

The Jisc logo is located in the top left corner, consisting of the word "Jisc" in white text on an orange rectangular background. The background of the entire page is a photograph of a group of diverse students sitting on a grey sofa in a modern, brightly lit university building with large windows and structural columns.

Jisc

Digital experience insights survey 2018: findings from students in UK further and higher education

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Authors: Tabetha Newman,
Helen Beetham and Sarah Knight

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Foreword



I am delighted to share with you a summary of the findings from the Jisc digital experience insights survey 2018. This report provides a unique national picture of how students are using technology in universities and colleges across the UK.

With more than 37,000 participants drawn from 83 further and higher education organisations, it is the largest sample of data looking at students' digital experience of its kind. A welcome increase in the number of organisations taking part this year also demonstrates a growing commitment to engaging students in meaningful discussions about their digital experience.

This year's analysis builds on the 2017 report¹, delving even deeper into areas such as how students rate the quality of their institution's digital provision and the digital teaching and learning on their courses.

Key findings include the importance of digital in supporting the transition of learners into different stages of education, as well as into work. The need for universities and colleges to offer further support around digital wellbeing, online safety and data privacy is also prominent. Ensuring students' mental health and wellbeing is one of my priorities. This report makes clear the need for universities and colleges to take steps to ensure technology continues to be employed in the best interests of students, not exposing them to further risk.

Most importantly, students continue to express concerns that their courses do not fully prepare them for a digital workplace. This issue must be addressed as a matter of urgency if universities and colleges are to deliver for students, employers and the country as a whole.

I want all educational leaders to look closely at this report and consider how they can improve their own provision through the effective use of technology. I also urge them to take full advantage of the expert advice and on the ground support provided by Jisc to take a fully digital approach to issues such as curriculum design and the learning environment.

Finally, I call on all universities and colleges to work in partnership with their students to ensure they are providing the best possible education experience – one in which digital technology is fully integrated and offers opportunities for all learners to develop the skills they need to thrive in today's ever-changing world of work.

Sam Gyimah

Joint Minister for Higher Education at the Department for Business, Energy and Industrial Strategy and the Department for Education

¹ Newman, T and Beetham, H (2017). *Student digital experience tracker 2017: the voice of 22,000 learners*. Jisc.

Executive summary

The data presented in this report was collected during the final phase of a three-year project to understand students' expectations and experiences of technology.

The pilot took place between October 2017 and April 2018 and collected data from a total of 37,720 students. Of these, 14,292 were further education (FE) students and 23,428 were higher education (HE) students. They were studying at 83 different colleges, sixth form colleges or universities across the four nations of the United Kingdom (UK).

This dataset is uniquely valuable in its potential to explore the digital experiences of students and in highlighting what makes a difference to them. It is important in surfacing the student voice and in creating opportunities for meaningful collaborative engagement as part of the process of developing the digital environment. It provides credible data upon which strategic and investment decisions about digital interventions can be made – actionable local data with the ability to track year-on-year improvements.

The sector benchmarking data enables individual institutions to pinpoint where they currently are, and highlight where they are doing well and where there is scope for improvement. This also helps to highlight how issues of national concern are playing out in relation to the student digital experience'. In 2018 issues include providing support for students to develop the digital skills they need to thrive in the workplace, providing health and wellbeing services online (including online safety), and transparency about the use of students' personal data.

It is very positive to note that there are generally high levels of overall satisfaction with institutional provision (FE: 74%, HE: 88%) and the quality of teaching and learning on students' courses (FE: 72%, HE: 74%). These figures are derived from two new top-level 'overall rating scores'. In the future we will use these to track national trends through time and to compare institution and sector types.



The inclusion of qualitative free text questions and two attitudinal questions has enabled us to gain a deeper insight into student perceptions. This very rich and nuanced data will inform a series of follow-up briefings to be published later this year and further commentary around key themes identified in the report.

A number of key trends stand out from the qualitative and quantitative data in this report. In section four we have created two illustrative personas to describe these trends in the voices of 'students' that we have named Frankie and Harley. While they are not real students, their voices reflect the digital experiences of students studying in further and higher education in 2018.

The report includes information on our methodology and a detailed question-by-question summary of all the further and higher education student-level data. A synthesised summary of findings and key messages forms the second part of this executive summary.

Many colleges and universities have reflected on the value of using the data gained from the service as a conversation starter. Our ambition is that this report encourages more organisations to have these conversations with their own students; to work together, as partners, to develop a first class education experience that is enhanced by digital technologies. We need organisations to engage all students in activities that will grow their digital skills and help them to prosper in an increasingly digital world.

Finally, as the three year pilot project comes to an end, we move to full operation of the digital experience insights service for students and staff from September 2018.

“ Offer computer literacy skills as part of our course – without computer literacy we are set to fail in the workplace.

HE student



Key statistics



37,720
RESPONSES

38%

from FE students

62%

from HE students

Gender split



FE

- 50.5% male
- 48.0% female
- 1.5% other

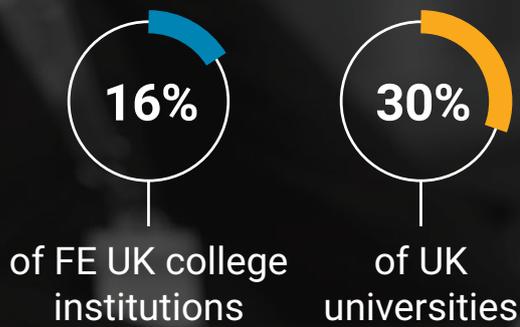


HE

- 34.8% male
- 64.4% female
- 0.8% other



UK participation



An average of **444** responses per institution



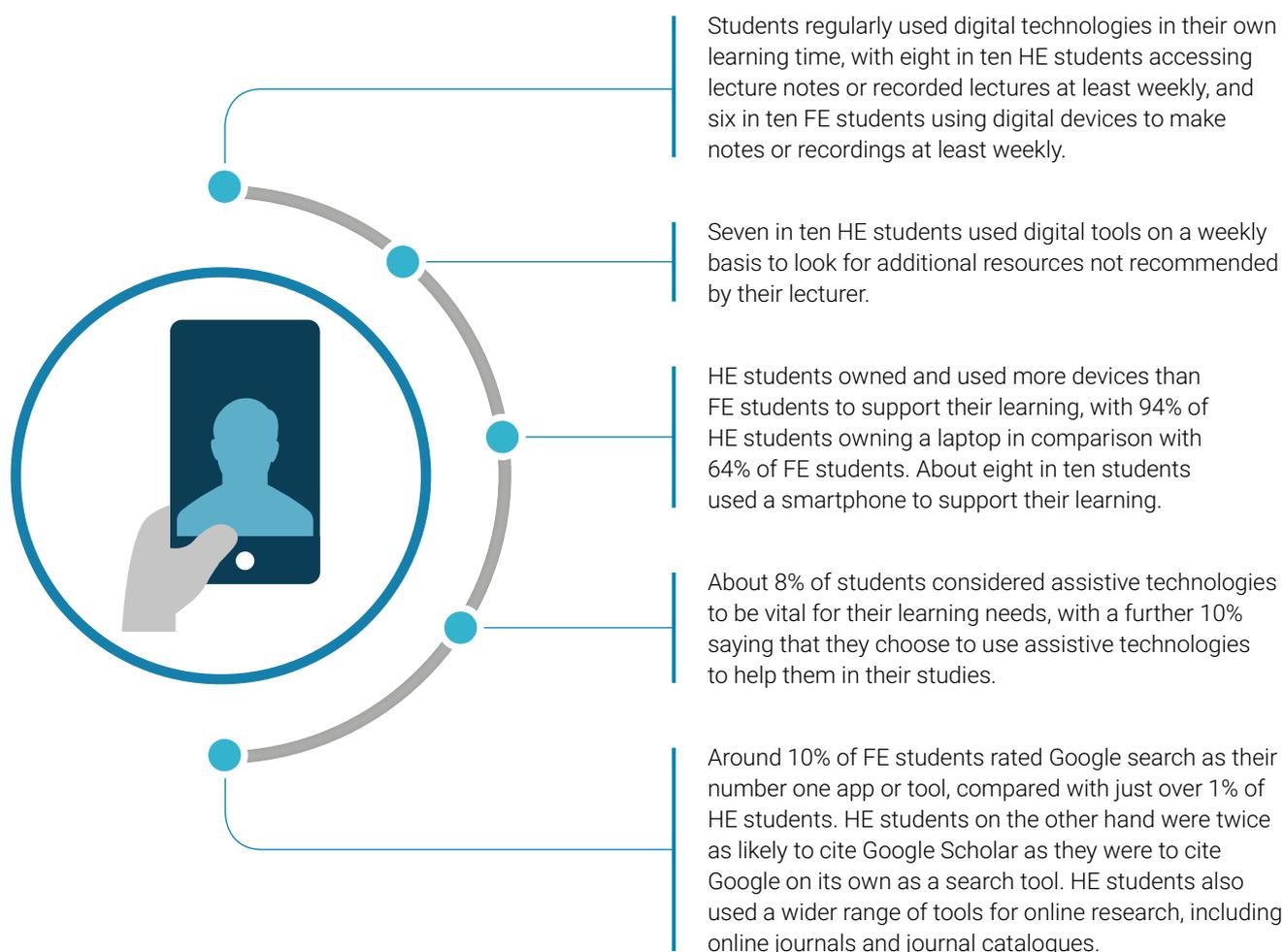
Summary of student-level findings: facts, figures and key messages

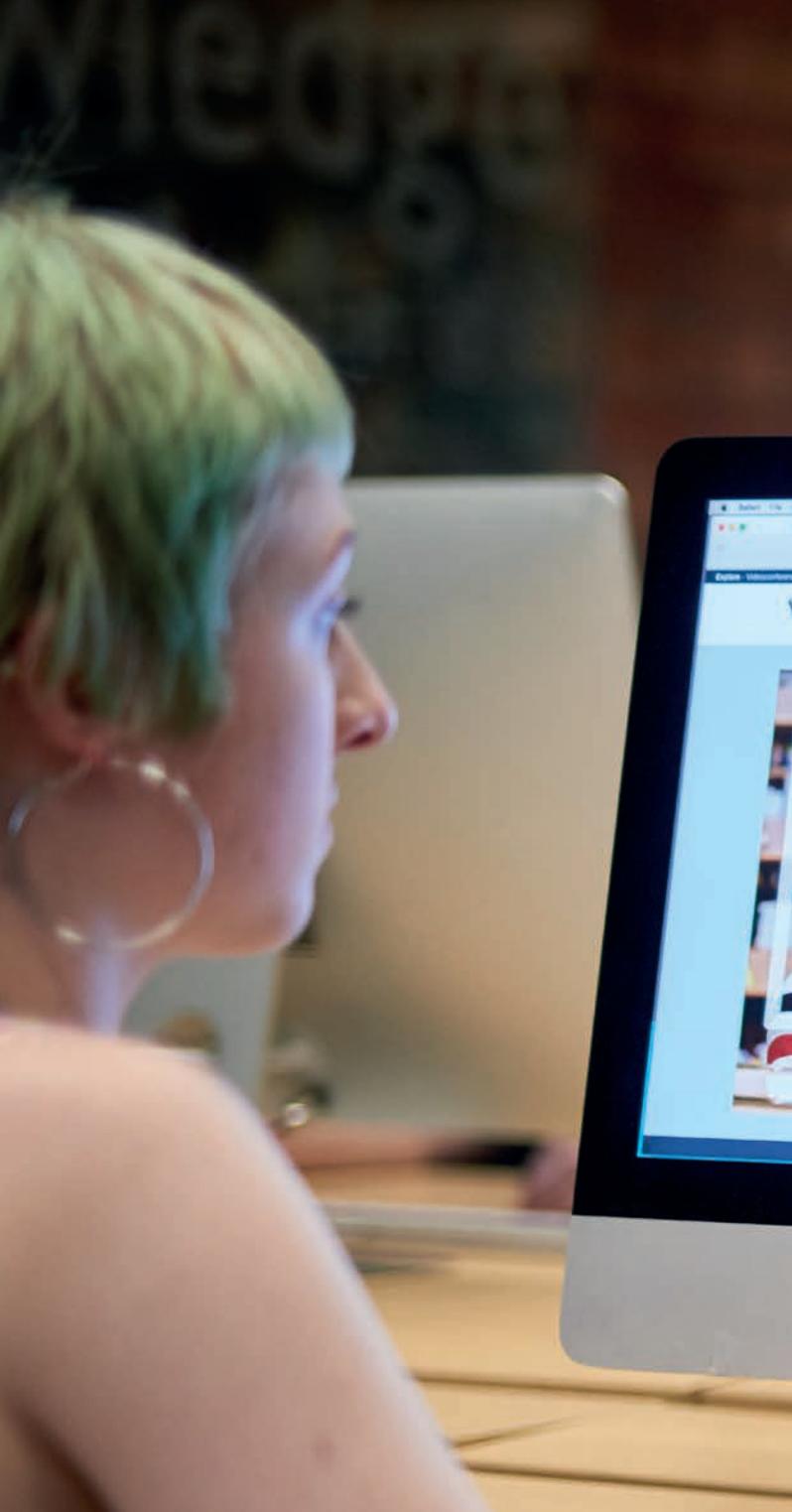
These diagrams provide an at a glance summary of findings and key messages across the four themes explored in the 2017-2018 pilot

of the student digital experience insights service. A full analysis of the data for each theme is given in section three of this report.

Theme one: the digital lives of learners

Facts and figures





Seven in ten HE students used digital tools on a weekly basis to look for resources additional to those recommended by their lecturer.

Key messages

Prepare students for digital learning

Arriving students need to know what to expect from digital learning. Our findings point to the key practices and tools that students find useful in each sector but there is no one-size-fits-all solution. This is where institutions can make excellent use of their local insights data.

Make bring your own devices (BYOD) work

Most students now bring their own devices for learning but many can't use them to access subject-specialist software and online content. Students learn more efficiently if they have access to the full range of learning tools on a device of their choice.

Assistive technology is for everyone

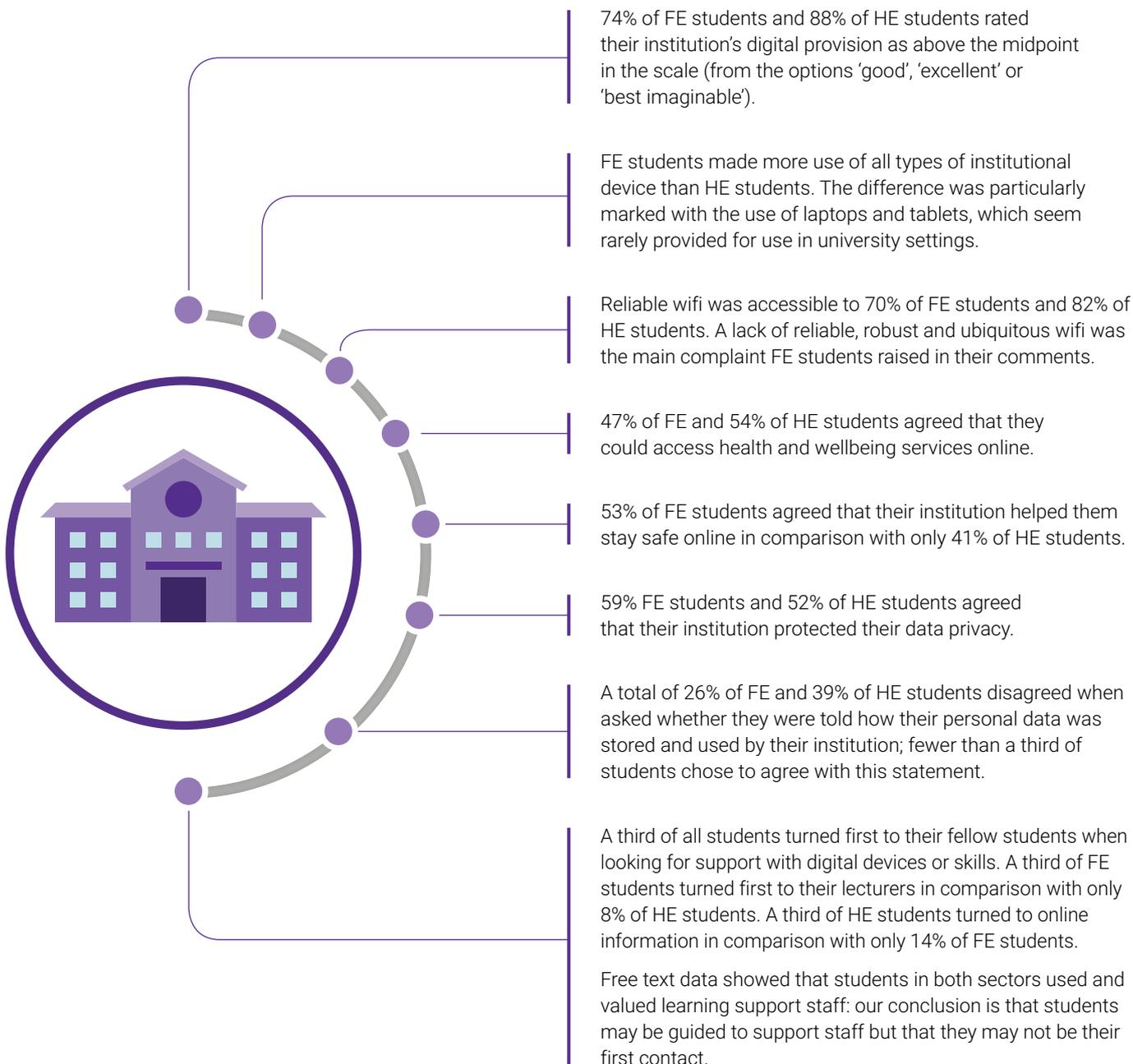
One in five students is using assistive or adaptive technologies, often by choice rather than necessity. Institutions should recognise the value of 'inclusive for all' and investigate how digital technologies can support inclusion in learning and assessment.

Help students stay happy and well

FE students would benefit from better access to health and wellbeing services online. HE students would benefit from more help to stay safe online. All students want to feel that they belong, so their log-in should give access to personalised services, student societies and social networks.

Theme two: digital in the institution

Facts and figures





Ask students what digital learning tools they find most useful and start to deploy these around the university.

HE student

Key messages

A positive approach to personal devices

FE students are frustrated by the number of websites that are blocked to them and by not having access to their smartphones in every class. A more flexible approach – taking into account students' stage of study and the need for clear scaffolding – would enhance their autonomy and their digital skills.

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. These important elements can be incorporated into spaces such as canteens, social areas, 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: dirty keyboards, a lack of personal file space, 'desk-hogging' in computer rooms, inaccessible printing. These don't cost much to sort out but they do require sensitive listening to students' day-to-day concerns.

Simplify access and navigation

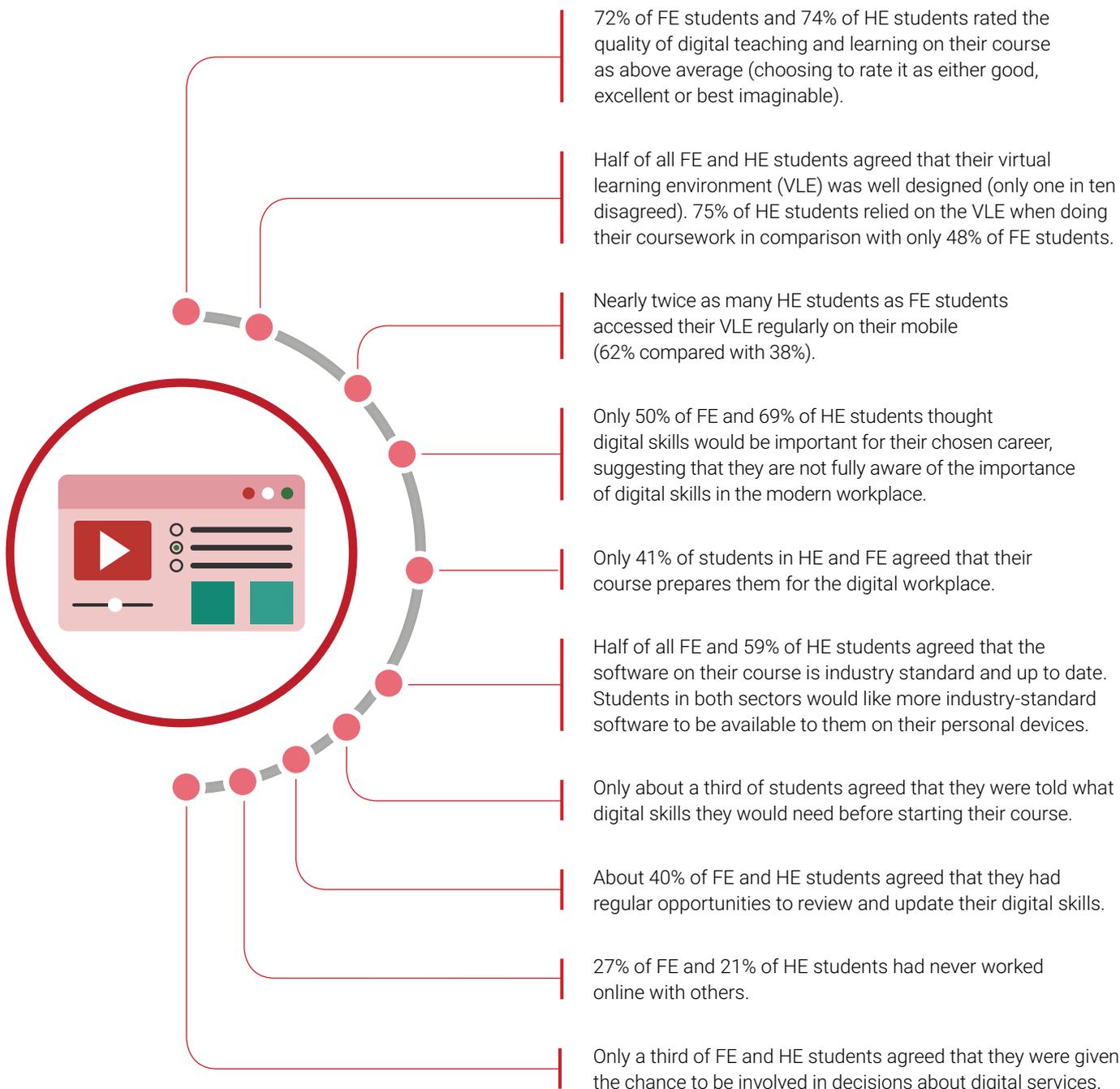
As they get access to more learning systems, students are more likely to ask for single sign-on and easy-to-navigate landing pages. HE students in particular want to see systems joined up for them (eg reading lists and library catalogues).

