

Appendix 1

Our thanks to the following organisations that took part in the Jisc digital experience insights student survey 2018–19 and collected at least five responses from students between September 2018 and April 2019:

- » Aberystwyth University
- » Barton Peveril Sixth Form College
- » Belfast Metropolitan College
- » Bexhill College
- » Bishop Burton College
- » Bishop Grosseteste University
- » Bradford College
- » Canterbury Christ Church University
- » Carmel College
- » Cheadle and Marple Sixth Form College
- » Chesterfield College
- » City of Sunderland College
- » City of Wolverhampton College
- » City, University of London
- » Coleg Gwent
- » Cranfield University
- » DN Colleges Group
- » Exeter College
- » Fareham College
- » Furness College
- » Grimsby Institute of Further and Higher Education
- » Harlow College
- » John Leggott Sixth Form College
- » Lakes College West Cumbria
- » Lincoln College
- » Newham Sixth Form College
- » Northern Regional College
- » Oldham Sixth Form College
- » Open University
- » Pembrokeshire College
- » Petroc
- » RNN Group
- » Tameside College
- » The City Literary Institute
- » The Sheffield College
- » The University of Sheffield
- » Ulster University
- » University of Aberdeen
- » University of Derby
- » University of Durham
- » University of Glasgow
- » University of Hertfordshire
- » University of Huddersfield
- » University of Northampton
- » University of Portsmouth
- » University of Salford
- » University of South Wales
- » University of Stirling
- » University of Westminster
- » Wiltshire College

Appendix 2

Thematic analysis for 'what should institutions do to improve students' experience of digital teaching and learning?' (Q13)

Main theme	Sub-themes	Indicative quotes
Wifi and connectivity	Make wifi more reliable, stronger, faster and more stable	Wifi boosters to improve quality, range and speed. Add wifi routers to each building for stronger wifi and more bandwidth. Having to constantly restart my computer [in class] because the wifi is really bad.
	Extend wifi coverage to more areas of campus (including informal study areas)	Better wifi around the college. Some places you have amazing signal, others you have none. Improve the range of the college wifi - in some of my classes on the second floor you lose the signal. Reliable wifi for personal devices because it does not connect to my laptop. I always have to put on my 4G to access MyDay. I think wifi should be able to be used on laptops and tablets from home as it lets you do more work when you need it.
	Make wifi available on more devices, especially students' own devices (this may refer to mobile connectivity)	
	Remove restrictions on wifi	Don't put any restrictions on the wifi. Increase the amount of time you're allowed on the wifi. Have unlimited wifi time to do research.
Access to hardware	Provide more computers and laptops	More rooms with computers and laptops that connect properly to the internet. Have more computers in the library so more students at a time can use a computer. Please have more computers in some of the classrooms as there is not enough for everyone in the class. Need more laptops in the classes and more computers in the LRC.
	Update the computers	Waiting for a computer to load up/log in can easily eat away at much needed session time. Laptops in the study hub need to be updated. They're slow, clunky and frustrating to use. Some of the computers which use Windows 10 are too old to run it properly. System specs are very out of date and missing crucial technologies.
	Fix computer problems	Fix the printers because they never work, especially on your coursework deadline days. Replace the broken and old computers in the classrooms. I have lost valuable time having to put together the desktop and keyboard.

