

Jisc Digital Student Skills Sector: Final Report

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Executive summary

This is the third Jisc Digital Student studies: the first two studies have explored the technology use and needs of learners in higher and further education (with a brief exploration of schools) and this study covers learners in apprenticeships, adult and community learning and prisons. In this study the range of learners is very broad, with ages ranging from 16 to 90, a multiplicity of reasons for learning and great diversity in the technology knowledge and experience that they bring to the table.

The aim of all three studies has been to investigate learners' expectations and experiences of the digital environment in order to make recommendations on the services that could be provided to support learners' use of technology. In common with the two previous studies there have been three main strands to the research: a review of the relevant existing literature, including 'grey' material, supported by interviews with key stakeholders; primary research with learners through questionnaires and facilitated focus groups; and consultation events with learning providers and learners.

The literature review builds on the evidence generated by the parallel FE study and reinforces its conclusions that whilst there are a number of studies reporting on learners' experiences of technology in courses by staff there is a dearth of studies which draw out the wider use of technology enhanced learning and put this in the learners' own words. There are few academic studies of learner needs and expectations in work-based and adult and community learning, where much of the limited research is contained in internal institutional reports and blogs.

In **work-related learning** there remain deep-seated and persistent problems with students accessing the quality of devices and internet connectivity that they require and expect. Students working in industries which make use of specialist packages expect their providers to furnish them with those packages – and devices of sufficient power to run them. Virtual Learning Environments (VLEs) and Learning Management Systems (LMSs) are far from redundant technologies. It is likely that they are yet to approach reaching their potential. Learners are reliant on their tutors for direction in their use of technology for learning.

In **adult and community learning** there is a general lack of good quality equipment and reliable and/or ubiquitous hi-speed wifi. Added to this are the challenges of transporting equipment to venues, blocks on sites when using school venues, not being provided with passwords by the venue. Not surprisingly, the practitioners faced their own barriers in terms of obtaining training in how to use technologies and insufficient time to prepare materials or backups – to the detriment of the learner experience. The high proportion of part-time tutors working in the sector creates significant challenges for delivering effective CPD.

In contrast, there is a useful body of research into **offender learning**. Access to devices, access to the internet, access to information and access to support are all priorities for offender learners. At times, this is further complicated by students being denied access to existing technologies due to competing priorities and/or philosophies. Access to meaningful learning opportunities often decreases as offenders progress through the prison system towards release and this is aggravated by the lack of continuity of learning, support and access after release. Amongst the key student requests is for a dedicated technology-enabled learning space within prisons. Despite persistent problems, in terms of access, support and quality of content, the Virtual Campus (<http://testvc2.meganexus.com/portal/index/>) is viewed by offender learners as having considerable potential. Perceptions of a lack of tangible progress may ultimately erode this enthusiasm.

Stakeholder interviews, learner focus groups and consultation events have reinforced the findings from the literature review. Learner expectations of the technical-infrastructure are not excessive and chiefly involve the ability to use machines running standard Office and Word type packages (or similar) over a reliable internet connection, with access to software which is used in the workplace. Access to a decent quality laptop, or the facility

to use their own, high speed, reliable wifi and printers are consistently amongst the top-rated student priorities, together with learning (or refreshing) basic ICT skills. Younger learners in particular expected the same, or better, services than they had had in school. Many of the learners who participated in the focus groups were not used to being asked about their technology ownership, use and needs, but strongly welcomed the opportunity to talk about these.

The nine key challenges identified for the skills sector are very similar to those for HE and FE:

- Recognise the wide diversity of technology experiences and skills that even an apparently homogeneous group of learners may bring to their studies.
- Engage learners in a dialogue about their digital experiences and empower them to make changes.
- Provide a robust, flexible digital environment.
- Meet learners' expectations with wireless that always works, VLE available without downtime, up to date hardware and software and accessible printers.
- Deliver a relevant digital curriculum.
- Provide support and incentives for teachers to integrate digital resources into their teaching.
- Make effective use of VLEs and LMSs.
- Engage with assessment and accreditation bodies to allow, or even encourage, the use of technology in formative and summative assessment and other innovative approaches to teaching.
- Offender learning lacks access to devices, technologies and the internet and lack of access to digital content and online tutors may drive teachers into very traditional pedagogy.

Flowing from these, we make seven recommendations to all skills providers, with a number of additional recommendations specific to the three main subsectors:

Recommendations for all providers

- Develop a strategy and operational plan for using digital technology which fits with the organisation's aims and objectives and is embedded in overall strategic planning processes.
- Involve learners in the planning and implementation of digital technology. Develop trustworthy procedures for identifying learners' digital skills and expectations, listening to what learners say and taking their contributions fully into account.
- Provide a digital environment that is robust and fit for purpose in all learning locations. That access to a decent quality laptop, or the facility to use their own, high speed, reliable wifi and printers are consistently the top-rated student priorities suggests that policy makers and managers at all levels may be wise to focus on these rather prosaic goals first, above more "charismatic" technologies.
- Prioritise CPD for staff, especially part-time and casual staff, using peer learning where possible.
- Develop staff knowledge of assistive technology for use with learners with learning difficulties and disabilities
- Further develop staff practice with VLEs and ensure that the information on them is timely and accessible.
- Develop coherent policies for BYOD (Bring Your Own Device) and support these.
- Audit and evaluate the effectiveness of the organisation's technology provision against benchmarks and learning outcomes.

Specific recommendations for FE colleges and private training providers delivering apprenticeships:

- Ensure that provision for work-based learners gives them access to, and training with, the software they will encounter in the workplace. Where this may involve costly specialist software, look to develop your partnerships with the appropriate employers.
- Ensure that time is made for engaging learners' on their use of technology and their expectations.. This may be through surveys, focus groups or using technology to gather learners' views and ideas. Some providers commented that their contact time with learners was severely restricted, for instrumental reasons, but time listening to learners will be time well spent and should be reflected in improved learning outcomes.

Specific recommendations for ACL providers:

- Lower expectations should not be used as a reason for not attempting to provide good connectivity: where learning locations are owned by other organisations, ACL providers should seek to negotiate appropriate access to wifi and the web.
- VLEs are not always used effectively and training staff in their use should be a priority.

Specific recommendations for providers of learning in prisons:

- Prison education staff should seek to extend the boundaries of technology within the prison where they work.
- The use of Virtual Campus should be encouraged and developed.
- Staff should not allow barriers to technology use to corral them into unimaginative and traditional methods of pedagogy.
- Staff should ensure that records of learning are readily transferable to other providers, if prisoners are moved or released, to provide continuity of learning.

Recommendations for Jisc and sector bodies

- With the need for CPD for staff in technology awareness and use to be prioritised in management planning we recommend that **Jisc** customises the Jisc Digital capability service for the skills sector to ensure the language and context is appropriate to training providers and adult learning tutors as priority.
- We recommend that **Jisc** further develops a learner diagnostic tool to support providers in their understanding of learner technology needs.
We recommend that Jisc continues to offer the Learner digital experience tracker survey to FE colleges, training providers and adult learning services so as to enable providers to gather consistent data on their learners' expectations and experiences of technology.
- We recommend that **Jisc** (through Janet / Eduroam) provide technology support to smaller training providers and ACL to enable better wifi access for learners, particularly in more isolated learning locations.
- **Jisc** and other **sector bodies** should compile a list of the most useful and appropriate tools for technology use in the skills sector, especially including software for supporting learners with learning difficulties and disabilities.
- **Jisc** and other sector bodies should keep a list of exemplars of good practice and encourage networking between providers.
- **Jisc**, **HOLEX** (for ACL) and **AELP** (for training providers) should provide support and training for the effective use of VLEs and LMSs and other relevant tools
- **Jisc** could advise relevant partners on how to further develop the Virtual Campus for learning in prisons.

The text of the report makes reference to a number of reports, papers and documents gathered in the literature review and the full suite of references is given in the bibliography of this review (see [JISC_SkillsSectors_Literature_Review_SEROFinal](#)).

1. Introduction – aims and overview of research

This is the third Jisc Digital Student studies: the first two have explored the technology use and needs of learners in higher and further education (with a brief exploration of schools) and this study covers learners in apprenticeships, adult and community learning and prisons. In this study the range of learners is very broad, with ages ranging from 16 to 90, a multiplicity of reasons for learning and great diversity in the technology knowledge and experience that they bring to the table.

The aim of all three studies has been to investigate learners' expectations and experiences of the digital environment in order to make recommendations to Jisc, sector bodies and providers on the services and support that could best be provided to facilitate learners' use of technology and TEL in the different parts of the skills sector.

2. Research methodology

In common with the two previous studies there have been three main strands to the research: a review of the relevant existing literature; primary research with learners through focus groups; and consultation events with learning providers and learners.

The literature review builds on the evidence generated by the parallel FE study whilst avoiding duplication of references, including 'grey' material and supported by interviews with key stakeholders.

The research team conducted 12 learner focus groups, involving a total of 123 learners: five groups from Adult and Community Learning providers, three from private training providers and two in FE colleges – selected to consist entirely of apprentices - and prisons, with contracted provision from FE colleges. The learners in the focus groups were largely self-selected, within the constraints discussed with the providers. Participating learners were asked to complete Learner Profile questionnaires and the main part of the session comprised a card sorting exercise, undertaken in groups of 4-6 learners. There were four separate sets of cards which were addressed in turn: A (Access to Technology); B (Useful Skills); C (Experiences with technology); and D (Making good choices with technology). Groups discussed each set in turn and agreed a priority order of importance. The sessions were audio recorded to preserve the details of group discussions. Details of the research materials used are given in Annex A, together with links to the URLs for these.

Three consultation events for providers and students were held: in February 2016 (Bristol – 43 participants, excluding Jisc staff and the consultancy team) and April 2016 (Leicester - 25 participants and Manchester – 25 participants).

The outcomes of all three research strands, together with relevant comments on project blog entries, are synthesised in this final report.