Provide different avenues of support

Students depend on each other for help with digital issues: FE students also rely on tutors. IT support staff are highly valued too but the students who need them most can find it hardest to access them. As well as investing in and signposting support, there is a need to help teaching staff and students to help each other, for example as mentors and champions and through student engagement initiatives.

Theme three: digital at course level

Facts and figures



Key messages

Engage students in class

Students in FE love using in-class response systems and feel they learn better when they are engaged and challenged in this way. HE students increasingly depend on having lecture notes in advance and recordings they can revise from afterwards. These are sure ways of improving students' digital satisfaction: students are clear that they learn better too.

Consistent use of the VLE

As students come to rely more on virtual access to learning, they expect the virtual environment to be designed with their needs in mind. Timely upload of materials, and navigable course structures, are top of their list.

Take teaching staff beyond the baseline

Students are frustrated when teaching staff don't use digital systems competently, especially when this wastes time or reduces access to course materials. However, students offer many examples of excellent practice, which they want staff to aspire to. Staff must have chances to develop in directions that interest them and inspire their students, and that go beyond baseline expectations.

Digital skills for life

Not all learners 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

While students enjoy a mix of learning styles, very few express a preference for studying collaboratively. 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 and reference lists are popular ways to start.

Work in partnership to engage students in digital

Colleges and universities that are working with their students on partnership projects around curriculum innovation and technology are realising the benefits of seeing their students develop not only their digital skills but transferable skills for the workplace, including team working and collaboration, and organisational and presentation skills.

69%

HE

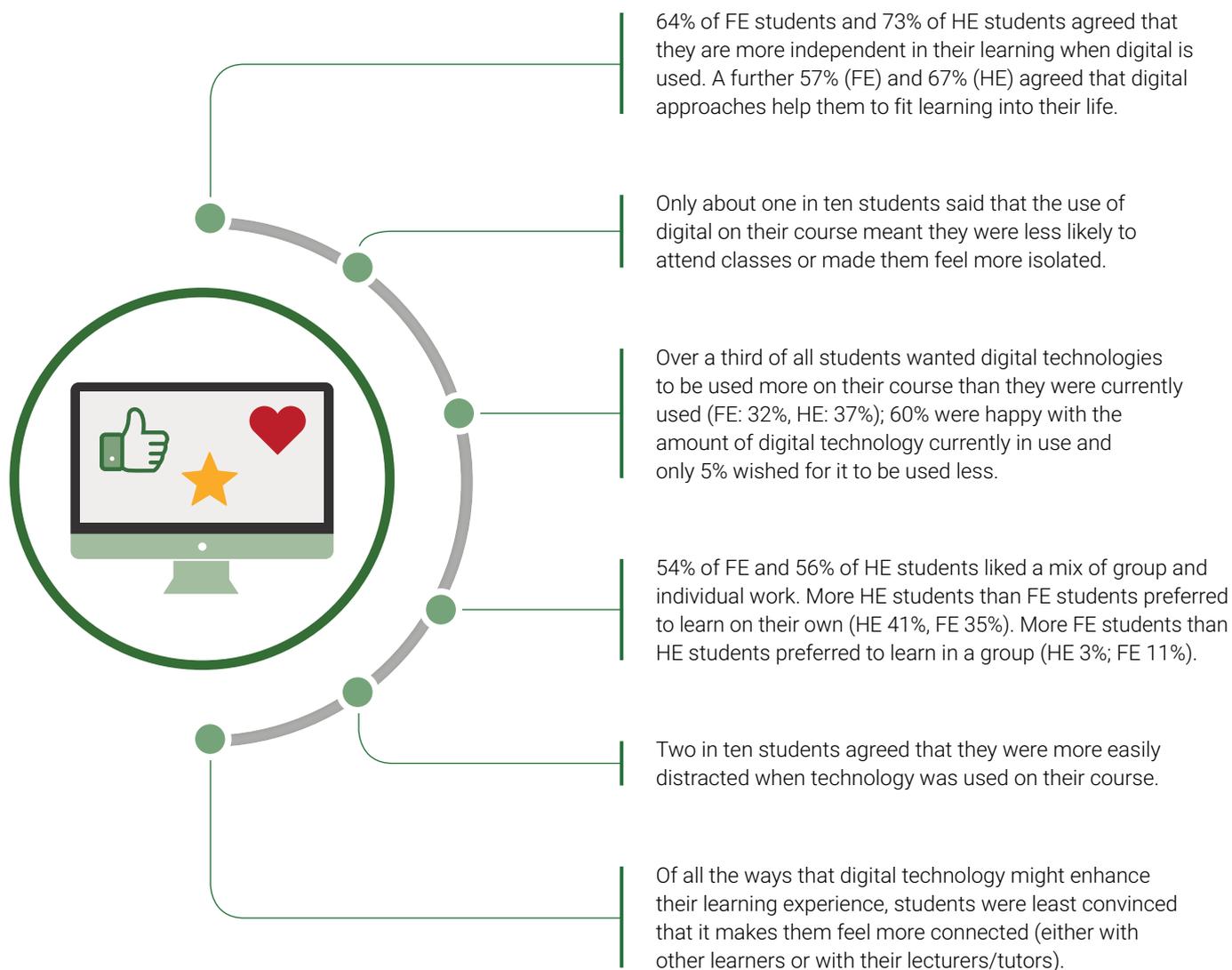
50%

FE

Only 50% of FE and 69% of HE students thought digital skills would be important for their chosen career.

Theme four: attitudes to digital

Facts and figures



Key messages

Independence and organisation

Independence and flexibility are the benefits that most students appreciate 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.

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 or lack digital skills or worry about losing face-to-face engagement with their tutors. Induction should take account of these students' anxieties and needs. Uses of digital should enhance interactions rather than replacing them.

Cost, value and fairness

Students expect value for money from their course. Some students, especially in HE, think this should include industry-standard software on their own device. Others, especially in FE, are more concerned about the costs of printing and data. Students in both sectors want a level playing field, with extra help for disadvantaged students.

Personal data

Personal data is not something that many students worry about, and this is a concern. Explain clearly to students how the institution uses their personal data. Ideally use this as an opportunity to discuss wider issues of data privacy, and the responsibilities and rights of digital citizens.



Only about one in ten students said that the use of digital on their course meant they were less likely to attend classes.

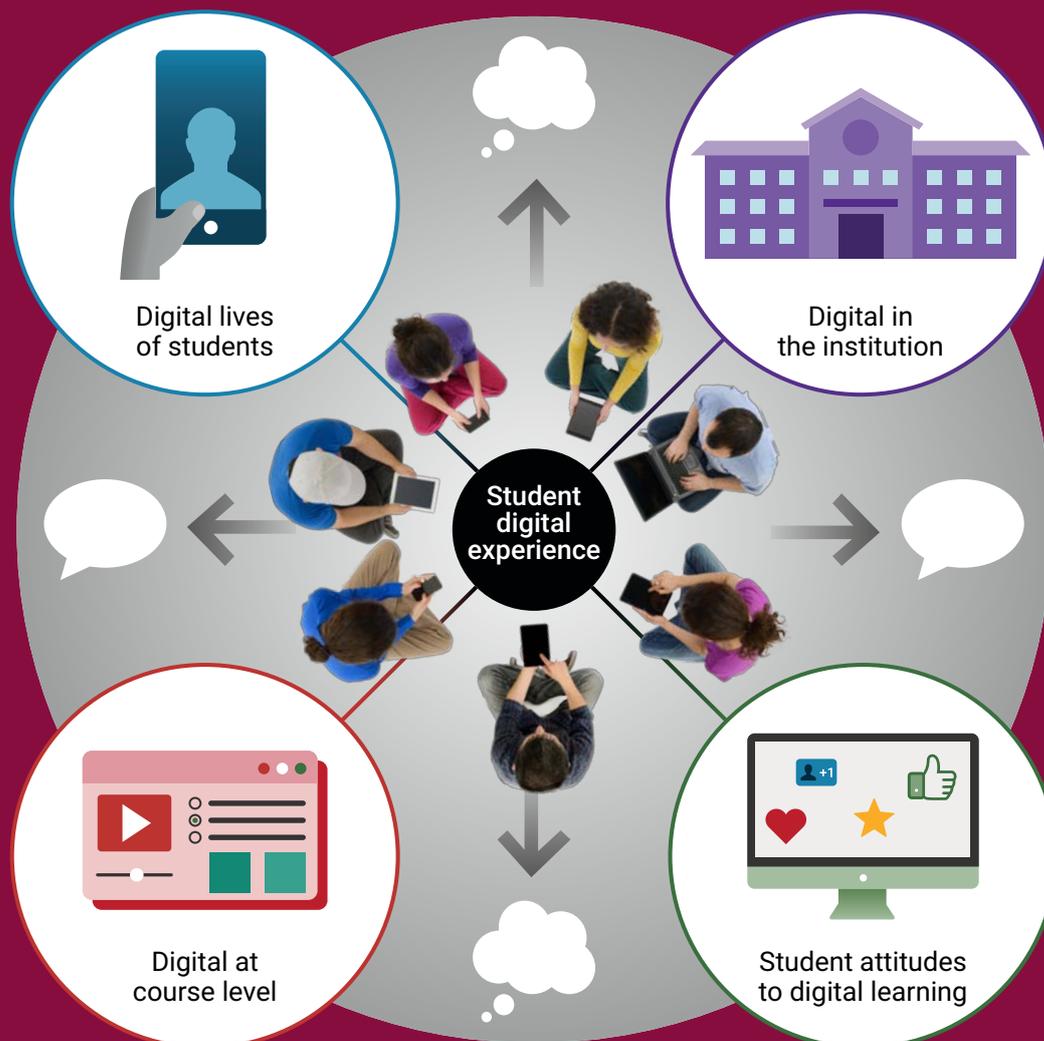
General overview

What is the digital experience insights service?

The digital experience insights service (previously known as the digital experience tracker) includes a standardised student survey tool, support, advice and guidance, for further and higher education and skills.

It allows organisations to:

- » Gather evidence from learners 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



Organisations piloting the tracker this year were entitled to access and use:

- » The student tracker survey templates (customisable to include institutional-level questions)
- » The teaching staff tracker survey templates (customisable to include institutional-level questions²)
- » Guidance on implementation of the surveys in Jisc online surveys
- » Real-time access to own data
- » Email support
- » Community of practice mailing list
- » Advice on how to understand and respond to the findings and their benchmark data (including webinars, blog posts and written step-by-step guides)
- » Access to benchmark data, allowing organisations to compare their own results against all student users within each sector version of the tracker
- » Templates to use when summarising and sharing their results with programme and management teams as well as with students within their institution

The primary purpose of the digital experience insights survey is to allow organisations to collect valid, representative and actionable data from their students and to support a process for engaging students in shaping their digital experience.

The data collected by participants has also enabled us to produce a national picture of learners' digital experiences.

Important additions this year

This report details the final pilot year of the tracker project. There are three important new additions to the service this year:

- » Two new top-level 'overall rating scores' that ask students to rate the quality of digital provision and the quality of digital teaching and learning. In the future we will use these to track national trends through time and to compare between institution and sector types
- » Two attitudinal questions which have the potential to place the learners' other feedback in context with their preference as a digital learner. These questions are: "Which best describes your preferences as a learner?" (Q20) and "How much would you like digital technologies to be used on your course?" (Q22)
- » The inclusion of summaries from the qualitative free text questions within this report

Future publications

Following the publication of this report there will be a series of follow-up briefings to provide further commentary around key themes identified in the report, such as wellbeing and how technology is supporting students with transition. There will also be a publication that describes how organisations have used the tracker to support the development of their digital strategies and environment to better meet the expectations of their students.

We will publish a national report summarising data from the first pilot of the teaching staff tracker survey, which aims to allow institutions to compare the opinions of students and teaching staff, and to provide teaching staff with a voice in relation to the level of support they receive when using and integrating digital into their practice.

You can find out more about the digital experience insights service at [jisc.ac.uk/digital-experience-insights](https://www.jisc.ac.uk/digital-experience-insights) and the associated guidance on the project blog bit.ly/trackerguide

² Results from the teaching staff tracker will be summarised in a separate national report

Methodology

The survey template

The student digital experience tracker 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 is based around a concise core set of questions that have been intensively tested with students in FE and HE for relevance, readability and ease of response. The questions aim to ask students about issues that feel relevant to them as well as their institution, and are organised within four themes:

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

The questions build on resources such as the Jisc/ NUS digital student experience benchmarking tool (bit.ly/NUSDigiStudentExperience), and the Jisc guide to enhancing the digital student experience: a strategic approach (bit.ly/EnhancingStudentDigiExperience).

The questions cover issues that are important to learners and/or to staff who have a focus on the digital learning experience.

Five versions of the tracker survey template were created for the following learner groups:

- » FE
- » HE
- » Adult and community learning (ACL)
- » Skills and work-based learning
- » Online learners

Welsh translations of each version were also created.

The core question set contained 23 questions; these often had sub-questions making the total number of individual questions a maximum of 75. All questions were optional so that learners could leave questions blank if they did not wish to answer (although over 95% of respondents answered every closed question, suggesting the question set was robust and that students found it interesting and worth answering).

Most questions were locked (ie they were standardised across all tracker surveys, to allow benchmark comparisons). One page was customisable so that organisations could add in additional questions pertinent to their local needs.

Most of the questions were identical throughout the five versions, but some were worded to be relevant to learners in each sector (eg “my university...” or “my college...”) while others were only relevant to that specific set of learners (eg 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. A total of 89 organisations ran at least one version of the survey and collected at least five responses. Of these 89 institutions, 47% had taken part in at least one of the two previous pilots.

83 were either FE colleges, sixth form colleges or universities. This represents participation from approximately 16% of UK colleges and 30% of UK universities. FE students included those from participating sixth form colleges. A list of all institutions can be found in appendix 1.

The mean average \pm standard deviation respondents was 428 ± 350 per institution. Six of the 89 institutions contributed fewer than 50 responses and five contributed over 1,000.

Table 1: The number of each type of learning provider involved in the pilot

| Learning provider type | Number of each type involved in this project |
|---|--|
| University (HE) | 43 |
| FE college | 36 |
| Sixth form college | 4 |
| Adult community learning (ACL) provider | 3 |
| Skills provider | 3 |
| Total | 89 |

Table 2: Learner group descriptions

| Tracker version / learner group | Learner group description |
|---------------------------------|---|
| FE | Learners studying for a qualification that is not a degree, within a college setting. |
| HE | Learners studying for a degree. Nearly always in a university setting, although some FE colleges can offer degree-level courses. |
| Online learner | Learners studying via online resources and activities, usually but not always provided by a university. They rarely if ever visit the physical location of the learning provider. |
| ACL | Learners studying for a range of post-compulsory qualifications, or on non-accredited courses, typically learning outside of work. |
| Skills and work-based learning | Learners studying for a range of post-compulsory qualifications, or on non-accredited courses, typically learning in or alongside work (eg on apprenticeships). |

Due to lower participation rates, both as a cohort of organisations and as a population of students, we have not included detailed analysis of the data from the online, ACL or skills surveys in this report.

The smallest FE college had 1,000 students, the largest had 55,222. On average, participating colleges had a mean \pm standard deviation of $7,329 \pm 9,058$ students (full and part time).

The smallest participating university had 1,100 students in total; the largest had 40,000. On average, participating universities had a mean \pm standard deviation of $15,756 \pm 9,276$ students (full and part time).

On average, universities collected responses from around 5% of their total student population, while colleges collected responses from around 10% of theirs.

Some used more than one version of the survey, and as a result there is not a one-to-one relationship between the organisational type ([Table 1](#)) and the tracker versions used ([Table 2](#)).



Have more work areas with computer access as the study centre is always full.

FE student

Participating students

Providers chose how they would recruit student participants, with guidance from the project team:

- » 63% of institutions promoted the survey to all students, using a variety of online and offline communications typically offering incentives
- » 26% promoted the survey to a sub-group of students (eg year group or subject area)
- » 11% of institutions targeted a small, representative group of students and sought to achieve close to 100% uptake, eg through live completion

For the student-level analysis we have treated the entire population of responses from each sector as a sample in its own right. We then investigated how representative it is likely to be of the sector overall by comparing the sample with national student data. The proportion of student responses broken into age, gender, nation, stage of course and institution type is summarised in [Table 3](#), [Table 4](#) and [Table 5](#).

Table 3: The number of student responses and participating institutions per UK nation

| UK nation | No. responses | % responses | No. institutions |
|------------------|---------------|-------------|------------------|
| England | 28,661 | 72.5% | 67 |
| Scotland | 7,626 | 19.3% | 11 |
| Wales | 2,581 | 6.5% | 9 |
| Northern Ireland | 665 | 1.7% | 2 |
| TOTAL | 39,533 | 100% | 89 |

Table 4: The number of student responses per tracker version

| Learner type / tracker version | No. responses | % responses |
|--------------------------------|---------------|--------------|
| HE | 23,428 | 59.3% |
| FE | 14,292 | 36.2% |
| Online | 1,042 | 2.6% |
| Skills | 590 | 1.5% |
| ACL | 181 | 0.5% |
| Total | 39,533 | 100 % |

Is our sample representative?

The Higher Education Statistics Agency (HESA) estimates that the UK HE population size is in the region of 1.9 million. The Department for Education (DFE) estimates UK FE student numbers (traditional and vocational qualifications excluding apprenticeships) at 2 million.

- » When we look at data across the four nations of the UK, the FE student data in this report over-represents students in Scotland and under-represents those in Northern Ireland (Table 6)
- » The HE undergraduate data in this report over-represents students in Scotland and under-represents those in England (Table 7)
- » Data for age, course stage and gender are compared for England only, as we could only obtain reliable HE and FE data for England and because HE courses outside England run for four years, not three (which impacts on eg age class ratios)
- » At a national level, HE course stage is only identified as first year versus not first year of course, hence – unlike our tracker sample – there is no middle year figure
- » In comparison with last year’s tracker data, our sample remains similar in terms of age and gender profile for FE and HE learners (course stage was not calculated in 2016/17 and so cannot be compared)

Table 5: The number of student responses per institutional setting

| Institutional setting | No. responses | % responses | Tracker versions used across the institutional group |
|-----------------------|---------------|-------------|--|
| University | 24,152 | 61.1% | HE, online |
| FE college | 13,202 | 33.4% | FE, HE, Skills, online |
| Sixth form college | 1,555 | 3.9% | FE |
| Skills provider | 443 | 1.1% | Skills |
| ACL | 181 | 0.5% | ACL |
| TOTAL | 39,533 | 100% | |

Table 6: The UK nation profile of our FE student sample compared with the total population of FE students

| UK nation | FE students ³ | Tracker FE student sample | Observation |
|------------------|--------------------------|---------------------------|---|
| England | 81.4% | 78.6% | Tracker data over-represents Scotland and under-represents Northern Ireland |
| Scotland | 5.8% | 13.7% | |
| Wales | 6.0% | 6.0% | |
| Northern Ireland | 6.8% | 1.7% | |

Table 7: The UK nation profile of our HE student sample compared with the total population of HE students

| UK nation | HE undergraduate students | Tracker HE undergraduate student sample | Observation |
|------------------|---------------------------|---|--|
| England | 82.2% | 69.4% | Tracker data over-represents Scotland and under-represents England |
| Scotland | 10.3% | 23.0% | |
| Wales | 5.3% | 5.8% | |
| Northern Ireland | 2.2% | 1.8% | |

³Including sixth form colleges (only found in England) but not apprenticeships, as apprentice students use the skills version of the digital experience insights service.

» In comparison with English national student data, our tracker data over-represents FE students aged 18 or under (**Table 8**)

» This HE tracker sample is a good reflection of UK age and course stage but does slightly over-represent females in comparison with males (**Table 9**)

Table 8: The age, gender and course stage profiles of our FE student sample compared with the total population of FE students

| | | England | FE tracker 2016/17 | FE tracker 2017/18 | Observation |
|------------------------|----------------|---|--------------------|--------------------|----------------------------------|
| Age | 18 and under | 48.2% | 90.2% | 73.8% | Sample over-represents under 19s |
| | 19-24 | 51.8% | | 16.9% | |
| | 25+ | | 9.8% | 9.3% | |
| Gender | Male | No centralised FE college data source available | 47.9% | 49.9% | No comparable data |
| | Female | | 50.6% | 48.6% | |
| | Other | | 1.5% | 1.5% | |
| Stage of course | First year | No centralised FE college data source available | No data available | 61.4% | No comparable data |
| | Middle year(s) | | | 12.1% | |
| | Final year | | | 26.6% | |

Table 9: The age, gender and course stage profiles of our HE student sample compared with the total population of HE students

| | | England | HE tracker 2016/17 | HE tracker 2017/18 | Observation |
|------------------------|--------------------|---------|--------------------|--------------------|--------------------------------------|
| Age | 18 and under | 12.8% | 70.4% | 11.0% | Good reflection of UK age categories |
| | 19-24 | 64.1% | | 63.0% | |
| | 25+ | 23.1% | 29.6% | 25.9% | |
| Gender | Male | 43.3% | 37.4% | 34.8% | Sample over-represents females |
| | Female | 56.7% | 61.7% | 64.4% | |
| | Other | 0.05% | 0.9% | 0.8% | |
| Stage of course | First year | 28.8% | No data available | 30.5% | Good reflection of UK course stage |
| | Middle year(s) | 50.5% | | 29.5% | |
| | Final year | | | 17.4% | |
| | Masters/Postgrad | 19.2% | | 20.0% | |
| | Other ⁴ | 1.5% | | 2.6% | |

⁴ Typically this category would represent students on foundation degrees or those on CERT or DIP (eg nursing) courses.