Main theme	Sub-themes	Indicative quotes
	Better access to printing	Have a set amount of printing budget for each student per term. I have to do all the printing at home just to bring it back into school – surely this could be funded by the college? Provide a printer in the art department... it's art, we need to print a lot. Be able to print to the college printer from my own laptop.
Access to software and services	Standardise the software available on college desktops	Make the same software available on all computer systems. Streamline access to applications from the home screen. Mange applications on desktops in the college better. Update software on all computers so they are all running the same version. The library could have the software that we use in class.
	Enable access to college software away from campus	Allow us to connect to college computers at home so we can use software such as Photoshop and Dreamweaver. Allow students to download authorised apps to help with learning. More software keys for home use. The same applications as the college computers, on [students] computers.
	Software up to date and stable	Have software up to date on all devices eg renew subscription to MS Word. Our work is constantly lost or corrupted due to the software not working. More reliable servers so Office applications do not crash randomly. Ensure VLEs are up to date, functioning and compatible with modern software.
	Software industry standard	Invest further in industry standard software. Make industry standard tools such as Adobe Premiere and Aftereffects available. Software like Unity and Blender should be installed on computers all round college.
	Simplify access to college services and systems	Less passkey pop-up things on Macs. Easier to log in and easier access to Moodle, Myday, Onedrive etc. It can easily add 20 minutes of messing around with different computers to log in and find the app you need. When I tried to log on at college it was so complicated I gave up.
Access to content	Provide more course-specific resources	Have more resources on MyConnect where links are shared and upcoming work. Provide a list of useful links and videos in relation to the course. Ensure there are plenty of resources for all subjects. Provide online journals related to course of studies. Provide online videos to support learning.
	Unblock useful web sites	Improve the content filter. It is currently overzealous and blocks websites that are useful for research. Create an easy contact (such as a button) to get sites unblocked. Not filter literally every app and web site. It puts students off using the college wifi and accessing digital resources.

Main theme	Sub-themes	Indicative quotes
	Enable use of (social) media sites	Sometimes Facebook and other social media is useful for work. Give us access to our social media so that we can request help from other students if we need it. Stop trying to make us link our social media to our education – it is not a good idea.
	Recommend high quality content that students should use	Create a platform of all the recommended websites/ apps that we should use. Offer web links to better sites... rather than getting the students to always look online for themselves and not get the best information.
	Invest in content that students need	Pay for websites that do have updates or resources that students need. Allow more use of industry apps that require a paid subscription. Actually buy appropriate learning software with the course funds.
	Ensure resources on the VLE are well organised and accessible	Tutors don't always organise resources in a logical manner on Moodle. Have all lesson resources easily accessible online, eg PowerPoints. Sometimes I find the online library resources difficult to find, such as e-books for subjects. Useful if all teachers put all resources... from lessons on Classroom and keep it organised.
	Provide access to e-books relevant to the course	Provide more resources online: an example would be reference books as these are expensive to purchase. Recommend websites that are more textbook based ie more reading than doing questions. Introduce the use of e-books and e-journals online.
Use of personal devices	Allow use of personal devices in class	Use of notebooks and tablets in lessons. More lenient with phones as some people don't have iPads/tablets. Allow use of technology during lesson to help with learning and making notes. Allow the use of mobile phones for educational purposes.
	Provide a college app, or improve the one there is	Create a hub-style app that has everything in one place. Fix the student app – it is super slow, makes you log in every 30 seconds, and has no optimisation for the new iPhones. Implement a study rota and timetable app. Have a planner app available to manage assignments.
	Support connection, charging and storage	Make the wifi connect automatically to student devices. More plug sockets so everyone is able to charge their iPads or laptops or phones. Laptop storage to prevent carrying them round all day. Provide anti-virus software so you are not concerned as a student using your own device. Have a storage device for personal learning to keep material on us at all times.

Main theme	Sub-themes	Indicative quotes
	Support students to use their own devices	Have training support available on call (as we have now – isn't ILT wonderful?). In-depth training to use iPad to ensure I get the most from it for my learning. Inform us at the start or before we start what computer technology we will require.
	Provide tips and apps for mobile learning	Give more tips and suggestions applicable to your device. Use more phone applications in class so we get to experience different ways to learn. Offer students help and support with devices when they need it. Teach us a bit more about how we could use other apps or software/tools for learning.
Sort out the basics	Provide effective file back-up and storage	10GB is not enough, especially studying graphic design. More storage for each student because I've had to delete my old work from the first year. Provide access to our files outside the college network, eg ftp.
	Keep tech running smoothly	Fix the ... password system, internal email, printers, storage issue... (and many similar). Upgrade all the online systems in an actually positive way. Frequent computer maintenance from the tech support staff to keep things running properly.
	Make space for solo and social computer work	Have space for people to use their own devices – the learning hub is overrun by loud people eating. Don't put two-hour time limit on computers in the study hub. Private rooms for study or work on computer.
Access and equity issues	Provide laptops/tablets to students who need them	Allow students to borrow laptops in case they can't afford one at home. Maybe create a share scheme where students can sign out an iPad or laptop. Let us keep the iPads in the summer break as some students have no other digital technology at home. Options for borrowing or buying discounted Macbooks/laptops.
	Consider different groups of students and their needs	Give support to students who may be struggling to understand digital work. I am not a young person and I am unsure what apps exist that could support my learning. Having online tutor time available from home would be really useful because being an apprentice [I am] only in one day.
Digital teaching and learning	Ensure teaching staff have digital skills	I think teachers in this area should maybe have some better training. Lecturers be trained in digital teaching so they can pass it on to their students. Make sure all the teachers are fully aware of the use and capabilities of IT.

