

Learner e-maturity report
GfK NOP Social Research

Conducted on behalf of Becta
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Introduction

Background and research objectives

This research project was commissioned by Becta to understand more about Information and Communication Technology (ICT) from the Further Education (FE) learner's perspective. The research findings will help to verify some of the key findings from previous institution and practitioner level studies and also contribute to a better understanding of issues on which national level evidence is missing, such as what access FE learners have to technology at home and in the workplace and how this relates to their college use.

This research was commissioned to address the following specific areas:

- Learner access to ICT resources within the college and outside (e.g. at home, in the workplace);
- How learners use/experience ICT and e-learning in their programmes of study, and also outside of college (nature and frequency);
- Learner perceptions of how use of ICT/e-learning impacts on their learning (and also the extent to which they enjoy this form of learning);
- Learner estimates of their confidence and competence in using different forms of ICT for particular tasks;
- Support for ICT provided by the college and levels of take-up.

This report covers the concept of learner 'e-maturity' and looks at how this impacts on FE learner's experience and perceptions of ICT. The concept of learner "e-maturity" has yet to be fully defined, but broadly relates to the skills and abilities that learners need in order to be effective within technology-rich learning environments.

This concept was developed by Becta and applied to the findings of the FE survey. More details of how learner e-maturity was determined follows in section 1.3.

Survey methodology and analysis

Sampling

The sample was sourced from the Individualised Learner Records (ILR) which are held by the Learning and Skills Council (LSC). The ILRs are submitted by colleges and institutions as a record of the learners currently enrolled on their courses. When the learner details are added to the ILR, they are asked if they are willing to have their details passed on to a third party for research purposes, only individuals who agreed to follow up were included in the sample.

All of the records selected to be in the sample were 16+ with a phone who have agreed to be re-contacted. If individuals appeared more than once in the sample frame (for example, if they were doing more than one course) their first record would

have been used and all other discarded to ensure all learners had an equal chance of being selected.

The sample was stratified by the following variables and in total, 18,000 records were selected:

- Type of institution (general FE and tertiary/sixth form colleges/specialist designate colleges)
- Local LSC region
- Age
- Sex
- Ethnicity
- Learning difficulty**/Disability*
- Mode of study
- Course Type

The final agreed sample size was 4,000 interviews to allow for analysis of sub-groups such as learners with disabilities, learners with learning difficulties and learners from minority ethnic backgrounds.

Questionnaire and fieldwork

The questionnaire was designed in consultation with Becta to cover the survey objectives.

The survey was conducted via a telephone data collection method. A pilot survey of 32 telephone interviews was conducted to test the questionnaire length, question clarity and flow. Recommendations were feedback to Becta and minor changes agreed.

The fieldwork took place between 20 April and 24 May 2007. The data was captured using Computer Assisted Telephone Interviewing (CATI) which allowed automatic routing and the GfK NOP project team to monitor fieldwork progress continually.

In total, 4001 telephone interviews were completed which were 20 minutes in length on average.

Weighting the data

The data was weighted by the following variables based on the IRL database to ensure it reflected the FE learner population:

- age within gender;
- sector;
- Mode of study (full-time or part-time).

Reporting conventions

Throughout the report, the following conventions are used within charts and tables:

* denotes a figure less than 0.5% but greater than zero

** denotes a small base (unweighted base less than 100)

denotes a value of zero

All differences referred to in the report are statistically significant differences, that is, they are statistically different at 95%. This means we can be 95% sure that the differences exist within the population.

Learner “e-maturity”

The concept of learner “e-maturity” has yet to be fully defined, but broadly it relates to the skills and abilities that learners need in order to be effective within technology-rich learning environments. This concept was developed by Becta and applied to the findings of the FE survey.

