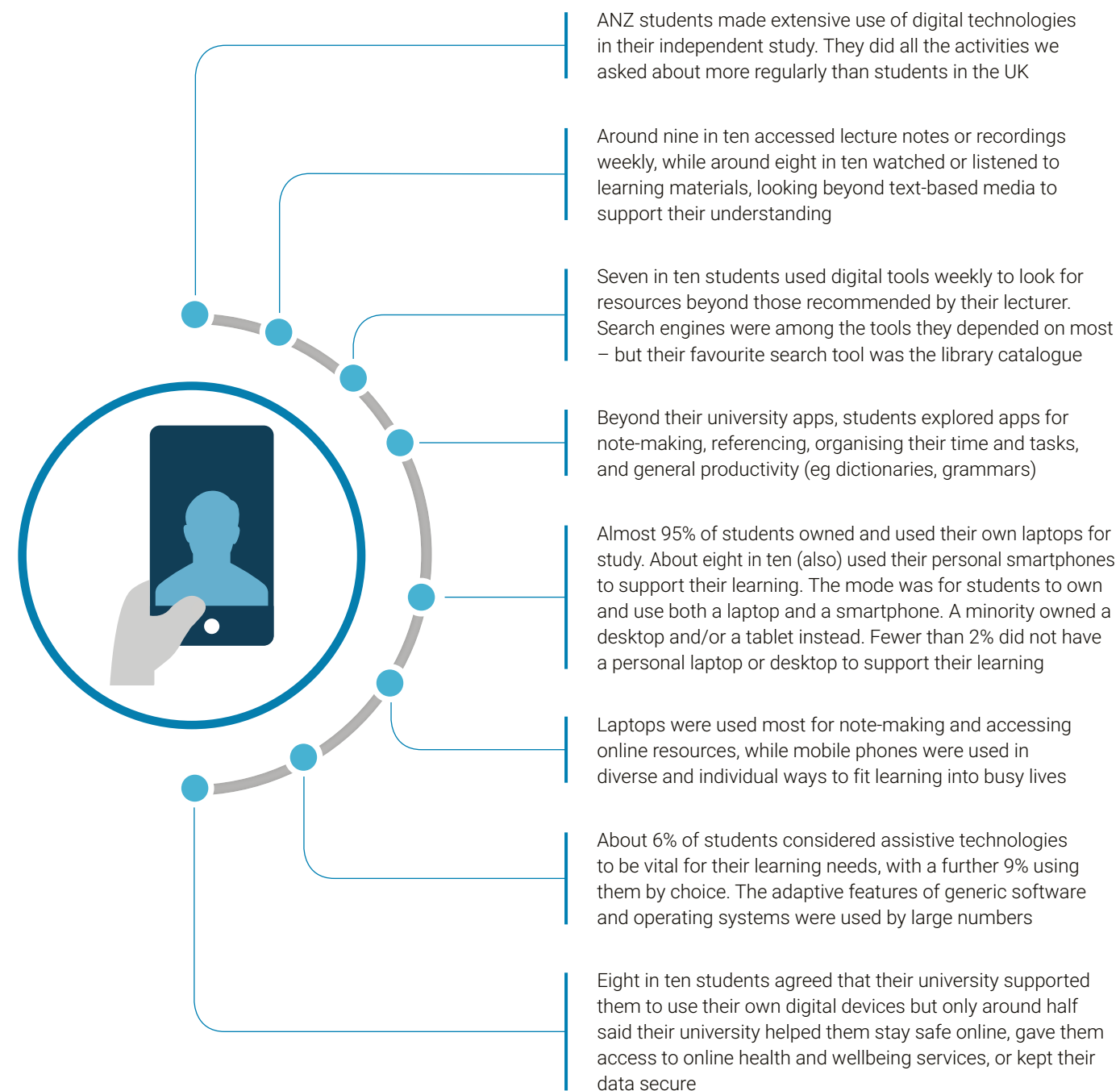


Summary of findings: facts, figures and key messages

These tables provide an 'at a glance' summary of findings across the four themes explored in the 2017-2018 pilot of the survey. A full analysis of the data for each theme is given in section three.

Theme one: the digital lives of learners

Facts and figures



95%

Almost 95% of students own and use their own laptops for study.

Key messages

Prepare students for digital learning

Arriving students need to know what to expect from digital learning. This starts with basic information about the services, resources and support available. Beyond this, they need to understand the role that digital technologies can play in their success. Our findings point to the possibility of disillusionment if the value of digital is not understood. Universities can use their own findings to create a bespoke induction to digital learning.

Make 'bring your own device' (BYOD) work

Most students bring a laptop and smartphone onto campus and expect to be able to use them to access learning services, content and apps. Consider how loan schemes could support those students who can't afford their own device. Students make best use of their personal devices when they have access to generic and course-specific software, power points for charging, desk space and a mix of quiet and sociable areas for learning.

Assistive technology is for everyone

Many students use assistive or adaptive technologies by choice and others use them from necessity. Institutions should recognise the value of 'inclusive for all' and investigate how digital technologies can support inclusion in learning and assessment. All generic and subject-specialist software should comply with accessibility guidelines and have adaptive options built in.

Help students manage time and distance

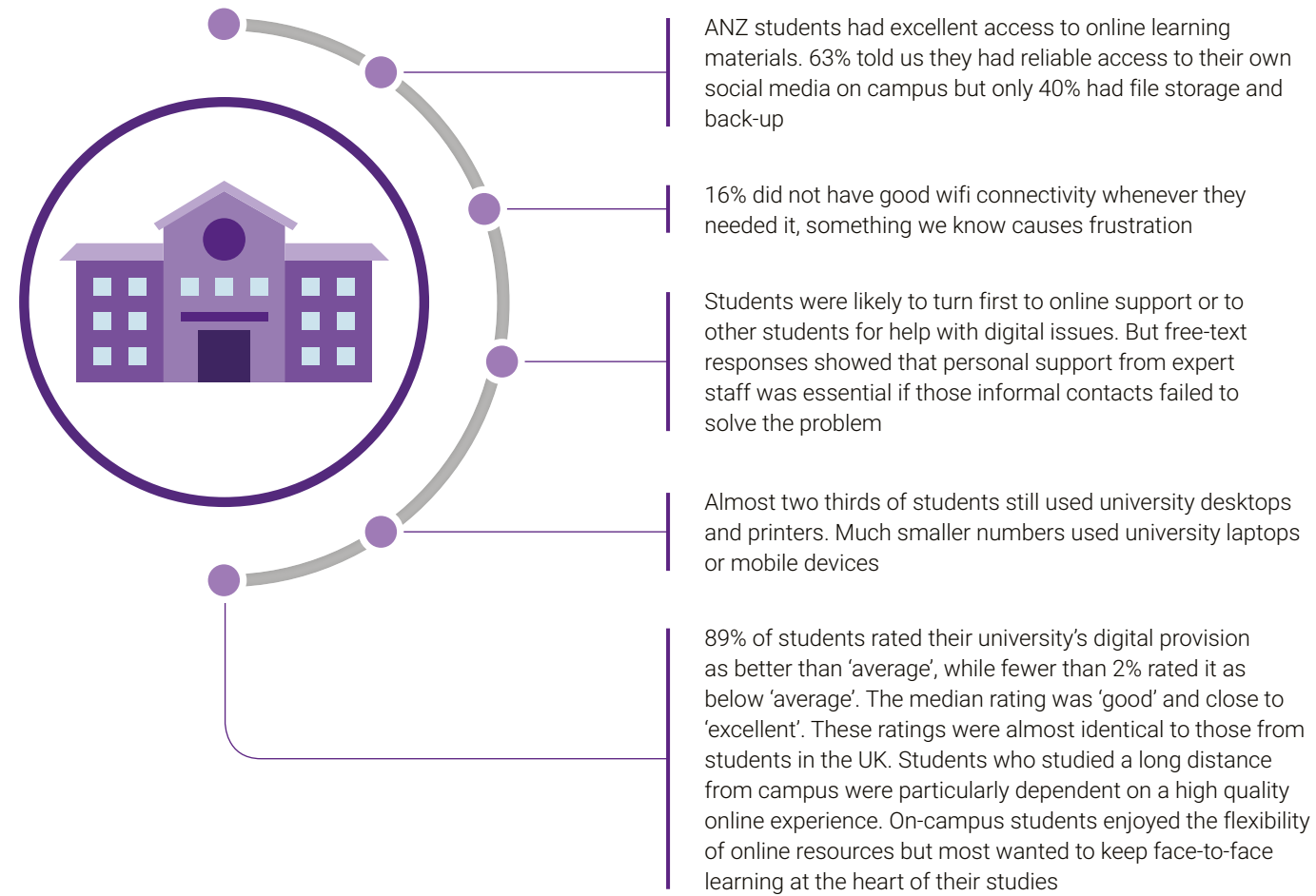
Students really appreciate how online lectures and resources help them fit study into their lives. High quality recordings, online chat rooms and downloadable content all help students get a quality learning experience at a time and place to suit them.

Digital safety and wellbeing first

Universities want students to be safe and well, and that responsibility extends into digital spaces. Students need to know how to behave safely and responsibly online, how to access online services and who to turn to if things go wrong.

Theme two: digital in the university

Facts and figures



2/3

Almost two thirds of students still use university desktops and printers.

Key messages

Make spaces and places digital by default

Students still rely on fixed computing in libraries and study areas but they want the option of working flexibly. Charging points, secure storage, reliable wifi and mobile networks are essential to this. Wireless printing from personal devices can free up desktops for those who need to be working on them. Digital can be designed into spaces, from canteens and social areas to labs and studios. This approach is more useful to students than one or two high-tech lecture halls.

Win hearts and minds

Students feel let down by some basic issues: queues for computers and printers, a lack of charging points and complex sign-in arrangements. Show students you are listening to their concerns and keep signposting all the facilities and support you have available.

Give online students a sense of belonging

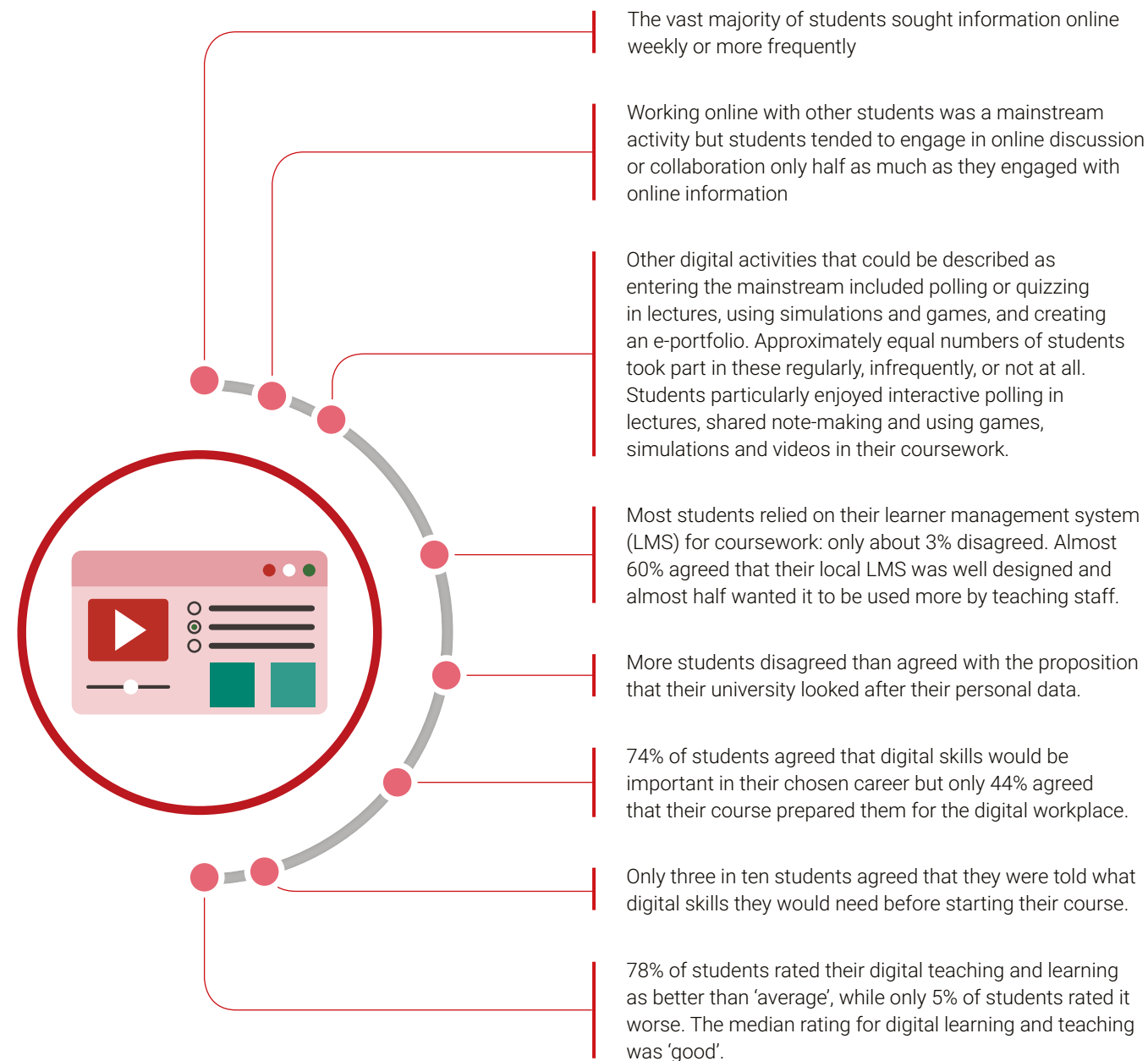
Most students prefer a blended approach, with a balance of face-to-face and online learning. External students may have little face-to-face contact but they still need to feel part of their course and to have the same quality of learning. Consider how learning spaces and communication technologies can give these students a sense of belonging. If students are dependent on lecture recordings, make sure they are of a high quality and nothing is missing.

Simplify access and navigation

As they gain access to more learning systems, students are more likely to ask for single sign-on and easy-to-navigate landing pages. User experience (UX) and user interface (UI) are important aspects of how students experience the university. Involve students in the design of learning systems and in any planned changes.

Theme three: digital at course level

Facts and figures



“ I really like the pre-lab quizzes which use interactive simulations of the experiments we are about to do.

ANZ student

Key messages

Engage students in class

Students enjoy in-class response systems and feel they learn better when they are engaged and challenged in this way. They depend on having lecture notes in advance and recordings they can revise from afterwards. These are sure ways of improving students' digital satisfaction; students say that they learn better too.

Digital skills for life

Not all students are convinced of the importance of digital skills. Courses must include digital skills in an integral way, relevant to the subject of study. Teaching staff also need an up-to-date understanding of workplace demands. Regular opportunities to review and update their digital skills should be offered to all students, not just the 40% who currently have them.

Bring out the benefits of collaborative learning

Working with other people in digital spaces is vital in the workplace, so students should get used to it early on their course – supported by equivalent modes of assessment. Creating shared presentations, notes and reference lists are great ways to start. Students are also asking for every course to have an online chat or study room where they can ask questions and share ideas.