Main theme	Sub-themes	Indicative quotes
	Use quizzes and interactive tools/tasks for student engagement	Make the lesson more entertaining with apps like Kahoot. Increase the use of digital activities during the lesson. More interactive software that teachers and students can use at the same time.
	Use digital resources for preview/review and consolidation	Ensure that all resources are available online ahead of the lesson so that we have context for the coming lesson. Make all lesson PowerPoints and tasks available. Take part in more interactive quizzes to recap knowledge. Post links to sites that can help with revision, notes and practice.
	Support digital study skills	Sessions [on] how to learn and note down what you've learned. Make us more aware of reliable sources we can use. Recommend study and revision tools. Host events teaching new digital skills. More apps like mindmapping.
	Make digital part of the learning mix	Learning from interaction with a teacher is a lot better than sitting on a computer reading off a screen. Personally I prefer traditional methods of learning. Use both paper-based and computer-based stuff for study because everyone has their own way to learn.
Digital skills	Don't assume students are digitally proficient	Not all students have had ICT lessons or have any knowledge about working something as simple as a word processing software. Ensure that students know how to access online materials instead of assuming that we can. Assess learners' skills with digital technology and plan accordingly.
	Teach students to use the software they need on course	Teach me how to use the software before dropping me in at the deep end. Have more ICT/digital information in induction week. Very few students know how to use the software they end up needing for their course. It would have helped to have been shown how to use Mac-based software. At the start of the first academic year have learning... how to edit video... etc as part of the course content.
	Ideas for supporting students' digital skills	Maybe a short course at the start of the school year. Step-by-step guides and a better one-to-one support system. Perhaps an IT skills workshop area manned by IT students. Ten or 15-minute one-to-one help sessions. Regular induction sessions available throughout the year. The inclusion of a digital literacy teacher in lessons is really useful.

Thematic analysis for 'what digital activities do students find useful on their course?' (Q15a)

FE-based: Coded analysis of Q15a FE based on 8,029 responses and 304 discrete terms. Using the bare coding frame from 2018 as a starting point, including all active verbs from 2019 responses (recoded where necessary), then searching within the corpus for corresponding tech and quote(s).

High level code	Associated verbs	Associated tools/resources	Indicative quotes/examples
Attend	Listen, watch, access, read, view, play (eg video)	PowerPoint, videos, e-books, materials, learning resources, slides, animations	Watching historical archive footage and documentaries; reading the news in business classes enables us to be really up to date in discussion, to the minute! Animations to help highlight particular functions in biology.
Be tested	Answer, (be) assessed, test, quiz,	Kahoot, Quizlet, Quizizz, Moodle, Kerboodle	The online quizzes are a good way of testing your mindset. Kahoot!... As part of a class it helps to test your knowledge in under a minute. Using Kerboodle tests in science... made me realise what I need to work on.
Create	Create, edit, make, build, produce, design, format, sequence, code	Adobe, Photoshop, Prezi, PowerPoint, coding, WordPress, AutoCAD, InDesign, Dreamweaver, Visual Studio	InDesign for publishing, Dreamweaver for coding, and Photoshop for picture editing. Using Visual Studio to code my project. MS Forms is very helpful in creating questionnaires. Using Sway makes creating a digital portfolio simple and effective.
Search/research	Find, research, search, look	Google, Google Scholar, Chrome, Safari, Wikipedia	Being able to search for information online, especially through college digital resources, has been hugely beneficial to me academically; searching for specific images relating to my project and saving them; searching for foreign language content – video, music, news articles.
Explore/play	Explore, play, practice, discover, compete, games	Kahoot, Quizlet Moodle, quizzes, games, 3D modelling	Guess the correlation coefficient game. Played a game online based on marketing products and logos. Playing grammar games. Games that teach us something without overloading us with information.
Practice	Use, practice, improve, learn (how)	Subject-specialist software, CAD, simulations, virtual lab, virtual microscope, Office	Using online videos to learn new skills has become paramount in my learning. There are YouTube tutorials for everything. Using programs like SOLIDWORKS in order to improve my design skills. Biology skills lab. Codecademy to learn different programming languages.