Within the FE learner survey, there are two questions which relate most strongly to learner e-maturity:

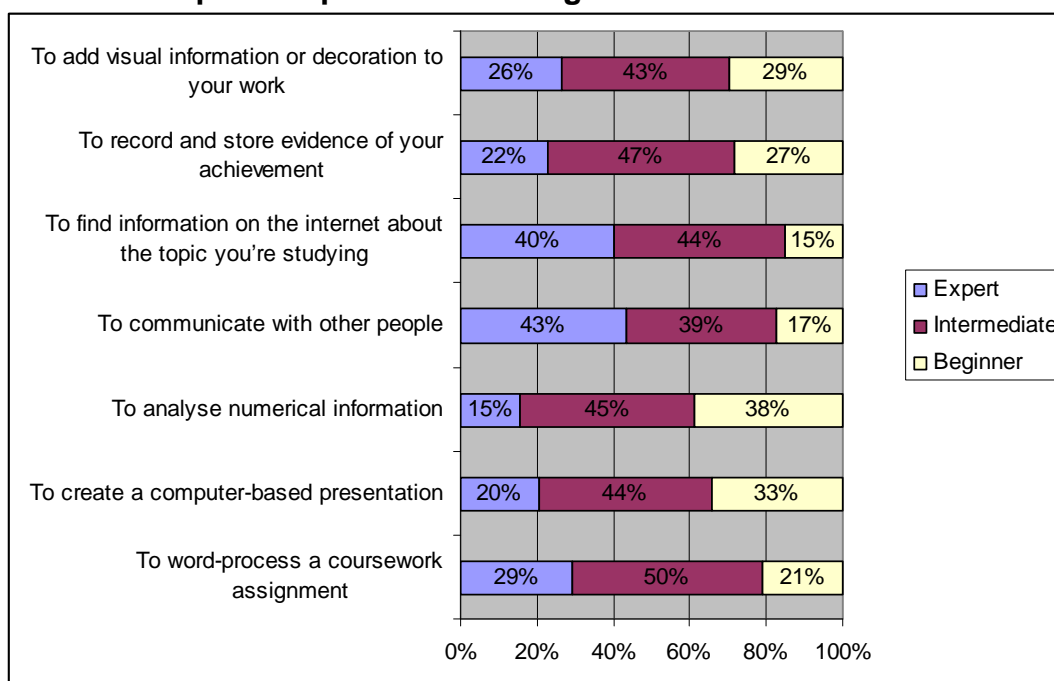
- Learner expertise in relation to a range of specific ICT-based tasks
- Learner perception of confidence in using technology within the course

From learner responses to these questions it is possible to categorise learners as “high”, “medium” or “low” in terms of their e-maturity, using the following approach:

Learner expertise in relation to specific ICT-based tasks

The table below shows how survey respondents have rated themselves against each of the activities listed, using the three-point scale provided (either experts, intermediate or beginner).

Level of computer expertise for a range of tasks



Wtd Base: All respondents (4001)

Scores were then assigned to the response categories for each item. These were weighted to reflect the relative importance of learner capability within each area. Certain computer skills (e.g. word-processing a coursework assignment; finding information on the Internet) are likely to be essential across most, if not all courses: for this reason, levels of ability in these skills are scored so that they have a greater influence on the overall expertise score. Other computer skills (e.g. analysing numerical information) are less important for every subject area, so are scored in a way that means they have less effect on the overall expertise score achieved.

Level of computer expertise for a range of tasks

	Score			
	Expert	Intermediate	Beginner	Don't know
To word-process a coursework assignment	4	2	0	0
To create a computer-based presentation (for example, using PowerPoint)	3	2	1	0
To analyse numerical information (for example using a spreadsheet package)	3	2	1	0
To communicate with other people (for example, using email, Instant	4	2	0	0

Messenger)				
To find information on the internet about the topic you're studying (by doing your own research rather than following web links you've been given by your tutor)	4	2	0	0
To record and store evidence of your achievement (for example, as part of a portfolio of evidence)	3	2	1	0
To add visual information or decoration to your work (for example, charts and graphs; graphics)	3	2	1	0

The maximum possible score (if the learner rates themselves as "expert" against each activity) is 24 whilst the minimum possible score (provided that the learner does not respond "don't know" to any of the items) is 4.

The score obtained by the learner will then be combined with the learner's response to Q36, on their confidence in using computers as part of their course.