The text of the report makes reference to a number of reports, papers and documents gathered in the literature review and the full suite of references is given in the bibliography of this review.

3. Research outcomes

In discussing and reviewing the research it should be recognised that there is a very wide diversity of learners – in ages, technology experience and use, learning aims and learning environments. This makes generalisation risky and whilst there are a number of conclusions that apply across the board, it is useful to consider the three sub-sectors of work-based learning, adult and community learning (ACL) and learning in prisons separately when framing recommendations for providers.

3.1 Literature review and stakeholder interviews

The literature review and stakeholder interviews build on the evidence generated by the parallel FE study and reinforce its conclusions that there is a relative dearth of research evidence from the learners' perspective. There are few academic studies of learner needs and expectations in work-based and adult and community learning, where much of the limited research is contained in internal institutional reports and blogs. In work-related learning (learning with an FE college or training provider which is often part of an apprenticeship) there remain deep-seated and persistent problems with students accessing the quality of devices and internet connectivity that they require and expect. Students working in industries which make use of specialist packages expect their providers to furnish them with those packages – and devices of sufficient power to run them. VLEs and LMSs are far from redundant technologies. It is likely that they are yet to approach reaching their potential.

In adult and community learning there is a general lack of good quality equipment and reliable and/or ubiquitous hi-speed wifi. To this one can add the challenges of transporting equipment to venues, blocks on sites when using school venues, not being provided with passwords by the venue. Not surprisingly, the practitioners faced their own barriers in terms of obtaining training in how to use technologies and insufficient time to prepare materials or backups – to the detriment of the learner experience. The high proportion of part-time tutors working in the sector creates significant challenges for delivering effective CPD.

In contrast, there is a useful body of research into offender learning. Access to devices, access to the internet, access to information and access to support are all priorities for offender learners. At times, this is further complicated by students being denied access to existing technologies due to competing priorities and/or philosophies. Access to meaningful learning opportunities often decreases as learners progress through the prison system towards release and this is aggravated by the lack of continuity of learning, support and access after release. Amongst the key student requests is for a dedicated technology-enabled learning space within prisons. Despite persistent problems, in terms of access, support and quality of content, the Virtual Campus is viewed by learners as having considerable potential. Perceptions of a lack of tangible progress may ultimately erode this enthusiasm.

3.2 Learner focus groups

It proved challenging to recruit a sufficiently large sample of learners to focus groups, so the conclusions from the analysis of the Learner Profiles and the card sorting should be treated with some caution. 120 Learner Profile forms yielded data which could be analysed. The full analysis of the Learner Profiles is given in Annex B and of the card sorting exercise in Annex C.

The gender balance of the learners was almost exactly 50:50, with an average age of just over 30. Unsurprisingly, all the younger learners (aged 16-29) were undertaking apprenticeships and most of the older learners (aged 40+) were studying in ACL settings. Almost half were taking courses at Level 2, covering a wide range of subject and sector skills areas: the most represented courses being in English / Literacy, including a small number of ESOL learners.

The learners possessed a wide range of devices, with females possessing rather more than males:

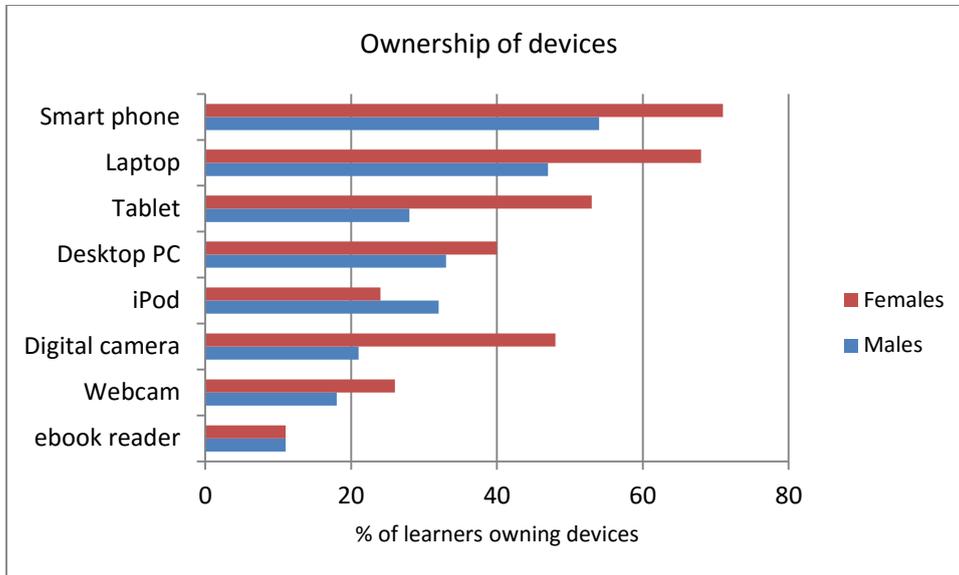


Figure 1: Learner ownership of devices

Younger learners were likely to use their devices more extensively in their personal and social lives:

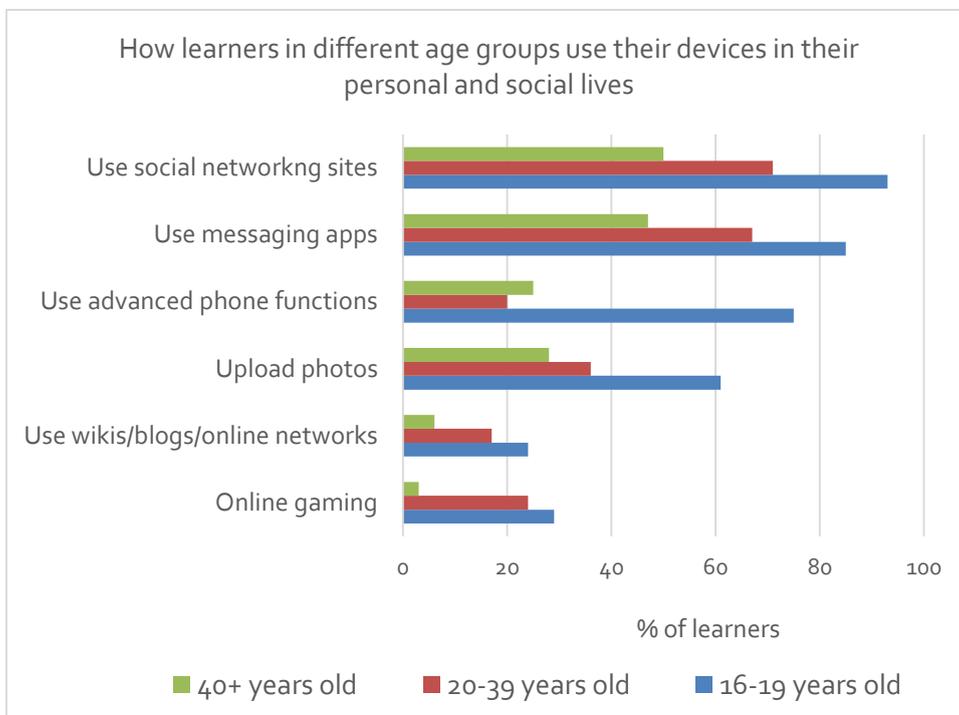


Figure 2: Learner use of devices in their personal and social lives

The age differences were less pronounced in the ways in which devices were used in their studies:

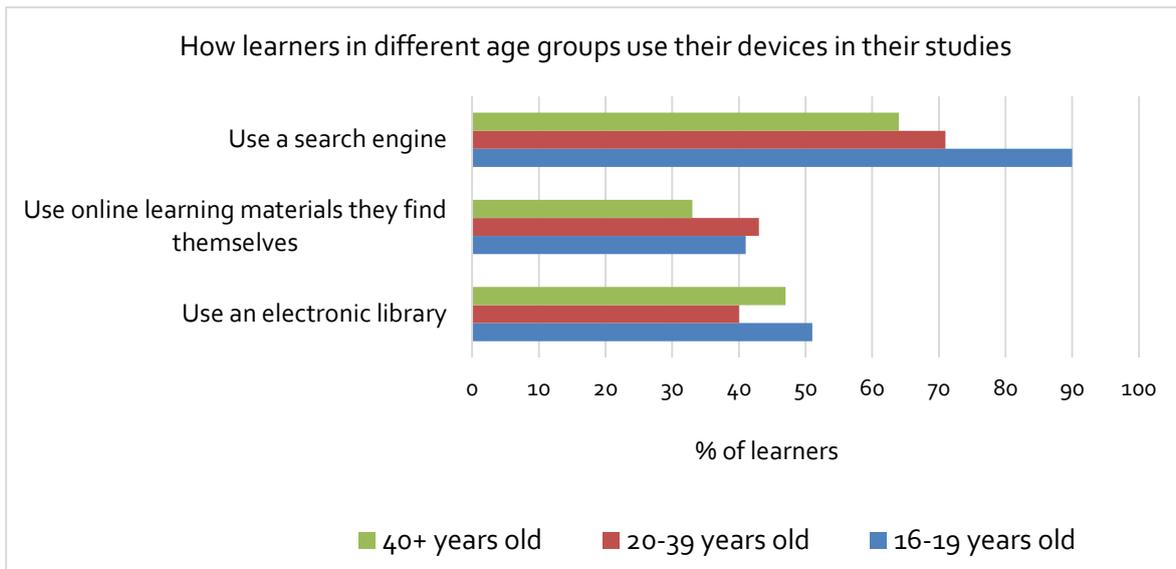


Figure 3: Learner use of devices in their studies

The card sorting exercise identified four key issues, covered by the selection of five items from the range available which appeared in more than three quarters of their priority lists of important items:

Jisc **Focus groups – the most important items**

Group	Item	% of lists
Skills	Basic ICT skills e.g. use of internet search, email, word processing, spreadsheets, etc	92
Access	Fast wifi that is easy to connect to	84
Access	A device like a laptop, tablet or fixed computer to use on your own when needed	80
Experiences	Experience with technologies used in the workplace	79
Making good choices	Ability to enter a workplace and feel confident with the technology used there	76

Figure 4: Technology issues of greatest importance to learners

Despite some confusion over the phrase 'basic ICT skills', confidence in using technology scored most highly in the useful skills category. "In 5 years' time, basic IT skills will have changed, so you have to keep learning it. I can learn a lot on my own, but you need to be taught spreadsheets." Using technology to cope with learning difficulties or disabilities was seen as important both by those who identified themselves as having specific needs and by their peers.