Set up a platform for collaboration between students at different universities on the same course.

HE student

Uses and limitations of this data

This report contains a question-by-question summary of all the further and higher education student-level data, so as to allow all student voices to be heard. This data is not weighted to match the national student population (eg by age, gender or course stage) and therefore we advise against comparing at the level of individual percentage points across the pilot years, especially as the questions and answer options have evolved through the course of this three-year pilot. These findings are better used to identify trends in student attitudes and opinions, and to compare the experiences of higher versus further education students.

In order to compare between sectors and institutional groups the data was then grouped by institutions and analysed statistically. This allowed robust comparisons between institutional variables (eg FE college or university, teaching excellence framework (TEF) rating of university). In future, now the question set is agreed, we also aim to track data trends through time.

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

Institutional-level data summary

In order to compare between sectors and institutional groups the student-level data was grouped by institutions and analysed statistically. Only institutions with 100+ student responses were included.

The average digital infrastructure rating was significantly lower for colleges when compared with universities, suggesting that the quality of digital infrastructure is higher in UK universities than colleges. This finding is in line with comments made by the students themselves.

There were no statistical differences between universities and colleges when it came to comparisons of the average student rating for digital teaching and learning. However, there was a trend for the average digital teaching and learning rating to be higher in teaching excellence framework (TEF) gold-rated institutions than in those rated silver or bronze, but this was not statistically significant. This trend will be investigated in future years.

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



Theme one: the digital lives of learners

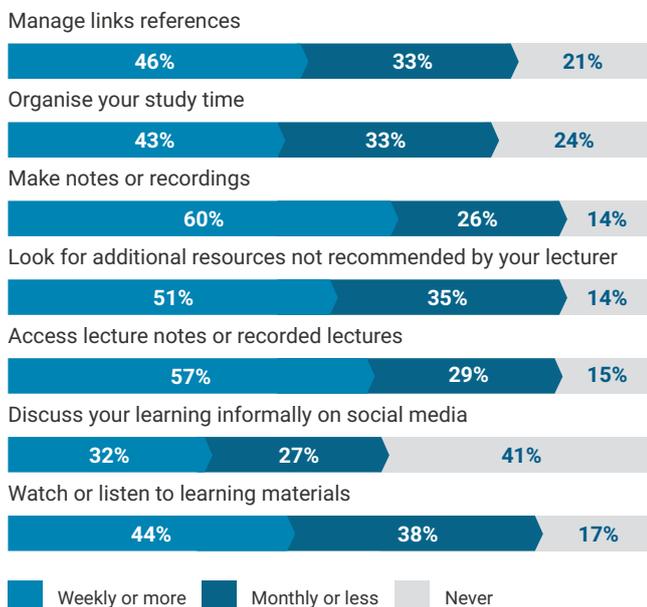
How often do students use digital tools or apps in their own learning time? (Q5)

Students were asked how often they used digital tools or apps to carry out seven named learning activities, and they could answer 'weekly or more', 'monthly or less' or 'never' (Q5). Percentage summary results are shown in [Figure 1](#) and [Figure 2](#).

- » HE students use digital tools or apps more frequently than FE students across all seven named activities⁵
- » For FE students the most common weekly activity was making notes or recordings (60%)
- » For HE students the most common weekly activity related to accessing lecture notes or recorded lectures (84%)

Figure 1: The percentage of FE students who said that they used digital tools or apps to complete various activities weekly or more, monthly or less, or never

FE STUDENTS



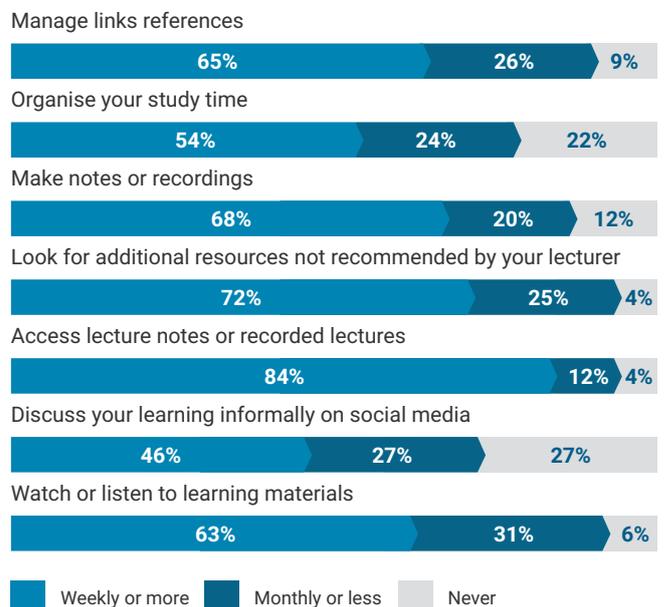
The use of social media to informally discuss learning was the lowest scoring activity in both groups of learners.

An NVivo word search was conducted based on free text data responses to Q5a and Q14a (useful tools or apps and preferred activities for learning) using terms verified from the corpus as referring to the use of social media (Facebook OR WhatsApp OR Snapchat OR chat rooms OR Instagram OR Messenger – the latter only counted when used separately from the other terms).

We found 148 uses of these social media terms in FE, out of a total of 23,337 non-null responses to the questions about preferred apps and activities (= 0.63%). We found 171 uses of these terms in HE, out of a total of 33,274 non-null responses to the same questions (= 0.81%). So very few of our student respondents chose to nominate social media apps or activities as 'really useful'.

Figure 2: The percentage of HE students who said that they used digital tools or apps to complete various activities, weekly or more, monthly or less, or never

HE STUDENTS



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

Students were asked which of five types of device they own and use to support their learning. Percentage summary results are shown in [Table 10](#) below.

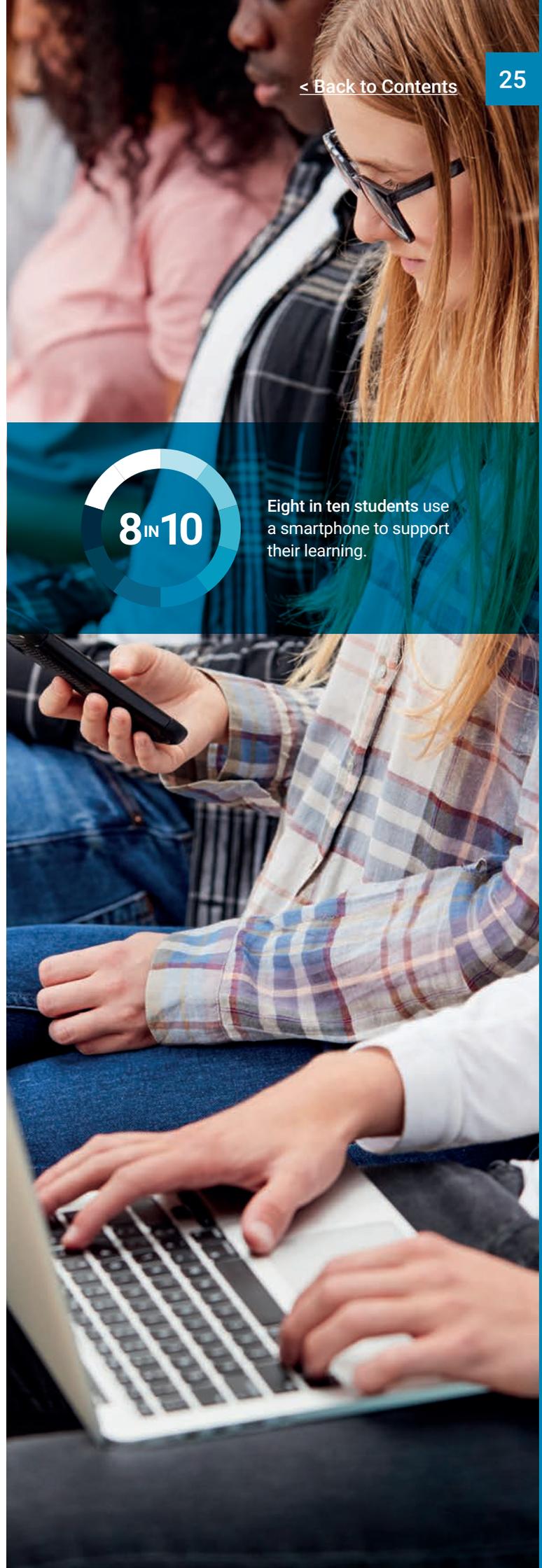
- » FE learners own and use more desktops than HE students (FE: 46%, HE: 28%)
- » HE students own more laptops, with more than nine out of ten HE students owning and using laptops during their learning (FE: 67%, HE: 94%)
- » About one third of FE and HE learners own and use tablets or iPads to support their learning
- » About eight out of ten students use their personal smartphones to support their learning

Table 10: The percentage of students who said they own and use various devices to support their learning

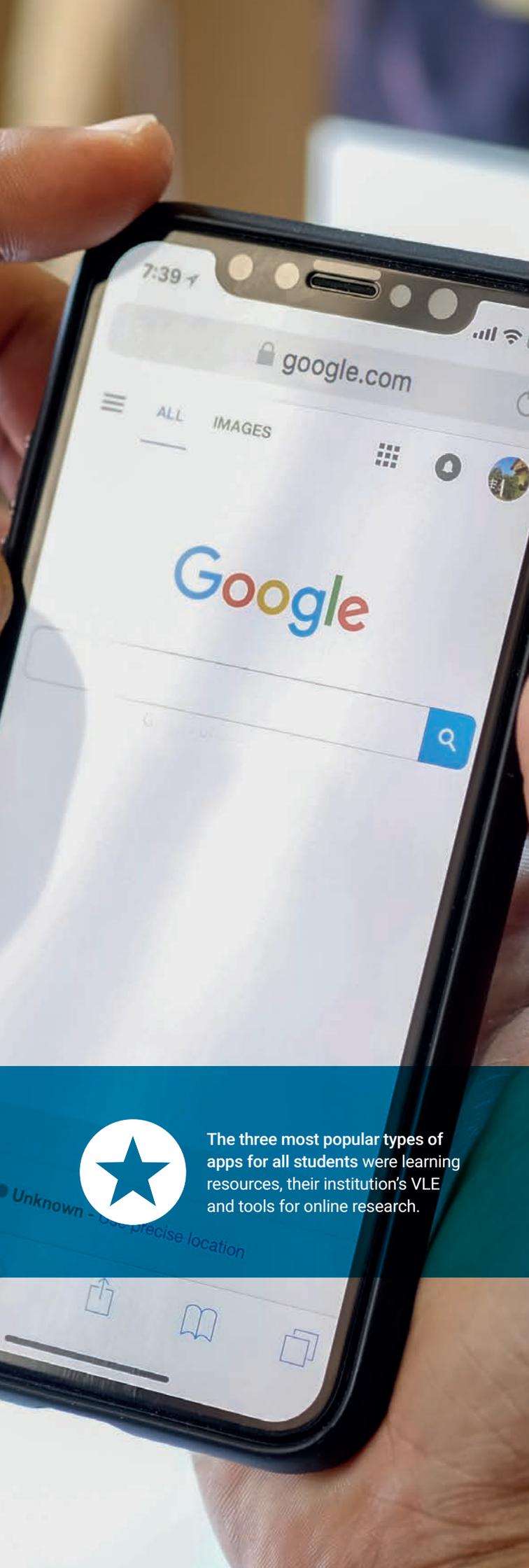
| Device | FE students (%) | HE students (%) |
|-------------|-----------------|-----------------|
| Desktop | 46.2% | 28.0% |
| Laptop | 68.1% | 93.5% |
| Tablet/iPad | 32.4% | 34.9% |
| Smartphone | 78.2% | 83.6% |
| Printer | 46.1% | 51.6% |

Coded free text responses to Q5a (preferred tool or app for learning) show that FE students were around three times as likely as HE students to nominate a hardware device (smartphone, laptop or 'computer') as their preferred tool or app. This suggests that whatever the level of ownership in the two student groups, the access to learning afforded by a personal device is considered more useful by FE learners.

⁵Statistical differences found between all FE versus HE medians and distributions around the median, as identified using a Kruskal-Wallis test. In all cases $df=1$ and $p<0.001$.



Eight in ten students use a smartphone to support their learning.



 The three most popular types of apps for all students were learning resources, their institution's VLE and tools for online research.

Figure 4 shows the weighted word count of terms used by HE students when describing useful digital apps and tools used in their own learning time. These were the 165 words that appeared in more than 0.01% of responses.

The data was then further analysed, using short- and long-context word searches, and grouped into a number of different themes. **Figure 5** (page 28) shows the percentage of comments coded to each theme by FE students, with one theme further explored as an illustration. **Figure 6** (page 28) shows the percentage of comments coded to each theme by HE students, with a different theme further explored as an illustration.

The three most popular types of app for all students were learning resources (and apps giving access to them eg videos, e-books, journals), their institution's virtual learning environment, and tools for online research (eg search tools). The high ranking for 'online research' among FE respondents is accounted for largely by the use of 'Google' as a term on its own (around four fifths of instances), which led to a default coding of 'online research'. In contrast, only around one fifth of uses of the term 'Google' among HE students was used on its own to mean 'internet searching'.

Around 10% of FE students rated Google as their number one app or tool, compared with just over 1% of HE students. HE students on the other hand were twice as likely to cite Google Scholar as they were to cite Google on its own as a search tool. HE students also used a wider range of tools for online research, including online journals and journal catalogues.

When the rank order of themes was investigated, HE students appeared more likely than FE students to cite as 'very useful' tools and apps coded to 'recording or notation', 'referencing', 'lectures' (mainly accessing recorded lectures, and accessing/annotating lecture slides), and 'organising'.

FE students appeared more likely than HE students to cite as 'very useful' tools and apps coded to 'quizzing or polling', while 'study apps', which included diagnostic, skills-based and revision apps, did not make an appearance in the HE list. As noted, FE students were also more likely to cite a digital device or other hardware.

The lower number of FE students using external apps for organising their study time could be accounted for by better provision of or use of functionality in the virtual learning environment or student portal. However, further searching on the words 'organise', 'plan' and 'manage' finds that

these terms – in the context of time and task management – appeared four to eight times more often in the HE corpus as they appeared in the FE corpus, suggesting a greater interest in or habit of using digital tools for planning and self-organisation among HE students.

Figure 5: The relative importance of themes identified by FE students when asked which digital tools or apps they found useful for learning in their own time. One theme (learning resources) is further explored via a pull-out that lists typical sub-themes within the coded theme of 'learning resources'

- » YouTube
- » BBC Bitesize
- » Internet
- » Website
- » (e- and online) books/textbooks
- » Videos
- » Resources
- » Khan Academy

| Theme (FE students) | % comments containing each theme |
|---------------------|----------------------------------|
| VLE | 14.9% |
| Learning resources | 13.7% |
| Online research | 11.3% |
| Hardware | 6.9% |
| Productivity | 4.9% |
| Quizzing/polling | 3.7% |
| Collaborating | 1.7% |
| Recording/notation | 1.2% |
| Study apps | 1.0% |
| Lectures | 0.8% |
| Organising | 0.7% |
| Design/creative | 0.6% |
| Language learning | 0.3% |
| Referencing | 0.1% |

| Theme (HE students) | % comments containing each theme |
|-----------------------|----------------------------------|
| Learning resources | 10.4% |
| VLE | 10.2% |
| Online research | 8.1% |
| Productivity | 4.7% |
| Recording or notation | 4.6% |
| Referencing | 4.3% |
| Lectures | 2.9% |
| Hardware | 2.9% |
| Organising | 2.7% |
| Collaborating | 1.6% |
| Quizzing or polling | 0.9% |
| Language learning | 0.8% |
| Analysing | 0.5% |
| Design/creative | 0.3% |

Figure 6: The relative importance of themes identified by HE students when asked which digital tools or apps they found useful for learning in their own time. One theme (learning resources) is further explored via a pull-out that lists typical sub-themes within the coded theme of 'learning resources'

- » Google (search)
- » Scholar (Google)
- » Library (catalogue search)
- » Searching
- » Jstor
- » Books (Google)
- » Journals
- » Chrome
- » Web (library) Gateway
- » Primo
- » Finding
- » Summon
- » Research
- » Discovering
- » Encore (Accessing) information

How many students choose to use assistive technologies to meet their learning needs? (Q6)

Students were asked whether they use assistive technologies to meet their learning needs (eg screen readers, voice recognition, switches).

They could choose to answer yes (vital), yes (optional) or no. Percentage summary results are shown in Figure 7.

- » Results from FE and HE students were very similar
- » About 8% of students consider assistive technologies to be vital for their learning needs, with a further 10% saying that they choose to use assistive technologies to help them

Figure 7: The percentage of FE and HE students who said that they use assistive technologies to meet their learning needs

USE OF ASSISTIVE TECHNOLOGIES

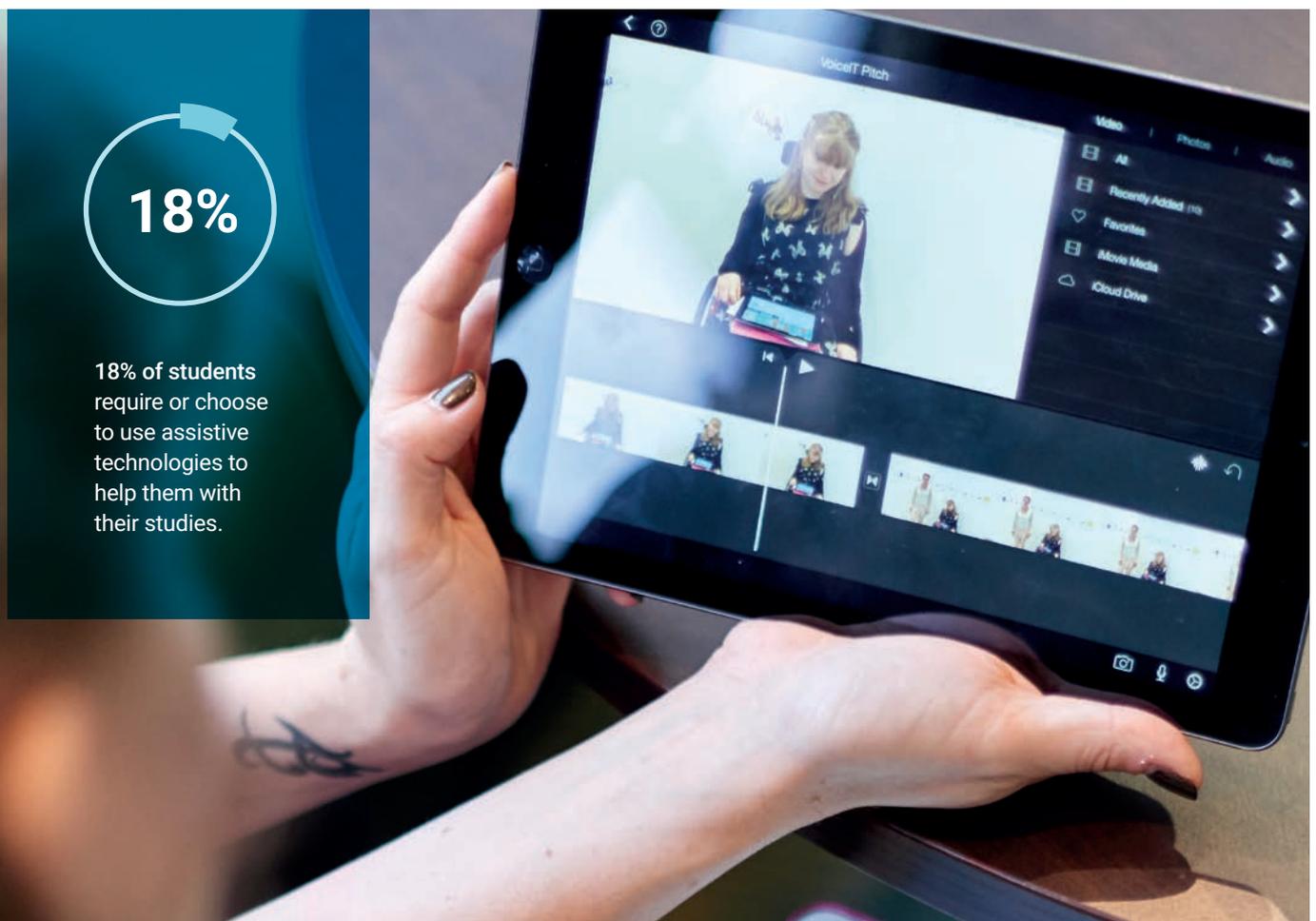
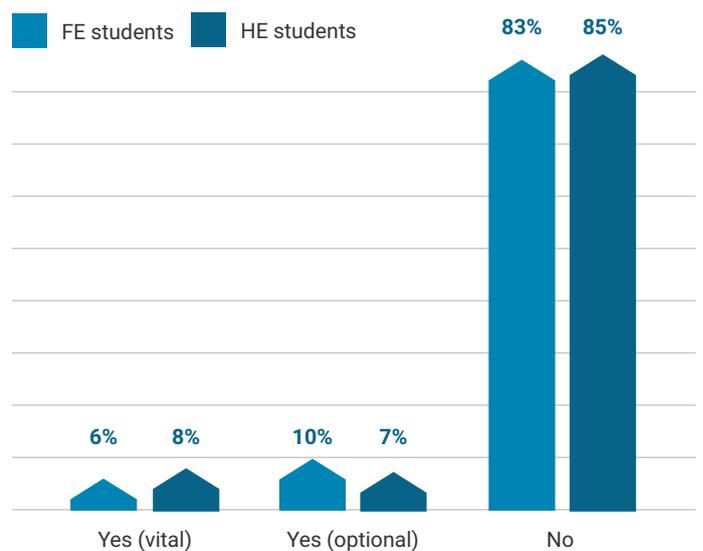
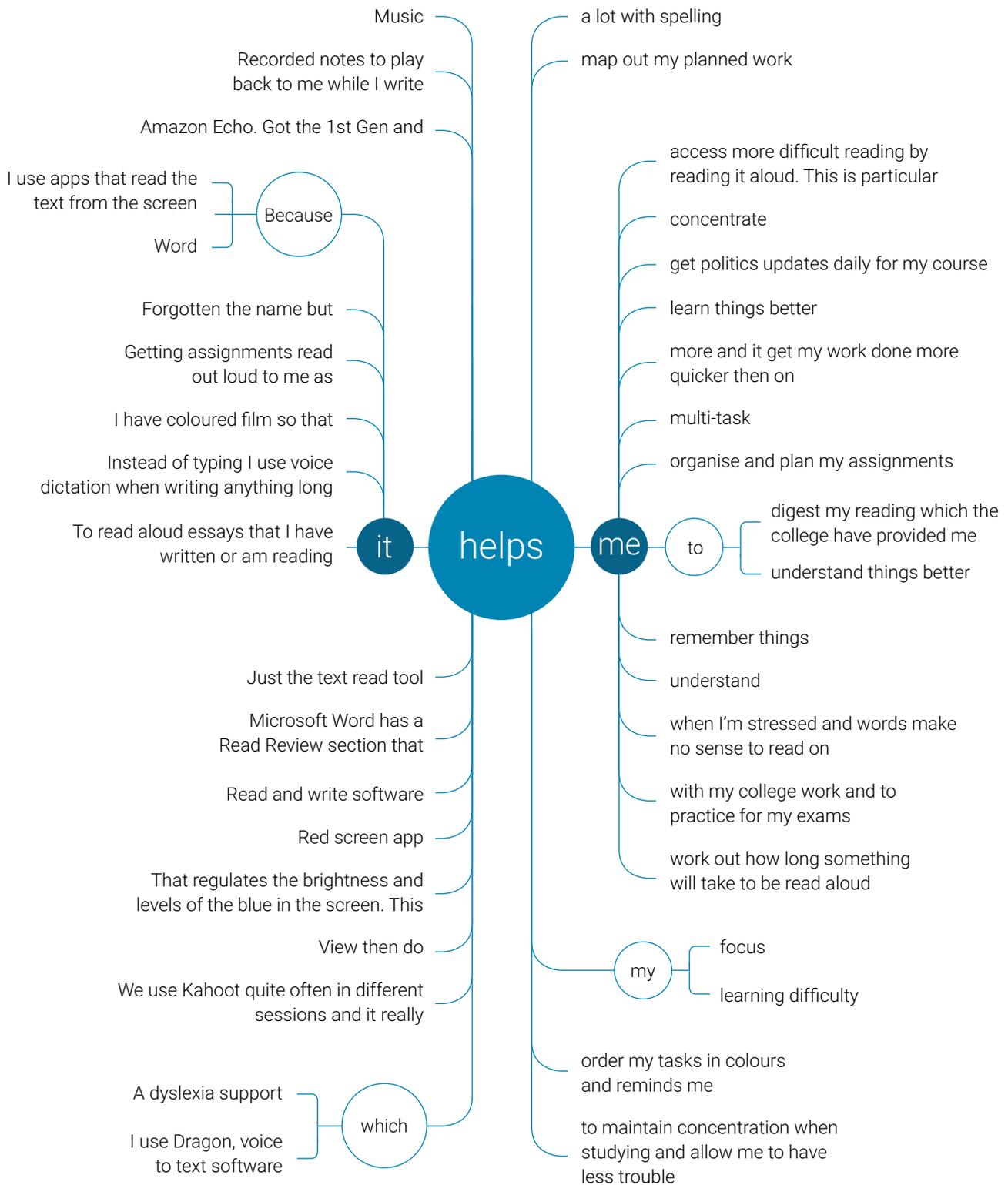