High level code	Associated verbs	Associated tools/resources	Indicative quotes/examples
Write	Write, post, produce (assignment), present, blog, upload, publish	PowerPoint, Word, Google Docs, Translate, dictionary, Grammarly, Inspiration, mindmap, blog, Padlet	Produce a presentation of research on PowerPoint and Word. Inspiration 8 is fantastic for making in-depth mindmaps rather than long chunks of writing; the program celtx for writing film scripts; sample writing on Padlet; Showbie for biology practical write-ups; Grammarly to proofread my assignments.
Make notes	Note, record, reference, map, mindmap	OneNote, Evernote, VoiceNote, SparkNotes, Notetaker, Google Keep, Pinterest, Word, Stickies, Nearpod	I will save notes and data on a PowerPoint, as this helps me look at what I have done before; we used VoiceNote to record our information more effectively; [in] Nearpod you can quickly take screen shots as notes; using PowerPoint presentations to store notes and create mindmaps.
Engage	Engage, attend, answer, vote, discuss, study	Kahoot, game, activity	Listening to quiet music through headphones helps me stay focused when writing assessments. Kahoot – it allows us to engage. Kahoot in the class creates a good mix of competitiveness and knowledge use.
Collaborate	Collaborate, share, discuss, work (together/in groups)	Google Docs, Slides, Sheets etc, Padlet, Facebook, WhatsApp, Messenger, Skype, Connect, Doodle, Trello	Using EndNote to collaborate with other students on the same page; everyone's ideas appear together (Google Docs); Google Docs for collaborative workflow; online group discussion via Google Meet; creating a Padlet board with my classmates.
Organise (work)	Access, submit, upload, download, file, store, organise, manage	Moodle, Blackboard, Canvas, VLE, drives, files, desktop, Outlook, My Study Life	OneDrive to store and organise all my different subjects. Access is very helpful in order to organise my work categorically and numerically. Grade trackers. Submitting is as easy as dragging and dropping files. Google Docs and slides etc to create files that can be edited and accessed from anywhere.
Analyse	Analyse, solve, explain, produce (results, graphs, answer), calculate	Excel, database, chart, MathsWatch, MATLAB, Stack Exchange	Excel to produce results tables and graphs in chemistry. Create formats and formulas on excel in ICT essential skills. Circuit Wizard is an excellent way to visualise circuits; Browsing Stack Exchange for solutions to problems.

High level code	Associated verbs	Associated tools/resources	Indicative quotes/examples
Review	Revise, review, recall, remember, know	Kahoot, quiz, VLE PowerPoint(s)	Recording performances and watching back videos of us dancing to analyse them for A level dance. Kahoot quizzes and quiz apps are helpful for revision. Filming my practical skills kayaking and climbing and reviewing my skills. Writing a blog to record self-evaluation.
Get feedback	(Get) feedback, respond, review, quiz, test	e-portfolio, MCQ, e-assessment, Kahoot, Kerboodle, Quizlet	Being able to get feedback on Google Docs to respond; Kerboodle tests are a fun way to test our knowledge; using Google Classroom to do assessments in sports; Kahoot/Quizizz is very useful as it tests your knowledge and can figure out which areas you need to improve on.
Show(case)	Show, present	E-portfolio, Wix, Wordpress, Tumblr	Producing my blog on WordPress, as a platform to express my thoughts and views on the work I choose to display. Recording two video blogs talking about our personal views of professionalism in the early years sector. Wix helped me create my portfolio for film studies.