Experience with technologies used in the workplace was considered extremely important, as was the use of presentation software and working with others online: *"It's easy to come across like you're being really abrupt and you don't mean to, so you've got to be really careful... and I think people really have to learn that."*

Learners clearly welcomed the opportunity to describe their technology expectations and experiences and they learnt about digital technologies with which they were unfamiliar through the discussions:

About Dropbox, Learner A: *"I can't see the point of that."*

Learner B: *"Say you're at work, you have a file, you put it in Dropbox, you can open it at home."*

Learner A: *"Oh, wow, cool!"*

Learner C: *"It's very handy for sharing videos. So if I wanted to send a video to you, they're usually too big to send as an email attachment, so I stick it in Dropbox and send you the link."*

Learner A: *"Oh wow, that's useful then. I'll get it!"*

The sessions also raised learners' awareness of wider opportunities. Although there was little initial interest in item B5 (writing computer code), many learners had not considered this: *"I don't understand any of that, I'm not interested. But, if somebody had introduced me to it, it might have been an opportunity."*

Managers engaged in discussion too, because they needed learners' views to take back to senior managers to make the case for more investment in digital technology:

Manager: *"If there was a way to access example questions from your apprenticeship and some example answers, would you find that useful, like a mock exam?"*

Learner A: *"Yeah, I guess."*

Learner B: *"Yes, if it was interactive like the AA driver app, which gives multiple choice answers then tells you if you got it right or wrong with instant feedback."*

"I don't have Skype but it probably would be useful." The learner's manager also felt Skype would be a useful addition to visits to apprentices: *"Skype not to replace visits but to support them. I like to see someone's facial expressions when I'm talking to them. I would find it awkward at first but after 3 or 4 meetings it would be fine."*

Both the literature review and the learner focus groups demonstrated that learner expectations of the technical infrastructure are not excessive and chiefly involve the ability to use machines running standard Office and Word type packages (or similar) over a reliable internet connection, with the availability of software which is used in the workplace and confidence in using this. Access to a decent quality laptop or tablet, or the facility to use their own, high speed, reliable wifi and printers are consistently amongst the top-rated student priorities, together with learning (or refreshing) basic ICT skills. Younger learners in particular expected the same, or better, services than they had had in school.

3.3 Consultation events

The three consultation events were attended by a cross-section of staff from ACL, FE colleges, private training providers and HE, with a small number of students. No staff currently teaching in prisons were able to attend, but some of the attendees had previously taught there.

The participants largely consisted of the converted; they were either already listening to the learner voice about technology or were seeking to learn about most effective and proactive ways of doing so. The mix across sectors and presence of students at two of the three events proved particularly useful here, with ideas and strategies being exchanged and feedback confirmed that participants had welcomed and learnt from the cross-sector discussions and about the support that Jisc could give organisations in developing their technology strategies with regard to the learner voice.

The need for both top-down and bottom-up approaches to the development of policies and practice and the importance of senior management commitment to technology development – not just in terms of money, but in terms of strategy leadership and facilitating CPD for staff, especially part timers was strongly emphasised.

It was clear that participants were interested in evidence that technology enhanced learning can demonstrably improve learner outcomes – the research evidence for this is mixed. The negative attitude of some awarding bodies in excluding technology-based evidence of learning was raised as a specific issue in one event.

There is clearly awareness of many of the challenges and a willingness to exchange ideas and learn from others. When asked what they were looking to take away from the events, comments from participants included:

"Ideas for GAP analysis – what do learners want and how do we facilitate staff?"

"To identify tools to assess experiential learning in HE. A wider awareness of digital wall"

"To identify tools for work based learners in the FE sector"

"Understanding the digital student area at college; develop a whole college view"

"Using technology with offenders in a very secure environment".

"Want to learn more about the use of digital platforms"

"How to help our teaching staff change their mind set in using ICT in the classrooms"

"How to embed digital learning tools in traditional ACL classes"

4. Challenges for the skills sector

The literature review and stakeholder interviews, focus groups and consultation events confirm that the challenges for the skills sector are very much in line with those identified in the earlier Jisc Digital Student reports for HE and FE colleges. The over-riding challenge for all sectors is to take a strategic, whole institution approach to the digital student experience and ensure that the organisation's approach is informed by staff and learner perspectives and underpinned by local and national evidence. Managers and leaders are going to need to be the drivers of change and require preparation and support for this role.

The challenges for the skills sector can be summarised as follows:

- Recognise the wide diversity of technology experiences and skills that even an apparently homogeneous group of learners may bring to their studies. Whatever level of digital skills learners have when they begin a course, they, in common with other learners in other educational sectors, need support to use these skills appropriately in an educational context. Learners requested both initial induction and ongoing assessment and continual development, particularly in order to develop appropriate advanced skills and uses of technology.
- Engage learners in a dialogue about their digital experiences and empower them to make changes. Learners rarely feel that their providers ask for or listen to their views on technology and whilst staff may think they are engaging learners in these conversations, the learners do not always feel their concerns are valued.
- Provide a robust, flexible digital environment. Learners' expectations of digital provision are rising in line with their general experiences in school and home and this is especially true of younger apprentice learners. In particular, students working in industries which make use of specialist packages expect their providers to furnish them with those packages – and devices of sufficient power to run them.
- Meet learners' expectations with wireless that always works, VLE available without downtime, up to date hardware and software and accessible printers.
- Deliver a relevant digital curriculum. Learners expect their providers to provide what they need to function successfully in the workplace.
- Provide support and incentives for teachers to integrate digital resources into their teaching. Learners' digital experiences are strongly dependent on the confidence and capability of teaching staff, but they are happy to support teachers who may lack digital expertise. Note that CPD is a particular issue where there is heavy reliance of casual staff or high staff turnover.
- Make effective use of VLEs and LMSs: these are far from redundant technologies and the more effective and pedagogically sound use of these can significantly enhance the learners' experience.
- Engage with assessment and accreditation bodies to allow, or even encourage, the use of technology in formative and summative assessment and other innovative approaches to teaching.
- The challenges facing offender learning, and particularly those where technology is concerned, are long-standing and well documented – the lack of access to devices, technologies and the Internet result in a subsequent lack of access to digital content and online tutors and may drive teachers into very traditional pedagogy.

5. Recommendations

Addressing all these challenges is largely, but not exclusively, resource dependent. With severe constraints on resources, especially in ACL, there needs to be strong leadership from managers to deliver the digital environment that learners need and expect. Sector bodies and consortia of providers can play a significant role in influencing policy makers and providing support and training for organisations.

Our recommendations are divided into two main groups: those primarily for providers and those addressed to Jisc and other sector bodies. Together, they will inform the Good Practice Guide and our briefing for the FE and Skills Coalition.

5.1 Recommendations for providers

Many of the recommendations for addressing the challenges described above are generic and apply to all providers. However, some have more relevance to some parts of the skills agenda than others.

5.1.1 For all providers

- Develop a strategy and operational plan for using digital technology which fits with the organisation's aims and objectives and is embedded in overall strategic planning processes.
- Involve learners in the planning and implementation of digital technology. Develop trustworthy procedures for identifying learners' digital skills and expectations, listening to what learners say and taking their contributions fully into account.
- Provide a digital environment that is robust and fit for purpose in all learning locations. That access to a decent quality laptop, or the facility to use their own, high speed, reliable wifi and printers are consistently the top-rated student priorities suggests that policy makers and managers at all levels may be wise to focus on these rather prosaic goals first, above more "charismatic" technologies.
- Prioritise CPD for staff, especially part-time and casual staff, using peer learning where possible.
- Develop staff knowledge of assistive technology for use with learners with learning difficulties and disabilities.
- Further develop staff practice with VLEs and ensure that the information on them is timely and accessible.
- Develop coherent policies for BYOD (Bring Your Own Device) and support these.
- Audit and evaluate the effectiveness of the organisation's technology provision against benchmarks and learning outcomes.

5.1.2 For FE colleges and private training organisations

- Ensure that provision for work-based learners gives them access to, and training with, the software they will encounter in the workplace. Where this may involve costly specialist software, look to develop your partnerships with the appropriate employers.
- Ensure that time is made for engaging learners' on their use of technology and their expectations. This may be through surveys, focus groups or using technology to gather learners' views and ideas. Some providers commented that their contact time with learners was severely restricted, for instrumental

reasons, but time listening to learners will be time well spent and should be reflected in improved learning outcomes.

5.1.3 For ACL providers

- Learners, expectations are generally lower in ACL and learning locations often have very limited technology facilities. However this should not be used as a reason for not attempting to provide good connectivity: where learning locations are owned by other organisations, ACL providers should seek to negotiate appropriate access to wifi and the web.
- Although almost 80% of HOLEX members have VLEs, they are not always effectively used and training staff in their use should be a priority.

5.1.4 For providers of learning in prisons

Learning in prisons presents particular challenges and faces substantial barriers to technology access. Prisoners who attended learner focus groups in this study clearly articulated their frustration at restrictions on technology access and use. The research demonstrates that the management philosophy of prison governors and managers can significantly affect the learning opportunities of prisoners but it is beyond the scope of this study to attempt to exert direct influence here. However, research studies suggest that prisoners who can maintain closer contact with their families through simple technology (e.g. Skype calls) are significantly less likely to re-offend and prisoners with access to good learning opportunities are more likely to find employment after release. It is recommended that:

- Prison education staff should seek to extend the boundaries of technology within the prison where they work.
- The use of Virtual Campus should be encouraged and developed.
- Staff should not allow barriers to technology use to corral them into unimaginative and traditional methods of pedagogy.
- Staff should ensure that records of learning are readily transferable to other providers, if prisoners are moved or released, to provide continuity of learning.