Figure 9: A word tree created in NVivo to illustrate some of the contexts in which the word 'help' appears in responses to Q6



1/3

A third of all students turned first to their fellow students when looking for support with digital devices or skills.



Theme two: digital in the institution

Where do students go for digital support?

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 (Q10). Percentage summary results are shown in [Table 11](#).

Table 11: The percentage of students who said that they turn first to various contacts for digital support

| Support contact | FE students | HE students |
|-----------------------------|-------------|-------------|
| Fellow students | 31.8% | 37.7% |
| Lecturers on my course | 35.4% | 7.8% |
| Online information | 13.7% | 30.8% |
| Friends and family | 13.0% | 12.4% |
| Other institutional support | 6.0% | 11.4% |

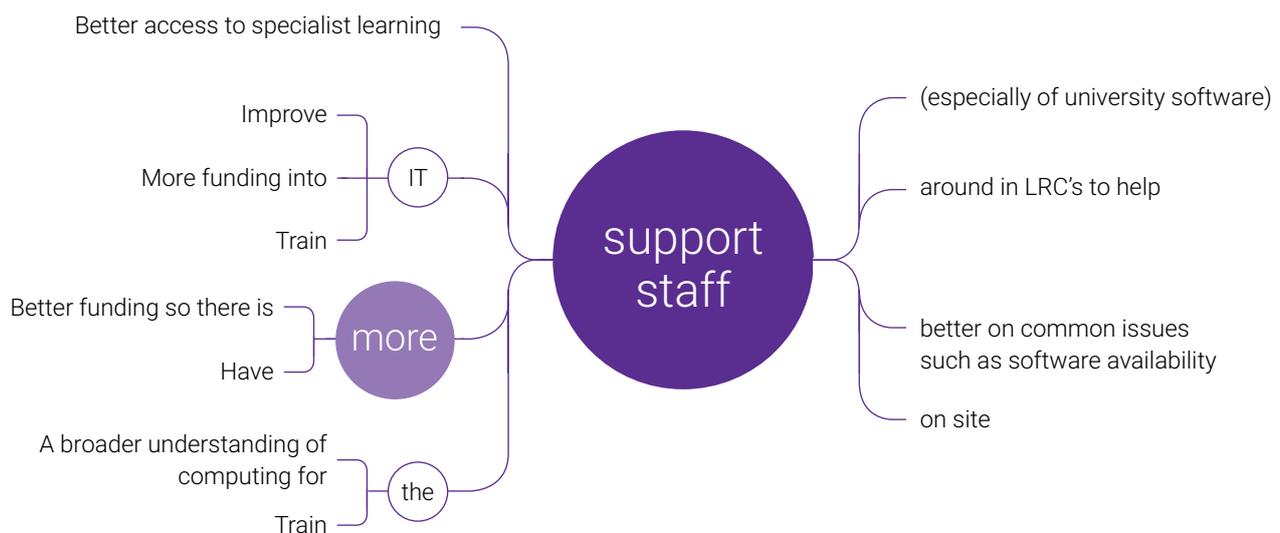


- » A third of all students turn to their fellow students first when looking for support with digital devices or skills
- » More than a third of FE students first go to their lecturers (35%); in contrast about one third of HE students look online first
- » There is a significant difference between HE and FE students⁶ in terms of who they turn to first for digital help and support: more FE students choose to go to their tutors than the analysis predicts, and fewer university students approach lecturers first in comparison to the analysis prediction. FE students use online support less than would be expected, and HE students more than expected
- » 'Other institutional support' is the least likely place that HE and FE students say they will turn to first. This does not mean that students are not contacting support staff, perhaps after speaking with other

students or lecturers. In order to test out this possibility NVivo text searches were carried out for the terms 'support', 'help', and 'staff' in Q11 ("What one thing should your college/university do to improve your digital teaching and learning experience?"). These terms were found in a large number of responses (1,133 out of 16,823 HE or nearly 7%, and 382 out of 8,274 FE, or nearly 5%). Contextual analysis shows that most of these are requests for 'more support' from 'staff', for a wide variety of digital tools, activities and student needs. Some examples are explored in [Figure 10](#) below

- » Further analysis of Q11, reported below, found that many students were not aware of the full range of support available to them. We therefore consider that the wording of this question may have hidden the important role of support staff, but that access to those staff may be mediated by others

Figure 10: A word tree created in NVivo to illustrate some of the contexts in which the phrase 'support staff' appears in responses to Q11



⁶ df=4, Chi Square = 5076, p<0.001

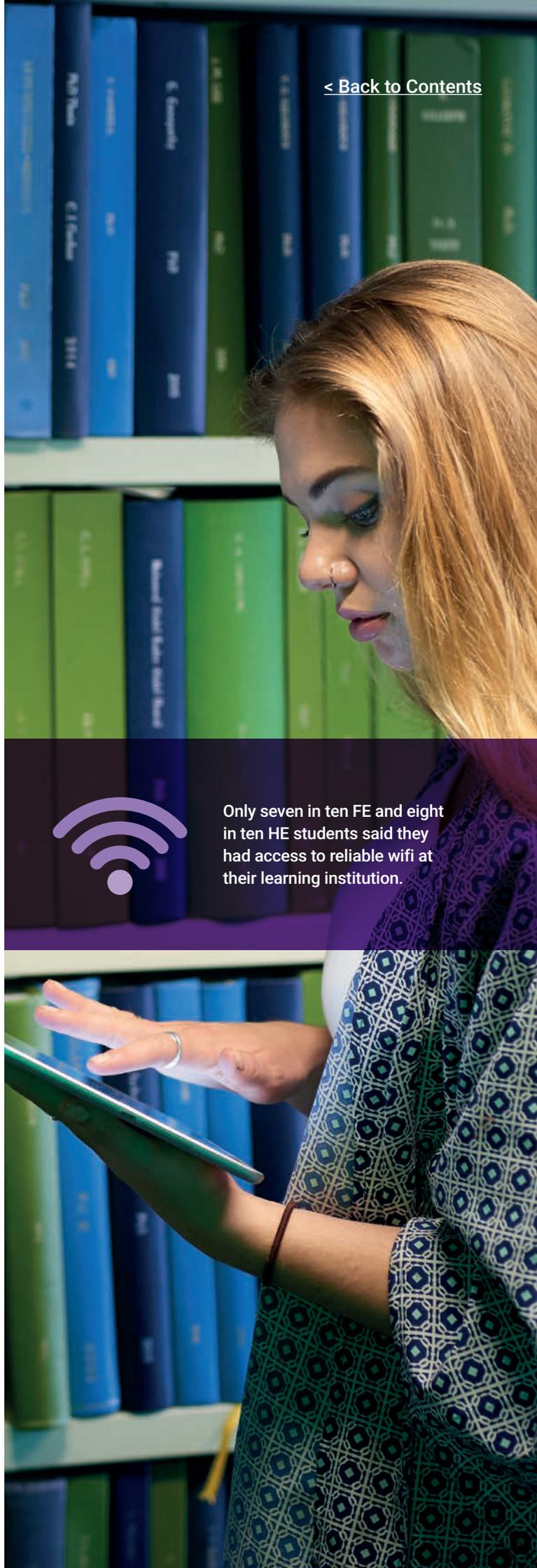
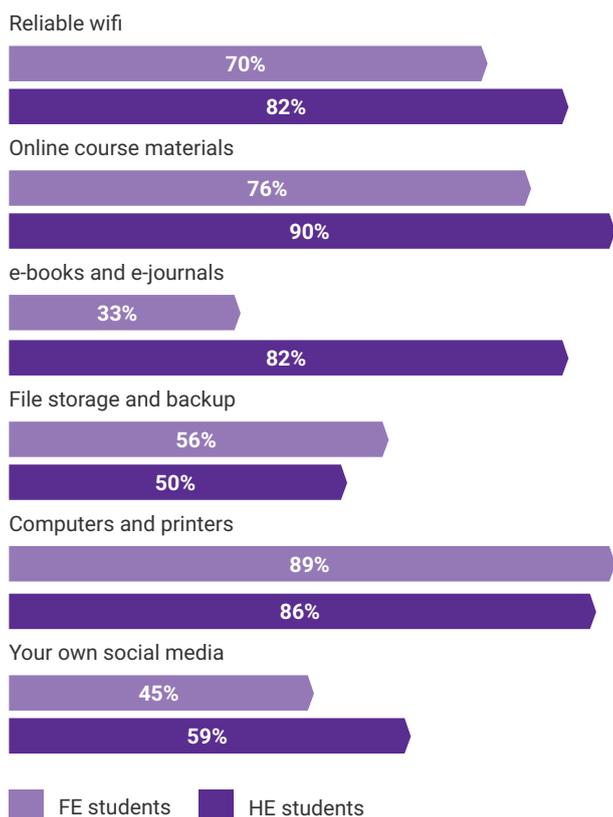
Any-time access to digital resources and services (Q7)

Students were asked which of six named resources and services they had access to whenever they needed them while at their learning institution. Percentage summary results are shown in **Figure 11**.

- » For FE students, computers and printers were the most accessible and e-books or e-journals the least accessible
- » For HE students, online course materials were the most accessible and file storage and backup were the least accessible
- » Reliable wifi was accessible to 82% of HE students and 70% of FE students

Figure 11: The percentage of FE and HE students who said they had access to various digital resources or services whenever they needed them

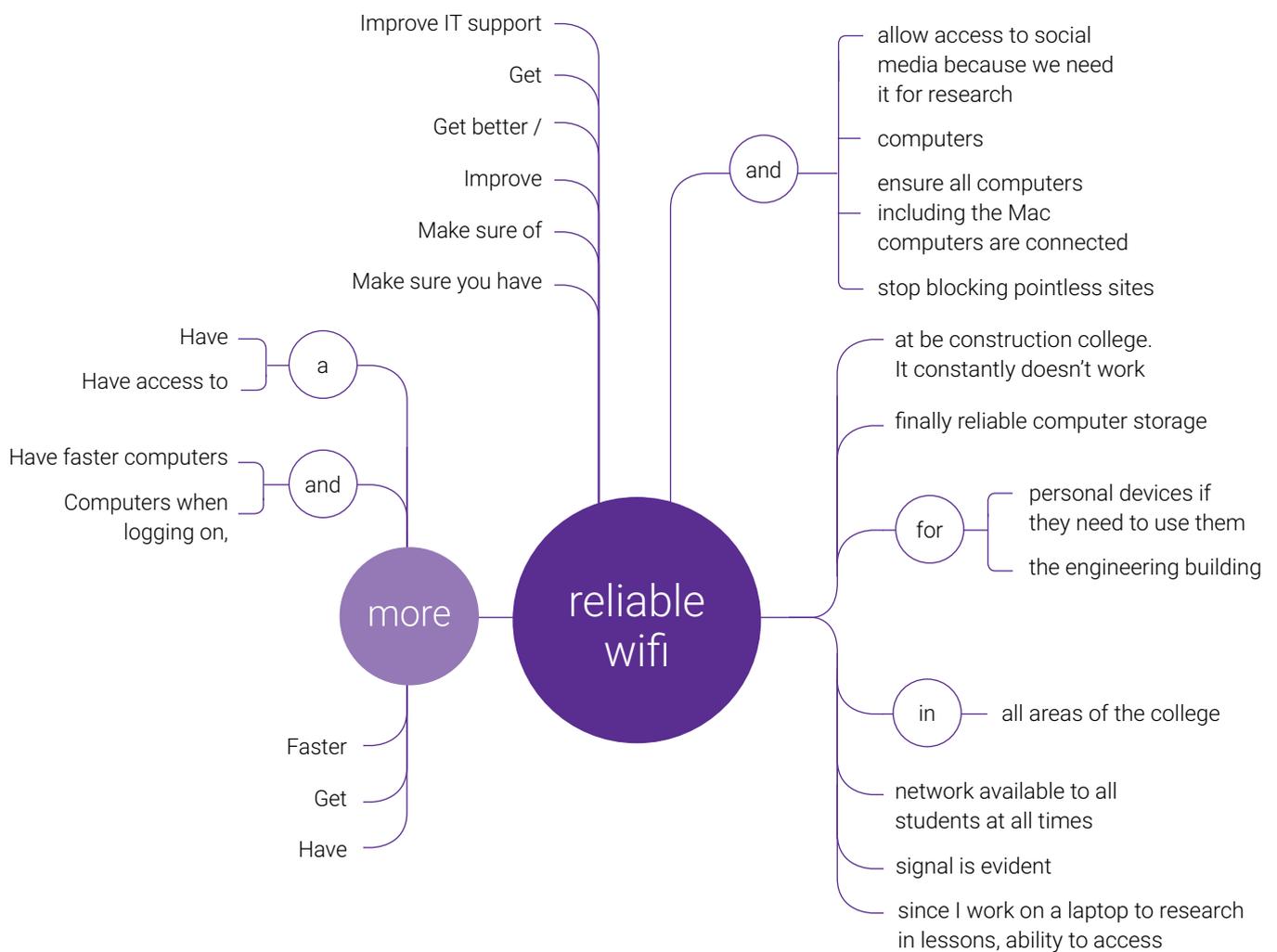
ACCESS TO INSTITUTIONAL DIGITAL RESOURCES



Only seven in ten FE and eight in ten HE students said they had access to reliable wifi at their learning institution.

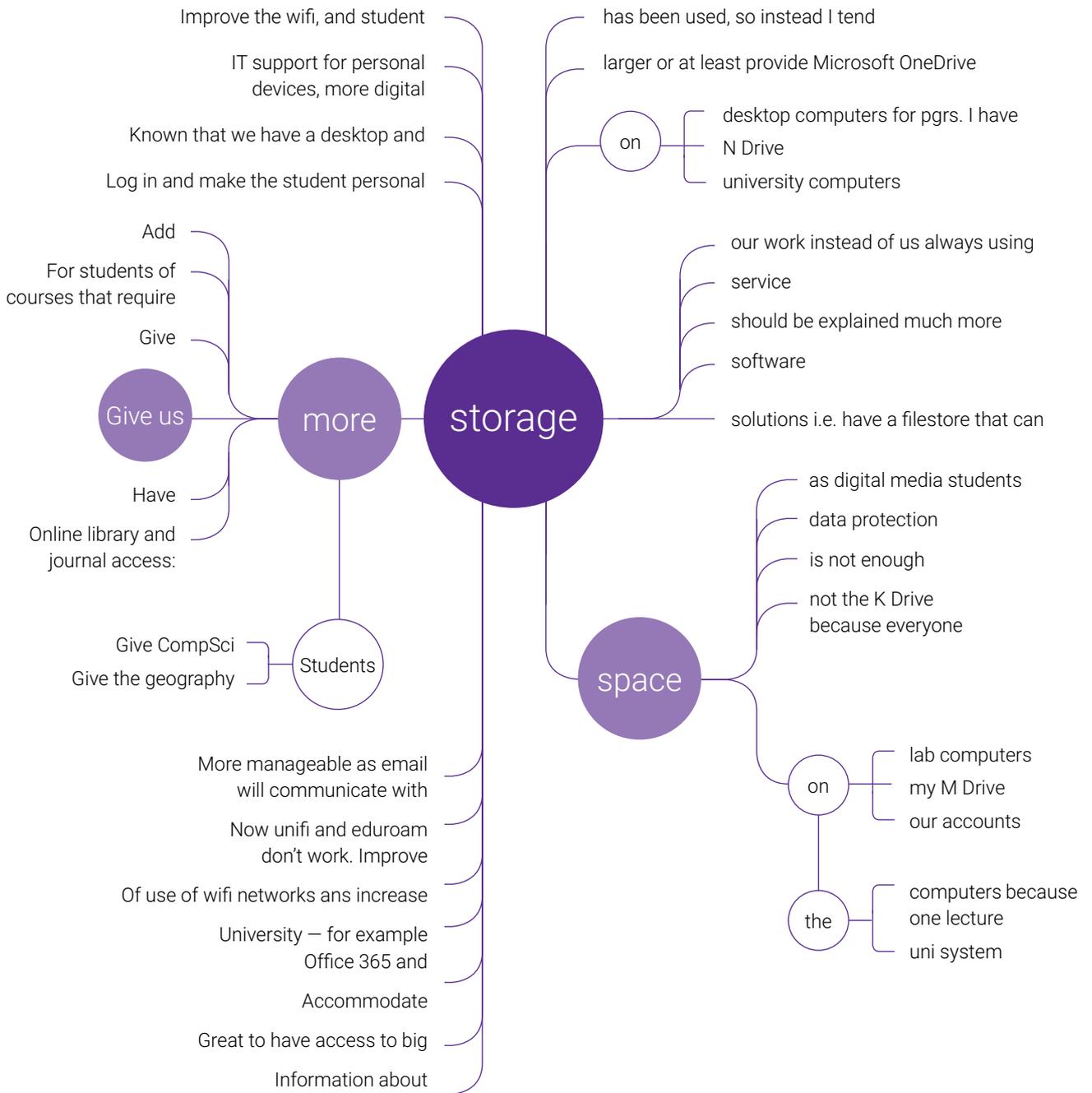
Although reliable wifi was available to seven in ten FE students surveyed, a lack of reliable, robust and ubiquitous wifi was the main complaint FE students raised in their free text comments (1,278 out of 8,274 responses to Q11, or more than 15%, and 330 of 6,464 comments to Q12, or 5%) (see Figure 12). The other major complaint of FE students concerned 'blocking', 'filtering' or not 'allowing' access to web sites.

Figure 12: A word tree created in NVivo to illustrate some of the contexts in which the phrase 'reliable wifi' appeared in FE responses to Q11



Among HE students, a lack of access to file storage emerges as a concern among the free text responses (from Q11 and Q12) when a combined word search is done on related terms ('file', 'storage', 'space' etc) – see the word tree in Figure 13 (page 36).

Figure 13: A word tree created in NVivo to illustrate some of the contexts in which the word 'storage' appears in HE responses to Q11



“ More multimedia in course content such as video or audio, as some people, like me, learn better through this medium.

FE student

Which of these institutionally owned devices do students use to support their learning? (Q8)

Students were asked which of five types of device, owned by their institution, they used to support their learning. Percentage summaries are shown in [Table 12](#).