Consistent use of the LMS

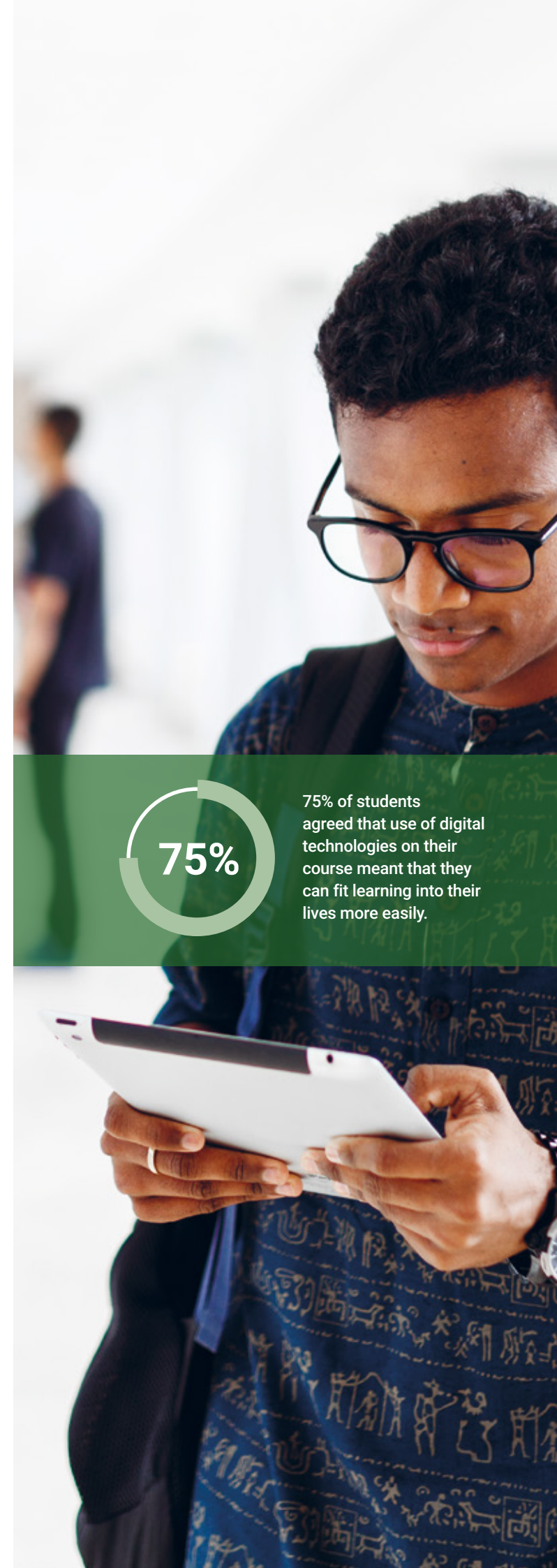
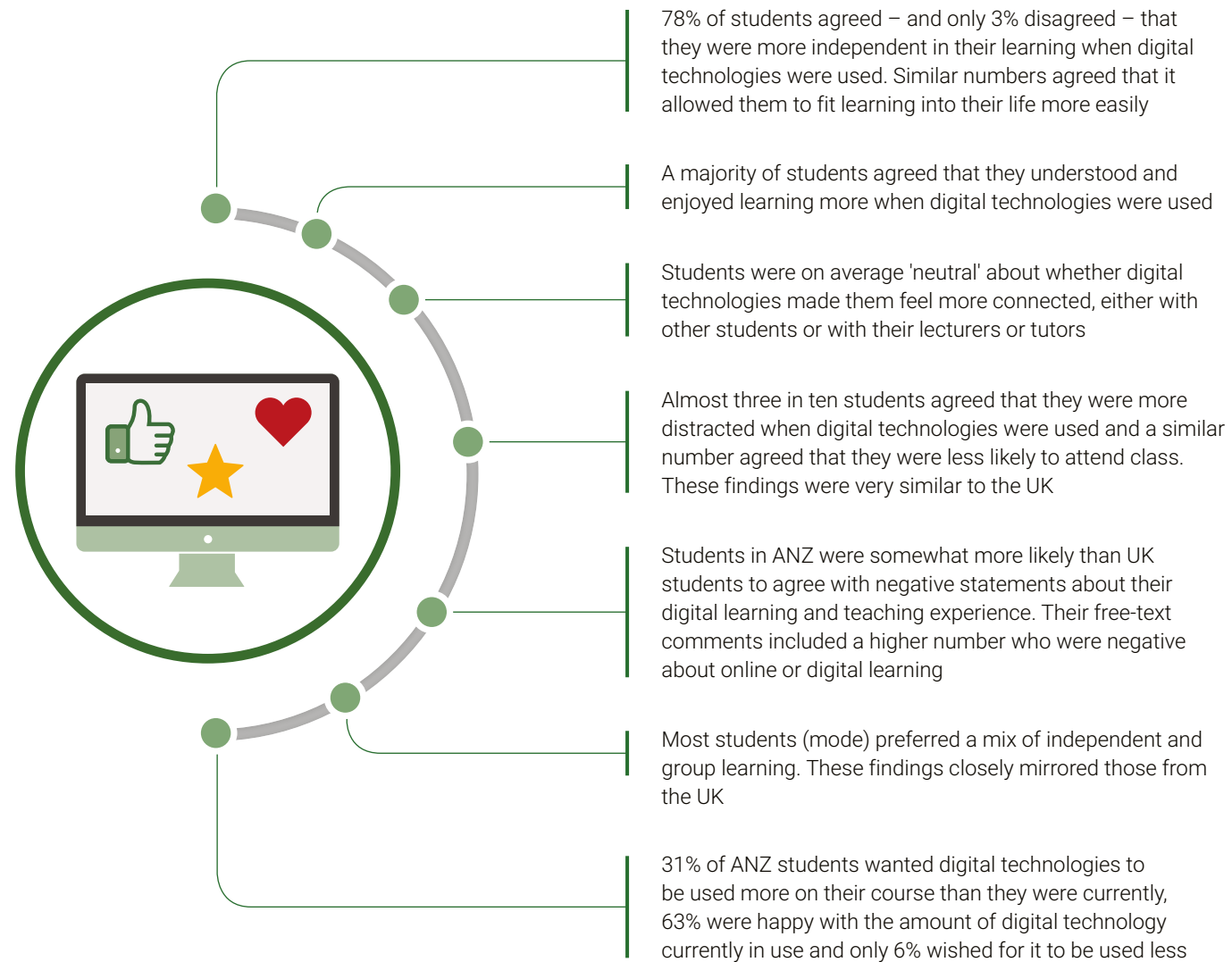
As students come to rely more on virtual access to learning, they expect the LMS to be designed with their needs in mind. Timely uploading of materials and consistent, navigable course structures are top of their list. Any changes to the LMS have a big impact on students, so make sure they are fully involved.

Working in partnership with students

Universities who work with their students to develop the digital environment see big benefits. The students involved develop transferable skills for the workplace. The results are a better teaching and learning experience for everyone. In courses of study, engage students in conversations about digital futures and work. In the organisation, consult with students about how they want their digital experience to be improved.

Theme four: attitudes to digital

Facts and figures



75% of students agreed that use of digital technologies on their course meant that they can fit learning into their lives more easily.

Key messages

Independence and organisation

Independence and flexibility are the benefits that most students appreciated when their access to digital learning is good. Help students stay independent and organised by giving them access to personalised timetables and progress data. Encourage the use of apps to manage their time and tasks, notes and files, key references and readings – or make sure these are intuitive to do in the LMS.

The digitally disenchanted

A minority of students want digital technologies to be used less on their course of study. They may find it a distraction, lack digital skills or worry about losing face-to-face engagement with their tutors. Distance learners may regard online learning as of lower value, despite their greater dependence on it. Induction should take account of these students' anxieties and support them to get the most out of digital learning activities.

Crack the attendance paradox

On the one hand, students expect lecture recordings to come close to the 'real' experience. On the other hand, this leads to a drop-off in attendance. While better participative technologies may be part of the solution (eg live streaming, more interactions between in-class and out-of-class students), students see skilled lecturers as the key. Teaching staff need to consider the needs of students not in the room, as well as those in front of them, making both experiences as engaging as possible.

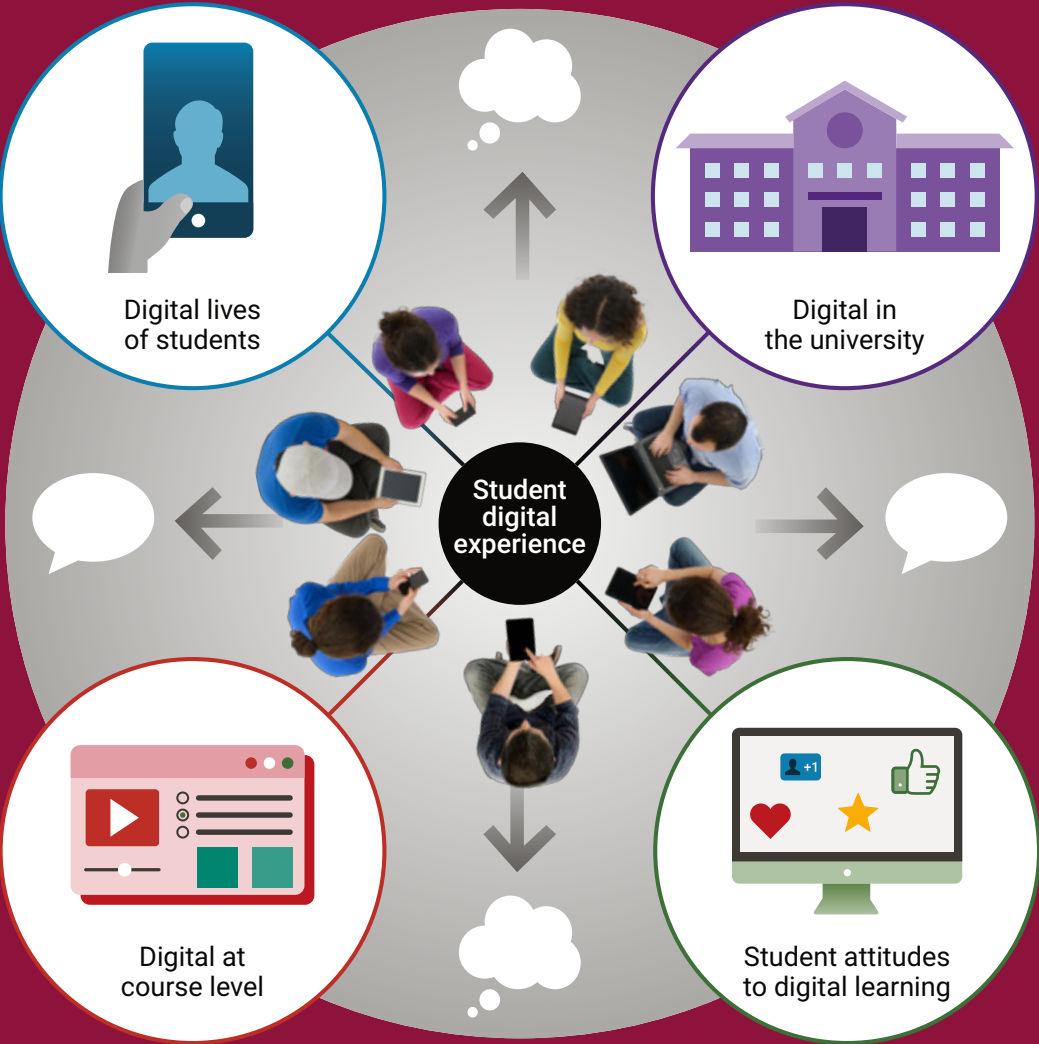
Overview and method

The digital experience insights service

The digital experience insights service (previously known as the digital experience tracker) includes a standard student and teaching staff survey tool, delivered in an online platform, along with support, advice and guidance, and a community of practice.

It allows organisations working in post-compulsory education to:

- » Gather evidence from students and teaching staff about their digital experience and compare their data over time
- » Make better informed decisions about the digital environment
- » Target resources for improving digital provision
- » Plan other research, data gathering and student engagement around digital issues
- » Demonstrate quality enhancement and student engagement to external bodies and to students themselves



The insights service provides the following:

- » Student and teaching survey templates, customised for the sector of education, with the option to add some institutionally specific questions before launching
- » Guidance on every aspect of use
- » Real-time access to the organisations' own data
- » Email and web-based support and an online community of practice
- » Advice on how to understand and respond to the findings, including webinars, blog posts and written step-by-step guides
- » Access to benchmark data, allowing organisations to compare their own results with all student and teaching staff respondents within their sector (or survey version)
- » Templates to summarise, share and report results, eg with senior managers, stakeholder teams and students

The primary purpose of the insights service is to allow organisations to collect valid, representative and actionable data from their students and staff to support a process of engaging students in conversation about their digital experience. Synthesising the data at national level has enabled us to produce a more general picture of students' digital experience (this report) but is not a substitute for local engagement.

You can find out more about the insights service from digitalinsights.jisc.ac.uk

Methodology

The survey template

The digital experience insights student survey is delivered and managed in Jisc online surveys (onlinesurveys.ac.uk); an online survey service specially developed for the UK education sector.

The survey template provides a concise core set of questions that have been intensively tested with UK students for relevance, readability and ease of response. The questions cover issues that earlier research found were important to students and/or staff, with a focus on the digital learning experience. They are organised into four themes:

- » Theme one: digital lives of students
- » Theme two: digital in the university
- » Theme three: digital at course level
- » Theme four: student attitudes to digital learning

In the pilot there were 23 core questions: including sub-questions, students may be asked to respond to a maximum of 75 items. All questions were optional, but more than 95% of respondents answered every closed question, suggesting the question set is user-friendly and that students find it engaging enough to persist.

Most questions were locked (standardised across all insight service surveys) to allow benchmark comparisons. The final survey page was customisable so that organisations could add in additional questions pertinent to their local needs.

Most of the questions were identical throughout the different versions but some were slightly reworded to be relevant to the different sectors and a few were version-specific. For example, online learners were asked whether learning online allowed them to access learning that would be impossible for them to access physically.

Participating organisations

Organisations were recruited by an open call to participate in the third year of the pilot project.

Ten Australian and two NZ universities applied to use the survey for HE students, representing approximately 30% of universities in the two countries. A total of 21,095 individual student responses were collected from the following universities:

- » Curtin University Library, Australia
- » La Trobe University, Australia
- » Macquarie University, Australia
- » Massey University, New Zealand
- » Murdoch University, Australia
- » Southern Cross University, Australia
- » University of Adelaide, Australia
- » University of Southern Queensland, Australia
- » University of Queensland, Australia
- » Victoria University, Australia
- » Victoria University of Wellington, New Zealand
- » Western Sydney University, Australia

There was a large variation in the number of student responses per institution, ranging from 26 to 9,987. Five institutions had a minimum of 1,000 responses. The mean average \pm standard deviation was $1,758 \pm 2,701$ responses per institution; the median was 864 responses per institution. On average, universities collected responses from around 6% of their total student populations.

Of the institutions that provided data, the smallest participating university had 17,300 students in total; the largest had 51,070. On average, participating universities had a mean \pm standard deviation of $31,393 \pm 12,739$ students (full and part time).

A total of 89 UK organisations (43 universities) ran at least one version of the survey and collected enough data to be included in the equivalent UK report (digitalinsights.jisc.ac.uk/our-service/our-reports). As this is the other large body of national results, we have noted where there are interesting similarities or differences between the two datasets (ANZ university students compared with UK university students).

Participant demographics

Information about the age, gender and course stage of survey respondents is summarised in Table 1.

		ANZ student respondents
Age	18 and under	16.1%
	19-24	50.7%
	25+	33.2%
Gender	Male	35.3%
	Female	64%
	Other	0.7%
Stage of course	First year	26.9%
	Middle years	28.3%
	Final year	16.5%
	Postgraduate	26%
	Other	2.4%

The youngest recorded student was 16 years of age and the eldest was 80. The mean average with standard deviation was 25 ± 9 years of age. The data suggests that there is a female bias to this survey sample; this would require verification by comparing to national student figures for ANZ (not accessible to the authors at the time of writing).

Uses and limitations of this data

This report contains a question-by-question summary of all the student-level data from ANZ. The data has not been weighted to match the national student population (eg by age, gender or stage of course) because this data was not available to us at the time of writing, and because the primary aim of this report is to allow the voice of all participating students to be heard. However, we would recommend comparison between this sample and national averages before drawing any conclusions about its representativeness of the overall university population.

Charts and tables in this report may have totals that do not add up to 100% due to rounding to whole percentages.

One institution had a very large student response rate, contributing 47.3% of all the data in this dataset. This gave rise to concern that this one institution might cause consistent bias across all question summaries. In order to check for this possibility, we randomly selected ten questions and averaged these by institution name. In all cases this institution's data proportions and rating averages were in line with those from the other participating institutions. For this reason we felt confident about summarising all student data from all institutions in compiling this report.

These findings come from a pilot study and may not represent the opinions of the national student population for each country. However, they can be used, with this caveat, as an initial investigation into student attitudes and opinions across the two nations, and to compare the reported experiences of Australian and New Zealand students with those of students in the UK.