HE-based: Coded analysis of Q15a HE based on 9,819 responses and 559 discrete terms. Using the bare coding frame from 2018 as a starting point, including all active verbs from 2019 responses (recoded where necessary), then searching within the corpus for corresponding tech and quote(s).

High level code	Associated verbs	Associated tools/resources	Indicative quotes/examples
Search/research	Search, research, find, locate	Google, Scholar, library catalogue, e-journals, Web of Science, CINAHL, Solar, PubMed, PsycINFO, Westlaw, Kortext, WorldCat, JSTOR (etc)	Searching online in real time during the lecture; doing online research prior to class for preparation; I can just go on whatever website the e-book is published on and search using keywords for the exact quotation; It is far easier to search literature online, so accessing public libraries such as the Internet Archive is very useful; finding information online other than the required reading list, Google Scholar has been very useful.

High level code	Associated verbs	Associated tools/resources	Indicative quotes/examples
Access	Download, get (access to)	Wifi, mobile, student ID and log-in, personal device (laptop, mobile etc), university portal, library catalogue, Google Books	Library search and what it grants access to; accessing StarPlus to download articles and books specific to my topic; easily accessing the audio files on Canvas; the accessibility of resources in the bibliography as hyperlinks, including videos. I can access the course information no matter where I am.
Engage (in class)	Listen, attend, respond, vote, poll, focus, contribute	Kahoot, Menti, PowerPoint, Socrative, Quizlet, quiz, poll	Having access to lecture content before the lecture has helped me keep up to speed and engaged. [Online workshopping and critique] made me actually engage in my class. Kahoot helped me engage with the lectures without shutting off. Poll system within the lecture showing progress and relating answers to the course.
Discuss	Share, discuss, chat	VLE, forum, chat, Facebook, Blackboard, Moodle, Canvas, Padlet, discussion board, WhatsApp, Messenger. Often used in collaboration with online polling.	Padlets or Collaborate tool, which allow lecturers to discuss issues outside of class with the whole group. During discussions, class could post thoughts on a digital pinboard to be displayed in real time. Group discussions over messenger apps. Online forums encourage student commitment and attention on the subject. sharing views with other students via the discussion tab on Canvas.
Answer	Answer, respond, vote, quiz, poll, test	Quiz, test, Kahoot, Socrative, Turning Point, Menti, Poll Everywhere, Nearpod	An online poll was taken by students and fed into the lectures; towards the end of a lecture [lecture material] is tested with a poll to see how students understood it. Polling during class as a method of reviewing prescribed reading. Quiz game helped me remember important points quickly. Digital polling of our opinions on different topics.
View (to learn)	View, review, watch, play	PowerPoint, video, animation, lecture (video) recording, YouTube, TED Talks, Kahn Academy, LinkedIn Learning (formerly Lynda.com)	When lecturers include video talks and relevant films to watch for the weekly readings. We watch simulations and videos in class then answer questions based on the scenario. Integration of videos into lectures to exemplify an argument. Being able to watch lecture live from a remote location. Animations to show things at a molecular level.