- » Other than printers, FE students made more use of all types of institutional devices than HE students did. The difference was particularly marked with the use of laptops and tablets, which seem rarely to be provided for use in university settings

Table 12: The percentage of FE and HE students who said that they use various institutionally owned devices to support their learning

| Device | FE students | HE students |
|----------------|-------------|-------------|
| Desktop | 81.5% | 70.6% |
| Laptop | 35.4% | 17.9% |
| Tablet or iPad | 14.8% | 6.0% |
| Smartphone | 16.6% | 7.9% |
| Printer | 65.6% | 68.1% |

How much do students agree with statements about access and support from their institution? (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. Data are summarised in **Figure 14** and **Figure 15**. The table shown summarises the median average answer for each setting.

- » 47% of FE and 54% of HE students agreed that they could access health and wellbeing services online
- » 59% of FE students and 52% of HE students agreed that their institution protected their data privacy
- » 53% of FE students agreed that their institution helped them stay safe online in comparison with only 41% of HE students
- » 59% of FE students and 52% of HE students agreed when asked whether their institution protects their data privacy. Fewer than 5% disagreed
- » Roughly half of all students, regardless of institutional setting, agreed with most of the statements. However only 34% of FE students agreed that they could participate in student union, club or society activities online (in comparison with 48% of HE students), and only 41% of students in HE settings agreed that their institution helped them to stay safe online (in comparison with 53% of FE students)

Figure 14: The percentage of FE students who agreed, had a neutral opinion or disagreed when asked about various aspects of institutional support and provision

FE STUDENTS

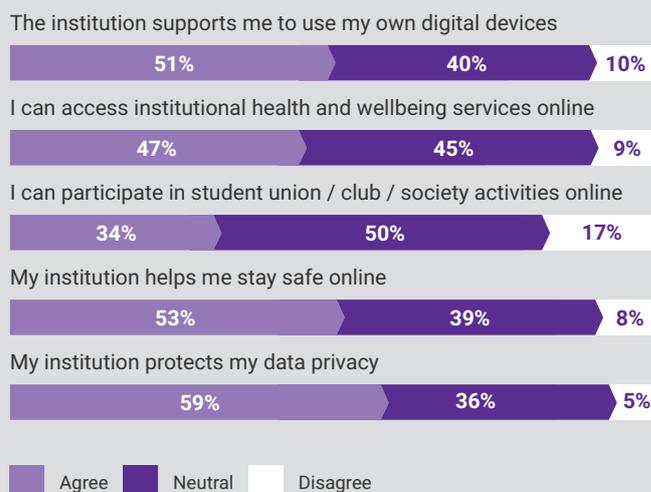
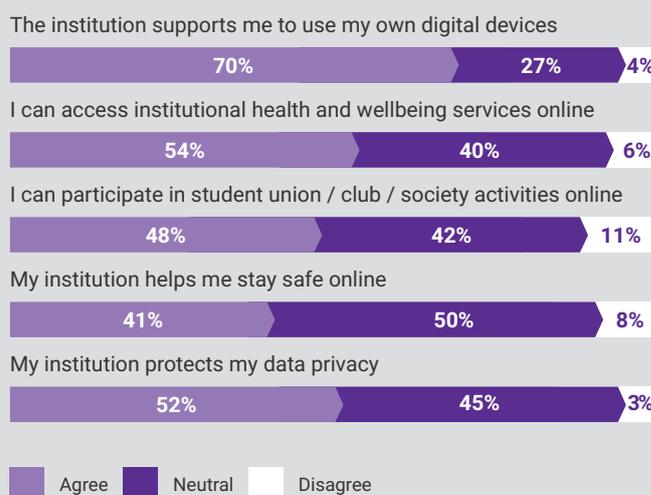


Figure 15: The percentage of HE students who agreed, had a neutral opinion or disagreed when asked about various aspects of institutional support and provision

HE STUDENTS



» **Table 13** summarises the average (median) for FE and HE students. There were two clear differences between FE and HE student average responses:

- » When asked about accessing health and wellbeing services online, the average response from university students was 'agree' whereas for FE students it was 'neutral'
- » When asked whether their institution helped them to stay safe online, the average FE student agreed that they did, whereas the average university student had a neutral opinion

Table 13: The median average FE and HE student response to each question (options were agree, neutral, disagree)

| | Median average (FE students) | Median average (HE students) |
|---|------------------------------|------------------------------|
| The institution supports me to use my own digital devices | Agree | Agree |
| I can access institutional health and wellbeing services online | Neutral | Agree |
| I can participate in student union / club / society activities online | Neutral | Neutral |
| The institution helps me stay safe online | Agree | Neutral |
| My institution protects my data privacy | Agree | Agree |



53% of FE students agreed that their institution helped them stay safe online in comparison with only 41% of HE students.

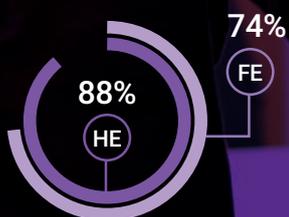




Overall, how do students rate the quality of their institution's digital provision? (Q13)

Students were asked to rate the quality of their institution's digital provision (eg software, hardware and the online learning environment) using a Likert-scale of adjectives derived from the system usability scale.⁷ Percentage summary results are shown in **Figure 16**.

- » 74% of FE students and 88% of HE students rated their institution's digital provision above the mid-point on the scale, choosing to rate it as either good, excellent or best imaginable
- » Only 6% of FE students and 2% of HE students rated it as below average (choosing either poor, awful or worst imaginable)
- » The average (median) rating for institutional digital provision was 'good' from HE and FE students, but overall the results from HE students were statistically more positive:⁸ while a similar percentage of HE and FE students chose 'good', more university students chose 'excellent' and more FE students chose 'average'
- » The median average rating for digital provision was 'good' regardless of student age class, student gender or country in which institution was located



74% of FE students and 88% of HE students rated their institution's digital provision above the mid-point on the scale, choosing to rate it as either good, excellent or best imaginable.

Institutional-level analysis

For those institutions with 100+ student responses (43 universities and 39 FE colleges or sixth form colleges), the individual student data was averaged per institution across the seven point scale (where 1 was best imaginable and 7 was worst imaginable), and these institutional averages were compared. Results were as follows:

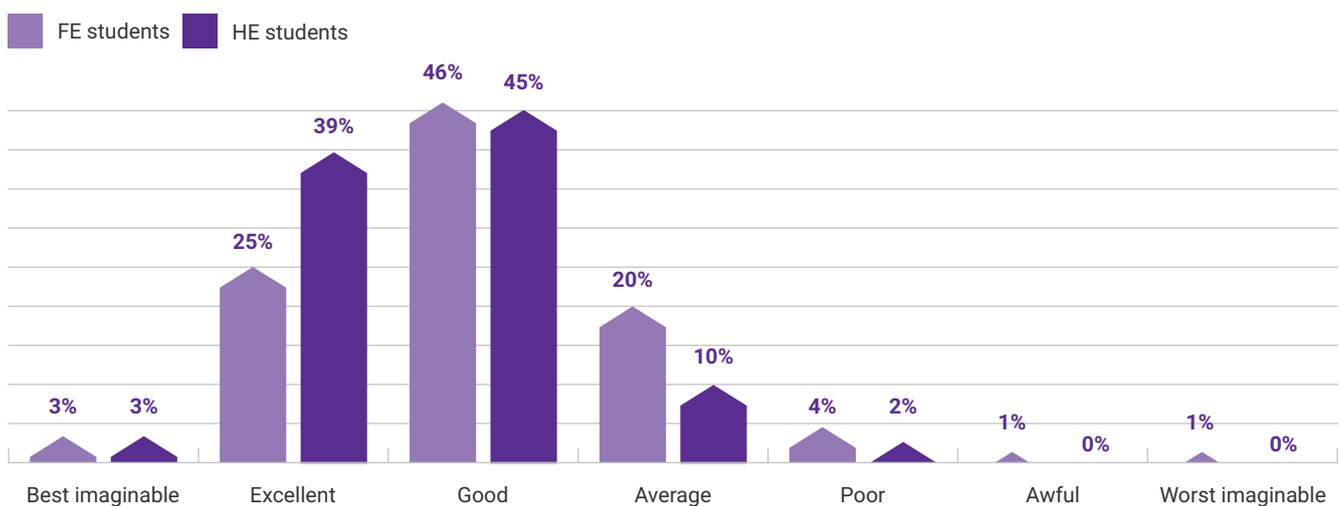
- » The digital infrastructure average rating per institution ranged from 2.44 to 3.55, with an average of 2.87
- » The average digital infrastructure rating was statistically significantly lower for colleges when compared with universities,⁹ suggesting that the

quality of institutional digital provision in terms of software, hardware and the online learning environment is higher in UK universities than FE colleges and sixth form colleges. This result is in line with qualitative comments made by the students (see student personas in Section four, page 58)

- » For universities in this sample there was no significant difference between the average institutional digital infrastructure rating for Russell Group versus not Russell Group universities, by TEF rating, nor those scoring above or below the average National Student Survey (NSS) satisfaction score¹⁰ nor above or below the sample's average research excellence framework (REF) score

Figure 16: The overall rating given by FE and HE students for their institution's digital provision (including software, hardware, and learning environment)

HOW WOULD YOU RATE THE QUALITY OF INSTITUTIONAL DIGITAL PROVISION?



⁷ The 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 ji.sc/SUSBangor.

⁸ Kruskal-Wallis test statistic = 1145.6, df = 1, p < 0.001.

⁹ FE institution = 3.05 ± 0.22, university = 2.73 ± 0.18. ANOVA analysis: df = 1, f = 46.30, p < 0.001.

¹⁰ The NSS satisfaction score for 2017 was identified for every university in this sample. The average across the sample was 85.38. Universities in the sample were divided into two groups (above or below this average) and their student digital infrastructure rating was then compared.



Theme three: digital at course level

As part of their course, how often do students carry out the following digital activities? (Q14)

Students were asked how often they carried out six different named digital activities during their course teaching, and could answer weekly or more, monthly or less, or never. Percentage summary results are shown in [Figure 17](#) and [Figure 18](#).

- » Perhaps unsurprisingly, 86% of FE students and 95% of HE students search online for information weekly or more
- » 27% of FE and 21% of HE students never work online with others. This is borne out by the low number of digital tools cited in free text Q5, and the low number of digital course activities cited in Q14, that could be coded 'collaborative'
- » Use of a polling device or live quizzing is relatively frequent in FE – and we found Kahoot among the most popular apps in free text responses to Q5



Offer trial versions of the software we use on courses so students can practice at home as well.

HE student

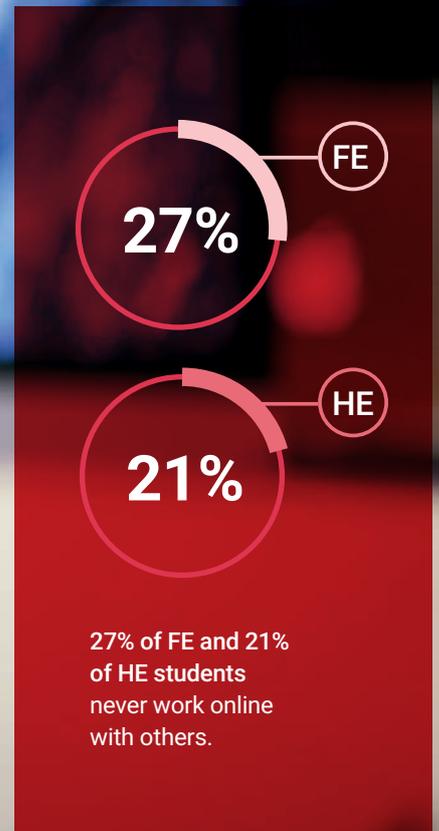


Figure 17: The percentage of FE students who said that they carry out various digital activities weekly or more, monthly or less, or never

FE STUDENTS

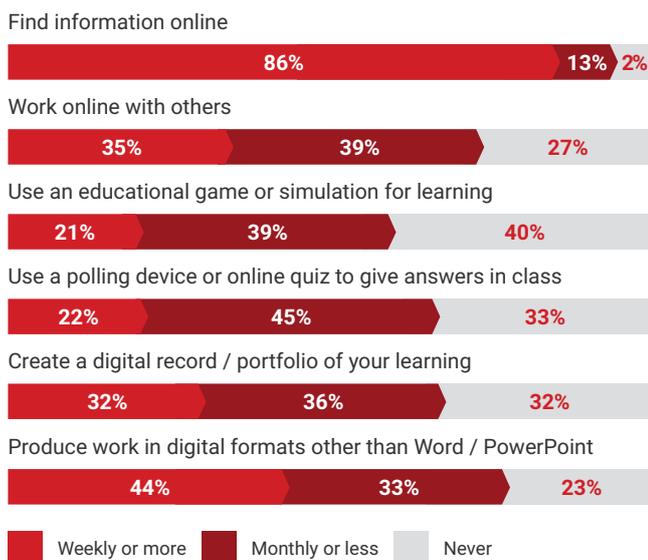


Figure 18: The percentage of HE students who said that they carry out various digital activities weekly or more, monthly or less, or never

HE STUDENTS

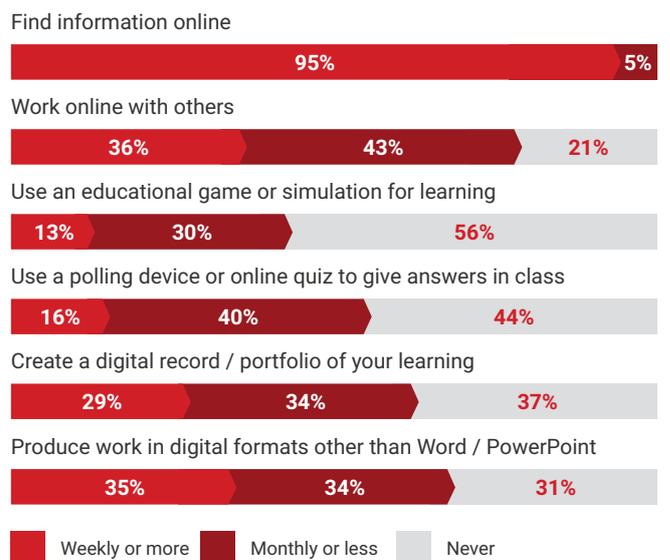


Figure 21: The percentage of FE students who agreed, had a neutral opinion or disagreed when asked about various aspects of their VLE experience

FE STUDENTS

It is well designed



I rely on it to do my coursework



I regularly access it on a mobile device



I enjoy using the collaborative features



I would like it to be used more by my tutors



Agree Neutral Disagree

Figure 22: The percentage of HE students who agreed, had a neutral opinion or disagreed when asked about various aspects of their VLE experience

HE STUDENTS

It is well designed



I rely on it to do my coursework



I regularly access it on a mobile device



I enjoy using the collaborative features



I would like it to be used more by my tutors



Agree Neutral Disagree

How much do you agree with these statements about your VLE? (Q15)

Students were asked how much they agreed with five statements about their VLE, which was identified by name via the customisable option in the survey tool template. They could choose to agree, remain neutral or disagree. Percentage summary results are shown in and [Figure 21](#) and [Figure 22](#).

- » Half of all FE and HE students agreed that their VLE was well designed (only approximately 10% disagreed)
- » About a third more HE students relied on the VLE to do their coursework (75% agreed) in comparison with FE students (48% agreed)
- » Nearly twice as many HE students accessed their VLE regularly via their mobile (62%) in comparison with FE students (38%)
- » The collaborative features of the VLE received the lowest approval from students studying in both HE and FE. This may be because the collaborative features are under-used or it may relate to students' ambivalence about collaborative and group work generally (see Q20, page 57)
- » About a third of all FE students would like their VLE to be used more by their tutors or lecturers in comparison with 42% of HE students
- » These findings confirm the free-text data from Q14a – that students find the institutional VLE useful and increasingly necessary. They rely on it for accessing course materials and completing their coursework. But students do not seem enthusiastic about the VLE, and this is borne out by the critical tone they take towards it in responses to Qs 11 and 12

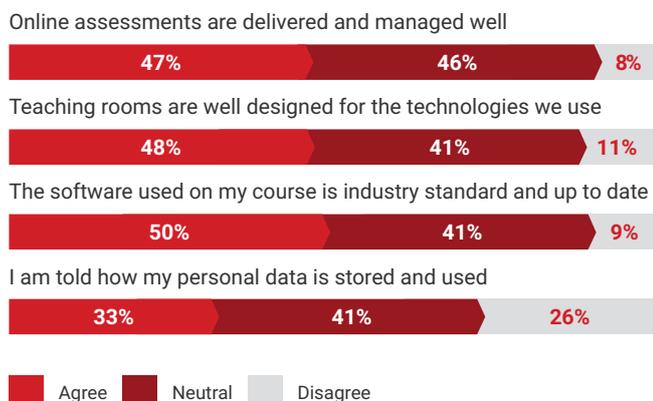
How does digital provision impact on course experience? (Q16)

Students were asked how much they agreed with four statements about the use of digital activities on their course. They could choose to agree, remain neutral or disagree. Percentage summary results are shown in **Figure 23** and **Figure 24**.

- » 47% of FE and 58% of HE students agreed that online assessments were delivered and managed well
- » About half of all FE and HE students agreed that teaching rooms were well designed for the technologies they use
- » 50% of FE and 59% of HE students agreed that the software on their course was industry standard and up to date
- » Only 33% of FE students and only 24% of HE students agreed that they were told how their personal data is stored and used

Figure 23: The percentage of FE students who agreed, had a neutral opinion or disagreed when asked about various aspects of their digital teaching and learning experiences

FE STUDENTS

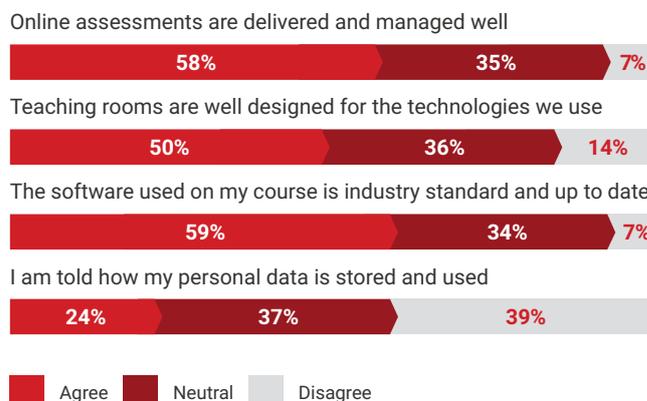


In considering some of the free text comments to this survey, when students were given an opportunity to request improvements to their digital experience (Qs11 and 12), more than 30 HE students and more than 15 FE students chose to request improvements to their data protection and privacy (eg *'[don't] sell students' data to third parties'*, *'provide information on data protection'* *'don't relax on data security'*.) Although the count is still low, it may be an emerging issue.

Issues of hardware and software age came up much more frequently in free text responses to Qs 11 and 12. However, the currency of content was a concern for many students, as much as the currency of the technology used, eg timetables, lecture notes, course links. Up to date software was, however, important in some subject areas with specialised processing requirements (*'upgrade the computers so they can handle footage that needs to be edited without crashing'*).

Figure 24: The percentage of HE students who agreed, had a neutral opinion or disagreed when asked about various aspects of their digital teaching and learning experiences

HE STUDENTS



An NVivo text search on 'room' and 'theatre' (and correlates) among responses to Qs 11 and 12 found 334 HE examples and 131 from FE. On review, these referred mainly to poor wifi, a lack of charging points for laptops and/or available computers, to software only being available in certain rooms, and to problems with lecture capture.

An NVivo text search on 'assessment', 'feedback' and 'exam' (and correlates) among responses to Qs 11 and 12 found a much larger number from HE students (264) than from FE (37).



1/2

About half of all FE and HE students agreed that teaching rooms are well designed for the technologies they use.

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

Students were asked how much they agreed with five further statements relating to digital aspects of their course experience, and how it helped them to develop digital skills and awareness. They could choose to agree, remain neutral or disagree. Percentage summary results are shown in **Figure 25** and **Figure 26**.

- » Only 50% of FE and 69% of HE students thought digital skills were important for their chosen career, suggesting that they were not fully aware of the importance of digital within the modern workplace
- » While 50% of FE students agreed that digital skills will be useful in their chosen career, only 41% felt their course prepared them for the digital workplace, suggesting that their institution was not meeting their expectations in terms of preparation for the digital workplace. Indeed, 15% disagreed when asked if their course prepared them for the digital workplace
- » This picture is similar for HE students: 69% agreed that digital skills were useful for their chosen career, yet only 41% said their course prepared them for the digital workplace. 19% disagreed when asked if their course prepared them for the digital workplace
- » Only about a third of students agreed that they were told what digital skills they would need before starting their course
- » About 40% of FE and HE students agreed that they had regular opportunities to review and update their digital skills
- » Only a third of FE and HE students agreed that they were given the chance to be involved in decisions about digital services

Figure 25: The percentage of FE students who agreed, had a neutral opinion or disagreed when asked about various aspects of their course experience

FE STUDENTS

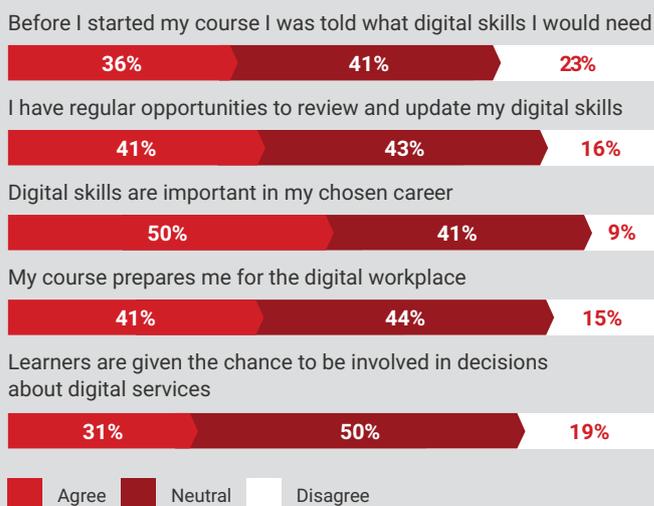
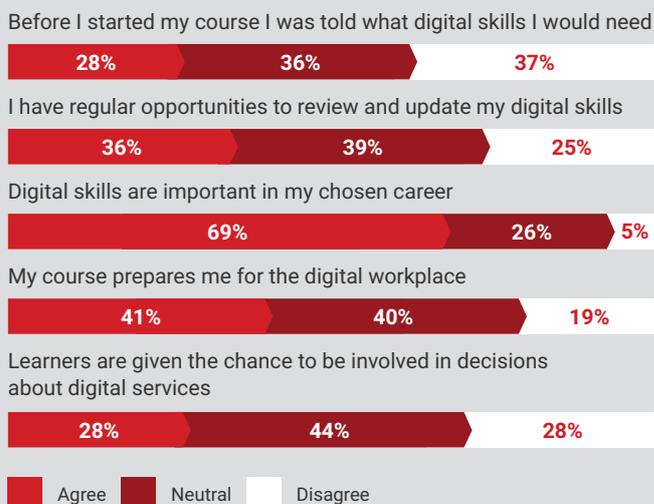


Figure 26: The percentage of HE students who agreed, had a neutral opinion or disagreed when asked about various aspects of their course experience

HE STUDENTS



The issue of digital skills was an important theme to emerge from the analysis of the free text questions (see Q11 and Q12 analysis on page 50), but the context was not obviously students' future careers. The entire corpus of 14,738 responses from FE students to questions 11 and 12 yielded two references to the 'future', and two or three more to 'work' in the sense of employment: none to employment, careers or employability directly. The HE corpus of 29,103 responses turned up only a few more. It's possible that respondents felt this context was understood in the questions about digital skills but it is still striking how few actually mentioned it.