What the data tells us: question-by-question analysis

69%

69% of students look for additional resources not recommended by their lecturers either weekly or more frequently.¹



Theme one: the digital lives of learners

How often do students use digital tools or apps in their own learning time? (Q5)

Students were asked how often they used digital tools or apps to carry out seven independent learning activities, and could answer 'weekly or more', 'monthly or less' or 'never' (Q5). Percentage results are shown in Figure 1, with results from the UK shown in Figure 2 and a table of comparisons in Figure 3. These show that:

- » Students made extensive use of digital technologies in their independent study
- » They were highly likely to access lecture notes or recordings regularly online, and to watch or listen to learning materials, indicating that most students looked beyond text-based media to support their understanding
- » The least common weekly activities were 'Organise your study time' and 'Discuss your learning informally on social media'

- » With the one exception of 'Look for additional resources not recommended by your lecturer', ANZ students did all these independent digital learning activities significantly more often than UK students¹
- » While results are very similar for ANZ and UK students (ANZ 69% weekly or more; UK 72% weekly or more), UK students 'Look for additional resources not recommended by your lecturer' statistically more often than ANZ students²

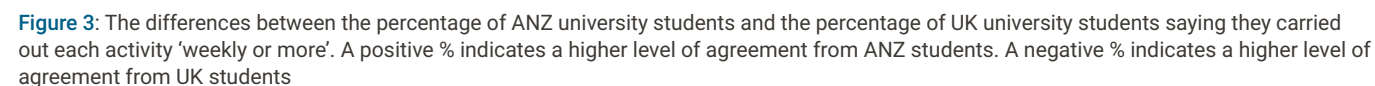
This set of questions asked students to report frequency of behaviour, which is an absolute measure, unlike ratings or expectations, which are relative to a perceived norm (and the norm may vary between organisations and cultures). Therefore it is very likely that the significant difference in results here reflects a real difference in the independent study habits of the university students in ANZ and in the UK.



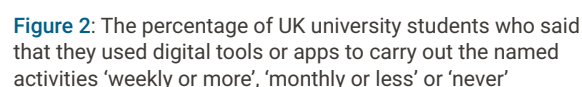
¹Scores across all seven questions were summed and then university student UK and ANZ data compared using an independent T-test ($T = -28.5$, $df=42,807$, $p<0.001$). This difference remains even if the university contributing a high number of responses is removed from the analysis.

²Compared using a non-parametric Kruskal-Wallis test (test statistic = 43.00, $df=1$, $p<0.001$). This difference remains even if the university contributing a high number of responses is removed from the analysis.

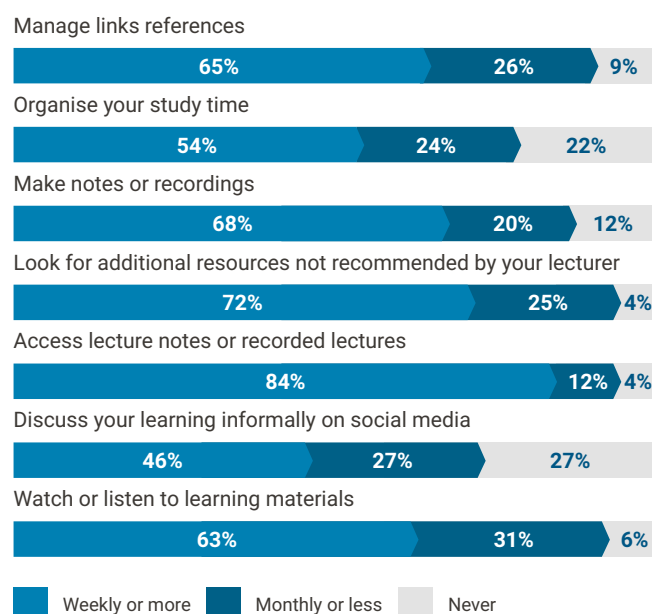
ANZ STUDENTS



DIFFERENCE IN OPINION



UK STUDENTS



Students were asked to nominate a 'useful' digital app or tool that they use in their own learning time. 90% of them chose to answer this free-text question (18,964 responses). **Figure 4** shows the weighted wordcount of terms used by students. These were the 147 words that appeared in more than 0.1% of responses.

Figure 4: A word cloud illustrating the frequency of terms used by ANZ students when describing useful digital apps and tools used in their own learning time



The data was then further analysed using short- and long-context word searches and grouped into a number of themes. This more detailed analysis found, for example, that the term 'Google' was used in only about 28% of cases to mean a basic Google search. It was equally likely to be used in the phrase 'Google scholar' and, beyond that, was used to describe a wide range of Google services: maps, calendar, translate, Chrome, sheets, drive, calendar, keep, suite etc.

Table 2 (overleaf) shows the themes in descending order of prevalence, with a note about the content of each category.

Table 2: Themes found in coding ANZ student responses to the question ‘What digital tool or app do you find really useful for learning?’

Theme	Notes
Learning resources	Video was by far the most popular format, with 1,662 mentions for YouTube along with 321 for Khan Academy. TED and edX talks and Lynda.com were also mentioned. This category also includes podcasts, journal articles, and lecture slides and notes.
LMS	Blackboard was the most popular named platform. Where this response was qualified, the LMS was being used mainly for accessing lecture notes or course materials. Occasionally mentioned were quizzes, discussions, and time and task planning (deadlines etc).
Online research	Searching for online resources was most popularly done via library services, followed by varieties of Google search (especially Scholar) and subject-specialist portals. This is obscured by the raw wordcount (above), because of the many different names given to library catalogues and portals.
Note-making	In this category there were 1,362 mentions of OneNote alone. OneNote was the most highly cited of all Microsoft (MS) tools. The prevalence of note-making apps was higher in ANZ than in the UK.
Productivity	These were mainly MS Office tools but Mac tools and mobile apps were included at a lower rate. 721 citations were of tools specifically for writing eg dictionaries, grammar checking tools.
(Recorded) lectures	Digital recording allows students to access lectures at any time, listen to them while travelling, annotate them, watch them on their phone (speeded up!), review and recap, catch up, and “fill in any gaps”.
Devices	Laptops were by far the most common hardware devices cited in response to this question. Where elaborated, laptops were being used mainly for making notes in lectures and accessing online learning materials. Phones, iPhones and smartphones were also used to read, watch and listen to learning, though, unsurprisingly, the emphasis was on convenience and mobility. However, phone users mentioned a large number of other activities such as: communicating with other students, using the camera to capture notes and events, organising, managing a timetable, using study apps etc. Tablets were often being used with a drawing or writing pen or pencil.
Referencing	A range of referencing tools was included, with 753 mentions for EndNote (the most popular).
Organising	Tools and apps for time and task management, file management, project management etc. Free-text data reveals that the LMS was also used for organising activities. Simple mentions of the LMS platform did not capture this, so the use of digital tools for organising was probably more widespread than its position in the table suggests.
Collaborating	Specific tools and apps mentioned were Facebook and Messenger. PowerPoint was widely used for group production, Google Docs and Dropbox for sharing work. Again students may have been carrying out collaborative and discussion tasks in the LMS without that appearing separately.
Quiz/poll	Quizzing and polling apps were nominated less by ANZ students than by UK students, though UK students were less exposed to their use in class.
Study apps	Many examples were cited in this category including flashcards, mind mapping and attention management. Most individual apps were mentioned by only a handful of students, though Forest – an app for managing digital distraction – did appear in the top 200 terms.
Subject specialist	Like study apps, these were too various for any one of them to be cited more than a handful of times. But coding them collectively revealed that subject-specialist apps were found by students to be highly useful.
Analysing	This category was made up of Excel, SPSS and WolframAlpha.

Just as in the UK, the three most popular categories were learning resources (eg videos, e-books, journals), the LMS and tools for online research (eg search tools, library catalogues).

Tools for note-making, along with general productivity and writing tools, were more popular among ANZ students than in the UK; this was reflected in the results for Q5 as well as the free-text comments.

Quizzing and polling tools were mentioned at a much lower rate by ANZ students than those in the UK, though we know from responses to Q5 that they were actually using these tools more regularly.

Students used a plethora of apps to improve their independent study, from attention management to grammars and dictionaries, and from note-making to creating instant revision materials. This diversity of study practice is potentially a huge resource for other students – and even for staff to learn from.

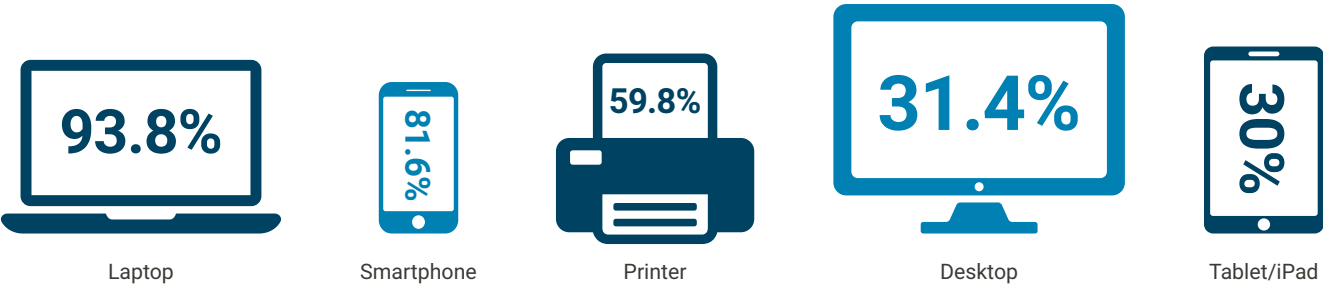
Which personally owned devices do students use to support their learning? (Q4)

Students were asked which of five types of device they owned and used to support their learning. Percentage summary results are shown in Table 3 below.

- » Most students owned and used their own laptops for study, to the extent that the minority without are likely to be suffering some kind of disadvantage unless measures are taken to redress this
- » Tablets and desktops were used by about three in ten students, most of whom also had a laptop
- » About eight out of ten students used their personal smartphones to support their learning
- » Taken together with the figures for tablet ownership, it should be assumed that most students were accessing course information and materials on a mobile device
- » These figures are very similar to the figures from the UK

Table 3: The percentage of ANZ students who said they owned and used each of the named devices to support their learning

ANZ STUDENTS





“Don't just have online support, have a person.”
ANZ student

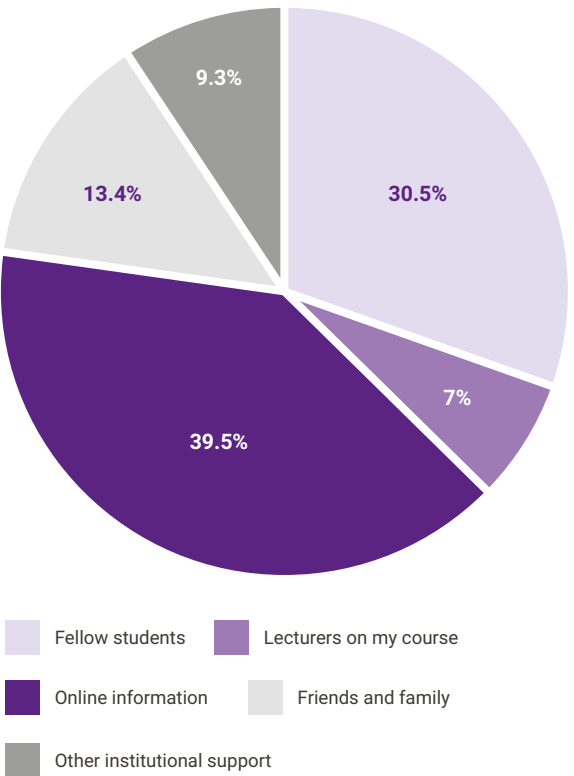


Theme two: digital in the university

Where do students go first for digital support (Q10)?

Students were asked “If you need help with your digital devices or skills, who do you turn to first?” and were provided with a list of five options. Percentage summary results are shown in [Figure 7](#).

Figure 7: The percentage of ANZ students who turn first to each kind of support for their digital devices or skills



- » Students were most likely to turn to online information first, followed by their fellow students. This is similar to findings from the UK
- » ‘Other institutional support’ was chosen by fewer than one in ten students as their first port of call. We hypothesised that students might be contacting support staff only after trying to resolve their problem with other sources of help. To test out this theory, NVivo text searches were carried out for the terms ‘support’, ‘help’, and ‘staff’ in Qs11 and 12 (‘What one thing should your university do/not do to improve your digital teaching and learning experience?’). These terms were found in 1,649 or 6% of all responses

Contextual analysis found that the majority of these were either recognising the value of support staff or asking for more of them. Library and IT (or ‘tech’) staff were most often mentioned. While there were certainly requests for online guidance and support, ‘human’, ‘in person’ or ‘face-to-face’ support was more often specified: “don’t just have online support, have a person”.

We conclude that the wording of this question may have hidden the critical role of support staff, and that students were turning to those staff only after they had tried and failed to resolve a problem with other, less formal sources of advice.

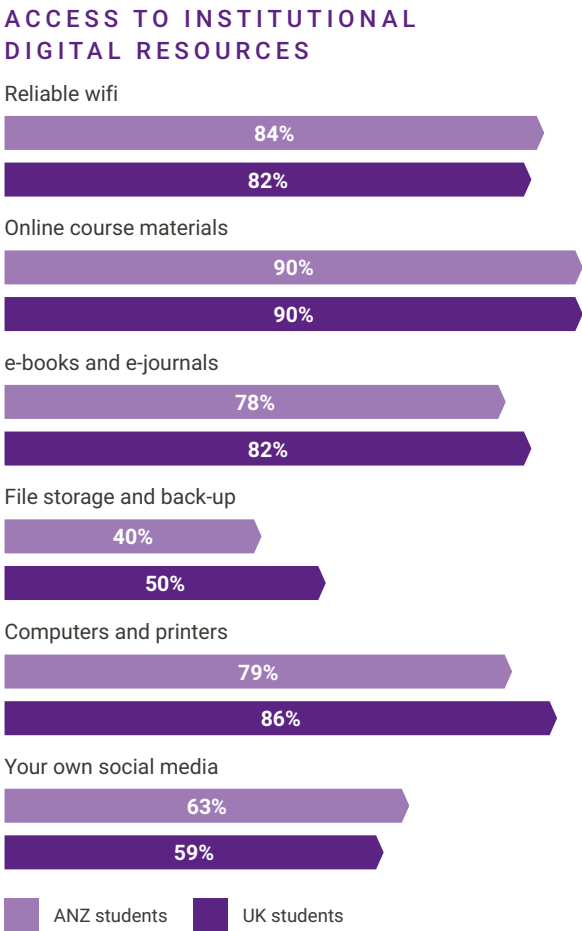
Do students have any-time access to digital resources and services? (Q7)

Students were asked which of six named resources and services they could access at their university whenever they needed them. Percentage summary results are shown in Figure 8.

- » Online course materials were the most accessible, which accords with the finding from Q5 that students accessed these frequently
- » We know from earlier research carried out by Jisc³ that students regard connectivity as essential, not just for studying but for their very existence! 16% of students in this survey did not have reliable access to wifi whenever they needed it
- » Only 63% had reliable access to their own social media. As this is much lower than the figure with good connectivity, some students must have been unable to access personal digital services while logged on to campus networks. Only 40% said they had reliable access to file storage and back-up

Figures from ANZ universities were very similar to those from the UK.

Figure 8: The percentage of ANZ students who said that they had access to each digital resource or service whenever they needed it



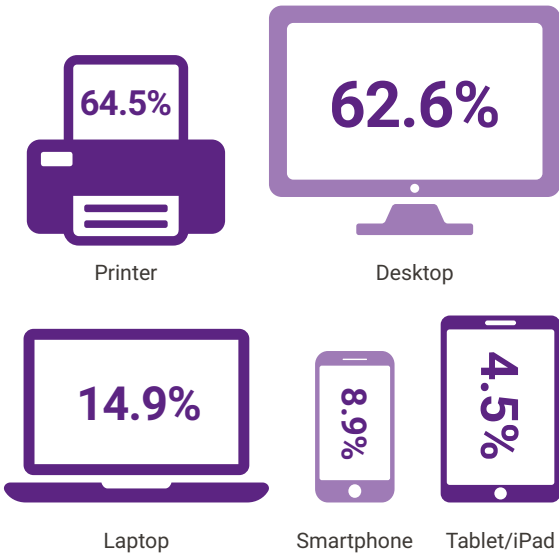
Which institutional devices do students use to support their learning? (Q8)

Students were asked which of five devices owned by their university they used to support their learning. Percentage summaries are shown in Table 4.