5.2 For Jisc and sector bodies

Jisc and sector bodies can support providers in addressing the technology challenges for the skills sector:

- With the need for CPD for staff in technology awareness and use to be prioritised in management planning we recommend that **Jisc** customises the Jisc Digital capability service for the skills sector to ensure the language and context is appropriate to training providers and adult learning tutors as priority.
- We recommend that **Jisc** further develops a learner diagnostic tool to support providers in their understanding of learner technology needs.
- We recommend that Jisc continues to offer the Learner digital experience tracker survey to FE colleges, training providers and adult learning services so as to enable providers to gather consistent data on their learners' expectations and experiences of technology.

- We recommend that **Jisc** (through Janet / Eduroam) provide technology support to smaller training providers and ACL to enable better wifi access for learners, particularly in more isolated learning locations.
- **Jisc** and other **sector bodies** should compile a list of the most useful tools for technology use in the skills sector, especially including software for supporting learners with learning difficulties and disabilities.
- **Jisc** and other sector bodies should collate exemplars of good practice and encourage networking between providers.
- **Jisc**, **HOLEX** (for ACL) and **AELP** (for training providers) should provide support and training for the effective use of VLEs and LMSs and other relevant tools.
- **Jisc** could advise relevant partners on how to further develop the Virtual Campus for learning in prisons.

6. Acknowledgements

We are very grateful for the continued support, good advice and networking from the members of the Virtual Advisory Group, Jisc Account Managers and the stakeholders who gave us lengthy telephone interviews. The names of the Advisory Group and stakeholder interviewees are given in Annex D.

We are especially grateful to Ellen Lessner (Consultant) for providing invaluable support and time throughout the study and to Sarah Knight (Jisc) for her support and encouragement.

Annexes

A. Learner focus group materials

The two main sets of materials used were the Learner Profile Form (A1) and the card sets (A2). Both of these are OER and available for re-use and adaptation. The group discussions for the card sorting exercise were audio recorded.

In addition to these materials, all learner focus group participants were issued with three other documents:

- A two page summary of the aims and objectives of the study, which they could keep.
- A copy of the Sero data protection policy – also for retention.
- A consent form, detailing the various activities and asking them to sign and return this to the facilitators. Anonymity of responses was guaranteed.

All the materials are available for re-use and re-purposing through the project blog at:

<https://digitalstudent.jiscinvolve.org/wp/>

A1 Learner profile form

The Learner Profile questionnaire was adapted from the form used in the FE study. The adaptations were relatively minor: with hindsight, it might have been better to have simplified the form and number of questions, as completion proved challenging to quite a number of learners and three of the questions (A10: highest previous educational qualification; A12: where do you usually study; B2: access to broadband internet) proved ambiguous or confusing.

The form, appropriately adapted for circumstances, could be used in whole, or in part, at various stages of a learner's course, depending on the purposes for which the data was being used. The first page (Section A) includes several questions which providers would not need to ask, as the information would already be available from the student's Learner Record. The text of the form is given below and the PDF used can be seen at

<https://digitalstudent.jiscinvolve.org/wp/files/2016/01/Learner-profile-form-v6.pdf>

Section A – Information about you

- A1 *Name*
- A2 *Preferred email address*
- A3 *Age*
- A4 *Gender*
- A5 *Name of training provider*
- A6 *Which course are you studying?*
- A7 *Are you a UK resident?*
- A8 *Is English your first language? If not, what is your first language?*
- A9 *How many hours of paid work per week do you normally do? 30+ hours? 10-30? Less than 10? Not employed?*

- A10 What is your highest previous educational qualification? GCSE? A Levels? Undergraduate degree? NVQ? Other?
- A11 What is your current level of study? Entry level? Level 1? Level 2? Level 3? Other?
- A12 Where do you usually study? Home? Workplace? Computer room? Learning Resource Centre? Library? Placement? Other?
- A13a Is learning a problem for you?
- A13b If 'yes' and you are willing to indicate the nature of your difficulties, please tick all that apply: Specific learning difficulty (e.g. dyslexia); Autistic Spectrum Disorder / Asperger's Syndrome; Blind or partially sighted; Deaf or hard of hearing; Wheelchair user or mobility difficulties; Mental health difficulties; Other.

Section B – information about your technology use

- B1 I have access to a computer/laptop/tablet/phone connected to the internet – at home; at work; on placement; other.
- B2 I have access to broadband internet – at home / at work / on placement / at my training provider / on my mobile.
- B3 I use a computer – every day / a few times a week / less than once a week / less than once a month.
- B4 I access the internet – every day / a few times a week / less than once a week / less than once a month.
- B5 In what ways do you customise your computer to suit your personal preferences? Tool bars and menu items / mouse buttons / background colours / language.
- B6 Which of the following technologies do you own? – desktop computer / tablet device (e.g. iPad) / iPod or MP3 player / smart phone (e.g. iPhone, Android phone) / webcam / laptop / digital camera / eBook reader (e.g. Kindle, Kobo).
- B7 Which of the following do you do in your personal and social life?
- B7a use social networking sites (e.g. Facebook, Twitter, Google+, WhatsApp, Facetime).
- B7b use messaging apps (e.g. WhatsApp, Facebook messenger, Skype, Facetime).
- B7c upload video or photo content on to the internet.
- B7d use wikis / blogs / online networks.
- B7e online gaming.
- B7f use advanced functions on your phone (e.g. mobile TV, web browser, GPS, email or social media apps).
- B8 Which of the following have you done as part of your studies?
- B8a used a search engine (e.g. Google) to find out about a subject.
- B8b used an electronic library or portal (e.g. Wikipedia, subject-based resource) to find out about a subject.
- B8c used online learning materials you have found yourself (e.g. manuals, tutorials, e-books, lecture notes).
- B8d used word processing software (e.g. Word) to write an assignment.
- B8e used spreadsheets or data analysis software (e.g. Excel).
- B8f used modelling / simulation packages (e.g. geometry, CAD, 3D graphics).
- B8g used design tools (e.g. graphic animation / web design).
- B8h submitted materials for assessment online.
- B8i taken a computer-based test or examination.

- B8j used a web page, wiki or blog to present information.*
- B8k used PowerPoint (or other slide show software) to present information.*
- B8l used an e-portfolio or digital CV.*
- B8m used an electronic whiteboard.*
- B8n contacted a tutor using email.*
- B8o used an online discussion forum to share ideas with other learners.*
- B8p accessed course materials (e.g. slides, notes, podcasts) via a VLE.*
- B8q used video or audio conferencing.*
- B8r used a mobile phone or tablet for learning.*

A2 Stimulus cards

Four sets of cards were used, addressing different aspects of technology experiences:

- A: Access to technology (10 cards)
- B: Useful skills (5 cards)
- C: Experiences (7 cards)
- D: Making good choices (6 cards)

The cards were adapted from a similar exercise used for the FE study, but the language and wording was changed on some of them, applying the NIACE smog index to simplify the language. Where items from the FE set were considered to overlap significantly, or be irrelevant to the sector, they were discarded – hence the differing numbers of cards in each group. Originally the cards in each set were numbered (see below), but the numbers were removed after the first two focus groups, in case the numbering was having an unconscious effect on selection – e.g. cards numbered 1 might be more likely to be accorded a high priority.

The focus group participants were asked to organise themselves into groups of 4-6 and then discussed each set of cards in turn, selecting those items they agreed were important and putting them in to an order of priority.

The full sets of cards are reproduced below, together with the instructions for participants. In the FE study, tutors had been excluded from the sessions, but in the skills sector, they asked to stay. There was no evidence that they influenced the selections, and their students seemed uninhibited by their presence; in fact, they acted as useful additional facilitators. The whole exercise lasted between 15 and 45 minutes per group, depending on the extent of discussion and initial disagreements.

The card sets:

A. Access to technology:

Q. Which of these do you expect from your learning provider?

Pick 5 that are most important for you:

- A1. Fast wifi that is easy to connect to
- A2. Access to social media like Skype, YouTube, Facebook, Twitter or Instagram
- A3. A personal email account
- A4. Access to digital storage like Dropbox, Google Drive or OneDrive
- A5. A VLE (Virtual Learning Environment) with tutor contact, group forum, ways to store and submit work, CV, references, etc.
- A6. A device like a laptop, tablet or fixed computer to use on your own when needed
- A7. Access to a printer when needed
- A8. Access to a digital camera when needed
- A9. Access to class notes, handouts and recordings online
- A10. Aids like online diary, timetable, work experience information, rooming information, library catalogue

When you have chosen these, put them in order, with the most important at the top and least important at the bottom.

B. Useful Skills

Q. Which of these skills do you expect to learn on your course?

Pick 3 that are most important for you:

- B1. Basic ICT skills e.g. use of internet search, email, word processing, spreadsheets, etc.
- B2. How to use technology to cope with learning difficulties or disabilities
- B3. How to use systems like a library catalogue, VLE, and how to do things like submitting work online
- B4. Use of online networks to make connections and share ideas with other learners
- B5. Writing computer code – opportunities and/or training

When you have chosen these, put them in order, with the most important at the top and least important at the bottom.

C. Experiences

Q. Which of these experiences do you expect to have during your course?

Pick 4 that are most important for you:

- C1. Experience with technologies used in the workplace
- C2. Experience with presentation software like PowerPoint, Prezi, SlideShare, etc.
- C3. Experience in creating or contributing to a public website like a wiki or blog
- C4. Experience creating and editing with digital media like video, pictures or audio
- C5. Experience working with social media like Twitter or Facebook to help you learn
- C6. Experience taking part in online discussions
- C7. Experience working with others online, for example jointly writing things or sharing files

When you have chosen these, put them in order, with the most important at the top and least important at the bottom.