What should institutions do to improve students' experience of digital teaching and learning? (Q11 and 12)

Students were asked two 'free text' questions asking them to describe possible ways in which their institution could improve digital teaching and learning. 72% of HE respondents commented on what their institution should 'do' (16,823 responses) and 52% of respondents commented on what it should 'not do' (12,280 responses). The respective numbers from FE were 58% 'do' (8,274 responses) and 45% 'not do' (6,464 responses).

These questions were designed to yield actionable local information to participating institutions. We anticipated that students would use the opportunity to complain about the issues that concerned them most and we would not suggest they offer a rounded picture of students' digital experience.

Responses to the 'not do' question in particular seem to refer to very local issues and complaints. Because they were also difficult to code at scale, because of the effect of double negatives, this question has not been extensively analysed.

Instead, the entire corpus of responses to both questions has been used in a number of hypothesis-driven text searches to look for themes in support of the quantitative data.

Responses to 'what should we do' have been analysed per sector, using a simple word count, a word search on each of the top 50 terms to gather meaning in context and then to ascertain themes, and finally a reverse search to the original statements to collect short, indicative quotes. Results are as follows:

- » FE respondents were mainly concerned with issues of access: access to reliable wifi, access to their chosen sites and services, usable devices (typically fixed desktops or loaned laptops), suitable locations to study, and support. These were the areas in which they would like their institutions to do better
- » FE students were also likely to say that they wanted to develop their digital skills
- » HE respondents wanted improvements in basic IT services too, but they were more concerned with the quality of those services – especially how joined up and personalised they were – and with the quality of online academic resources such as e-books and e-journals
- » HE students had more to say about the quality of their learning experience with technology, particularly in lectures. Both sets of students were concerned about cost and equity
- » Both FE and HE students were struggling to integrate their personal devices and practices with the institutional digital environment and its restrictions

Figure 27, Figure 28, Figure 29, and Figure 30 (page 50) show the weighted word counts for responses to the two questions across the two sectors. **Table 16** and **Table 17** in appendix 2 show the tabulated results of the thematic analysis for the HE and FE responses.

“ Please don't block access to websites, it impedes my learning.
FE student

Figure 31 and Figure 32 show some of the highlighted themes from Q12 (what one thing should we not do) as they appear in responses from FE and HE students.

Figure 31: A word tree created in NVivo to illustrate some of the contexts in which the word 'blocking' appears in FE responses to Q12

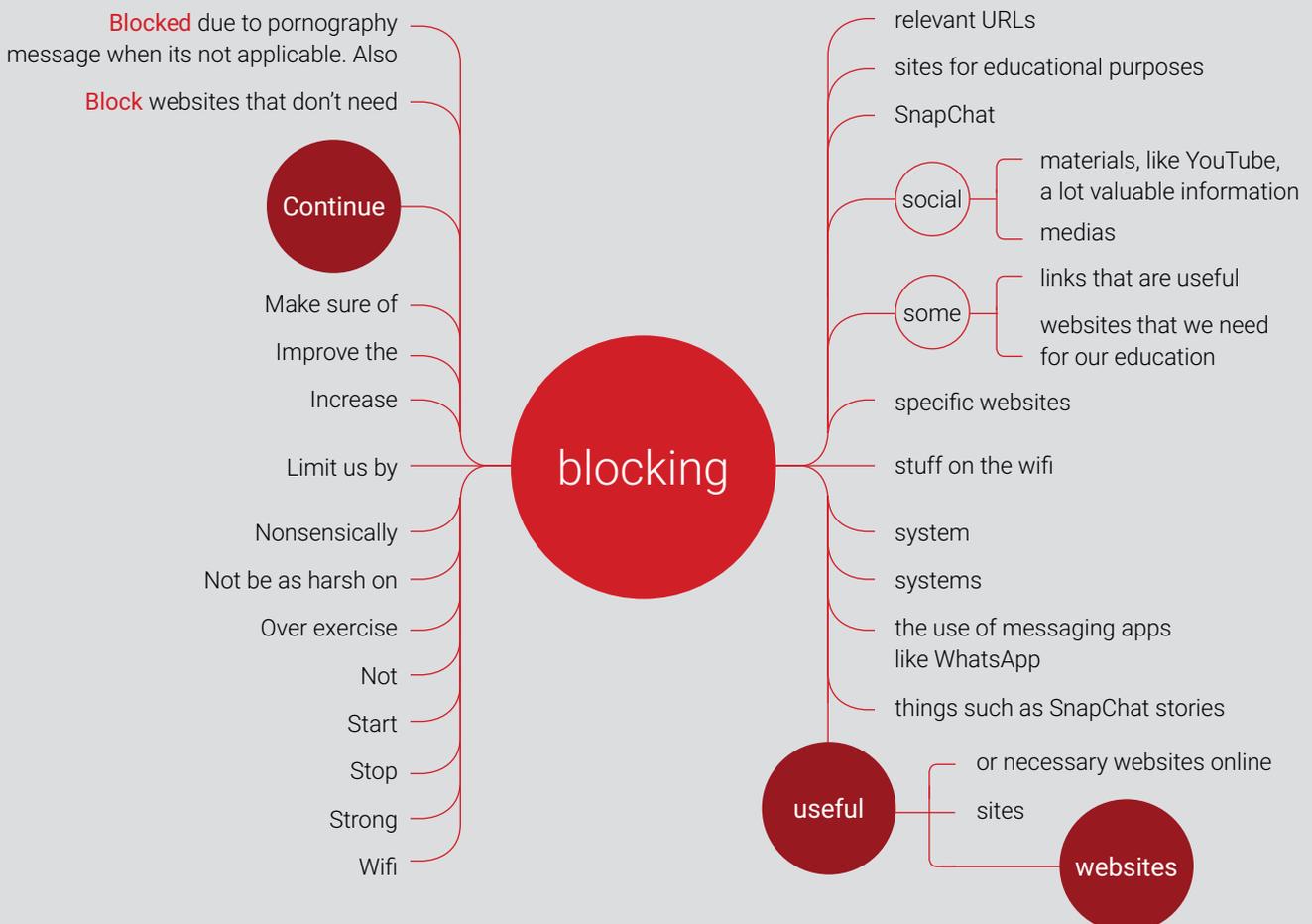
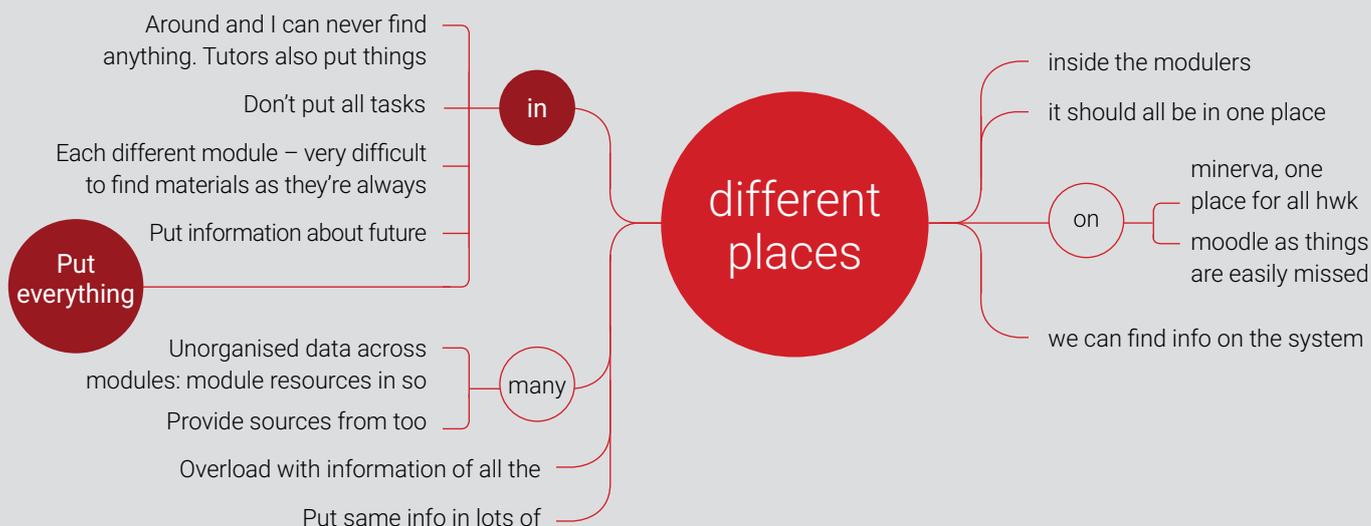


Figure 32: A word tree created in NVivo to illustrate some of the contexts in which the phrase ‘different places’ appears in HE responses to Q12



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 scale.¹¹ Percentage summary results are shown in **Figure 33**.

- » The average student rated their digital teaching and learning as ‘good’
- » Unlike the rating for institutional digital provision (see Q13, page 40), the rating results for quality of teaching and learning from FE and HE students were very similar
- » 72% of students in an FE setting and 74% of those in a university setting rated the quality of digital teaching and learning on their course as above average (choosing to rate it as either good, excellent or best imaginable)
- » Only 6% of students in FE and HE settings rated the quality of digital teaching and learning as below average (choosing either poor, awful or worst imaginable)
- » The median average rating for the quality of digital teaching and learning was ‘good’ regardless of student age class, student gender or country in which institution was located
- » It remained an average of ‘good’ for students from Russell Group and not Russell Group universities, and across all TEF ratings

¹¹ The 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 ji.sc/SUSBangor.

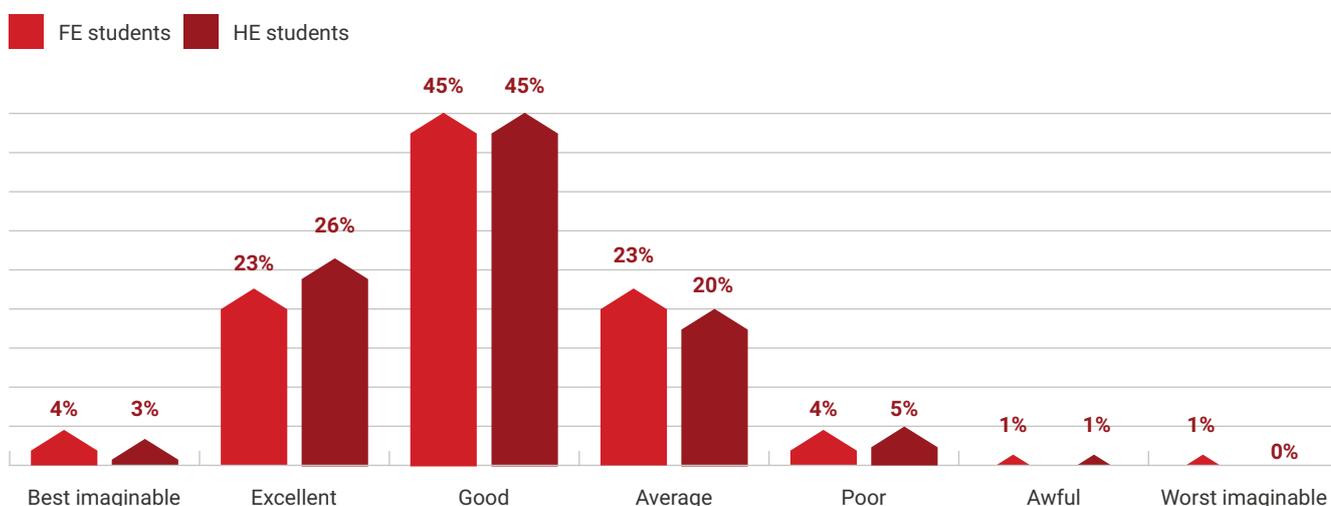
Institutional-level analysis

For those institutions with 100+ student responses (43 universities and 39 FE colleges or sixth form colleges), the individual student data was averaged per institution across the seven-point scale (where 1 was best imaginable and 7 was worst imaginable) and these institutional averages were compared. Results were as follows:

- » The average digital teaching and learning rating per institution ranged from 2.61 to 3.53, with an average of 3.03
- » All participating institutions (universities and colleges) were divided into two groups reflecting whether they had above or below the average number of full-time students across our sample (which was 12,978 students). There was no significant difference in the average digital teaching and learning rating between these two groups
- » There was no significant difference in the average institution's digital teaching and learning rating between FE institutions and universities
- » There was a trend for the average digital teaching and learning rating to be highest in TEF gold-rated institutions than in those rated silver or bronze, but this was not significant¹²
- » There was no significant difference between the average institutional digital teaching and learning rating for Russell Group versus not Russell Group universities, nor those scoring above or below the average NSS satisfaction score¹³ nor above or below the sample's average REF score

Figure 33: The overall rating given by FE and HE students for the digital teaching and learning on their course

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



¹² TEF gold 2.99 ± 0.18, TEF silver 3.01 ± 0.17, TEF bronze = 3.01 ± 0.11. ANOVA analysis: df = 2, f = 0.42, p=0.96.

¹³ The NSS satisfaction score for 2017 was identified for every university in this sample. The average across the sample was 85.38. Universities in the sample were divided into two groups (above or below this average) and their student digital infrastructure rating was then compared.



Theme four: student attitudes to digital

When digital technologies are used on my course I ... (agreement with positive statements) (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 34](#) and [Figure 35](#).

- » 64% of FE students and 73% of HE students agreed that they were more independent in their learning when digital was used. A further 57% (FE) 67% (HE) agreed that digital approaches helped them to fit learning into their life
- » Of all the ways that digital technology might enhance their learning experience, students were least convinced that it made them feel more connected (either with other learners or with their lecturers/tutors)
- » There was a trend for more HE students than FE students to agree with all statements

Figure 34: The percentage of FE students who agreed, had a neutral opinion or disagreed when asked about various aspects of their digital learning experience

FE STUDENTS

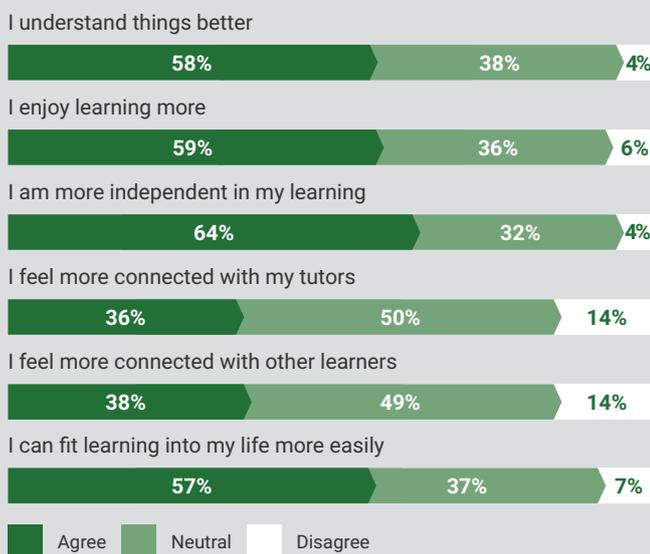
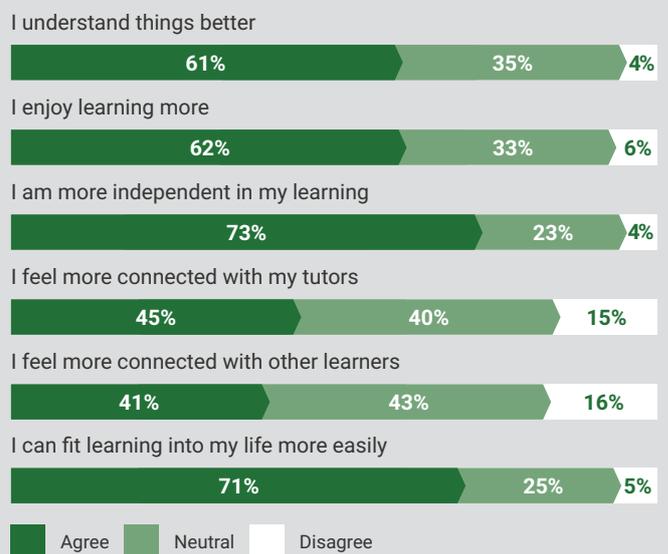
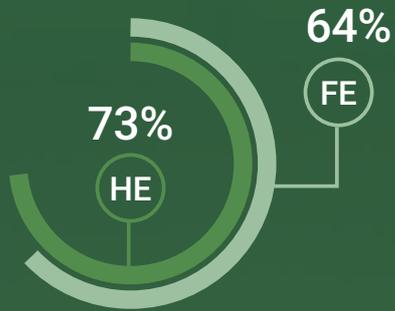


Figure 35: The percentage of HE students who agreed, had a neutral opinion or disagreed when asked about various aspects of their digital learning experience

HE STUDENTS





64% of FE students and 73% of HE students agreed that they are more independent in their learning when digital is used.



When digital technologies are used on my course I ... (agreement with negative statements) (Q21)

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 36** and **Figure 37**.

- » Results from FE and HE students were broadly similar
- » Half of students disagreed when asked whether the use of digital on their course meant they were less likely to attend class, made them feel more isolated and made it harder for them to get motivated
- » The highest level of agreement came when students were asked if the use of digital technologies meant they were more easily distracted, but this was still low (only two in ten students agreed they were more easily distracted when technology was used on their course)
- » These findings are borne out by the free text statements. Although students had issues with specific aspects of their digital learning experience, the number that were negative or cynical about digital learning per se was very small

“ Improve the online availability and ease of access to library resources from home.
HE student

Figure 36: The percentage of FE students who agreed, had a neutral opinion or disagreed when asked about various aspects of their digital learning experience

FE STUDENTS

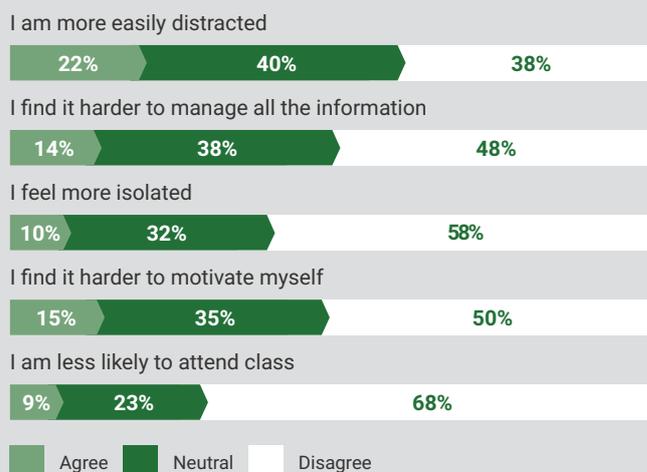
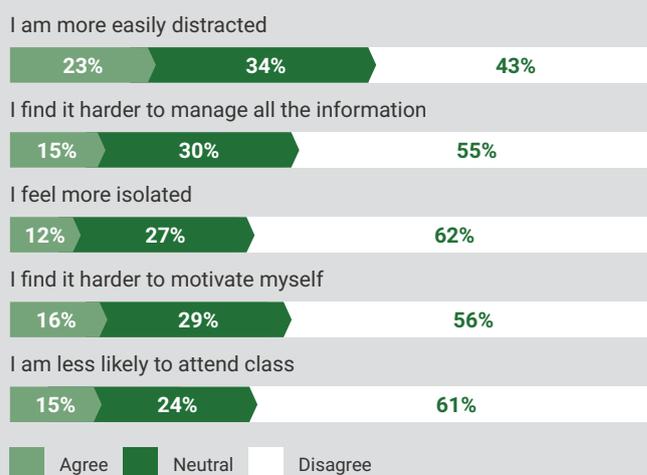


Figure 37: The percentage of HE students who agreed, had a neutral opinion or disagreed when asked about various aspects of their digital learning experience

HE STUDENTS



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

Students were asked to describe their preference as a learner for individual versus group work. Results are summarised in **Figure 38**.

- » The proportion of students who liked a mix of group and individual learning was similar for FE and HE learners
- » In contrast, there was a clear difference in the proportion who liked to learn on their own and learn in a group: more HE students than FE students preferred to learn on their own (HE: 41%, FE: 35%) and fewer HE students preferred to learn in a group (HE: 3%, FE 11%)
- » This difference is statistically significant¹⁴

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, and could answer more, same or less than they are now. Results are summarised in **Figure 39**.

- » Results from FE and HE students were broadly similar
- » More than a third of all students wanted digital technologies to be used more on their course than they currently were used (FE: 32%, HE: 37%); 60% were happy with the amount of digital technology currently in use and only 5% wished for it to be used less

These findings can be read alongside the many positive suggestions learners made in the free text questions for improvements to their digital teaching and learning. HE students in particular were inclined to make confident suggestions if they could compare their current experience with digital learning at another university.