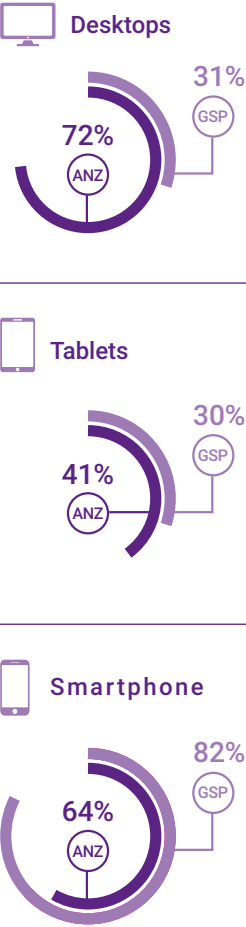
- » Despite the very high level of personal laptop ownership, a majority of students still used university desktops and printers. Free-text responses to questions 11 and 12 show an ongoing reliance on fixed computing, though some of this reliance was for printing which, in fact, students would have preferred could be done from their own devices. These figures and findings are very similar in the UK
- » A small minority of students were provided with university tablets or smartphones

Table 4: The percentage of ANZ students who said they used each institutionally owned device to support their learning

ANZ STUDENTS



Comparison with general student population (GSP)



From Q4 we know that only 1,318 individuals (6.2% of the sample) said that they did not have a personal laptop for learning (Q4). We were interested to see if these individuals were making more use of institutional tools to compensate, were simply disadvantaged overall in terms of their device access or were using alternative digital tools. It appears to be the last of these. Students without a laptop were far more likely to have personal access to a desktop computer (72% v 31% across the GSP) or a tablet (41% v 30% in the GSP). However, they were less likely to have a smartphone they used for learning (64% v 82% in the GSP). So there was a group of students whose study experience (home desktop

+ tablet in class) was different to that of the majority who were taking both a laptop and a smartphone into class. This difference may be subject related.

The students without laptops were not making more use of institutional devices: only 12% of these 1,318 students said that they used an institutional laptop, in line with the general trend. This also suggests that institutional laptops were not being made preferentially available to students without their own laptops: rather they may have been available within specific lessons or practical sessions, as a short-term measure, and to all students rather than those selected as having need of them.

On further investigation, only 365 individuals (1.7% of the sample) had no personal access to a laptop or a desktop.

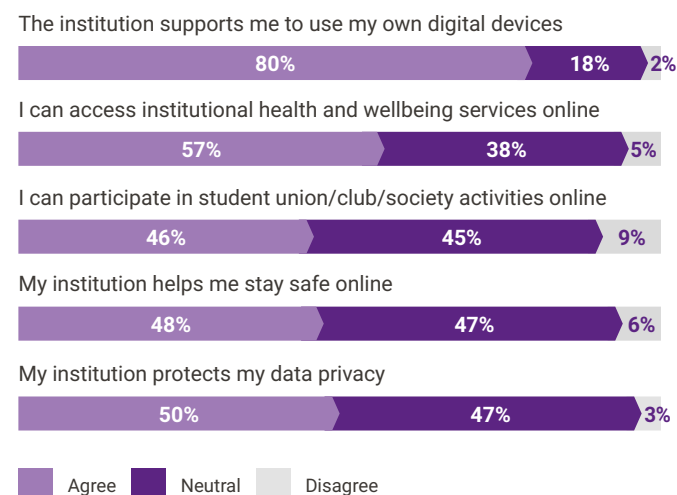
³ Students' expectations and experiences of the digital environment. See http://repository.jisc.ac.uk/5572/1/JR0006_STUDENTS_EXPECTATIONS_EXEC_SUMMARY_v2.pdf.

What do students say about institutional support? (Q9)

Students were asked how much they agreed with five statements about various aspects of institutional support and provision. They could choose to agree, stay neutral or disagree with each. Percentage data is summarised in Figure 9.

- » Eight in ten ANZ students agreed that their university supported them to use their own digital devices; only 2% actively disagreed with this statement. This is a significantly higher rate of agreement than among UK students⁴
- » For the remaining issues, roughly half agreed with each statement and most of the rest were neutral
- » The percentage of students agreeing that the university helped them to stay safe online was also significantly higher in ANZ than in the UK (8.3% of UK students disagreed with this statement compared with 5.5% ANZ). Although the numbers are small, when we consider the potentially serious consequences of any failings in this area the number who disagreed may still be a cause for concern

Figure 9: The percentage of ANZ students who agreed, had a neutral opinion or disagreed when asked about various aspects of institutional support and provision



Eight in ten ANZ students agreed that their university supports them to use their own digital devices

Overall, how do students rate the quality of their institution's digital provision? (Q13)

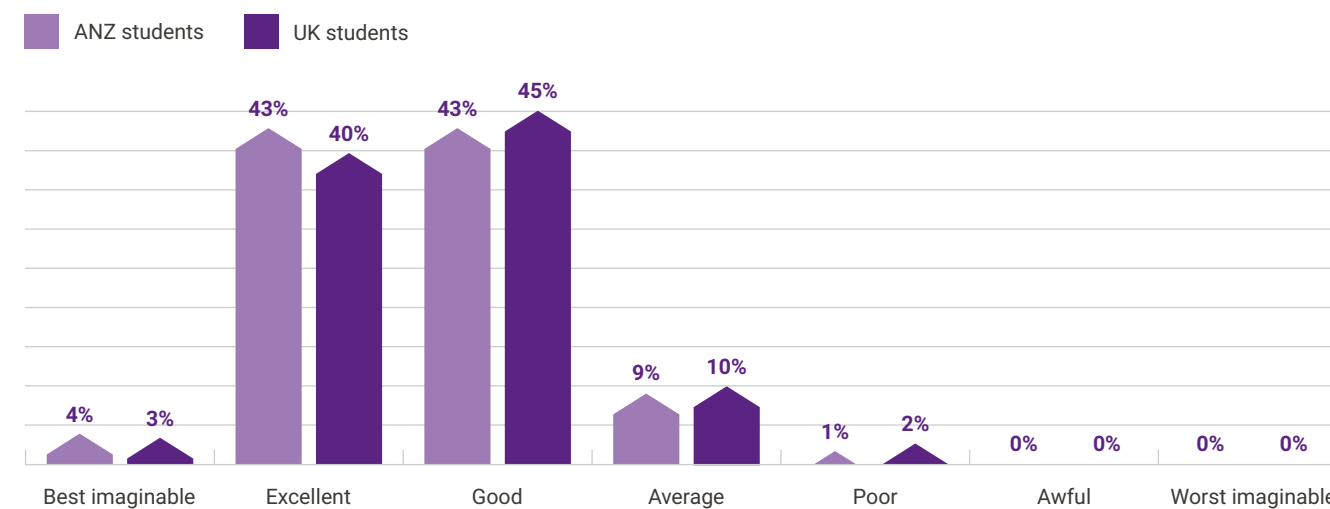
Students were asked to rate the quality of their institution's digital provision – including software, hardware and the online learning environment – using a Likert scale of adjectives derived from the system usability scale⁶. Percentage summary results are shown in Figure 10.

- » 90% of students rated their university's provision as better than 'average', choosing to rate it as 'good', 'excellent' or best imaginable'. Fewer than 2% rated it as below 'average' ('poor', 'awful' or 'worst imaginable')
- » The average (median) rating for institutional digital provision was 'good' and close to 'excellent'

- » These ratings are almost identical to those from students in the UK. So students in all three nations tended to believe that their own university's digital provision was better than the norm. (Clearly they cannot all be right: we are measuring students' perceptions here and not the objective standard of the digital environment. Nonetheless this is a heartening result and suggests that students feel positively about their digital provision)
- » In a parallel UK survey of teaching staff, university digital provision was rated considerably less favourably. This may be because teaching staff have more opportunity to compare provision across different faculties or universities than students do. More research is needed to understand these findings

Figure 10: The rating scores given by ANZ students and UK students for their university's digital provision (including software, hardware and learning environment)

HOW WOULD YOU RATE THE QUALITY OF INSTITUTIONAL DIGITAL PROVISION?



⁴Compared using a non-parametric Kruskal-Wallis test (test statistic = 613.59, df=1, p<0.001).

⁵Compared using a non-parametric Kruskal-Wallis test (test statistic = 251.00, df=1, p<0.001).

These differences remain even when the university contributing a high number of responses is removed from the analysis.

⁶The aim of this adjective scale is to create something that is more interesting and holds more meaning to people than a 1-10 scale. For the original open source reference for this work – and a copy of the SUS statements – please see http://uxpajournal.org/wp-content/uploads/pdf/JUS_Bangor_May2009.pdf



Theme three:
digital at course level



How often do students carry out digital activities as part of their course? (Q14)

Students were asked how often they carried out six different digital activities during their course and could answer ‘weekly or more’, ‘monthly or less’ or ‘never’. Percentage summary results are shown in **Figure 11**, with summary results from the UK shown in **Figure 12** for comparison, and a table of differences is provided in **Figure 13**.

- » The vast majority of students found information online weekly or more frequently, as we would expect
- » As part of their weekly course routine, students were only about half as likely to work online with others as to work with online information. Nevertheless, online discussion or collaboration with others was a mainstream activity for ANZ students
- » The median for all the other activities is ‘monthly or less’. We can see a roughly three-way split, with about equal numbers of students experiencing these activities regularly, infrequently or not at all. These activities can be described as entering the mainstream of teaching practice

There was a significant difference in the frequency of combined activities between ANZ and UK university students⁷; ANZ students carried out these kinds of digital course activities more often than university students in the UK. **Figure 13** illustrates how many more UK students chose ‘never’ for each course activity.

Again, because these questions asked students to report frequency in time, it is very likely that the significant difference in results reflects a real difference in the course experiences of the university students in ANZ and in the UK.

Figure 11: The percentage of ANZ students who said that they carried out the named course activities ‘weekly or more’, ‘monthly or less’ or ‘never’

ANZ STUDENTS

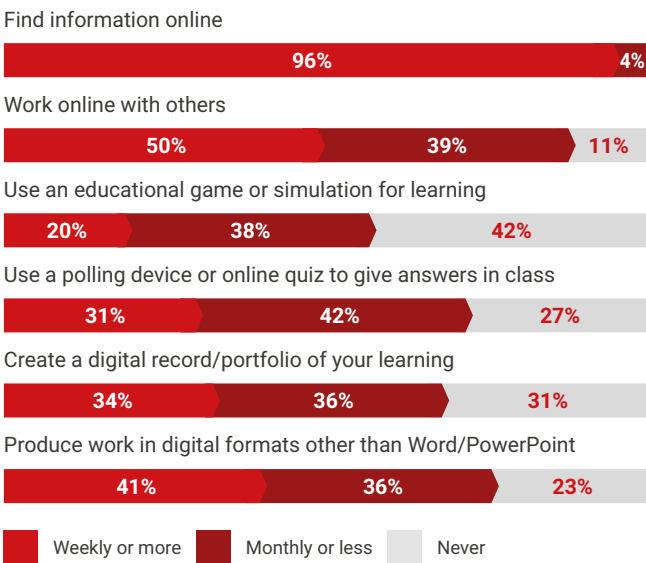


Figure 12: The percentage of UK students who said that they carried out the named course activities ‘weekly or more’, ‘monthly or less’ or ‘never’

UK STUDENTS

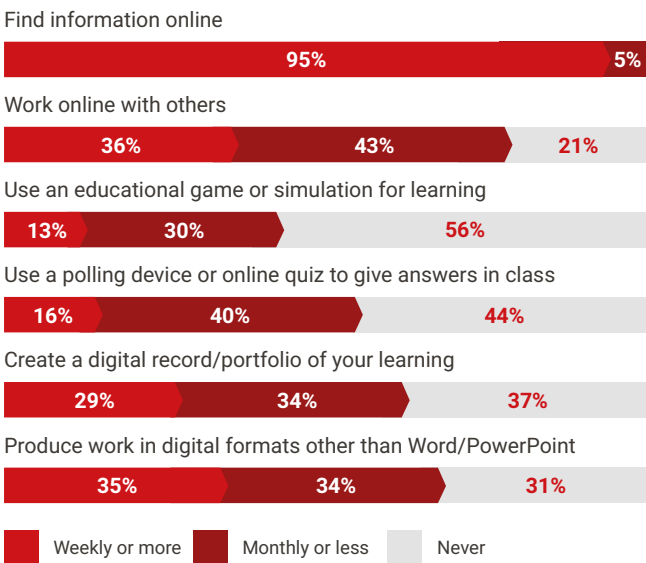
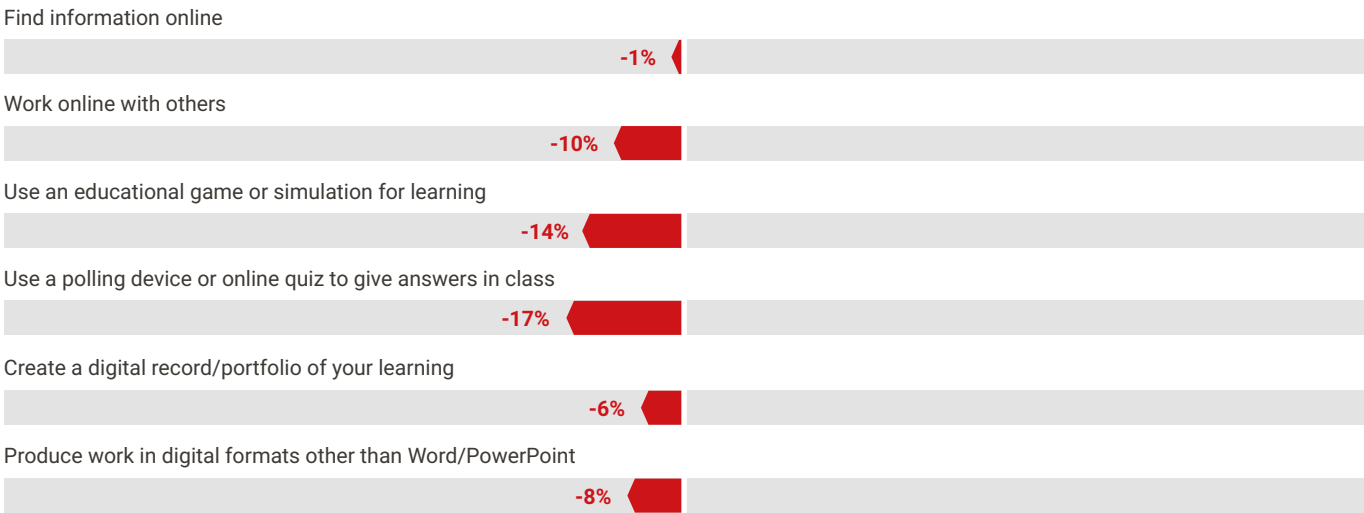


Figure 13: The differences between the percentage of UK students and the percentage of ANZ students who said they never carried out each course activity. A positive % indicates a higher level of agreement from ANZ students. A negative % indicates a higher level of agreement from UK students

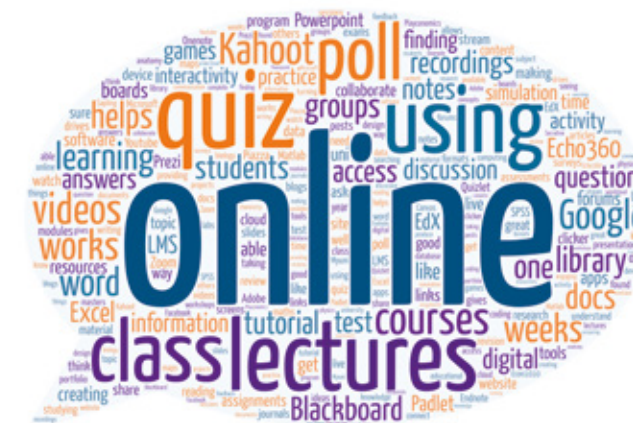
DIFFERENCE IN OPINION



⁷Scores across all six statements were summed and then university student UK and ANZ data compared using an independent T-test (T= -45.6, df=43,218, p<0.001). This difference remains even if the university contributing a high number of responses is removed from the analysis.

Students were asked to describe useful digital activities that they carried out on their course. 68% of students responded to this question (n= 14358). **Figure 14** shows a weighted wordcount, based on the 160 words appearing in at least 0.1% of responses.