D. Making good choices

Q. Which of these abilities do you expect to gain from your course?

Pick 3 that are most important for you:

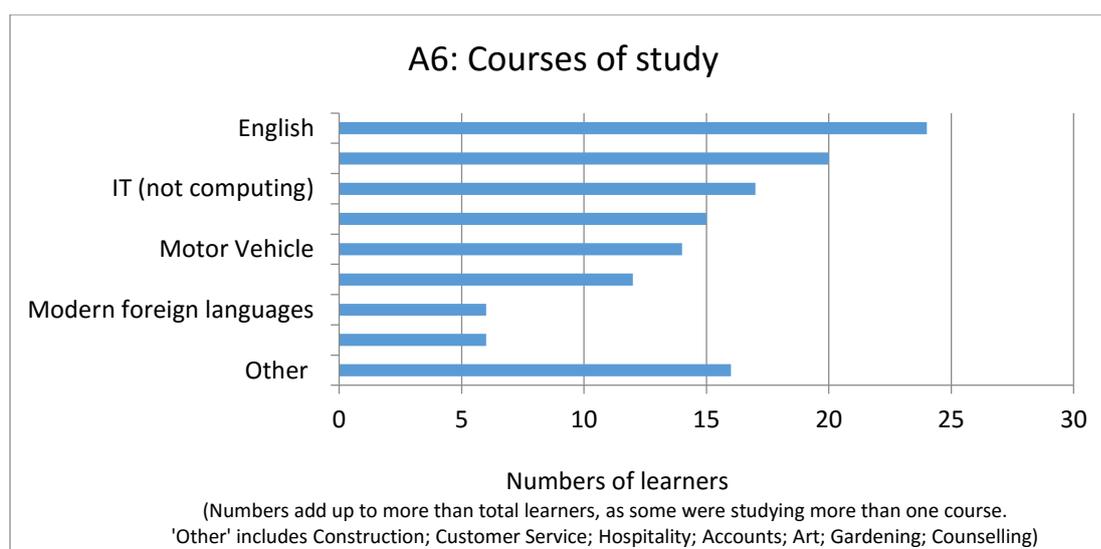
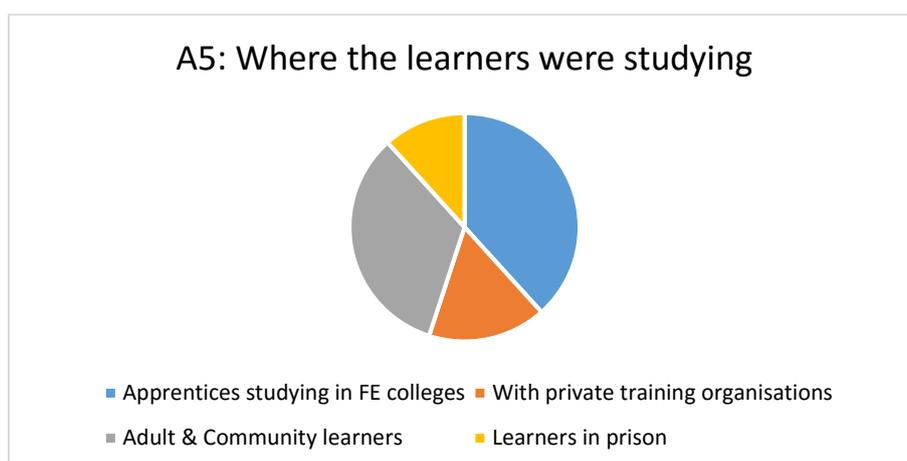
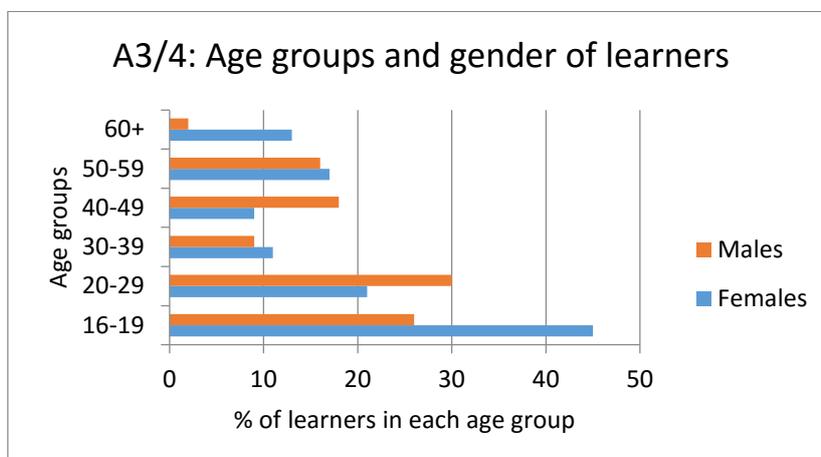
- D1. Ability to choose the best technology for different tasks
- D2. Ability to judge how useful or true things are that you find on the internet
- D3. Understanding how to use the internet safely and ethically, including cyber-bullying, cheating, e-safety, protecting private information, sticking to a clear moral code, etc.)
- D4. Understanding the latest digital technologies (gadgets, media, apps)
- D5. Knowing how to present a positive personal identity or profile online
- D6. Ability to enter a workplace and feel confident with the technology used there

When you have chosen these, put them in order, with the most important at the top and least important at the bottom.

The card sets can be accessed at <https://digitalstudent.jiscinvolve.org/wp/files/2016/01/Jisc-Card-Sort-Activity-Final.pdf>

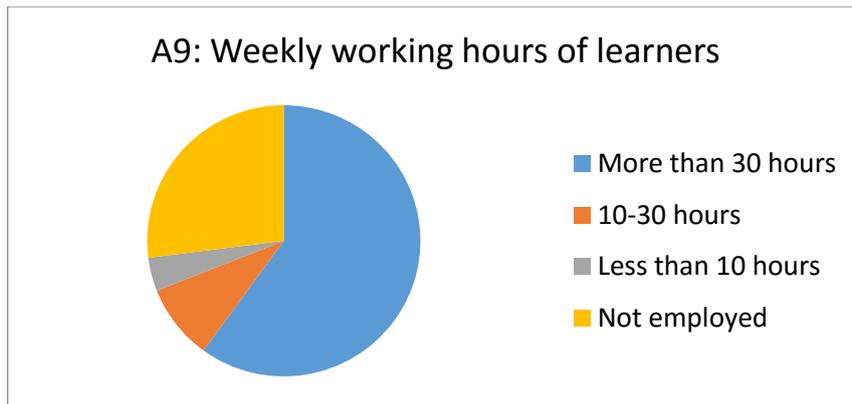
B. Learner profile analysis

120 profiles that were considered to be valid for the purposes of analysis. The details are as follows (lettering / numbering refers to the question on the form):

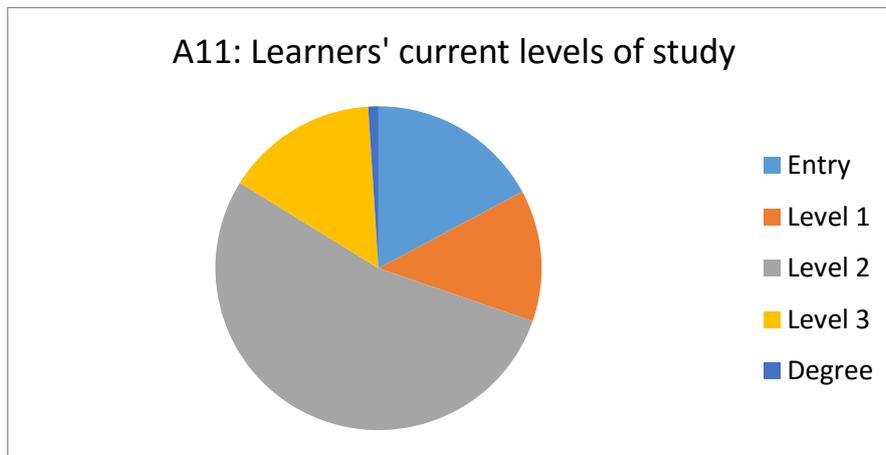


A7: Only one learner was not a UK resident.

A8: 85% had English as their first language. Other first languages included Portuguese and Welsh (3), Chinese and Romanian (2) and Vietnamese, Bengali, Italian, Bangladeshi, Polish and Urdu (1).



A10: Highest previous level of qualification did not generate reliable results.

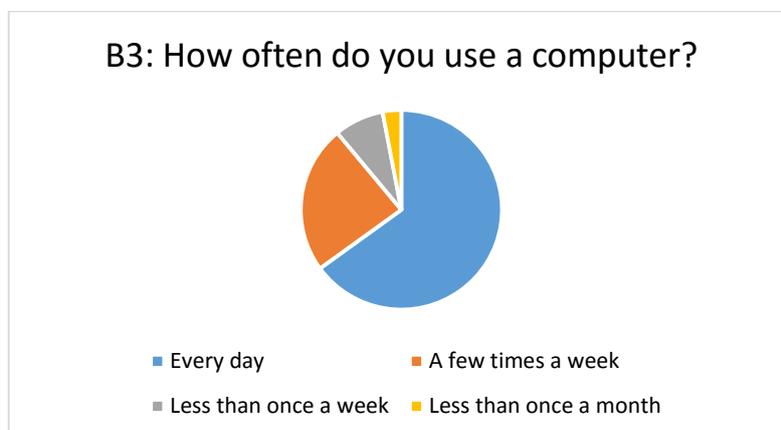


A12: Where learners usually studied did not produce reliable results.

A13: 31 learners (26%) found learning a problem. The most commonly recorded learning difficulty / disability was dyslexia (16 learners), followed by mental health issues (6 learners, all from the same specialist teaching group). A range of other problems was mentioned, including one learner citing child care as an issue.