One was wise enough to point out that students' perspectives, essential though they are, should be triangulated with other sources of data about what is possible and by looking at the ways that other universities support digital learning.

Figure 38: The percentage of FE and HE students who said that they prefer to learn in a group, a mix of group and individual work, or on their own

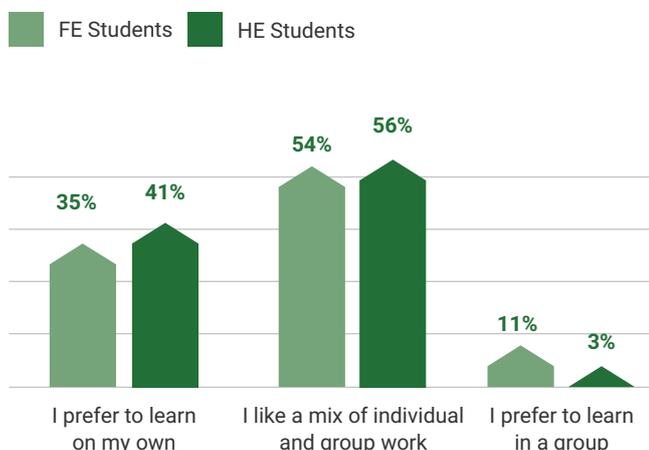
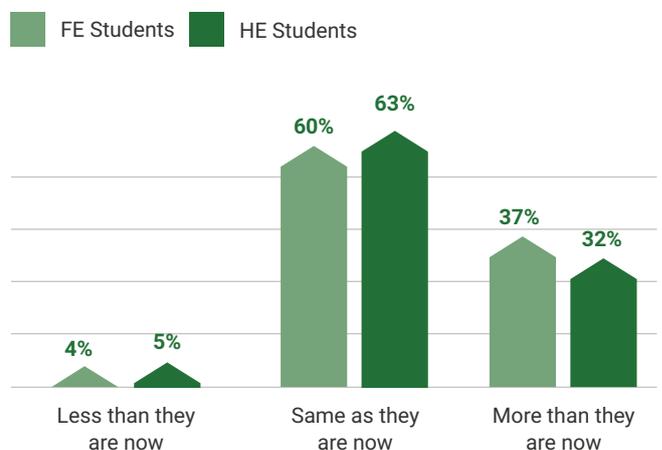


Figure 39: The percentage of FE and HE students who said that they want digital technologies to be used more often, about the same or less often than they are now



¹⁴Chi Square = 865.0, df=2, p<0.01.

Introducing Frankie and Harley: two illustrative student personas

A number of key trends stand out from the qualitative and quantitative data in this report. To articulate these trends using the voices of 'students' we have created two illustrative personas, Frankie and Harley. While they are not real students, the descriptions reflect the digital experiences of students studying in further and higher education in 2018.

Frankie, 19, FE student

Frankie is a 19-year-old FE student, studying for a BTEC at a medium-sized FE college.

Frankie has regular access to a college laptop or desktop but not always at the right time and not always with the right software installed. Searching with Google and accessing the VLE are the two activities Frankie does most regularly online.

Frankie would like the wifi signal to be more reliable and more available across campus, including in the canteen and social areas.

Frankie has a smartphone and uses it for taking notes and photos: it would be a good idea if this was encouraged in every class. The college should also unblock some of the websites such as YouTube and Pinterest that are useful for learning.

Frankie really enjoys using Kahoot to test knowledge and participate in class. Frankie also likes working on group presentations with other students, though it's hard to find a spare computer where they can all work together and they all have different devices and apps of their own.

Frankie thinks the quality of digital learning on the course is good, but that college software and hardware should be brought up to date so that it better reflects what will be used in the workplace.

Cost is an important concern for Frankie. The college should offer device loans and free data, and should suggest free or low cost alternatives to the software they use in class. Frankie trusts friends and course tutors to give good advice about digital issues and has support for developing digital skills, especially for staying safe online. Digital skills will be important in the work Frankie hopes to do the future. But Frankie isn't confident that the course is offering the best foundation for the digital workplace.



Harley, 20, HE student

Harley is a 20-year-old HE student, studying for an undergraduate degree. Harley is at an institution of around 20,000 learners. The university has good digital infrastructure, with reliable wifi across campus and an established VLE.

Harley has a laptop for study and uses it every day to access lecture notes and online resources, including resources not directly recommended by the lecturer.

However, Harley still needs to use computers in the library to find journals and the department's computer suite for specialist software. They are often busy and noisy.

Harley would like more bookable study rooms with computers in them, and more plug sockets everywhere. Harley would also like to be able to print directly from the laptop.

Harley enjoys using subject-specialist software such as design tools, data analysis and simulations.

Harley thinks the quality of digital learning is good but would like more consistency from lecturers in their digital methods. For example, lecture notes should always be available in advance for note-taking and lectures should be recorded and uploaded to the VLE.

Harley relies on the VLE for course information but is less keen on using it for collaboration. Independence and flexibility are really important for fitting study into a busy life, which is why it's so valuable to have mobile access to course materials on and off the campus.

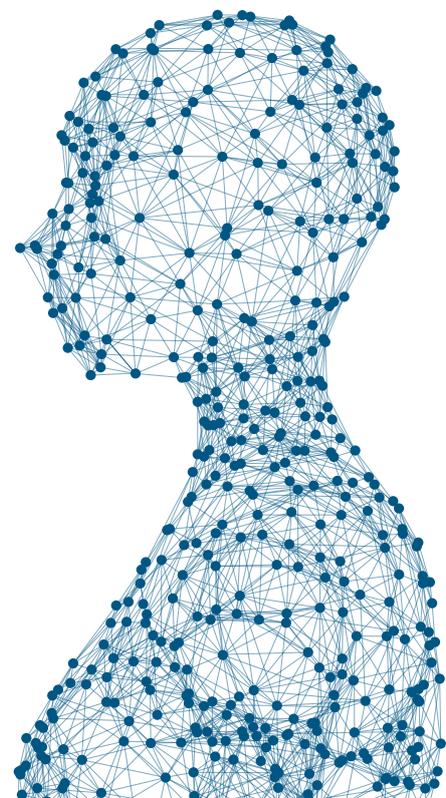
Harley uses a wide range of search tools and catalogues but ideally would like the reading list to have live links to electronic texts. More e-books and e-journals should be available to students on subscription.

Value for money is an important concern.

Harley thinks the university should provide students with the specialist software they need – on their own devices – as part of their tuition fee. This would help to ensure they are prepared for what employers expect in the workplace. The university should also help Harley to stay organised by providing a personalised calendar and access to personal grades and deadlines. Harley would also like cheaper printing!

Harley expects to be fairly independent and self-reliant when it comes to digital skills. There are always friends to ask or online videos to view if you need to know how to do something. However, Harley sometimes worries about staying safe online, as friends have got into trouble and not always known where to turn for support. It's a good thing that health and wellbeing services are now available to students online as well as in the student hub.

Harley expects digital skills to be important in any future career and wants to know that the university is preparing students for the digital technologies of the future.



Appendix 1

The following institutions used at least one version of the tracker online survey and collected at least five responses from students during September 2017 and April 2018:

- » Abertay University
- » Aberystwyth University
- » Accrington and Rossendale College
- » ACT Training Services
- » Addysg Oedolion Cymru (Adult Learning Wales)
- » Barking and Dagenham College
- » Bath College
- » Berkshire College of Agriculture
- » Bexhill 6th Form College
- » Bishop Grosseteste University
- » Borders College
- » Brunel University London
- » Canterbury Christ Church University
- » Cardiff and Vale College
- » Cardiff Metropolitan University
- » Carmel College
- » Ceredigion County Council
- » Chelmsford College
- » City of Sunderland College
- » City of Wolverhampton College
- » Coleg Gwent
- » College of North West London
- » Coventry University
- » Cranfield University
- » Derby Adult Learning Service
- » Derwentside College
- » DN Colleges Group
- » EDUC8 Training Limited
- » Exeter College
- » Falmouth University
- » Glasgow Kelvin College
- » Gloucestershire College
- » Grimsby Institute of Further and Higher Education
- » Harlow College
- » Hartpury College
- » Hereford Sixth Form College
- » Hull College
- » ITEC Training Solutions Ltd
- » Kingston Maurward College
- » Lincoln College
- » London South Bank University
- » Myerscough College
- » North East Scotland College
- » Northampton College
- » Northern Regional College
- » Oldham Sixth Form College
- » Oxford Brookes University
- » Petroc College
- » Sheffield College
- » Sheffield Hallam University
- » Shipley College
- » South and City College Birmingham
- » St Mary's University, Twickenham
- » Staffordshire University
- » Stockport College
- » Swansea University
- » Tees Valley Collaborative Trust (Prior Pursglove 6th Form)
- » Tees Valley Collaborative Trust (Stockton 6th Form)
- » The Oldham College
- » The Open University
- » The Royal Agricultural University
- » The University of Aberdeen
- » The University of Bradford
- » The University of Chichester
- » The University of Edinburgh
- » The University of Essex
- » The University of Glasgow
- » The University of Lancaster
- » The University of Leeds
- » The University of Liverpool
- » The University of Northampton
- » The University of Nottingham
- » The University of Portsmouth
- » The University of Sheffield
- » The University of St Andrews
- » The University of Stirling
- » The University of the West of Scotland
- » The University of Westminster
- » University of Derby
- » University of Durham
- » University of Hertfordshire
- » University of Keele
- » University of Suffolk
- » University of Ulster
- » University of Winchester
- » University of York
- » West Highland College UHI
- » West Nottinghamshire College
- » York St John University

Appendix 2

Thematic analysis for 'What digital activities do students find useful on their course?'

Table 14: Detail of the FE 'learning activity' themes coded from free text responses to Q14a: useful course digital activity. Themes coded from top 50 responses by word count

| High level code | Associated verbs | Associated tools/resources | Indicative quotes/examples |
|----------------------------------|--|--|---|
| Access (learning content) | Listen, look (at), watch, access, read, view, see, absorb, play (eg video) | PowerPoint, videos, e-books, materials, resources, readings, slides, VLE | Videos of lessons to listen to at home; watching or listening to interesting videos or podcasts about the topic; studying course PowerPoints through Moodle; online gives me more information without taking ages to learn it all. |
| Be tested | Answer (questions), (be)assessed, test (knowledge), quiz | Kahoot, Moodle, online | Online quiz using our phones to answer questions on the smart board; using quiz websites/apps like Kahoot to test subject knowledge; a weekly quiz in class which is fun and informative. |
| Create | Create, edit, make, build, produce, design, present, format, sequence, publish, code | Adobe, Photoshop, Prezi, PowerPoint, coding | Producing concept designs for my media class using Adobe Photoshop and Illustrator; making presentations forces you to learn the material; making your own revision packs using the internet and class notes; coding and using assembly programs. |
| Search or research | Find (out), research, search, look (for) | Google, online | Online search for information as part of a study exercise; using guides and catalogues to find research online. |
| Explore/play | Explore, play, practice, discover, compete, games | Kahoot, quizzes, games | Playing Kahoot with the class in maths really helps; you can keep playing until you get it right; using educational games you can learn without easily being bored. |
| Write | Write, (make/take) notes, document, record, note (down), jot (down), post, compose, reference, produce | PowerPoint, Word, Google Docs, blog, Padlet, laptop, tablet | Writing notes on topics on PowerPoint; posting and comparing exam questions on Padlet; I was asked to write a development blog every day: this helped me keep track of my work. |
| Engage (in class) | (Be) interested, engaged, motivated | Kahoot, game, activity | Kahoot – interactive, engaging, educating; team activities in general are a lovely way to learn something during lessons; I use pre-made Kahoots to help improve my memory; |
| Collaborate | Collaborate, share, discuss, brainstorm, work (together/in groups), (be)involved, socialise | PowerPoint or presentations, Google Docs, tasks | Use of TitanPad or OneNote group forums during tutorials allows for more collaborative group work; using Outlook to arrange meetings and share calendars; using OneNote to share ideas. |

| High level code | Associated verbs | Associated tools/resources | Indicative quotes/examples |
|------------------|---|--|--|
| Organise (work) | Access, submit, upload, download, hand in, file, store | Moodle, Blackboard, VLE | Being able to store my work digitally on a memory stick; having everything online or to download on Blackboard; being able to access the information from lessons anywhere through Moodle. |
| Analyse | Analyse, understand, interpret, explain, produce (results, graphs, answer), cost, solve | Excel, database, graph, chart | Producing visual graphs for data analysis; making graphs with Desmos to test functions; interpret data from SurveyMonkey and produce results in chart form. |
| Review | Revise, review, recall, remember | Kahoot, quiz, VLE PowerPoint(s) | The ability to review lectures on Canvas; because you can keep trying until you get it right, then write it down for revision; Kahoot – useful for revision and reinforcing information; digital diary lets us keep on top of what we learned. |
| Organise (ideas) | Organise, sequence, connect, link, gather, merge, collect, compare, recap, label, map | VLE, log, portfolio, Padlet, mindmapping tools | Compiling class ideas using Padlet; using PowerPoint/word to plan out essay responses; I did a digital mindmap timeline. |
| Show(case) | Show, display | Portfolio | Using an online portfolio rather than physical hand-ins has been extremely convenient; producing professional grade portfolios; using an online portfolio to display my work. |

Table 15: Detail of the HE 'learning activity' themes coded from free text responses to Q14a: useful course digital activity. Themes coded from top 50 responses by word count

| High level code | Associated verbs | Associated tools/resources | Indicative quotes/examples |
|----------------------|--|--|--|
| Search or research | Search, research, find, locate, access | Google, Scholar, YouTube, reading list, Blackboard, Moodle, Canvas, web of science, library catalogue, (e)journals, articles, (e)books | Searching for books and journals independently; finding alternative explanations online; interviews with researchers, cross referencing different authors and sources; finding research studies on Google Scholar. |
| Engage (in lectures) | Listen, watch, ask, answer, pose, respond, vote, poll, focus, contribute | PowerPoint, keynote, quiz, poll, Socrative, Kahoot, Mentimeter, TurningPoint, Top Hat, Clicker, Poll Everywhere | Quiz during class to check or reinforce understanding of key concepts; a website that allowed us to write questions and comments our lecturer could view in real time; polls in lectures make it more interactive and engaging; you can answer without worrying about other people's opinions; really helped me stay focused in class. |
| Review | Revise, look (back), go over, recap, reinforce, consolidate, remember | Lecture recordings, lecture capture, lecture notes, Padlet, blog, PowerPoint, VLE | Being able to look back at a lecture PowerPoint later in the day to cement information; lecture capture – it allows me to revisit and direct lectures at my own pace, helps students to cement what they have learned; weekly blog posts on topics discussed in the lecture. |

| High level code | Associated verbs | Associated tools/resources | Indicative quotes/examples |
|-------------------------|--|--|--|
| Discuss | Interact, share, discuss, chat, | VLE, forum, chat, Facebook, Blackboard, Moodle, social media, Slack, Padlet, discussion board, WhatsApp, Snapchat, Messenger | Course Facebook page to ask lecturers questions relating to coursework; online meetings with my group using the chat service to share ideas; I enjoyed the encouragement to share learning with my group via Moodle and WhatsApp. |
| Be tested | Answer, review, test, quiz, (get) feedback | Quiz, test, Kahoot, Socrative, Moodle, online | Polls to test understanding levels before leaving the lecture; online quiz that gives instant answers or solutions; online quizzes after reading the learning materials, to test... how effective the revision was; website tested me on the question I input which helped me learn some topics I struggled with. |
| View (to learn) | View, review, watch, play | PowerPoint, video | I prefer videos to reading information: I learn better; PowerPoint is really good for me as I learn visually; videos to inspire and help us with our composition task; online video lectures took us places we couldn't easily go in real life; animations to play around with to understand statistical analyses. |
| Collaborate | Work (with/in groups), share, produce | MS Project, Google Docs, PowerPoint, Prezi, VLE (forum), Padlet, Dropbox, blog | Using Google Docs as a group to do project work together; we worked as a team to create a PowerPoint that we could all access at the same time; digital forum – being able to see other people's work really has helped me; learning how to use certain programs by collaborating with another course. |
| Organise (work) | Organise, access, manage | VLE, Trello, (Google) calendar, Dropbox, Doodle poll, project management tools, Trello | I feel like I know where I am because it is all in one place; creating my own folders helped my organisational skills; using Doodle poll to organise group work; being able to automatically sync my timetable of lectures and tutorials to my Google calendar; using a Trello board to help manage tasks. |
| Organise (ideas) | Curate, collate, summarise, manage, map | EndNote, Evernote, OneNote, Word | Using MS OneNote to organise all the work for each subject; using the app Bookends to manage all my bibliographic data and EndNote to keep notes on articles/readings; write and cite is really useful for collating references; making mindmaps and puzzles to help with memory. |
| Create | Create, make, produce, code, graph, draw, narrate, compile | Adobe software, coding, video or audio editing, | Group compilation of 'dictionary definitions' of industry words to create a mini dictionary for the course; using PhotoPeach to create a poem; learning the very basics of coding in order to create digital writing pieces; visualising theory through graphs that we made by inputting data. |
| Annotate | Note, annotate, comment, contribute, post, write/rewrite | Word, Adobe, PowerPoint, Keynote, Padlet | Adobe reader to annotate lecture notes in pdf format; Keynote on iPhone makes it possible to write notes on lecture slides; being able to take notes while listening to a lecture recording; Google drive for note taking and sharing; annotating a text alongside other students; giving feedback on fellow students' blog posts. |

| High level code | Associated verbs | Associated tools/resources | Indicative quotes/examples |
|-------------------------|---|---|---|
| Present | Present, upload, show, share | PowerPoint, video, Sway, Prezi, Padlet | We were asked to make a video of ourselves while doing a presentation – and upload the same on YouTube; write and draw answers on iPad and then present on a screen; creating films to present a piece of work; GraphPad software for data presentation; using Padlet in groups to present an idea. |
| Practice | Develop (skills), learn how, practice | Subject-specialist software, Lynda.com (now LinkedIn Learning), videos, simulations | Some video material has been better for understanding skills than a text description; how-to videos relevant to classes and assessments; the creation of my digital story has taught me how to use different software; a virtual laboratory simulation was helpful for learning lab skills without having to wait hours between processes; simulation scenarios keep me up to date on my resuss skills. |
| Analyse or solve | Analyse, calculate, solve, decide, evaluate | Excel, SPSS, NVivo, subject specialist software, GIS, simulations | Using stackoverflow.com to find the answers to programming problems; simulation game during business decision-making module; how to use Excel to solve complex mathematical problems; online lab to analyse an enzyme; transcription software for conversation analysis; tutorials on how computer analysis is used in real research. |
| Get feedback | Answer, reflect, learn | email, quiz, game, online tutorial, simulation | Getting feedback online through annotated comments; using group email for advice and feedback on assignments; gives instant feedback or solutions after you give your answer. |
| Explore/play | Play, use, interact, learn | game, simulation, quiz, subject-specific resource | Gaming apps for stimulating class discussion; using a [bacteria] game on a tablet in biosciences; game that helps understand a historic text; quantum mechanics virtual simulations. |
| Reflect | Record, log | (digital) diary, log, portfolio | The learning journal [is] very helpful to reflect on my work. Creating a video diary was a good skill. |

Thematic analysis for “What should the institution do to improve teaching and learning?”