Figure 14: A word cloud illustrating the frequency of terms used by ANZ students when describing useful digital activities on their course



Further analysis and coding was carried out using an existing framework (Beetham, 2018. Digital learning activities: digitalcapability.jisc.ac.uk/our-service/bdc-advice-and-guidance) derived from the UK student data. Here we highlight five of the most popular activities.

Of the items we identified as 'entering the mainstream' of teaching practice in Q14, **quizzing and polling** in lectures was a clear winner in terms of student popularity.

“ In-lecture polling and interactive quizzes keep students engaged.

ANZ student

“ In-lecture polling and interactive quizzes keep students engaged.

“ Kahoot in class is a good way of solidifying your understanding.

“ Promotes thinking and question answering, and you can see what others answered too.

“Tutors use poll for immediate feedback if the class understands the lecture/answer, then focus on the parts that have the lowest rate [of correct response].”

“ Every student can interact during the class!

NOTE-MAKING

The next most popular activity also focused on lectures. This was **note-making**, with access to lecture notes before class and lecture recordings after class. Students described how valuable this was to staged review and revision.

“ I can watch again the video recording after lecture if I cannot follow in lecture – it’s awesome.

“ I view course notes on one monitor for highlighting and noting, and have the lecture running on another monitor.

“ Lecture recordings, so I can write accurate notes the next day on my first revision of content.

“ Using OneNote to organise lecture notes and...refer back to them via iPad (I can write, draw or type on them).

VIDEO AND AUDIO

Learning with **video and audio** gave students an alternative way to engage with content. Many found this helped them to fit learning around a busy schedule.

“ Reading my notes through a microphone app and then listening back while doing other activities.

“ Links to YouTube videos and online tutorials always complement coursework well as it gives another perspective on the topic.

“ Online engaging video content, then in-class activity that follows what was learned in the video.

“ The course tutor had embedded bite-sized videos explaining key concepts. For all the other courses I just went straight to YouTube.

SHARE THE NOTE-MAKING

An extension that many students appreciated was a prompt to **share the note-making** process. This seemed generally to be lecturer-led rather than spontaneous.

“ Interactive notes sessions where everyone can add to communal notes during the lecture.

“ Google Drive so students can simultaneously upload lecture notes and information for all to see.

“ Students have collaborated to create online question databases.

SIMULATIONS AND GAMES

Finally, we know that ANZ students have more opportunities to interact with **simulations and games** than their UK counterparts. These are also very popular for learning.

“ I really like the pre-lab quizzes which use interactive simulations of the experiments we are about to do.

“ Playconomics was an interactive game that forced me to study at the start, but by the end I didn’t want to stop.

“ Essential anatomy is great for in-class lectures as we aren’t able to access any real specimens... and being able to move muscles in 3D is great for visualisation

“ We used Google+ community to share drafts and provide feedback.



What do students say about their virtual learning environment (VLE) or learner management system (LMS)? (Q15)

Students were asked how much they agreed with five statements about their LMS. The term VLE (virtual learning environment) was used in the UK survey but LMS is the preferred generic term in ANZ. Universities had the option to use their own local or brand name to introduce this question, helping students to recognise the system in question. Students could choose to agree, remain neutral or disagree with each statement. Percentage summary results are shown in **Figure 15** with summary results from UK students shown in **Figure 16** for comparison.

- » Most students rely on their LMS for coursework: only about 3% disagreed
- » Almost 60% agreed that the LMS was well designed and almost a half wanted it to be used more by teaching staff. Fewer than 10% disagreed with either of these statements
- » Students were least positive about the collaborative features of their LMS. The median response to this statement was neutral
- » UK students were significantly more likely than ANZ students to access their LMS on a mobile device⁸. However, all the attitudinal statements (design, reliance, enjoyment and preference) were answered more positively by students in ANZ than students in the UK



86% of students
rely on their LMS to
do their coursework.

Figure 15: The percentage of ANZ students who agreed, had a neutral opinion or disagreed when asked about various aspects of their LMS experience

ANZ STUDENTS

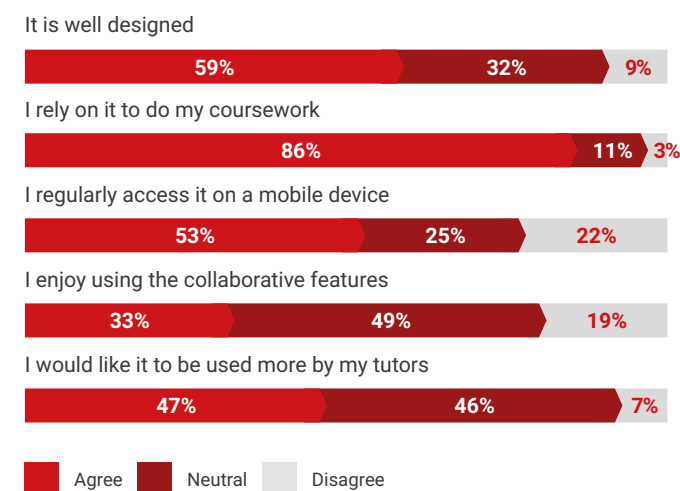


Figure 16: The percentage of UK students who agreed, had a neutral opinion or disagreed when asked about various aspects of their VLE experience

UK STUDENTS

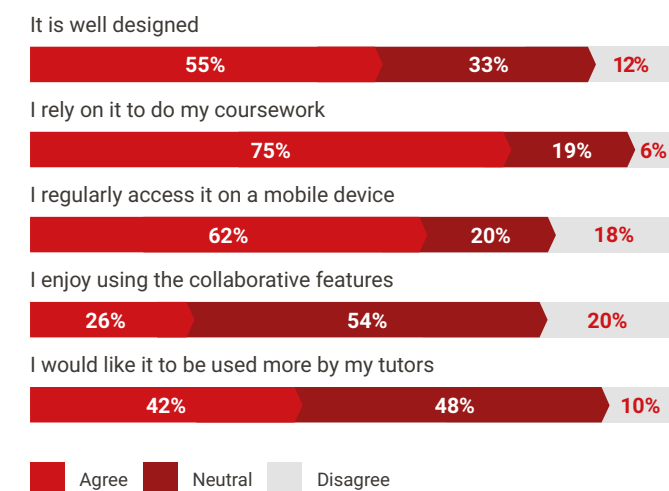
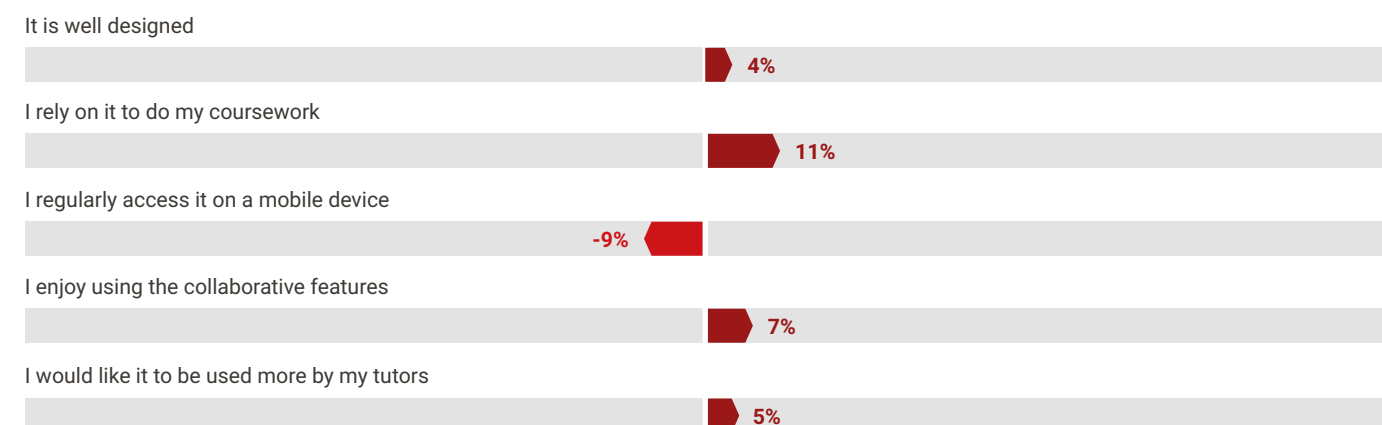


Figure 17: The differences between the percentage of ANZ students and the percentage of UK students who agreed with each statement about their VLE/LMS. A positive % indicates a higher level of agreement from ANZ students. A negative % indicates a higher level of agreement from UK students

DIFFERENCE IN OPINION



⁸Compared using a non-parametric Kruskal-Wallis test (test statistic = 315.69, df=1, p<0.001).

How does digital provision impact on students' course experience? (Q16)

Students were asked how much they agreed with four statements about digital infrastructure and its impact on their course experience. They could choose to agree, remain neutral or disagree. Percentage summary results are shown in **Figure 18**, while UK results are shown for comparison in **Figure 19**.

- » Overall, students were reasonably happy with online assessments, teaching rooms and software. The median response for all these statements was to 'agree' and fewer than one in ten actively disagreed
- » However, individual institutions should take careful note of where their own students' assessments fall below the national benchmark. Free-text data is critical to understanding the nuances of the student experience in all of these areas
- » Only 24% of respondents said they had been told how their personal data was stored and used by their university. More students disagreed than agreed with this question
- » ANZ student responses closely mirrored responses from the UK

Figure 18: The percentage of ANZ students who agreed, had a neutral opinion or disagreed with various statements about their digital course experience

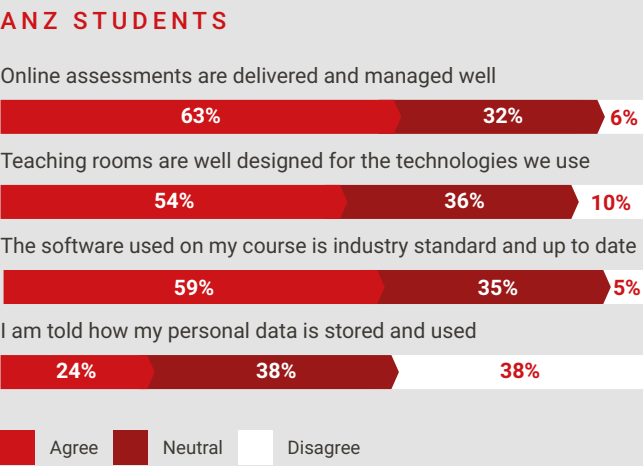
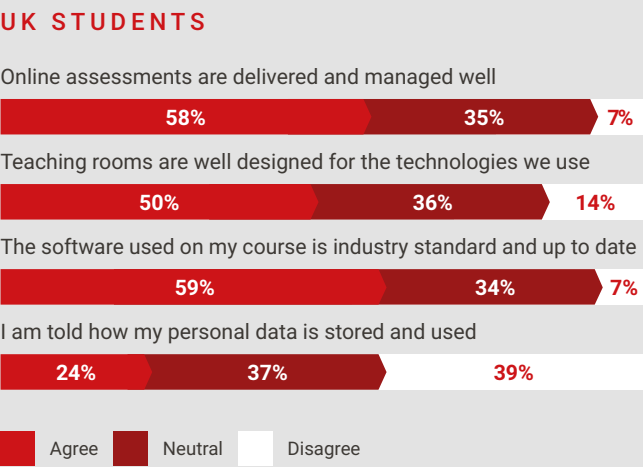


Figure 19: The percentage of UK students who agreed, had a neutral opinion or disagreed with various statements about their digital course experience

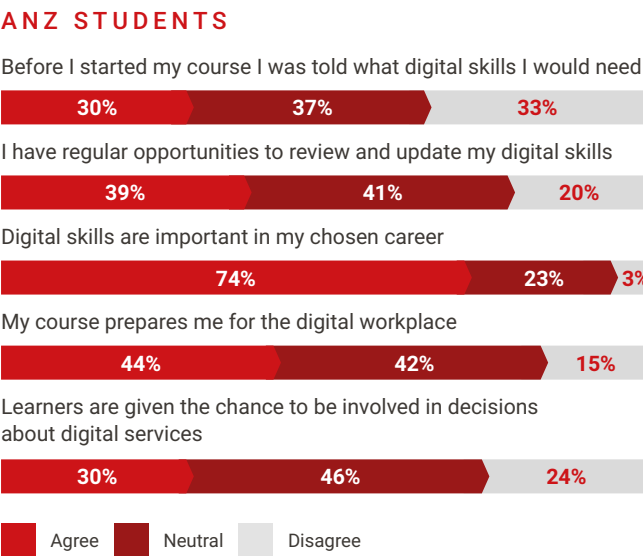


How do courses support the development of digital skills and awareness? (Q17)

Students were asked how much they agreed with five further statements relating to their digital skills and awareness. They could choose to agree, remain neutral or disagree. Percentage summary results are shown in **Figure 20**.

- » 74% of students agreed that digital skills would be important in their chosen career. Most of the other respondents were neutral on this issue
- » However, only 44% agreed that their course prepared them for the digital workplace. The median response was neutral
- » Further investigations with pilot universities in the UK suggest that students may hedge their bets when answering this question – and possibly the one about digital skills as well – because they won't know the answer until after they have graduated. In other words, the 'neutral' response may include a large number of 'don't know' responses
- » The median response to all the other questions was neutral as well
- » ANZ student responses closely mirrored responses from the UK

Figure 20: The percentage of ANZ students who agreed, had a neutral opinion or disagreed with various statements about their digital skills and awareness



Students were asked two open questions about how their institutions could improve digital teaching and learning. 78% of students commented on what their university should 'do' (16,525 responses), while 62% commented on what it should 'not do' (13,007 responses).

Figure 21 and Figure 22 show the weighted wordcounts in the student free-text responses to the two questions.

[illegible]

Key words and phrases (short-context) were further analysed using the word search function in NVivo and the resulting groups of responses were coded until no new themes emerged from each group. Themes were not included if fewer than five responses could be assigned that coding. After 24 groups had been coded in this way, no new themes emerged. Full findings are presented in appendix 1 – here we pick out a few that were distinctive.

“ More reliable recording.
Audio and video. Lapel mics.

“ Have lecturers switch the recording
to camera when they write things on
the whiteboard.

“ Think about those students listening online or playback, for example, by repeating questions that can't be heard. Provide transcripts, subtitles.

ANZ student

Some comments about lectures were related to the specific **experience of distance learners**, which was another distinctive theme. On- and off-campus students may share some lectures (with distance learners having access only to the recordings) and online resources, and this can feel unfair to both sides. Distance learners said:

“ Share internal lectures in the same course to make distance students feel part of the whole class.

“ I feel like there is a chasm between the learning experience for internal or block and distance learning students.

At the same time, internal students could feel they were being short changed. While online materials helped them to fit learning into their busy lives, they wanted the on-campus experience to be distinctively different: *“I am completely responsible for educating myself using online resources, both uni-sponsored and freely available, despite the fact that I am not enrolled in an online degree”*. So the availability of recorded – and potentially live streamed – online lectures, and the widespread use of online learning resources, were changing the experiences of students both on and off campus. There were real advantages, with distance learners saying that their engagement was better and on-campus students saying they valued the additional flexibility. But there were also concerns that these two modes of study may become less distinctive, with both sides keeping a close watch on their value for money.



“ You need both digital and face-to-face for the best university experience.
ANZ student

It was striking how many ANZ students used the opportunity of these two questions to warn **against ‘too much’ online or digital learning**. These comments had their counterparts in the UK data but were more commonly and definitively expressed here. They fell into a number of sub-genres.

1. BLENDED IS BEST

“Keep giving written essays as a core assessment. Digital should allow flexibility in assessment.”

“You need both digital and face-to-face for the best university experience.”

2. HUMAN PRESENCE

“I find lectures in person much more engaging/easy to follow”

“Some students like me learn better with face-to-face interaction.”

3. TEACHING QUALITY

“More face-to-face classes and less dumping information on the LMS.”

4. VALUE FOR MONEY

“We are paying for interactive classes and teachers to talk to.... online classes are a waste of our money.”

“Don't let lecturers use the phrase blended learning as an excuse to leave the classroom.”

5. ATTENDANCE AND PARTICIPATION

“Over the course of my studies I have witnessed decreased student participation due to over-reliance on digital tech.”

“Don't encourage learners to always refer to [recordings] - that will mean the rooms will soon be empty.”

The ANZ students were also more likely than UK students to identify the **library** as key to their digital experience, in terms of spaces for study, access to high-value academic materials and support for their digital skills.

“ Provide more library tutorials – there is a lot of online information but I feel my search skills could be improved.