High level code	Associated verbs	Associated tools/resources	Indicative quotes/examples
Collaborate	Collaborate, work (with/ in groups, together), share, participate	VLE, MS Project, Google Docs, slides, sheets etc, Dropbox, shared drive, wiki, GitHub, Trello, Wikis	Google Docs to discuss, plan and execute work and revision with others. Creation of a group Wiki page using features of Canvas. Shared OneDrive so we can collaborate on presentations easily. Using GitHub to collaborate with other students on a summative project. Slides helped me learn how to work together... I feel this is useful for the world of work. Google Docs, a platform where we are all able to contribute and edit together.
Organise (time and task)	Organise, access, manage	VLE, calendar, schedule, to do list, Dropbox, Doodle poll, project management tools, Trello, Todoist, Basecamp	Creating and managing team tasks using Trello. The [university] timetable and map functions. I couldn't work and study without Outlook. Learning journal and schedule.
Organise (ideas)	Curate, collate, summarise, manage, map, link	GoodNotes, OneNote, Notetaker, Notepad, Word, Pinterest, Evernote, files, drives, favourites, bookmarks	Creating online notes which I can organise by topic; organise my work into folders and portfolios for ease of access; save all my current work onto OneDrive so I can access it anywhere. Notes app on smartphone – easy to copy to main notes on laptop.
Create	Create, make, produce, map, sketch, design	Adobe software, coding, video/audio editing, InDesign, CAD, AutoCAD; SOLIDWORKS; Adobe suite; Creo	Had to produce a video of a topic, this was really useful for learning to use different software. Using celtx to help me produce my screenplays. Creating a portfolio for the web design and development module. Using CAD software to create models and run simulations; practical workshops on Adobe Suite with Staci for digital creativity.
Record	Record, log, capture	Blog, portfolio, PebblePad, WordPress, Tumblr	Portfolio learning to record my graduate attributes; keeping a digital record of my reflections; screen capture tool to copy and paste images to help with notes; keeping blogs on Tumblr; creating a WordPress site for professional use.
Take notes	Note, record, bookmark, link, reference, connect, curate, manage, organise	Evernote, OneNote, Stickies, Notepad, GoodNotes, audio notes; MarginNote	I use GoodNotes on my iPad with an Apple Pencil; using a stylus to write notes as it saves carrying notepads and allows ease of sharing and filing; handwritten notes on iPad and Evernote clipper; instant reference/ cite generators; I can constantly reorganise my reference notes and use different tools to improve my writing.

High level code	Associated verbs	Associated tools/resources	Indicative quotes/examples
Annotate	Note, annotate, comment, contribute, post, write/ rewrite	Word, pdf, Acrobat, Reader, PowerPoint	I find it really helpful to download and annotate my slides. PDP using OneNote to make organised notes on top of lecture slides. Using the PowerPoints given to annotate with digital pen. Using LaTeX for writing down maths equations in notes and papers.
Present	Present, upload, show, share, showcase	PowerPoint, video, Sway, Prezi, InDesign	Creating posters and presentations together through a design project. The use of Photoshop and 3D design software to present a portfolio of my learning. We were asked to create a PowerPoint presentation with videos as if we were the ones giving the lecture. Using Sway/Prezi/InDesign to create a presentation. Producing portfolio pages using Adobe software.
Practice	Practice, develop (skills), learn how, improve, try, use	Subject-specialist software and systems, LinkedIn Learning (formerly Lynda.com), simulations, test, MCQs, online tutorials/videos	Practical learning of social work systems such as Charms (social care software). Open source programs that we can access at home to practice. Practice exam questions for linear algebra. Skills tutorials with interactive text boxes to practice responses. SPSS to put all we had learned in lectures into practice.
Analyse or solve	Analyse, calculate, solve, decide, evaluate	Excel, SPSS, NVivo, subject specialist software, GIS, simluations, AutoCAD, MATLAB, R, ArcGIS, QGIS, SFM, Wolfram Alpha	Using SPSS to analyse raw data collected in lab sessions. Prepare graphs in excel. Optimisaton problems solved using MATLAB. When learning to code in SQL we had sample problems to [check] against a database, getting quick feedback. Use of apps such as AntConc for discourse analysis.
Get feedback	(Get) feedback, answer, reflect, learn, respond	VLE, email, quiz, test, online tutorial, e-portfolio, Turnitin, audio feedback	Online practice quiz helped prepare for the actual test. Being able to access my grades and feedback through Canvas. Learning to use Turnitin and your feedback that is personal, matched against your submissions. Using a blog to get feedback from fellow students. Give/receive peer feedback through Aropä. NHS e-portfolio for a single portal for recording progress and getting feedback. A word map submitted by all the students for in-class feedback.

High level code	Associated verbs	Associated tools/resources	Indicative quotes/examples
Review, self-assess	Revise, review, look(back), go over, recap, reinforce, consolidate, remember, reflect, quiz, test (self), assess (self)	Lecture recordings, lecture capture, lecture notes, Padlet, blog, VLE, mindmap, e-portfolio, PebblePad	Peer review with workshop tool. E-potfolio tool where I create a weekly blog about my practice. We used Travis CI to help us find out how we were doing in our assignments before we handed them in. Apps where you make flashcards are very useful. Saved my recordings from Interpreting Skills seminar in Box for future review. Using Padlet as a resource and weekly workbook on PebblePad.
Explore/play	Play, use, explore, interact, discover	Game, simulation, virtual (world, patient etc), subject-specific resource	Exploration of various academic databases and search tools [as part of library induction]. Your own little [CERN] lab that you have to manage yourself and a really fun particle physics slot machine. Viewing a digital simulation of a firm for my accounting module. Virtual tour of Pompei... good interactive learning. Virtual microscope to study geology.