B1: 75% had access to a device connected to the internet at home.

B2: Location of access to broadband internet: this question proved ambiguous and did not generate reliable results.

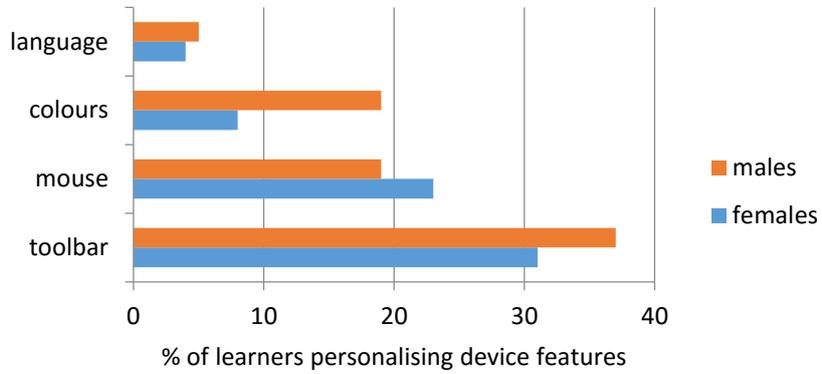


B4: How often do you access the internet?



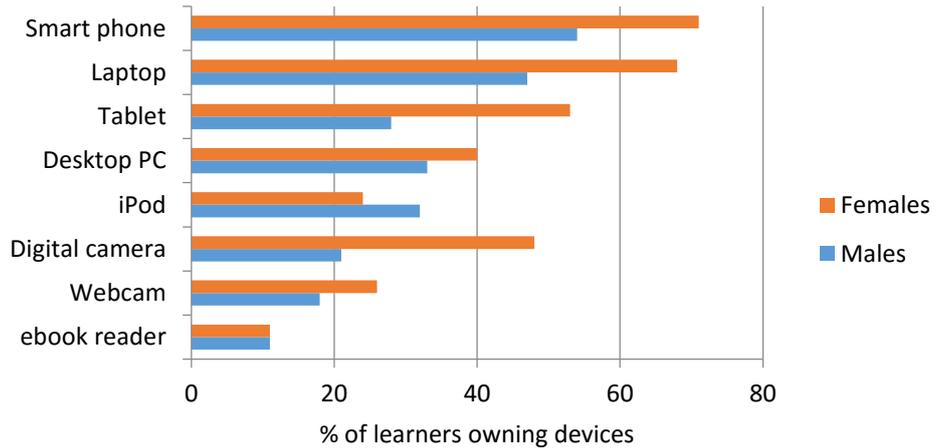
■ Every day ■ A few times a week
■ Less than once a week ■ Less than once a month

B5: Customising devices



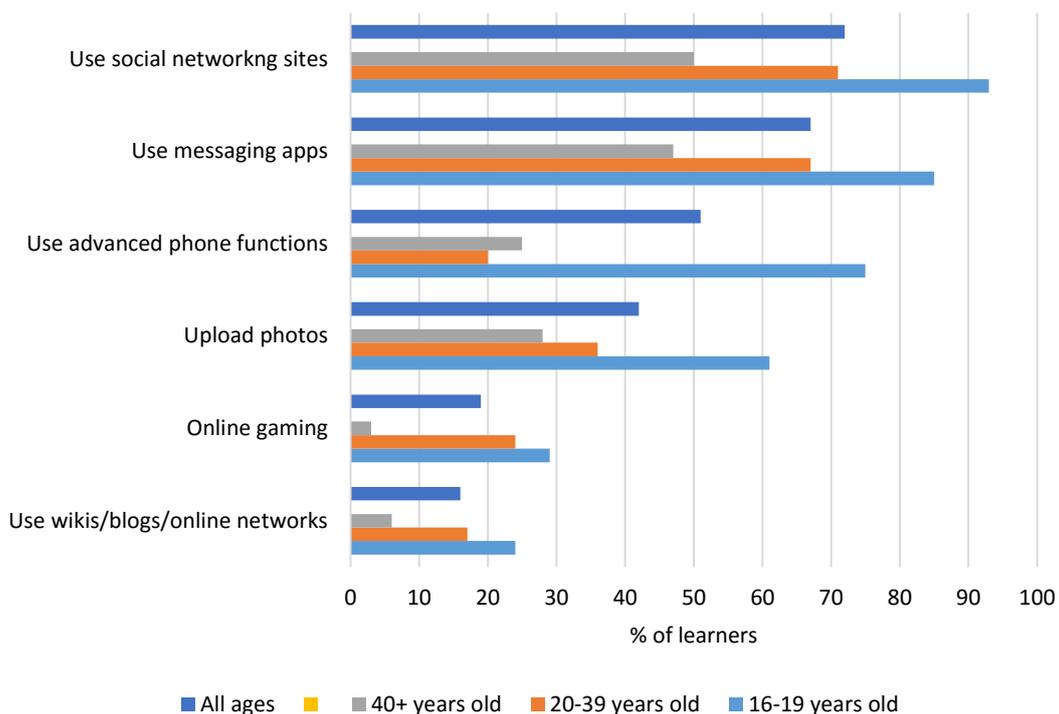
% of learners personalising device features

B6: Ownership of devices

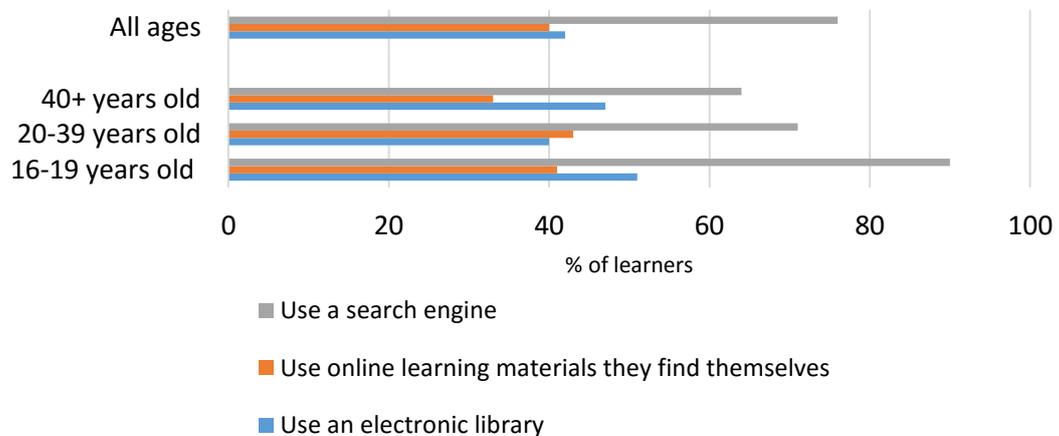


% of learners owning devices

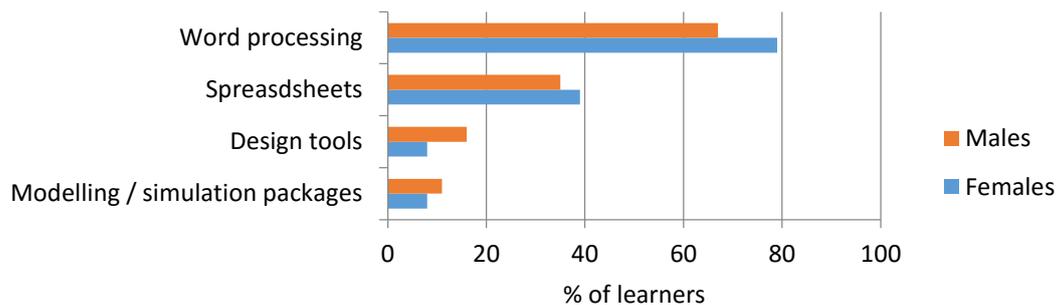
B7: Use of technology in learners' personal and social lives



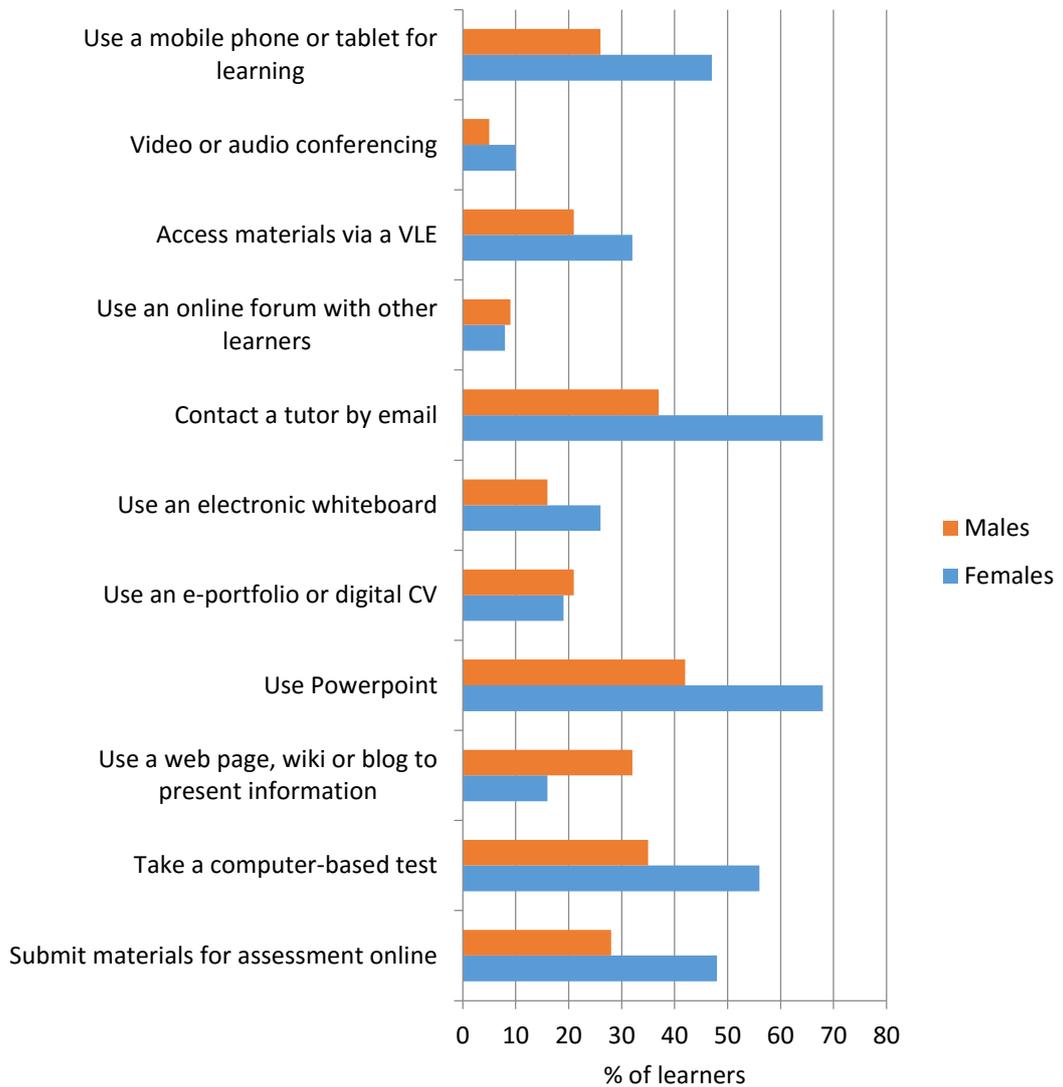
B8 (1) How learners use their devices in their studies