“ Don't take away the ICT helpers sitting at the front desk of the library. They are very approachable and give great advice for any technology difficulties.

“ Digitise all books... so students can access resources 24/7.

Other themes were similar to those identified in the UK. Improvements to the digital environment should focus on **existing lecture and tutorial** rooms, especially to support lecture capture, and on **enabling BYOD** with reliable wifi, power points, suitable desks, plug-and-play screens and a range of study spaces. Despite the number of personal devices they used, students remained dependent on fixed computers for printing, large-screen work and access to specialist software and resources. There were many requests for more computers and for clear rules governing access. **Wifi** dead spots caused problems on some campuses. Everywhere, students found the number of platforms confusing and were asking for **services to be better joined** up, with single sign-on and behind-the-scenes interoperability. For example, it was suggested that Google Scholar searches could link directly into the relevant e-journal articles via the library subscription service.



Students wanted to see **fair play** and redress for disadvantages, whether these were due to distance from campus, poor digital skills (often self-diagnosed by ‘older’ students), a lack of up-to-date consumer technology, missing lectures through sickness, or learning needs such as autism. Some wanted more guidance on assistive technologies while others wanted loan schemes and free printing to support students with limited means.

Teaching staff should be digitally competent and consistent in their approach to managing LMS content, recording and uploading lectures, responding to emails etc.

A **full induction into university systems** and services, followed by regular updates on software and skills, was something that many students felt they had missed out on. Academic staff and university managers **should not ‘assume’** that students are digitally capable but check sensitively and be aware of how to signpost support.

Finally, students wanted to be properly **consulted** about the digital environment, and made suggestions for improvement:

“ Ask for student input to ensure updates are user-friendly to those who will be the recipients.

“ Be open to student input regarding the new programs and apps that are being used.

Overall, how do students rate the quality of digital teaching and learning on their course? (Q18)

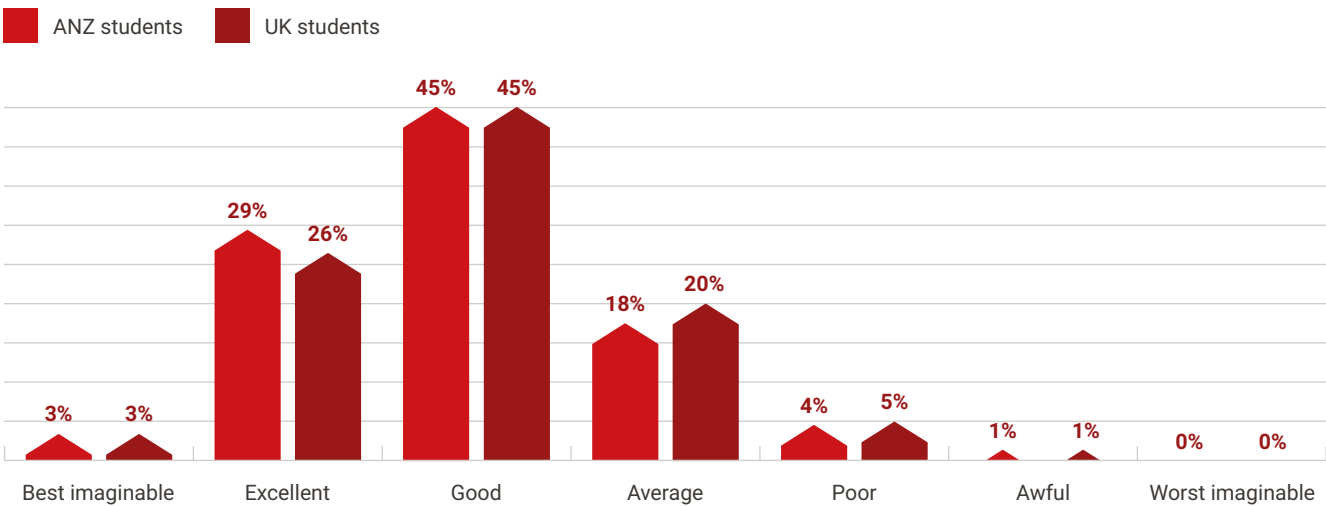
Students were asked to rate the quality of teaching and learning on their course using a Likert-scale of adjectives derived from the system usability scale⁹. Percentage summary results for ANZ students are shown in **Figure 23** with the UK student results shown alongside for comparison. The two sets of results are remarkably similar.

- » The average (median) ANZ student rating for their digital teaching and learning was ‘good’
- » 78% of students rated their digital teaching and learning as better than ‘average’, choosing to rate it as ‘good’, ‘excellent’ or ‘best imaginable’

- » Only 5% of students rated their digital teaching and learning as worse than ‘average’, choosing to rate it as ‘poor’, ‘awful’ or ‘worst imaginable’
- » These ratings are once again almost identical to those from students in the UK. So students in all three countries tended to believe that their own digital teaching and learning experience was better than the norm. Compared with their ratings for digital provision (hardware, software, networks etc, Q13), they were less likely to say that digital teaching was ‘excellent’ and more likely to say that it was ‘average’

Figure 23: The rating scores given by ANZ students and UK students for the quality of the digital teaching and learning on their course

HOW WOULD YOU RATE THE QUALITY OF DIGITAL TEACHING AND LEARNING ON YOUR COURSE?



⁹The aim of this adjective scale is to create something that is more interesting and holds more meaning to people than a 1-10 scale. For the original open source reference for this work – and a copy of the SUS statements – please see http://uxpajournal.org/wp-content/uploads/pdf/JUS_Bangor_May2009.pdf



Theme four: student attitudes to digital

How positive do students feel about the use of digital technologies on their course? (Q19)

Students were asked how much they agreed with six positively phrased statements about the use of digital technologies on their course. Percentage summary results are shown in Figure 24.

» 78% of students agreed – and only 3% disagreed – that they were more independent in their learning when digital technologies were used. Similar numbers agreed that it allowed them to fit learning into their life more easily

- » A majority of students agreed that they understood and enjoyed learning more when digital technologies were used
- » Students were on average ‘neutral’ about whether digital technologies made them feel more connected, either with other students or with their lecturers/tutors
- » All of these findings are highly consistent with responses from UK university students

Figure 24: The percentage of ANZ students who agreed, had a neutral opinion or disagreed with various positively-worded statements about the use of digital technologies on their course

ANZ STUDENTS

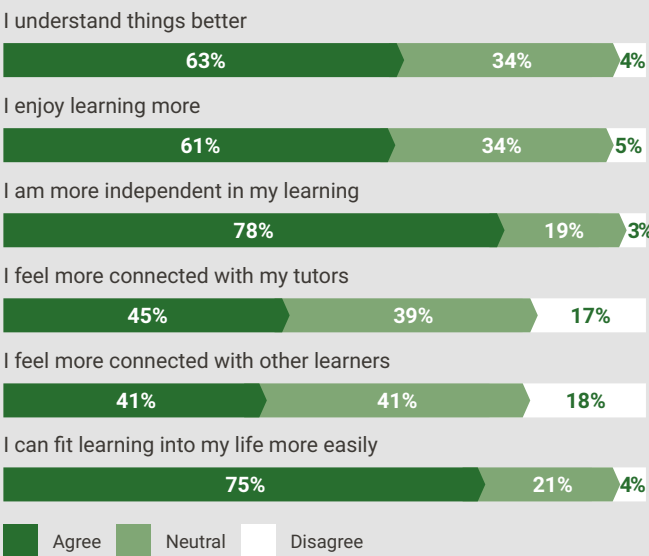
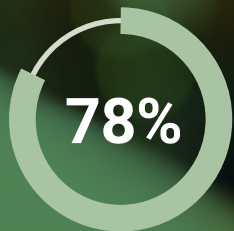
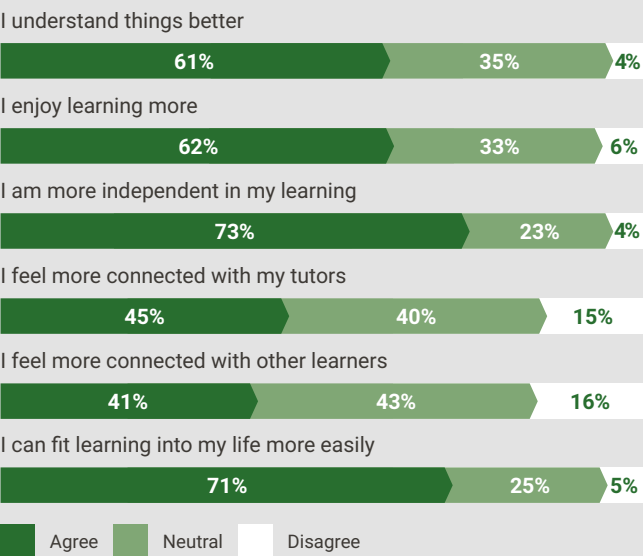


Figure 25: The percentage of UK students who agreed, had a neutral opinion or disagreed with various positively worded statements about the use of digital technologies on their course

UK STUDENTS



78% of students agreed that they were more independent in their learning when digital technologies were used.



How negative do students feel about the use of digital technologies on their course? (Q21)

For balance, students were asked how much they agreed with six negatively phrased statements about the use of digital technologies on their course. Percentage summary results are shown in **Figure 26**. **Figure 27** shows the equivalent results for UK students. The differences between ANZ and UK students are illustrated in **Figure 28**.

- » Almost three in ten students agreed that they were more distracted when digital technologies were used. A similar number agreed that they were less likely to attend class
- » The other three negative statements received a lower level of agreement, with the average (median) score being on the border between 'neutral' and 'disagree'
- » ANZ students were significantly more likely to agree¹⁰ with each of these negative statements than UK students. This difference is particularly large in the case of class attendance



Almost three in ten students agreed that they are more distracted when digital technologies are used, and a similar number agreed that they are less likely to attend class.

¹⁰Scores across all five statements were summed and then university student UK and ANZ data compared using an independent T-test (T= -30.38, df=43,346, p<0.001). This difference remains even if the university contributing a high number of responses is removed from the analysis



Figure 26: The percentage of ANZ students who agreed, had a neutral opinion or disagreed with various positively-worded statements about the use of digital technologies on their course

ANZ STUDENTS

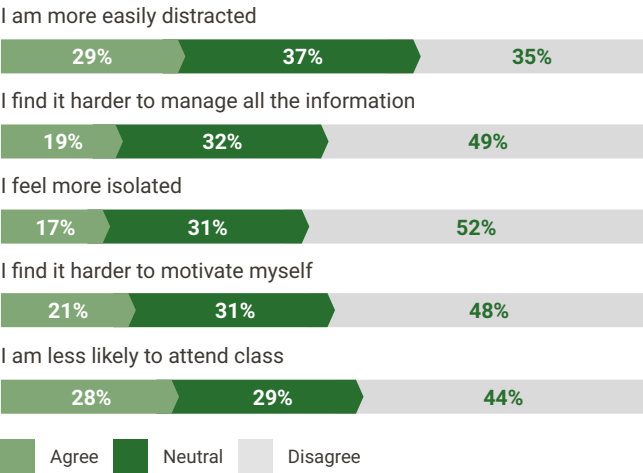


Figure 27: The percentage of UK students who agreed, had a neutral opinion or disagreed with various negatively-worded statements about the use of digital technologies on their course

UK STUDENTS

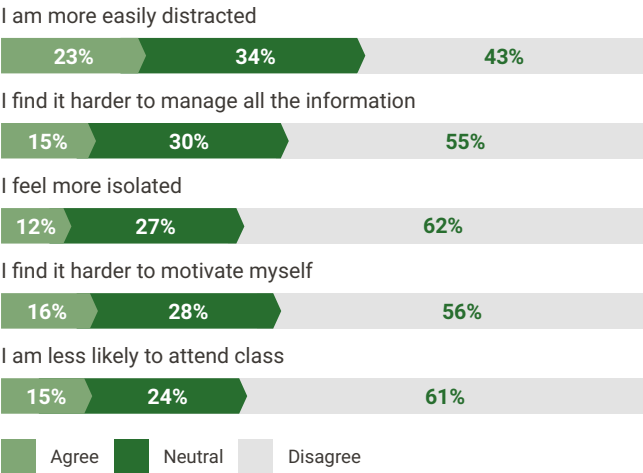
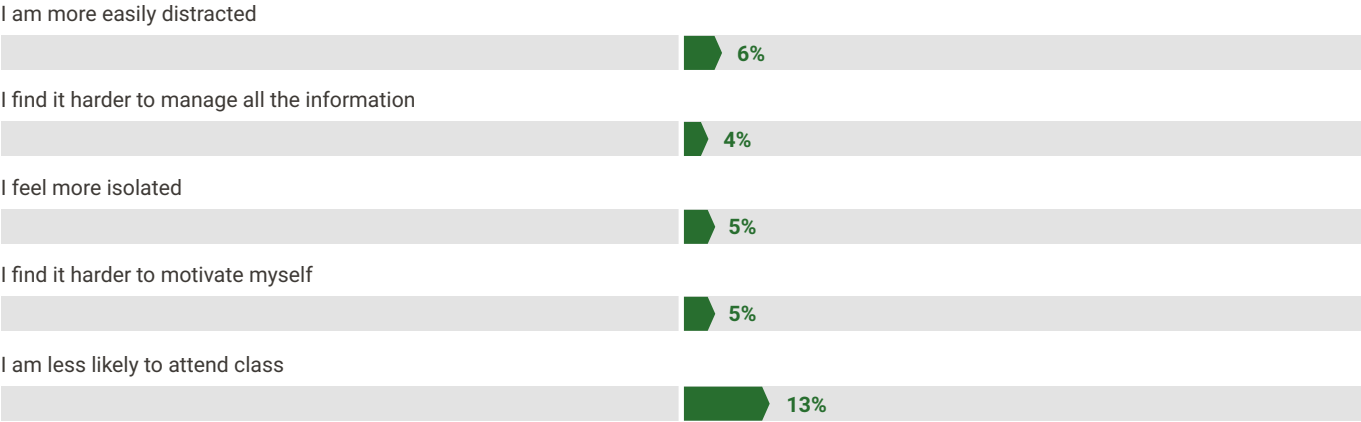


Figure 28: The differences between the percentages of ANZ students and UK students who agreed with each statement about the use of digital technologies on their course experience. A positive % indicates a higher level of agreement from ANZ students. A negative % indicates a higher level of agreement from UK students

DIFFERENCE IN OPINION

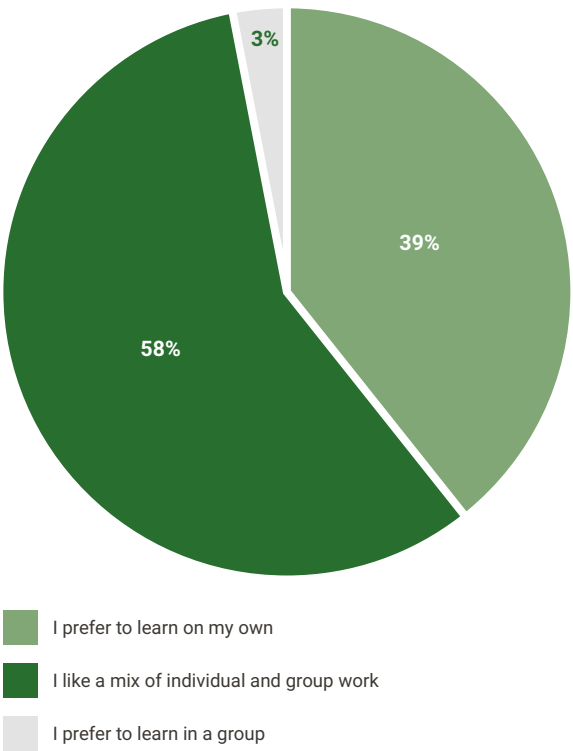


Do students prefer to learn on their own, in groups, or both? (Q20)

Students were asked to describe their preference for individual work, group work or a mix of both. Results are summarised in **Figure 29**.