Appendix 3

Year-on-year analysis

List of 17 institutions whose results were compared across two years (2017-18 and 2018-19) in the student insights survey:

- » Aberystwyth University
- » Bexhill College
- » Canterbury Christ Church University
- » City of Wolverhampton College
- » Coleg Gwent
- » Exeter College
- » Harlow College
- » Oldham Sixth Form College
- » Petroc
- » The Sheffield College
- » University of Aberdeen
- » University of Derby
- » University of Durham
- » University of Glasgow
- » University of Stirling
- » University of Ulster
- » University of Westminster

Figure 35: Test results on specific questions comparing changes in 17 institutions results between two years (2017-18 and 2018-19) to see if there was a statistical difference in scores

Response categories	Section of survey	Question	Result of Wilcoxon Signed Ranks test on the medians*
Rating scales (7-point scale)	Digital at your institution	(Q14) Overall, how would you rate the quality of this institution's digital provision (software, hardware, learning environment)?	*P>0.1. No significant difference in mean scores between years.
	Digital on your course	(Q19) Overall, how would you rate the quality of digital teaching and learning on your course?	*P>0.1. No significant difference in mean scores between years.
Weekly or more', 'monthly or less' and 'never'	You and your digital technology	(Q9_5_a) In your own learning time, how often do you use digital tools or apps to ...access lecture notes or recorded lectures	P>0.1. No significant difference in median scores between years.

*Apart from Q14 and Q19 where a Paired Samples T-Test on the means was used.

Response categories	Section of survey	Question	Result of Wilcoxon Signed Ranks test on the medians*
'Weekly or more', 'monthly or less' and 'never'	Digital on your course	(Q15_2_a) As part of your course, how often do you do the following digital activities? Work online with others	P>0.1. No significant difference in median scores between years.
'Agree', 'neutral' and 'disagree'	Digital at your institution	(Q11_1_a) The institution supports me to use my own digital devices	P>0.1. No significant difference in median scores between years.
'Agree', 'neutral' and 'disagree'	Digital at your institution	(Q11_5_a) The institution protects my data privacy	P=0.083. Borderline significant difference in median scores between years (three institutions improved median score from 'neutral' to 'agree')
'Agree', 'neutral' and 'disagree'	Digital on your course	(Q16_2_a) VLE: I rely on it to do my coursework	P>0.1. No significant difference in median scores between years.
'Agree', 'neutral' and 'disagree'	Digital on your course	(Q17_4_a) I am told how my personal data is stored and used	P>0.1. No significant difference in median scores between years.
'Agree, neutral and disagree'	Digital on your course	(Q18_1_a) Before I started my course I was told what digital skills I would need	P>0.1. No significant difference in median scores between years.
'Agree', 'neutral' and 'disagree'	Digital on your course	(Q18_2_a) I have regular opportunities to review and update my digital skills	P>0.1. No significant difference in median scores between years.
'Agree', 'neutral' and 'disagree'	Digital on your course	(Q18_3_a) Digital skills are important in my chosen career	P>0.1. No significant difference in median scores between years.
'Agree', 'neutral' and 'disagree'	Digital on your course	(Q18_4_a) My course prepares me for the digital workplace	P>0.1. No significant difference in median scores between years.
'More than they are now', 'same as they are now' and 'less than they are now'	Attitude to digital learning	(Q25) How much would you like digital technologies to be used on your course?	P>0.1. No significant difference in median scores between years.

*Apart from Q14 and Q19 where a Paired Samples T-Test on the means was used.

Comparing attitudes by student age

The age variable was recoded into three categories:

- » Aged 18 and under » Aged 19 to 21 » Aged 22 and over

Note for all tables, the lower the mean scores the higher the rating.