B8(2): Learners' use of software packages in their studies



B8(3): Device use for assessment, presentation, communication and mobile learning

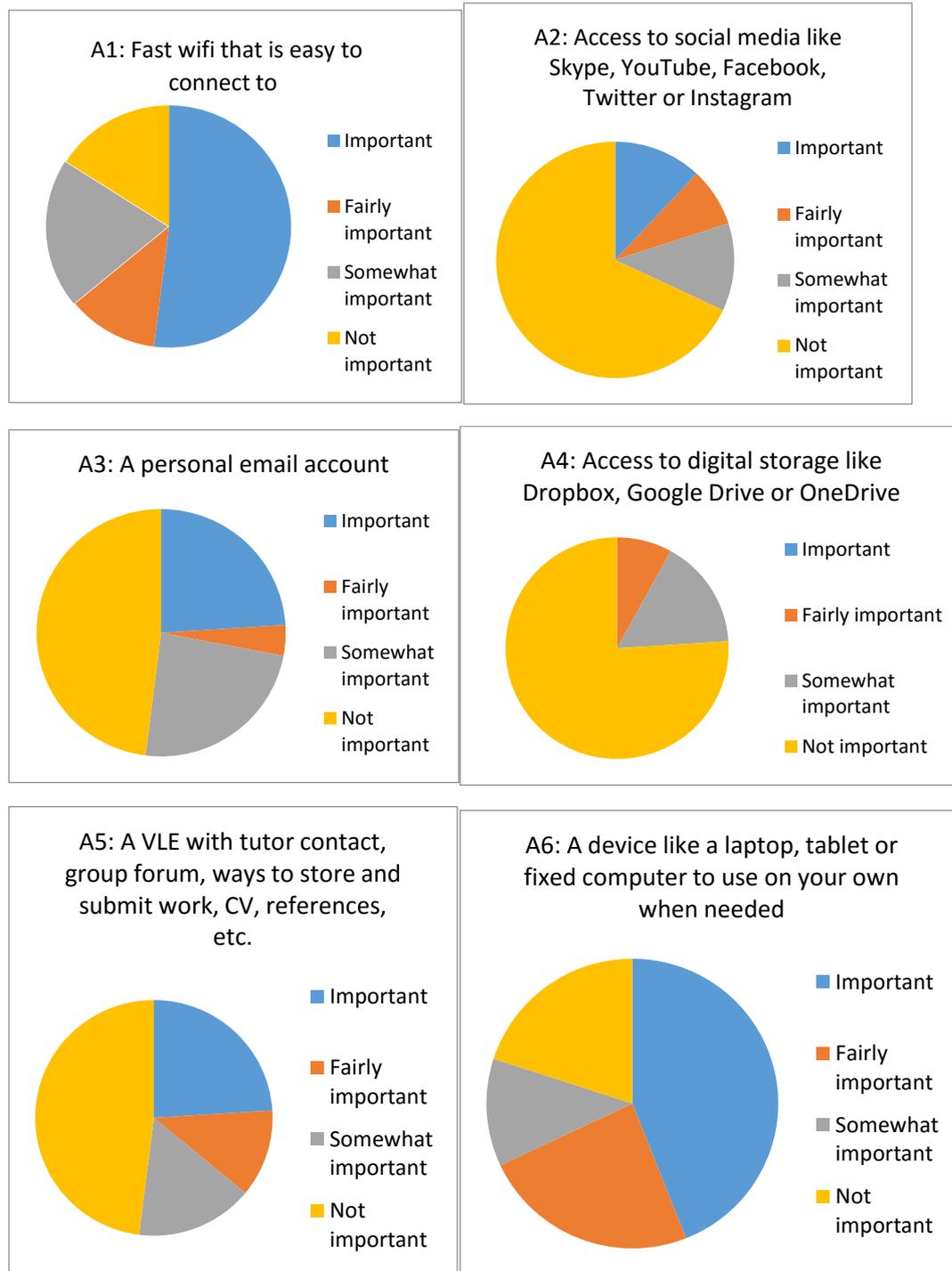


C. Card sorting analysis

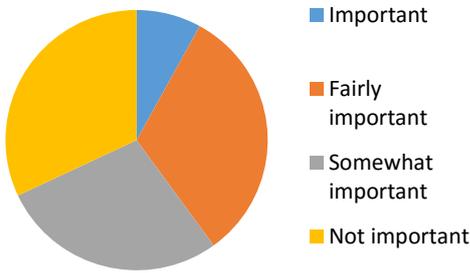
Each of the items was scored on a 4 point scale:

- Important: chosen as a top priority by the group
- Fairly important: chosen as a high priority by the group
- Somewhat important: chosen as a priority, but not high on the list
- Not important: not chosen by the group.

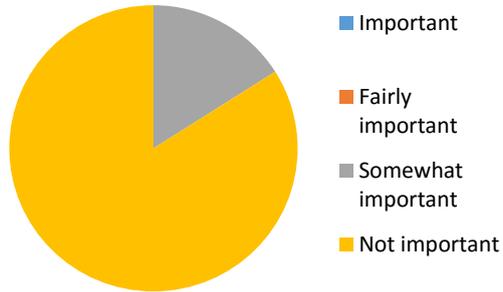
Each of the pie charts shows the relative importance of the item.



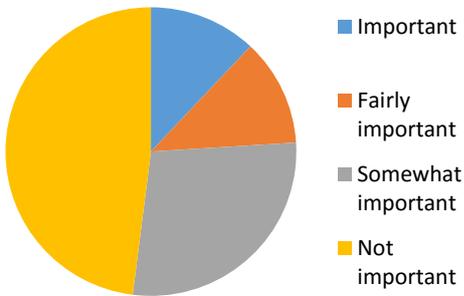
A7: Access to a printer when needed



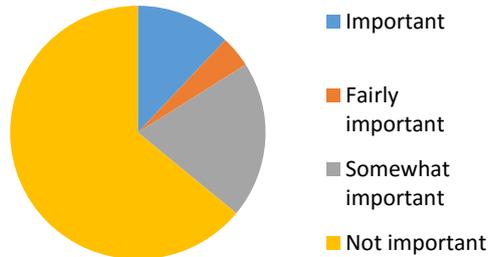
A8: Access to a digital camera when needed



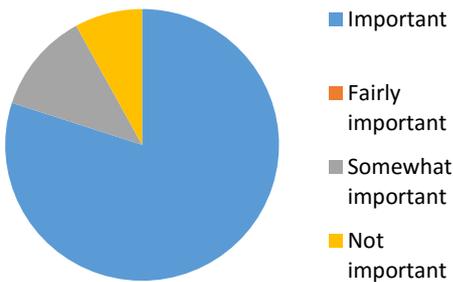
A9: Access to class notes, handouts and recordings online



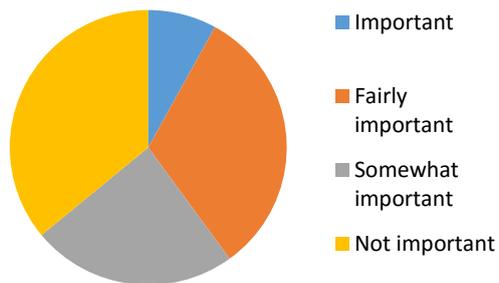
A10: Aids like online diary, timetable, work experience information, rooming information, library catalogue



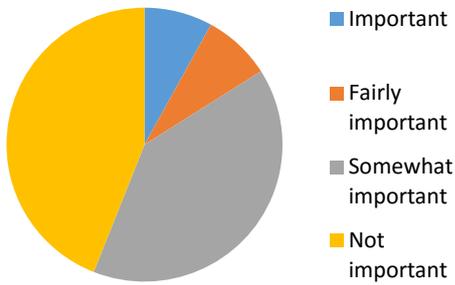
B1: Basic ICT skills e.g. use of internet search, email, word processing, spreadsheets, etc