- » Most students (mode) preferred a mix of the two types of learning
- » However, a significant minority preferred to learn on their own. The percentage who preferred only group work was very small
- » These findings very closely mirror those from students in the UK

Figure 29: The percentage of ANZ students who said they preferred individual work, group work or a mix of both

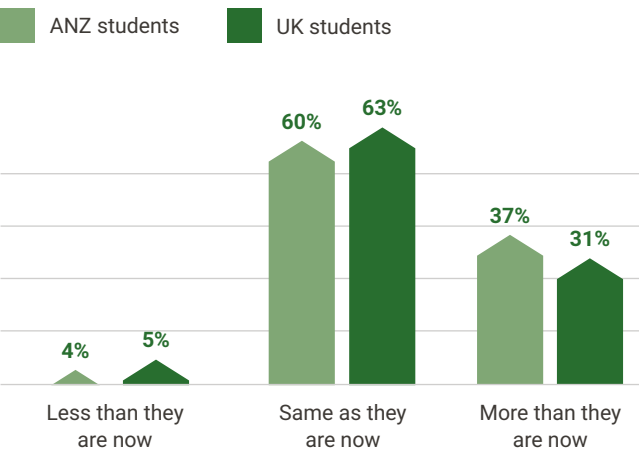


How much would students like digital technologies to be used on their course? (Q22)

Students were asked how much they would like digital technologies to be used on their course. They could answer more than, the same as or less than they are now. Results are summarised in **Figure 30**.

- » 31% of ANZ students wanted digital technologies to be used more on their course than they are currently
- » 60% were happy with the amount of digital technology currently in use and only 6% wanted it to be used less
- » When compared with the data from the UK, these results show that ANZ students were significantly less likely to say they want more digital technology to be used and significantly more likely to say they want digital technology to be used less¹¹

Figure 30: The percentage of ANZ students and UK students who said they wanted digital technologies to be used more than, the same as or less than they are at present



¹¹Compared using a non-parametric Kruskal-Wallis test (test statistic = 264.65, df=1, p<0.001)

Case studies: benefits and impacts

Some universities provided snapshot case studies of why they used the digital experience student insights survey, what their key findings were and how they were using the findings to have an impact on the student digital experience. These are available at digitalinsights.jisc.ac.uk/case-study-listing.

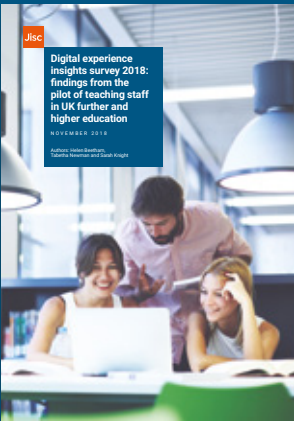


The digital experience insights service

This digital experience insights student survey comes at the end of our three-year pilot project. In September 2018 we moved to full operation of the digital experience insights service for students and staff, available internationally.

In the UK, we have produced a number of additional resources based on our findings, including student ‘personas’ to support decision making, an organisational toolkit, and briefings for different stakeholder groups. Because of the many similarities between the UK and ANZ sets of data, these resources may be of interest to stakeholders in Australia and New Zealand. See digitalinsights.jisc.ac.uk for the full 2017-18 findings from UK students and for access to all the additional resources. This publication is supported by our report on the digital experience insights survey 2018: findings from the pilot of teaching staff in UK further and higher education. (See digitalinsights.jisc.ac.uk/our-service/our-reports/ rather than deep link to repository). It brings the voice of teachers into the picture and extends our understanding of the experience of students and staff, providing a richer, 360 degree perspective.

You can find out more about the service, and discover how you can gain a greater insight into what your staff and students think about their digital learning and teaching experiences, at digitalinsights.jisc.ac.uk.



Appendix 1

Coded analysis of responses to questions 11 and 12 (“What one thing should we do or not do to improve your experience of digital learning and teaching?”)

- » Sub-themes are presented in the form of summary messages, illustrated with student quotes
- » The illustrative quotes are typically longer than the average response, to provide more context to the reader. They have been chosen to reflect a range of issues in line with the overall message
- » Some of the messages (sub-themes) within the same theme are contradictory or in tension with one another and some student suggestions may not be realistic or well considered. This has not been a reason for excluding them
- » In general, sub-themes and messages are presented in descending order of coding frequency within each theme
- » Themes are also in descending order of coding frequency though, because of the approach to coding groups of responses, coding counts are not accurate and the order should be taken as an indication only
- » In some cases, where further work has been done to code every response within a group, the percentage of comments can be given with greater accuracy

Main theme	Sub-themes	Indicative quotes/examples
Lectures At least 15% of all responses concerned lectures	Record every lecture	“Record all lectures and tutorials (some lecturers refuse to record themselves).” “Don’t allow lecturers to turn off recording.” “Recording of all lectures ensures students do not miss out and also allows lectures to be revisited.”
	Improve quality of recordings	“Provide transcripts, subtitles. Provide voice recognition. Lapel mics.” “Have lecturers switch the recording to camera when they write things on the whiteboard.” “Get lecturers to use the mouse when pointing to something on the screen so it is recorded too.” “Think about those students listening online or playback, such as repeating questions that can’t be heard.” “It would be great if lecture recordings had subtitles as an optional choice for students, like on YouTube.” “Merge the two screens in a lecture recording so it is easier for download and viewing offline.”
	Improve lecture environment and AV equipment	“Make the wifi in lecture rooms more reliable – it’s frustrating when you’re trying to load resources.” “Don’t make it hard for lecturers to show external video content.” “We experience problems with technical equipment in class (internet connection, sound system).” “Have the seats in lecture halls further from the person in front so my head isn’t touching the laptop of the person behind me.”
	Make lectures more interactive	“Explore more apps that could be used during lectures and tutes to encourage student engagement.” “Include more interactive Q and As at the end of lectures.” “Don’t focus class time on digital PowerPoints because they are available at home and instead focus on collaboration.” “PowerPoints visually and having to interact with them (quizzes, fill in the blank etc) are really helpful.”
	Add video to lecture recordings	“Video record lectures rather than just voice record and PowerPoint.” “Ensure all courses have online lectures (video and lecture slides) available to distant students.” “I have noticed a much better retention rate with video, better connection with teacher.”

Main theme	Sub-themes	Indicative quotes/examples
Lectures <i>At least 15% of all responses concerned lectures</i>	Stream lectures live	"Have live lectures which distance students can participate in via a monitored forum such as Zoom, Google Hangouts etc." "Allow lectures to be watched live online so that clickers work and questions can be asked." "Broadcast lectures live to all campuses."
	Support students to take lecture notes	"Get lecturers on board with using laptops to take notes." "Stop suggesting we should use pen and paper to take notes." Benefits cited by students include: "transferable notes between different devices; easy to find and locate content afterwards; sharing and collaboration; assistive tech; environmentally friendly; notes can be taken directly onto course materials or lecture notes."

UK SUB-THEMES FOR COMPARISON		
» Record all lectures and distribute with notes	» Use technology to enhance interactions in lectures	
» Lecture notes and recordings provided in a timely way	» Improve digital skills of lecturers	
» Improve quality of lecture recording	» Support students to use own devices in lectures	

University services and systems	Improve wifi and resolve dead zones <i>Around 7% of all responses concerned wifi</i>	"Have the wifi work better – I'm constantly having to hotspot my computer." "Considering how difficult it is for students living in surrounding towns to get internet access, we kind of rely on reliable wifi at uni." "Students work in different spaces such as libraries, outdoor spaces and classrooms, and wifi is essential to learning anything." Students' aspirations for the 'internet': reliable, safe, high speed, accessible, consistent, unrestricted, free.
	Improve the LMS or learning platform <i>Around 6% of all responses concerned the LMS or top two platforms (Blackboard and Canvas)</i>	"Be able to customise LMS more." "Make sure all resources provided on the LMS are suitable on all devices." "Doesn't work across all search engines." "I think it is probably best not to outsource our digital learning such as LMS to companies that do not understand student needs." Make the LMS more: "user friendly, consistent, attractive, accessible, efficient, organised, stable, streamlined, functional, intuitive, simple, stable, standardised, mobile friendly." Make it less: "confusing, complicated, clunky, slow, unreliable, glitchy, messy, temperamental, cluttered, overloaded, overwhelming."
	Rationalise or integrate services	"I find it frustrating that there are [many different named systems and portals]." "A simpler interface for end users such as automatic single sign in for all online resources." "I want to log in once and be logged in for all aspects of the university online." "Better design thinking and UX for [university] platform." "Move to a more flexible platform so I can sync calendars etc."
	Provide a university app	"Provide a study guide app that has a calendar to monitor progress and send alerts." "I want an app that allows me to check all my learning materials through my smartphone." "Create a user-friendly mobile app integrating the functions from the [university portal]." "I love the idea of a single app that consolidates my classes and schedule, my exams, assignment due dates, maybe links to my outlook calendar. Amazing."

Main theme	Sub-themes	Indicative quotes/examples
University services and systems	Improve the app we have	"Everything is so tiny! It never works properly. It doesn't respond well." "It's a terrible design." "Not up to date. It doesn't work on the latest iPhones etc."
	Don't block or restrict access to web sites	"Do not blacklist any web pages. Students should be exposed to the internet while learning how to discipline themselves on which sites to spend their time on." "Blocking and censorship should be avoided." "Don't limit access to certain unsecured but useful websites that help with research, study." "Don't necessarily unblock Pornhub and sites like that but... sites where information can be gathered shouldn't be blocked."
	Protect students' data privacy and security	"Improve on privacy – settings are a bit at risk when it comes to the university desktop." "Don't sell student data to advertising companies." "Stop ignoring the phishing and email scams – security is lacking." "Have a protected wifi network. I keep getting notifications saying hackers might be trying to steal my information."
	Good information and notification services are essential	"I worry that I will miss important information because I'm not looking in the right place." "Don't expect me to notice that you have put something on the portal without informing me by email or text." "You should not completely rely on technology to provide information eg in regards to enrolments, fees etc."

UK SUB-THEMES FOR COMPARISON		
» Improve wifi coverage	» Improve interface and organisation of the VLE	
» Improve user experience generally	» Support students to use university systems	
» Reduce multiple log-ins	» Join up library and content systems	

University computers and learning spaces	Increase the number of computers on campus	"Don't get rid of on-campus computers. I can't bring my laptop into uni and rely on access to computers." "I find I study better with access to a larger screen rather than a laptop." "Ensure there are enough computers in labs for everyone to access." "There are only three desktops available [in our building] to send print jobs from, nothing to actually study from." "More general computer labs that students can use at any time (no scheduled class in them)."
	Provide more charge points	"It's annoying when your computer dies and you have nowhere to study and charge at the same time." "I cannot charge my laptop in class, so cannot use it during lectures to take notes!" "More charging pods and ports all round the campus not just in the library." "Install more power points and charge stations in lecture theatres."
	Make printing cheaper or free	"Print jobs less than five pages should be free." "Provide free printouts to those who have vision issues." "Give each student a set amount of printing money for each semester."
	Make printing easier (eg wireless)	"It is a pain having to log on to school computers and send files across just to print things." "It took me a very long time to figure out how to use the printers." " [Let us] print straight from a USB at the printers rather than having to queue the document."
	Have a range of learning spaces available	"Study spaces with a mix of PC and laptop so students with and without their own laptops can study together." "Provide more quiet study spaces for using personal computers." "It can be very difficult to find a desk that can take a laptop." "Provide more spaces for groupwork and [let them] be laptops instead of desktops." "More desktop computers and shared study spaces with a large screen."

Main theme	Sub-themes	Indicative quotes/examples
University computers and learning spaces	Allow a wider range of software on campus computers	"Make university owned computers flexible so students can install the applications they desire." "Stop relying on Microsoft based products, look for better and cheaper alternatives." "Don't restrict certain software to certain campus desktops (eg to access Photoshop, students have to travel to [a different] campus)." "Don't excessively restrict admin privileges on uni-owned devices."
	Improve access to campus computers	"Make it university policy that students can't use a laptop and a library desktop at the same time." "Provide a timetable through which you could inform us students what computer rooms are available at which hours." "Information to first years about where to access printers, digital technology, and learning accessibility." "Not all computers have [subject specialist] software. So maybe a map of the computer labs and labels with what they can be used for specifically."
	Make sure software is up to date	"Align new technology offerings with industry." "Ensure programs and licences are up to date."
	Make sure things work and are reliable	Things students wanted to 'work': projectors, printers, wifi, eduroam, lecture recordings, microphones, e-portfolios, links, e-books, downloads, LMS, apps, computers, programs, "new technology". Things students wanted to be "reliable": wifi, eduroam, lecture recording (quality and availability), file back-up, printers, online information, software, apps, course content. "Simple and reliable is better than complex and unreliable."

UK SUB-THEMES FOR COMPARISON	
» Provide enough desktop computers	» Offer free or trial versions of software, or more licences
» Provide a range of spaces for computer-based study	» Make printing easier and cheaper
» Resource the library as a digital learning space	» Look at IT funds, bursaries, loans
» Loan or hire laptops	

Access to course-related digital content	Organise online information consistently	"Ensure LMS is consistent in how and where information is found. Every lecturer has a different way which is frustrating." "Provide online materials for each course promptly and to the same standard as expected for assessment eg references using APA conventions." "Currently there are many fragmented online resources that a student has to refer to." "Often times we have to go blindly clicking links, hoping to find the way to access them."
	Provide more online e-books and e-texts	"Provide online access to a wider proportion of the books in the library, particularly those used as key textbooks." "Buy more e-books when publishers allow this. It saves resources for the library and also saves students money." "Free e-books for current courses." "Make all compulsory readings available as an iBook."
	Make content accessible	"Make online materials easier to download on all devices." "Have online resources available in multiple formats eg pdf and PowerPoint." "Don't access journals, e-books from databases that have no text-to-speech capabilities." "Don't link to anything that costs money."
	Join up information sources for students	"Allow Google Scholar links to open up the research paper directly when clicking." "Allow complete download of books from the [university] library." "Go all paperless and combine all teaching content into one document."

Main theme	Sub-themes	Indicative quotes/examples
Access to course-related digital content	Avoid information overload and think about the UX	"Do not compact more content into online courses thinking it will save time. It will only waste time with students not knowing what to do." "Do not put too much information on the internet with too many links." "Overwhelming information overload in relation to time." "Less dumping information on the LMS."
	Improve quality and variety of information	"Digital learning and digital resources need to be thought about carefully – don't just offer a YouTube clip." "Offer more of a variety of online resources, not just text-based." "More interactive learning sites (like Khan Academy) to attempt course content in our own time, unassessed." (When it's done well:) "The current repertoire of online resources is extensive and extremely helpful when studying for exams."
	Keep print as an option	"Give me the option of real books – I hate e-books." "Too much reliance on reading material on the screen which is difficult for large documents and for taking notes." "Constantly having to rewatch videos is tedious and wastes time when a textbook is easier to use." "Still provide printouts of readings for those who require them."

UK SUB-THEMES FOR COMPARISON	
» Provide or recommend more online content	» Support access away from campus
» Improve access to journal articles	» Improve navigation of library services
» Improve access to e-books	» Support multimedia content
» Improve access to course content (via the VLE or LMS)	

Use of personal devices (BYOD)	Ensure all students have devices they can use	"Option to hire laptops from uni when there are no computers left, or if someone cannot afford a laptop." "Each student should get an iPad when they enrol." "Maybe classrooms should provide some laptops for students who do not have any device they can use." "Make it clear in course and unit outlines what devices are recommended for that area of study eg Macs are not appropriate in construction as all software is designed for PC."
	Support personal device use in class	"Allow the use of phones and laptops in all classes." "Don't discourage the use of mobile phones for learning – some students can't afford personal laptops." "Stop making people with devices sit at the back. I need a laptop because I can't write notes by hand fast enough and I can't see from the back of a large lecture hall."
	Support students to use their own devices effectively	"Have a dedicated site or workshop where students can learn to set up devices." "Teach students how to use programs on their own computer." "More help with digital devices eg installing and running different programs and apps on different operating systems." "Provide additional support and guidance for any third-party affiliated software."
	Help students access software on their own devices	"Provide more access to software required for modules by purchasing software licences for students to download on their laptop." "Paid productivity tools such as NVivo, Adobe CC, Zotero, SPSS should be free to use for students on their own devices too." "Maybe make programs like Adobe Photoshop and Illustrator available to students at a cheaper price for their own laptops." "If we want to use SPSS we need to come into uni.... some students live very far from campus so providing students with their own copy would be very helpful."