Looking at Q14 ('overall, how would you rate the quality of this institution's digital provision?'), the mean scores for Q14 by age category for FE students were:

Grouping	Number of students	Mean	Standard deviation
Aged 18 and under	10,361	3.08	±0.99
Aged 19 to 21	1,684	3.13	±1.1
Aged 22 and over	1,328	3.06	±0.98

The mean scores for Q14 by age category for HE students were:

Grouping	Number of students	Mean	Standard deviation
Aged 18 and under	1,388	2.65	±0.72
Aged 19 to 21	6,309	2.73	±0.80
Aged 22 and over	6,819	2.72	±0.88

Secondly, looking at Q19 ('overall, how would you rate the quality of digital teaching and learning on your course?'), the mean scores for Q19 by age category for FE students were:

Grouping	Number of students	Mean	Standard deviation
Aged 18 and under	10,361	3.11	±0.99
Aged 19 to 21	1,684	3.07	±1.07
Aged 22 and over	1,328	3.11	±1.04

The mean scores for Q19 by age category for HE students were:

Grouping	Number of students	Mean	Standard deviation
Aged 18 and under	1,388	2.92	±0.89
Aged 19 to 21	6,309	3.02	±0.93
Aged 22 and over	6,819	2.99	±1.00

Comparing attitudes by student gender

Note for all tables, the lower the mean scores the higher the rating.

Looking at Q14 ('overall, how would you rate the quality of this institution's digital provision?'), the mean scores for Q14 by gender for FE students were:

Grouping	Number of students	Mean	Standard deviation
Male	6,416	3.12	±1.05
Female	6,759	3.04	±0.94

The mean scores for Q14 by gender for HE students were:

Grouping	Number of students	Mean	Standard deviation
Male	5,221	2.73	±0.86
Female	9,138	2.71	±0.81

Secondly, looking at Q19 ('overall, how would you rate the quality of digital teaching and learning on your course?'), the mean scores for Q19 by gender for FE students were:

Grouping	Number of students	Mean	Standard deviation
Male	6,416	3.08	±1.03
Female	6,759	3.11	±0.97

The mean scores for Q19 by gender for HE students were:

Grouping	Number of students	Mean	Standard deviation
Male	5,221	2.93	±0.97
Female	9,138	3.02	±0.95

Comparing attitudes by range of HE institutional measures

Note for all tables, the lower the mean scores the higher the rating.

Looking at Q14 ('overall, how would you rate the quality of this institution's digital provision?'), the mean scores for Q14 by above or below NSS overall average satisfaction grouping:

Grouping	Mean	Standard deviation
Above average NSS	2.65	±0.12
Below average NSS	2.88	±0.26

Secondly, looking at Q19 ('overall, how would you rate the quality of digital teaching and learning on your course?'), the mean scores for Q19 by above or below NSS overall average satisfaction grouping:

Grouping	Mean	Standard deviation
Above average NSS	2.94	±0.12
Below average NSS	3.09	±0.18

Q14 by above or below REF GPA score average grouping:

Grouping	Mean	Standard deviation
Above average REF	2.74	±0.21
Below average REF	2.81	±0.27

Q19 by above or below REF GPA score average grouping:

Grouping	Mean	Standard deviation
Above average REF	3.00	±0.16
Below average REF	3.02	±0.18

Note for all tables, the lower the mean scores the higher the rating.

Q14 by above or below continuation rate percentage average grouping:

Grouping	Mean	Standard deviation
Above average continuation rate	2.69	±0.13
Below average continuation rate	2.81	±0.28

Q19 by above or below continuation rate percentage average grouping:

Grouping	Mean	Standard deviation
Above average continuation rate	2.97	±0.13
Below average continuation rate	3.05	±0.18

Q14 by above or below institutional income per student average grouping:

Grouping	Mean	Standard deviation
Above average income per student	2.74	±0.29
Below average income per student	2.78	±0.22

Q19 by above or below institutional income per student average grouping:

Grouping	Mean	Standard deviation
Above average income per student	2.99	±0.20
Below average income per student	3.02	±0.16