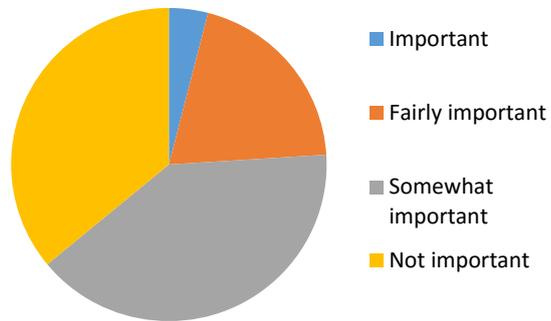
B2: How to use technology to cope with learning difficulties or disabilities



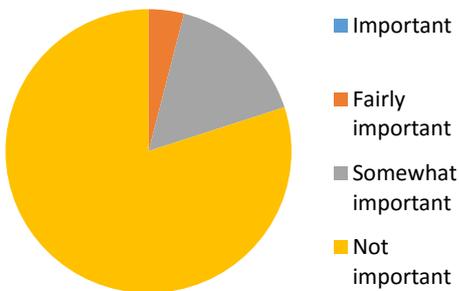
B3: How to use systems like a library catalogue, VLE, and how to do things like submitting work online



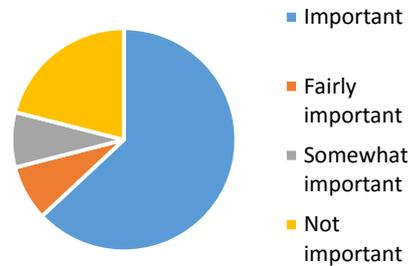
B4: Using online networks to make connections and share ideas with other learners



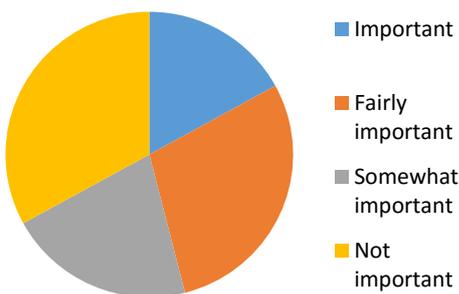
B5: Writing computer code – opportunities and/or training



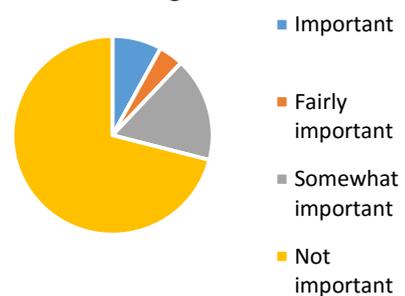
C1: Experience with technology used in the workplace



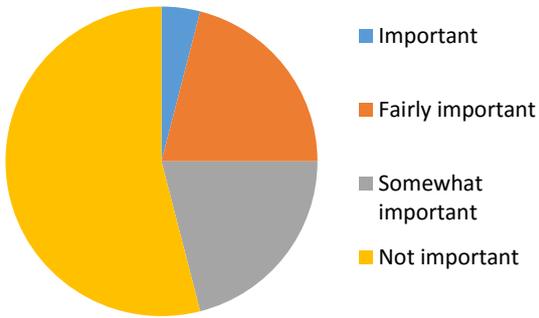
C2: Experience with presentation software like PowerPoint, Prezi, SlideShare, etc



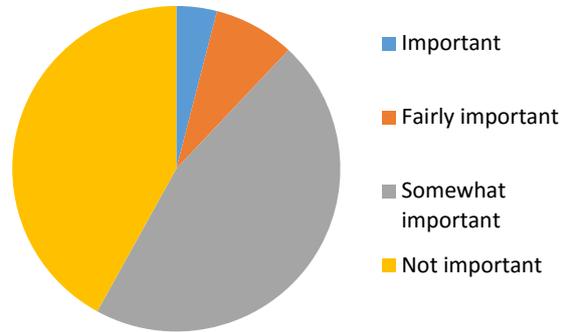
C3: Experience in creating or contributing to a public website like a wiki or blog



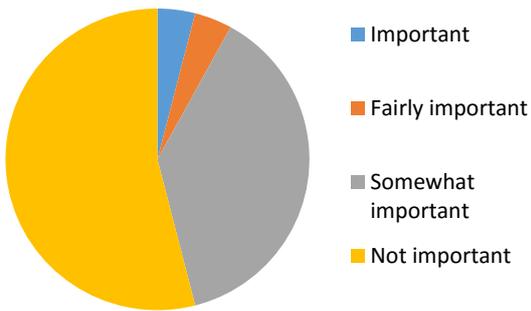
C4: Experience creating and editing with digital media like video, pictures or audio



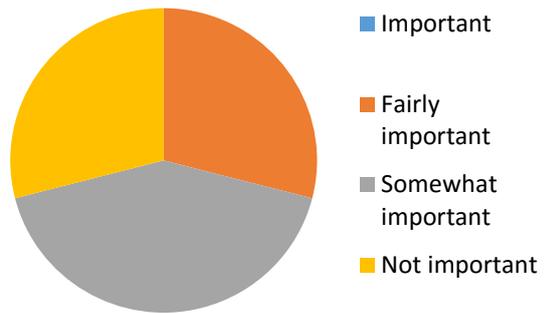
C5: Experience working with social media like Twitter or Facebook to help you learn



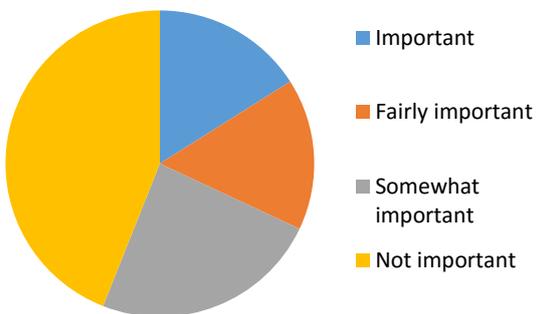
C6: Experience taking part in online discussions



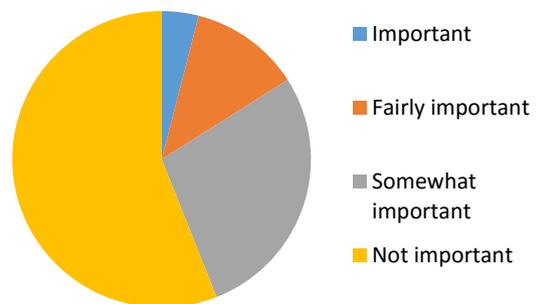
C7: Experience working with others online, for example jointly writing things or sharing files



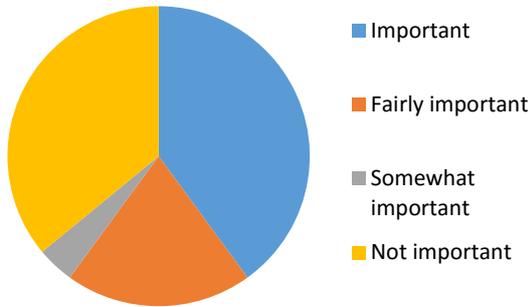
D1: Ability to choose the best technology for different tasks



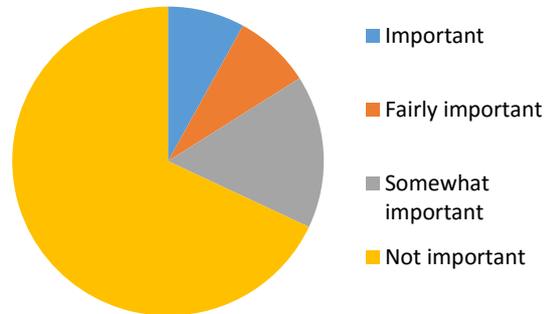
D2: Ability to judge how useful or true things are that you find on the internet



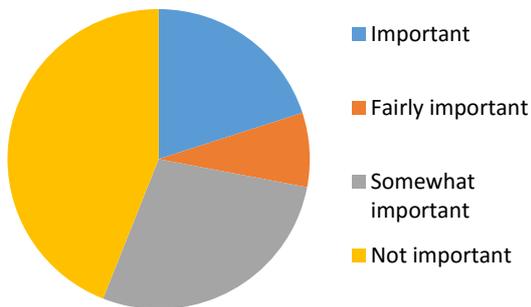
D3: Understanding how to use the internet safely and ethically, including cyber-bullying, cheating, e-safety, protecting private information, sticking to a clear moral code, etc)



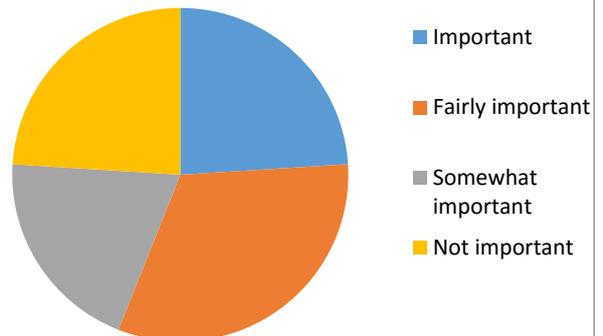
D4: Understanding the latest digital technologies (gadgets, media, apps)



D5: Knowing how to present a positive personal identity or profile online



D6: Ability to enter a workplace and feel confident with the technology used there



D. Virtual Advisory Group and stakeholder interviewees

D1 Members of the Virtual Advisory Group

Dawn Buzzard, ETF
Katharine Jewitt, PROCAT
Ellen Lessner, Consultant
Alastair Clark, Consultant
Susan Easton, Learning & Work Institute
Chris Swingler, AELP
Barbara Nance
Sally Betts
Jisc representatives:
Sue Attewell, Head of Change, FE and Skills
Joy Hooper, FE and Skills Window project manager
Jane Edwards, Skills account manager
Catriona Appleton Skills account manager
Tracey Duffy
Chair: Sarah Knight, Senior co-design manager, Student experience team

D2 Stakeholder interviewees

Susan Easton	Learning & Work Institute
Chris Swingler	AELP
Karen Austin-Jones	HOLEX
Dawn Buzzard	ETF
Mark Taylor	NOMS
Katharine Jewitt	The Open University
Joe Wilson	Previously at College Development Network Scotland