Main theme	Sub-themes	Indicative quotes/examples
Use of personal devices (BYOD)	Anticipate and help students deal with device problems	"Have an IT person on each campus that students can go to if they have a question about their personal electronic device." "If you are having laptop issues in class it makes it really difficult because everyone is relying on tech." Laptop problems cited: "printing, getting online, single sign-on, download and use of programs, repair, battery life."
UK SUB-THEMES FOR COMPARISON		
» Provide support for a range of devices (eg lab notebooks, e-readers, gaming devices, tablets, laptops, smartphones)		
» Provide secure charging		
» Offer subject-specialist software on personal devices		
» Support mobile apps		
» Secure wifi and connectivity		
» Technical support for BYOD		

Digital learning experience	Offer consistency in digital learning (many comments)	"Have a unified digital experience across all classes." "Form a more cohesive course. Currently I have some classes that are 90% online, some that are completely face-to-face learning, and one that is half and half."
	Offer variety in digital learning (not as many comments)	"I like when the same information is supplied in multiple forms of media eg text, video, PowerPoint." "People learn differently – it is important to allow any means to this end." "Customised online courses should be offered to students belonging to each discipline." "Find an additional forum [to the LMS] to support specialist classes such as graphic design, design thinking."
	Support digital note-making and study skills	"Suggest more tools or apps to help note-taking." "How to integrate digital devices with learning skills such as note-taking." "Recommend some digital apps to students and let them choose what they like." "Give free access to certain learning and study apps that will help students progress."
	Support student-student engagement	"Have online study groups and chat rooms for students studying any unit externally." "An active, collaborative online discussion board should be integral to every course." "A real-time chat service to connect easily with other students on the same course."
	Support student-teacher engagement	"These platforms only work when students perceive there to be an ongoing, active presence of either lecturers or tutors. In courses where this doesn't happen, students disengage." "More interactive online discussions preferably led and moderated by a lecturer." "Have an online chat room where we can ask lecturers questions outside of class."
	Put tutorials online	"Use microphones in lectures and tutes so externals can hear questions and discussion." "Offer live online or recorded tutorials so students can do all their learning from home." "Provide recordings of tutorials to allow students to revise."
	Don't put tutorials online	"Don't put tutorials online, it will only disadvantage students and discourage studying and attendance." "Don't replace one on one contact such as tutes and workshops with online assignments." "Don't put tutorials online. If the student doesn't understand, you can't ask a video question." "Don't push seminars and tutorials online. Online discussions don't have the same weight as face-to-face."

Main theme	Sub-themes	Indicative quotes/examples
Digital learning experience	Use videos for learning	"Have more videos from each lecture explaining all the content in each module but in a... clear, rehearsed and pre-written manner." "Provide videos from other reputed universities or industries so that students can gain some practical industrial knowledge." "Video role-plays would be really useful to my course." Do use videos for: "explanation, demonstration, creative assessment, induction, revision." Do make videos: "short, sharp, accessible, simple, engaging, creative, animated, segmented, relevant, useful, user-friendly, practical, explanatory, subtitled." Don't make videos: "old, complicated, low resolution, 'cringey', chunky, tacky, glitchy, poor quality, semi-relevant."
	Don't use videos for learning	"Some people don't learn well from YouTube videos." "Don't rely so heavily on videos to teach students – I like to be shown in the lecturer's own words." "There is only readings and Lynda.com videos, no actual lectures from [uni] staff. It's all disjointed and hard to follow." "Constantly having to rewatch videos wastes time when a textbook could be used much more easily."
	Provide more quizzes and games	"More online tests for students to do so they can practice all the knowledge they have learned." "Active learning' technique with online reading, quizzes before lectures. It's slightly more work for the students but it makes all the difference." "I would love to see more engaging methods of learning eg games."
	Provide more work-like learning experiences with technology	"The need for more practical learning experiences using technology especially with where the world and future jobs are heading." "Assignments which mimic real life work experiences." "Prepare students and staff to study and work successfully with digital technologies."
Support for students' digital skills	Provide a sound introduction to digital learning systems	"Provide an in-depth orientation on how digital learning works as most first years don't have an idea. I only learned from my upper classmates." "Prepare us to use technology." "Crash courses or simple 'how to use' apps should be disseminated to raise awareness regarding digital learning and teaching." "Help for new students using computers and printers for the first time – I still don't know how to print." "Have more intensive in-person group sessions to teach us how to use the online platforms."
	Don't assume students have digital skills	"Some courses assume a lot of prior knowledge with these systems, which isn't always the case." "Don't assume everyone possesses the same knowledge of how technology works – doing online quizzes may be confusing for some people." "Don't assume everyone has the computer skills necessary to actively participate in an online environment." "Don't expect students to know how and where to find digital learning resources."
	Make students aware of the support that is available	"Advertise more heavily that tech support is available if we need assistance." "Make students more aware of what assistive learning devices are available." "Make students more aware of the digital teaching and learning support available."
	Support students' online information skills	"Have more sessions on how to research online and look for reliable resources." "Provide more library tutorials – there is a lot of online information but I feel my search skills could be improved." "Teach us more digital skills and tell us more about the availability of online resources." "I found the library digital learning seminar extremely useful."

Main theme	Sub-themes	Indicative quotes/examples
Support for students' digital skills	Help students to use learning and study apps	"Teaching students to use stuff like EndNote would be useful at the beginning of a degree." "Provide information about free learning apps as well as ones that cost money." "Promote applications to assist with study eg Grammarly, study aids, citation tools." "Make students aware of non-uni apps that help with study and planning." Apps for which students wanted usage help included: reference making and managing, file sharing, note making, time management, planning, group projects, file back-up, chat.
	Provide online tech support	"Online support pages where people from the IT services departments answer our questions." "Make all workshops run by the library available online." "Provide a live online chat for assistance with digital resources." "24 hour IT support as students will be studying at any time of day or night." "More IT support on call or close by so we don't waste time trying to fix it ourselves."
	Provide how-to videos	"Provide step-by-step videos for basic tasks (ie enrolment, LMS)." "Online tutorial videos for a range of applications and programs." "Having video guides would allow for help during times when no one is available to provide assistance."
	... but don't cut down on in-person tech support	"Don't take away the ICT helpers sitting at the front desk of the library. They are very approachable and give great advice for any technology difficulties." "Provide a physical IT support office at each campus to help us with devices or technical issues." "Sometimes a human is important for me to access for support." "The library claim to have a tech person but this person is like God: lots of people claim he exists but no one has ever seen him."
	Students also want support for:	A wide range of course software eg EndNote, AutoCAD, Excel, LaTeX MATLAB, Illustrator, bioinformatics and stats programs: "Stop making it compulsory to use apps and software we are unfamiliar with in our coursework and not providing tutorials/help on how to use them." Using own devices, operating systems including Mac and Linux as well as PC/Windows (see BYOD). Getting online, downloading/uploading materials, accessing lecture notes and recordings. Printing – knowing how to print seems to be a real issue in some universities.
	Students who want more support include:	International students, mature age or older students, external, digital or online students, graduate students, "less digitally savvy students", "students who can't afford their own devices", " students with visual impairments", "students who struggle with digital learning."
	Praise for support	"Everything is perfect, especially the support available in the student hub." "The free technical support at the student hub is so great!" "I can't think of anything [to improve], there's a lot of support out there!" "I was fortunate to have support staff that helped me to learn about certain tools (specifically how valuable Zotero is to academic writing)."

UK SUB-THEMES FOR COMPARISON	
» Address skills at induction	» Note-taking and general study skills
» Give ongoing support in courses	» Writing
» Awareness, advice and guidance	» Exploring and adopting
» Provide online support for skills	» Time and task management
» Address: skills in navigating and finding information	» Revision and review
» Online safety	» Referencing
	» Assistive and adaptive

Main theme	Sub-themes	Indicative quotes/examples
Anxiety about digital replacing face-to-face learning	Don't reduce face-to-face interaction	"Don't limit some classes to online only as some students like me learn better with face-to-face interaction." "Don't teach courses based on video only. There should be a physical teaching session for better student-teacher interaction." "Once it moved to online the loss of personal touch really made the theories not interesting." "I find lectures in person much more engaging and easy to follow." "Don't let lecturers use the phrase blended learning as an excuse to leave the classroom."
	Don't introduce further disincentives to turn up	"Over the course of my studies I have witnessed decreased student participation due to over-reliance on digital tech." "Don't encourage learners to always refer to [recordings] – that will mean the rooms will soon be empty."
	Don't exclude students without digital access	"Don't move to be predominantly digital learning, make it an option as some students (such as myself) can't afford the devices." "I also want to get a handout and read it... I think it should be a choice for students to submit a handwritten paper as well."
	Blended is best	"Digital should allow flexibility in assessment." "Continue to combine live and recorded materials." "You need both digital and face-to-face for the best university experience." "Don't stop face-to-face lectures. Digital techs can still be accessed in a live setting." "Recordings are useful to look back on but you can't beat having the proper lecturer in the room with the students – crucial interaction."
	(On the contrary) make everything digital	"Too bad that many courses are still being taught traditionally and require students' physical presence in this century." "Burn books or get rid of physical copies of books and papers." "Digitise all books, hardcopy resources so students can access resources 24:7 without having to travel to the uni."

UK SUB-THEMES FOR COMPARISON	
» Don't replace face-to-face learning	

Campus vs distance learning experience	Do provide a more equitable on- and off-campus experience	"Distance-wise I am getting better grades now I can watch lectures and have direct contact with lecturers." "Share internal lectures in the same course to make distance students feel part of the whole class." "Make available to me the same videos that [internal students] have access to please." "I feel like there is a chasm between the learning experience for internal, block and distance learning students."
	Don't allow on-campus and online experience to become the same	"I didn't move to [city] to study online classes!" "[Don't] stream lectures live to other campuses and then claim they are 'internal' courses." "I am completely responsible for educating myself using online resources, both uni-sponsored and freely available, despite the fact that I am not enrolled in an online degree." "Ensure that internal and distance courses are kept separate and curated separately."

Main theme	Sub-themes	Indicative quotes/examples
Campus vs distance learning experience	Consult with distance students about their experience	"Regulate how students studying distance approach the course – certain papers require an unrealistic amount of participation tasks on top of the assigned coursework." "Do a specific distance survey about how we are using the [lecture recordings] site as that is our major learning environment."

UK SUB-THEMES FOR COMPARISON
» Not found in UK analysis

Cost, value and equity	Everything essential to our studies should be free	"Provide free whatever is necessary for course completion eg teaching games, textbooks and online practice assessments. It already costs a lot of money to obtain a digital device." "Don't give mandatory tests that require students to use their own devices as many cannot afford them." "So many articles and resources online still require us to pay to view them." "Don't make students print worksheets that are required for class!" "Provide a free service to back up data in the cloud, rather than paying for Google Drive, iCloud etc." "Don't compromise on the university licenced software that is offered to students free."
	Support students to buy personal devices	"Subsidise the cost of electronic devices." "Take the amount students use to buy their own laptop and take it off uni fees." "Don't assume all students have access to smartphones and tablets – not everyone can afford these luxuries." "Publish a recommended laptop for each course – get a sponsor and provide a university discount." "Option to hire laptops from uni when there are no computers left, or if someone cannot afford a laptop."
	Make sure investments are justified	"Only roll out changes after solid testing and evidence has been completed to prove that the benefits outweigh the costs." "Don't bring in useless tools that no one will use and waste money on projects that are not yet developed." "Split classroom courses – a waste of time and money." "Uni-provided iPads are super unnecessary, put your money into something else."
	Don't use online as a cheap option	"I don't want to pay to watch TED talks which I can do in my own time." "We pay to get taught not directed to a video." "Classes and lectures are better in person and taking them away just seems like cost savings." "We are paying for interactive classes and teachers to talk to. Having whole subjects do 5+ weeks of online classes is a waste of our money."

UK SUB-THEMES FOR COMPARISON	
» Value for money	» Access and equity

Main theme	Sub-themes	Indicative quotes/examples
Managing time and distance	Help students to manage their time	"Give advice on what apps are good for managing life at university." "Promote the use of time management skills to reduce procrastination when using digital tools." "Easier to see when homework and assignments are due. This would reduce stress and help students manage their time." "Having everything more or less available at the start [of the semester] would greatly assist planning uni study time around formal working hours."
	Help students fit learning around other commitments	"As a mature age student with a full-time job I have found access to online learning brilliant. Completely serves my needs." "Don't restrict content available online – more and more students cannot make it into campus for specific lectures due to work commitments and distance travelled." "I work part-time and couldn't attend induction so I'm learning how to manage the library, LMS, [submission system and student portal] for myself."
	Digital support should be efficient and timely	Things students say waste their time: trying to find information on the LMS; printing; unnecessary software training ("just look it up"); things not working; trying to fix things not working; lecturers not being able to use in-class tech; getting permission to install applications; signing on to different services. Things students want done 'in a timely manner': upload of notes and recordings; responses to questions and emails from lecturing staff, software support and training (when required). "Have more course materials available sooner, so distance students can work ahead to help them meet commitments and study demands." "Lectures uploaded live or shortly after. Upload lecture resources well in advance." "Give participation tasks a one-week timeframe, as distance learning students often have a lot of things going on."
	Make travel time more productive	"If I could download rather than stream I can listen while travelling or away." "Online classes should be done by Skype so we don't have to travel for hours just to attend a class for less time than we spent in the car." "Allow us to listen to lectures on our mobile devices for when we are driving, on the train etc."

UK SUB-THEMES FOR COMPARISON
» Not a major theme in UK analysis

Main theme	Sub-themes	Indicative quotes/examples
Accessibility and inclusivity	Monitor and address sources of disadvantage	"Don't assume all students have access to smartphones and tablets – not everyone can afford these luxuries." "Closely monitor the level of service being provided [based] on your distance. Distance students pay the same fees, and suffer potential disadvantage." "Form a committee of staff and students, including those who live with disability, with the aim to make learning as accessible as possible."
	Respect different needs and preferences	"Assistive technologies for autistic students." "Don't ask students to be more active on social media as I like to have it as mostly a separate space from uni and studies." "Recognise that mature aged students struggle more with digital tools." "I use writing my lecture notes as my main form of study and still handwrite many of my essays. This way I retain the information."

UK SUB-THEMES FOR COMPARISON	
» Consider students at a financial disadvantage	» Consider students with access and learning needs
» Consider mature and international students	» Consider social media (non) users

Digital teaching	Value traditional teaching skills	"Use digital teaching and learning to support rather than supplant traditional methods." "I still prefer normal teaching and group tutes." "Don't sacrifice traditional teaching, and make sure it is a teaching and learning online environment and not an information download." "Digital teaching is a gimmick – it's the teaching that's important, not the modality." "Provide seamless transitions between digital teaching and traditional teaching. Ensure the technology works for us and not against us."
	Improve some lecturers' facility with digital technology	"Some lecturers don't know how to use the technology in lectures which is super painful." "Have all lecturers be familiar with how PowerPoint works in terms of hyperlinking or attaching videos on slides." "Train lecturers in microphone and video technique."
	Support digital teaching as a specialist skill	"Most lecturers are crap at digital engagement – it's a specialised field. Why does the university assume lecturers should be able to do this as well as being knowledge workers?" "Maybe if the tutors were more informed about digital teaching and learning they could improve our experiences of studying." "Give lecturers training on how to set up quizzes on [the LMS]."
	Improve digital teaching by...	"More exposure to a range of digital teaching and learning." "Provide more interactive digital teaching." "More formats." (However, some students took the time to complain about their pet hates – wikis, discussion forums, digital diary, polls, Padlets – so clearly you can't please everyone.)

UK SUB-THEMES FOR COMPARISON	
» Digital teaching skills	» Consider students who prefer alternatives

Main theme	Sub-themes	Indicative quotes/examples
Student engagement	Consult with students	"Be open to student input regarding the new programs and apps that are being used." "Form a committee of staff and students, including those who live with disability, with the aim to make learning as accessible as possible." "Don't change things without putting out a survey for student reviews and opinions." "Ask students to participate in small discussion groups (feature some incentive)." "More surveys like this – give students a say in how they want to learn and use devices."
	Engage students as agents of change	"Provide an online student mentor to help with assignments." "Online forums to share knowledge of great assistive apps." "Have [the lecturer] oversee the session but enlist the help of a third year or postgraduate student who is more familiar with digital information and resources." "Provide training to staff and students so we can help lecturers who don't know how to fix technological issues when they go wrong." "Let students create the improvements as they know what they want."

UK SUB-THEMES FOR COMPARISON	
» Not a major theme in the UK	

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