Table 16: Thematic analysis of FE student responses to Q11 (‘What one thing should your institution do to improve your experience of digital learning and teaching?’) based on 8274 responses

| Main themes (FE students) | Sub-themes | Indicative quotes/examples |
|---------------------------------|---|--|
| Wifi and connectivity | Make wifi more reliable, stable, faster, stronger | Make the wifi faster to avoid disrupting our rhythm of learning. For someone who uses their own devices, the wifi is atrocious, constantly dropping out and preventing me researching for my assignments. |
| | Make wifi available in more areas (including informal areas) | Offer more stable wifi in the refectory and canteen; have reliable wifi in games room and study areas. |
| | Make wifi available on students' own devices | Make college wifi accessible on all phones. A faster and more open internet service. |
| Access to hardware | Provide more and better desktop computers | Purchase more computers as there are not enough for every student in my class. Upgrade the computers so they can actually handle footage that needs to be edited without crashing. The computers are broken and old. |
| | Provide more and better laptops | More access to better laptops – some of the departments have laptops that are absolutely ancient! Fix laptops. I got to the end of this questionnaire and the laptop switched off – so I have to do it again. |
| | Provide access to printing | Better access to printers ie cheaper, or printing allowance; have more printers and so they are easier to get to for disabled students. |
| Access to software and services | Provide subject-specialist, industry standard software eg CAD, editing, project management, multimedia, animation, gaming | More computers with Adobe software and more computers in media rooms. The version [of interactive board software] the college has is much older than the free trial version I downloaded to my laptop, resulting in features not working in my teaching practice session. |
| | Make subject-specialist software available on more or most college computers | I need access to my course programmes on all the computers at college to complete my work on time. Some computers don't have full access to certain tools (some may be missing Adobe software or even Office). Software applicable to my course available on college owned devices (eg Adobe). |
| | Simplify access to college services and systems | Try to improve the reliability of the online services students must use; We should only have to log in once to get on the college web site. I am also enrolled in some courses that are not on [the VLE] and looking at all the grades all together in one place is impossible. |

| Main themes (FE students) | Sub-themes | Indicative quotes/examples |
|---------------------------------------|--|---|
| Access to content | Unblock useful web sites | Unblock sites that are genuinely needed for learning. Check the websites we have access to as many dictionaries are blocked. I'm looking for learning resources on clearly safe and trusted websites eg BBC and multiple pop-up warnings appear. |
| | Enable use of (social) media sites and services for learning eg YouTube, Snapchat, dictionaries, BBC, Pinterest. | To be able to use my own resources instead of teachers restricting you to one website. Unblock certain websites such as YouTube in order to look for resources. Allow all social media apps to expand the accessibility of our learning and help us learn in a way we feel comfortable. |
| | Provide online or mobile access to all course materials | Make all class resources available online such as PowerPoint slides. Make all information online available on all devices. Let us access [the VLE] on our smartphones. Give us access to better learning tools from home. |
| | Ensure resources are updated regularly | Make sure the course materials are up to date on [the VLE]. |
| | Ensure resources (typically on a VLE) are well organised or structured | Better guidance to lecturers on how to structure the online material within folders. Streamline the [VLE] experience by making it easier to navigate to relevant courses and resources. Lay out the landing page in a neater or clearer way to make it easier to access specific resources. |
| | Ensure resources are fully accessible | More accessible course materials – hand-outs, presentations, additional info. Provide all PowerPoint from lessons onto Moodle that are accessible and set out clearly. |
| | Support students to access resources | Give more teaching on how to find good resources and reference them. Have our tutorials on accessing resources earlier in the academic year. Recommend more online learning resources, websites and apps. Make sure every student gets an induction of how to use the resources at least every three months. |
| | Provide access to e-books relevant to the course | e-books should be free to every student on every course: having limited tokens slows down classroom productivity. |
| Use of personal devices (BYOD) | Allow use of devices in class (mainly phones but also laptops and headphones) | Let us take notes on our phones to save money on paper. Allow us to access the internet through our phones for a more efficient way of browsing. Let us use our phones in lessons to research and take pictures of important notes. |
| | Enable device connection and charging | Make the internet service easier to access on personal devices. Have safe to use charging points. More plugs available to charge student-owned laptops. Provide extra external storage. Unblock device instalment (I cannot use my drawing tablet on college PCs). Allow personal computers to connect to printers. |
| | Provide apps or signpost to useful apps | Offer a time management service or app to schedule revision sessions, appointments with tutors etc. Make an app that allows students to communicate with each other. Make the student portal an app available on phones. |
| | Treat BYOD as an accessibility agenda | Make the internet service easier to access on personal devices and have more printers so they are easier to get to for disabled students. |
| | Provide more and more varied computer spaces | Have more work areas with computer access as the study centre is always full. Provide space for more computers in the library and more quiet study spaces. |
| | Provide reliable back-up and sufficient storage | Make sure files don't randomly get lost on desktop computers after being saved. Provide more storage for students and back-up to ensure work isn't completely lost. |

| Main themes (FE students) | Sub-themes | Indicative quotes/examples |
|------------------------------|--|--|
| Making things work | Make things work (wifi, hardware, software) | The printers don't work a lot of the time, and some of the computers... don't work. This is frustrating. The apps often crash and therefore disrupt our work. Make sure student email is working at all times to allow us to transfer work to lecturers. |
| | Bring hardware and software up to date | Update PCs so they are reliable and allow me to run the software I need. Some of them run very slow. Ensure latest version of software is on all relevant computers. The laptops we have are old and the battery runs out really quickly. |
| | Help students troubleshoot their own devices and connections | Give more computer help to students who badly need it and stop assuming we know how to use one. Explain how the IT team fixes the problem you are having so you could try to sort I out yourself next time. |
| Digital skills | Offer basic computing courses or skills to all | Give tutorials on how to use printers. It took a long time to learn as no one had taught me. Introduce a basic lesson on IT at the start of all courses. |
| | Provide digital study apps | Promote more apps or websites that can help with studying. |
| | Support students' digital learning skills – induction, refresher courses, on-demand, guidance, one-to-one support, online. | When starting [here] give help on how to research, how to use basic computer documents like spreadsheets. In group tutorial have a lesson with an IT teacher or library staff on how to use digital tools. Organise optional technology classes to teach students what the new tech is... and how to use it. |
| | Make students aware of the resources and facilities available | Make students more aware of the resources available to them online. Tell people about [referencing software] – I didn't know about it in my first year but I use it all the time now. Send us an email that tells us stuff we will need to know. |
| | Make students aware of the support available | Advertise support on the intranet or [VLE] so people who may need help but don't necessarily ask for help are able to access the information. |
| | Consider students with specific learning or access needs | Students should be able to speak with a member of staff in learning support for some help. Better access to specialist learning support staff. Offer additional classes to those who may need extra guidance. |
| | Consider special needs of returning and mature students | Give older students the opportunity of extra sessions for digital learning. More help for less computer-able students, ie mature students. |
| Cost and equity issues | Consider data costs to students | Some of my mates have had similar issues with wifi and we end up using our phone data [allowance] as a result. Ensure the wifi is consistently working as sometimes I have to use the mobile data on my phone. |
| | Support equity by providing access to devices (loan or hire) | Provide college laptops for students use – [because of] childcare issues I struggle to share them. Provide laptops to all students who cannot afford them. |
| | Help students with software, licence or subscription costs | Provide free software eg GIMP, OpenOffice, as students may not have the money to buy licences for Photoshop, Word etc. Allow students to get free downloads for Microsoft Word, Excel etc for offline work out of college. |

| Main themes (FE students) | Sub-themes | Indicative quotes/examples |
|---------------------------|---|---|
| Digital teaching | Provide more and more varied digital teaching | Use more digital teaching in classes eg more frequent use of YouTube. More interactive teaching facilities. Demonstrate how digital teaching can be helpful in theory lessons. |
| | Use quizzes and interactive tools or tasks for student engagement | Do interactive tasks and quizzes to involve students so they are not bored. Play more Kahoot and watch more videos. As well as lesson PowerPoints being uploaded, include more videos, for example on how to do something, or to further knowledge. Encourage online tasks eg watch educational videos. |
| | Offer extension activities online | Ensure all classes have access to tablets or laptops to be able to research more than the lesson may offer. |
| | Support preview or review and consolidation | Ensure all notes and PowerPoints are up before the lesson for people to get ahead. Give students the option of having a voice recorder so they can go over their lesson if needed. |
| | Aim for consistency in use | Make better use of the digital tools available, eg [the VLE], as some teachers don't use it. |
| | Address teaching staff skills | Make sure that lecturers know how to use the equipment so that it saves time and provides clear information. |
| | Offer multimodal opportunities | More multimedia in course content such as video or audio, as some people such as myself learn better through this medium. Less focus on digital learning and more [on] practical learning – many people learn by doing, not reading PowerPoints. |
| Digital learning | Support different learning needs | A simple pen and iPad along with digital teaching methods... helps you absorb the information better. I think it should be a balance between paper and online. Find a balance – teach using laptops as well as note-taking without the internet or online PowerPoints. |
| | Support digital study skills | Cover IT skills in study skills – for those that need it. Use different apps to improve our skills. Organise workshops (possibly course specific) providing advice on how to make the most out of digital learning. |
| | Encourage learners to do more online | Set more materials on [the VLE] eg one learning quiz a week on each topic. Use social media more as a way of getting us to interact out of class. Allow us to submit work online. |
| | Provide alternatives to digital learning | I didn't enjoy any e-learning personally – I need teacher and lesson to fully engage and understand and retain information. |
| | Help students organise their learning time/tasks | Track home learning, because it will encourage me to do more work. Online diary app or website for tutor to notify students of deadlines. |

Table 17: Thematic analysis of HE student responses to Q11 ('What one thing should your institution do to improve your experience of digital learning and teaching?') based on 16823 responses

| Main theme (HE students) | Sub-themes | Indicative quotes/examples |
|----------------------------------|--|--|
| Lectures | Record all lectures and distribute recordings with notes | Ensure consistent use of lecture recording facilities and allow this content to be easily accessible through download or streaming. Some of the lecturers speak too fast and don't put all the information on the PowerPoints. |
| | Lecture notes or recordings provided in a timely way | They should provide the lecture slides in advance so that students can go through it by themselves and then go to the lecture to get a better understanding... so students can annotate them during the lecture. Lectures recorded and uploaded in a timely manner (within 48 hours). |
| | Improve quality of lecture recordings | Fix the microphones so lectures record clearly. Many of the streaming lectures have low audio, information missing from the board, or it is not possible to hear the questions. If there is video shown in the lecture, it echoes in the recording. |
| | Use technology to enhance interactions in lectures | Lecturers should provide short online quizzes and readings. Implement instant feedback in lectures like a device or phone app, so students can say if they understand or not. Use online platforms allowing live questions to be asked during lectures. |
| | Improve digital skills of lecturers | Many of the lecturers are brilliant but not very aware of digital technology. Make sure the lecturers know how to... use PowerPoint or fix basic technical issues in lectures or record lectures properly. |
| | Support students to use own devices in lectures | Encourage all students to use laptops or tablets to make notes in lectures. Charge points so you can charge up your laptop, especially if you are in the same lecture room all day. |
| Access to course-related content | Provide or recommend more online content | Provide access to more online journals, books, papers, etc. There are resources available to other universities but not us – frustrating when we pay £9k a year to be here. Give more information on online resources suited to the student's module. |
| | Improve access to journal articles | More access to free online research journals because no one wants to pay £37.50 for a document. University subscriptions do not provide access to some of the online journals I need. I have to use my old university's library for so many online journals. Library search shouldn't show links to texts you have to pay for. |
| | Improve access to e-books | Consider making reading materials available online as textbooks are expensive to purchase and some books are difficult to get in the library. Finding e-books is a maze. Invest in a better e-reading system for library e-books. I think the university should release both a hard copy and an online copy of every book. |

| Main theme (HE students) | Sub-themes | Indicative quotes/examples |
|---|---|--|
| Access to course-related content (continued) | Improve access to course content (via the VLE) | Make resources more consistent between modules. Update learning resources quicker. Format class resources to work on tablets or phones – not everyone has access to a computer. Far too many confusing links and it takes ages to find important course information like marks and exam times. |
| | Support access away from campus | Improve the online availability and ease of access of library resources from home. Make [VLE, journals, printers, e-books, learning resources, facilities, readings] more accessible off campus. |
| | Improve navigation of library services | Easier navigation for the online library services. Links from digital library catalogue to external resources such as Jstor. Include a list of external digital resources [the university] subscribes to. Make it easier to find digital sources on the library catalogue. |
| | Support multimedia content | Suggestions for video or podcast content we can watch in our own time. Incorporate more interactive apps and videos into learning. |
| Using own devices (BYOD) | Provide support for a range of devices (eg lab notebooks, e-readers, gaming devices, tablets, laptops, smartphones) | Give me more access to printers across the uni, more plugs for charging phones, laptops etc. Provide university apps that work on mobile devices. Make sure the log-in and [VLE] and printers work on all mobile devices. |
| | Provide secure charging | Provide more places on the main campus with mains sockets, wifi and seating to facilitate the use of student-owned devices. I find myself plugging into sockets next to vending machines and sitting on the floor. My laptop battery doesn't last longer than 2 hours and on Monday I have four hours straight where I need my laptop to take notes. |
| | Offer subject-specialist software on personal devices | Distribute all course-related software to students' own personal devices. Provide software versions or vouchers for students to buy EndNote. Give course-specific recommended tools as a list and what each can be used for. |
| | Support mobile apps | Better mobile apps for learning. Make everything accessible from one app. Support in-house development of apps and digital tools. Improve the [university app] or allow students to work on the source code and make better alternatives in their spare time. |
| | Secure wifi and connectivity | Make it easier to connect devices and printers to the wifi. Reliable wifi on and around campus, especially in summer to be able to work outside. Improve the stability of the wifi available on campus and allow connectivity via mobile devices. |
| | Technical support for BYOD | Accessible and signposted support for IT and technology queries, more focused on how to get the most out of our own devices. Help connecting printers to personal laptops. I had support with IT due to being deaf, which was really helpful. However, this should be available to all who require it. Drop-ins rather than ticketed appointments. |

| Main theme (HE students) | Sub-themes | Indicative quotes/examples |
|--------------------------|------------|----------------------------|
|--------------------------|------------|----------------------------|

| | | |
|--------------------|---|--|
| University systems | Improve user experience generally | Improve the user experience of student systems. More online learning experience architects working together as teams: not just one person implementing what lecturers ask for. Make sites personalisable – only have what you need on the page. |
| | Reduce multiple log-ins | I have to log into four screens once I'm on a uni computer. Information I need is spread across [the student portal, student records system, the VLE] and email. All need different passwords. They need to be consolidated into one platform. Unify log-in to university computers. |
| | Improve interface and organisation of the VLE | Improve the interface of [the VLE] – it is too confusing to navigate. Clearly label sides, recordings etc. Improve the UI – too many clicks to reach the desired resource. Folders with online resources are disorganised and inconsistent. |
| | Join up library and content systems | Sometimes the online links don't work straight away meaning we have to waste time looking for books in the library when we could be reading. Library digital resources are very fragmented and hard to navigate. Links from digital library catalogue to external resources such as Jstor. |
| | Awareness, advice and guidance | Provide a single concise source of information about all the support provided by the university. I was in my second year before I knew updates were freely available. A lecture dedicated to explaining all the online resources available. Providing short how-to videos might help the less computer literate figure things out. |

| | | |
|----------------------------|--|---|
| Other University provision | Provide enough desktop computers | Make desktop computers with accessible printers available in all buildings. During exam season there is a constant lack of available computers so hopefully you can buy more. Improve the running speed of the desktop computers. Clean them regularly. |
| | Provide a range of spaces for computer-based study | Computer rooms are described as 'crowded', 'noisy', 'full', 'booked out', 'filthy', 'a street market'. Actively prevent desk hogs. Have more computers in non-silent areas for when you need help from a friend or to discuss things. More spaces... where all students can have access to computers. Have more computer rooms that are solely for independent study. |
| | Resource the library as a digital learning space | Have several DVD players in the library that students can use or borrow if we want to watch course-related material. The library is always busy, especially during exams or assignment submission, and the computers are always occupied. Limit the amount of time people can use the library computers for one session. |
| | Peripherals make students happy | These were also requests (for free): headphones, memory sticks, printer credit, cloud / file space, web space, coffee. |
| | Loan or hire laptops | Make it easier to hire a laptop, so it's a real option for students who don't own one. Provide laptops for students on campus... my laptop is bulky and difficult to carry around campus, and the PCs are taken so quickly. It would be incredibly helpful to have laptop loan stations inside major teaching buildings. |

| Main theme (HE students) | Sub-themes | Indicative quotes/examples |
|---|---|--|
| Access and equity | Offer free or trial versions of software, or more licences | Offer trial versions of [the software used on course] so students can practice at home as well. Make subscribed software available on most or all computers. Maybe free copies of Adobe packages would make the amount of money I'm paying seem more reasonable. Provide modern learning tools and resources and update your software. Make it easier to install software. |
| | Make printing easier and cheaper | Printers that can print documents from personal smartphones or tablets, rather than having to log into a uni computer. I have to email documents to myself and then send them to a printer. Make it easier to print on library computers from a laptop – it's an almost impenetrable task. |
| | Look at IT funds, bursaries, loans | Help with funding for devices and software. Allow us to spend our bursaries on laptops, computers, tablets. iPad as part of our tuition fees, even if [it was] loaned. Provide more week loan laptops and access to technology. |
| | Don't silo content | Have more content that is openly available on all topics, not necessarily tied to a particular course. Links to online reading materials available for all modules. Allow greater use of open document formats rather than proprietary software. |
| | Make IT support accessible | Make help more accessible to students [eg] by drop-in instead of booked appointments. Improve staffing levels – library and IT staff are very knowledgeable and helpful but when I put in a request for assistance it can take a long time to get a response. IT helpdesk on Instagram. |
| | Support students to use university systems | Online videos of how to navigate the university's resources – the online library system, printing etc. Provide online materials ahead of starting so those needing more support can work through them. New students have no clue where to get the support they need. |
| | Consider mature, older or international students | Can there be 1-to-1 help for mature students [with] how to use digital stuff? I feel old and stupid. I'm a mature learner and feel embarrassed to ask for help about digital learning. Older students or students from abroad might need support and training in how the [university] systems work. |
| | Consider students with access or learning needs | Ensure the dyslexia disability support department is more switched on about the digital technology available. Have greater regard to the accessibility of the tools available. |
| | Consider social media (non) users | Consider students who don't use social media; ensure everything is available outside of social media platforms |
| Consider students at a financial disadvantage | Provide free or discounted printing for students from disadvantaged backgrounds. If the lecturer includes an activity that requires a laptop or tablet, provide [them in the] rooms. Provide students with the necessary equipment to complete their work (some students are not entitled to £7000 in student finance). Give a free MacBook to students on maximum maintenance grant. | |
| Digital teaching | Digital teaching skills | Help lecturers navigate [the vle] and other sources. Even out the digital ability of lecturers across the university. Standardise the ways lecturers use digital tools. [vle] layouts can be all over the place. Some of them need support during our seminars, which wastes time. |
| | Consider students who prefer alternatives | It's stressful to learn everything online. Although digital learning is hugely beneficial, think about those who need to interact with information physically. Considering how easy it is to get distracted by social media etc, maybe moving away from smartphones might increase productivity. Remember paper works well too. |

| Main theme (HE students) | Sub-themes | Indicative quotes/examples |
|---|---|---|
| Digital learning experience | Promote student-student interaction | Provide a social forum for students of each subject or year to encourage community and engagement. Create a sharing and learning database that has great sources, comments, and [everything is] easy to find based on topics. Forum space ... for students on the course to discuss problems. Set up a platform for collaboration between students at different universities on the same course. Enable students to upload useful or relevant resources to [the VLE]. |
| | Promote staff-student interaction | Make the 'learning space' more accessible to guest lecturers or teachers. More online feedback to students and encourage more student participation online. Provide online tutorials for when tutors are not available to answer questions. Make it easier to contact lecturers. |
| | Promote health and wellbeing | Make some of the campus-based mental health and learning support sessions available as webinars. Make it easier to access health and wellbeing services. Wellbeing support should be easier to access online, not having to drop in. |
| | Encourage a sense of belonging | Integrate student societies and the university community into the website experience. |
| | Support time or task management | Provide students with an editable timetable or at least some way of adapting our timetable to include work and events. Make it easier to access timetables. Make signing up for modules clearer and make a tool to formulate the timetable. Lectures, SU activities and everything. |
| | Encourage engagement and motivation | More test quizzes with anonymous results to see how you compare with your fellow students. Passionately engage students online through video lectures, social media groups, tutorials and interactive online resources. |
| | Allow exploration | Optional courses could be put online [for students] to learn new things beyond the scope of their programme. Access to learning materials for other modules that we may not be enrolled on but that could supplement our learning. |
| | Be consistent and coherent | Promote a similar use of [the VLE] across courses... it's like having to learn to use [the VLE] five times instead of once! Have less disparity between different digital teaching schools and how they use or organise digital tools. |
| | Include blended learning activities | Integrate [digital] into face to face learning. Digital learning is OK if the rest of the teaching and learning model are incorporated – why are modules still lecture and seminar based? Encourage working together online. Proactively promote blended learning and train lecturers to teach in an innovative way. |
| | Use a range of media | More multimodal delivery including video. Incorporate more interactive apps and videos into learning. More images (helps me link information to something). |
| | Diversify assessment | Using programs and having access to a wealth of resources becomes near-redundant in an archaic exam setting that tests rote memorisation. Have computer-based exams. We use them all the time and in the real world the majority of work would be done on laptops or computers. |
| Expect a variety of attitudes to digital learning | The digital learning is excellent already. I feel as if I have learned how to be more effective on my own. Digital learning is my least favourite. You should not rely too heavily on digital learning. Provide as much digital learning as possible... modern universities should stay ahead of the digital learning curve. Do less of it – I prefer old-fashioned teaching and learning. My course seems very behind the times. My eyes hurt from all this screen time! | |

| Main theme (HE students) | Sub-themes | Indicative quotes/examples |
|------------------------------------|--|---|
| Skills for digital learning | Address skills at induction | Provide compulsory induction lessons when we join the uni on how to use the digital learning space. Ensure all students know about the online services and support in the first year. An online assessment course before the main course starts so the student can see what they need to learn. |
| | Give ongoing support in courses | Have more lectures on how to use the technology... including it within the work. Have an introductory lecture at the start of each term on digital learning. Offer students computer literacy skills as part of their course – without computer literacy you're set to fail in the workplace. Teach students how to use Shibboleth during seminars. |
| | Informal support for skills | Provide drop-in sessions for people having issues with digital learning. Ask students what digital learning tools they find most useful and start to deploy these around the university. Group tasks online so that we explore digital learning together and help each other. |
| | Provide online support for skills | Make online resources like Lynda.com available to students for free. Provide list of apps suitable for postgraduate students and links on how to use them. Research and advise on apps to help learn digital skills. Make it clear to students what online resources the university has, as we had to learn everything ourselves. |
| | Address...Skills in navigating/ finding information | Offer courses throughout the year for help searching through databases for online sources. Would prefer our library induction sessions a few weeks in as we would see the benefit more when we actually need it. Give examples of online sources outside the library that are acceptable to use and rely on. |
| | Online safety | Organise a one-day class conference to better our skills and find out how to stay safe online. Contact students with more information about being safe online. As someone who's often on the giving end of computer-related advice, I find a surprising number of students don't know basic things about [how to] protect themselves online. |
| | Note-taking and general study skills | Offer a course on effective note-taking with tablets and advertise good tools for that. First year students made aware of how to use digital tech to help with studies. |
| | Writing | Plagiarism checking services online... not every lecturer allows multiple submissions [to the authorised platform, [ie for formative feedback]]. Include a list of apps to help with essay writing and planning. |
| | Exploring and adopting | Have a section within the home page that has a random app, web page or tool, that changes per day – might encourage people to explore what's out there. Give more advice on recommended software for different modules. I am not encouraged to find out new software applications for myself. |
| | Time and task management | A better online calendar or goal planner would be great. Organise the files for each week better. Make it easier to navigate timetables and to sync calendar. |
| | Revision and review | [We should] still be able to access marked assessments from previous years. Re-watching [recorded lectures] is very useful for revision. |
| | Referencing | I would have liked to know more about RefWorks and other useful tools. Educate all learners on the reference apps and assistive tech available. Reference manager built into the library website. |
| Assistive or adaptive | Provide assistive technologies where appropriate without a long disability [assessment] process. | |

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