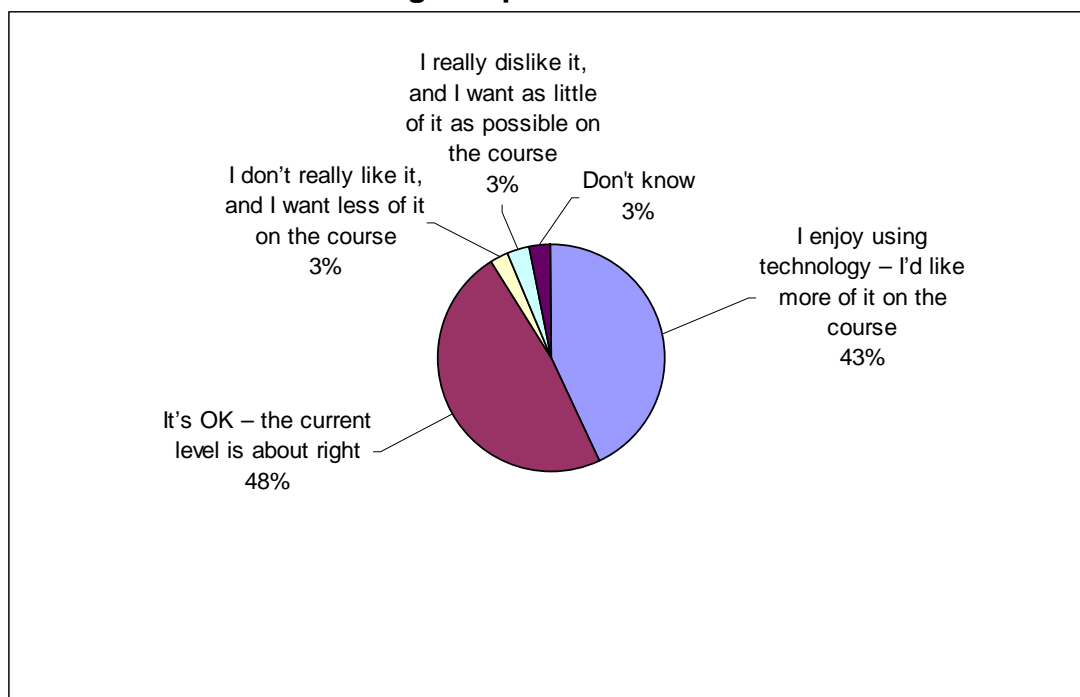
Learner perception of confidence in using technology within the course

In order to gain an understanding of learner perception of their overall computing confidence, respondents were asked to indicate which of the following statements best described the way they felt about using computers:

- I'm not confident at all in using computers
- I'm OK in using computers for a few basic tasks but I'm not confident beyond these
- I'm quite confident in using computers, and will usually have a go at doing things that I've not done before
- I'm very confident in using computers for a wide range of tasks

The following chart shows the responses to this question.

Learner confidence in using computers



Wtd Base: all respondents (4001)

On the basis of their score for learner expertise and response for learner confidence, each learner was assigned to one of three different “e-maturity” categories – high, medium and low. This was calculated as follows:

If the learner selected statement A (“I’m not confident at all in using computers”) and:

- their total score for learner expertise was **21-24**, the learner was placed in the **high** e-maturity category
- their total score for learner expertise was **15-20**, the learner was placed in the **medium** e-maturity category
- their total score for learner expertise was **0-14**, the learner was placed in the **low** e-maturity category

If the learner selected statement B (“I’m OK in using computers for a few basic tasks but I’m not confident beyond these”) and:

- their total score for learner expertise was **20-24**, the learner was placed in the **high** e-maturity category
- their total score for learner expertise was **14-19**, the learner was placed in the **medium** e-maturity category
- their total score for learner expertise was **0-13**, the learner was placed in the **low** e-maturity category

If the learner selected statement C (“I’m quite confident in using computers, and will usually have a go at doing things that I’ve not done before”) and:

- their total score for learner expertise was **19-24**, the learner was placed in the **high** e-maturity category
- their total score for learner expertise was **13-18**, the learner was placed in the **medium** e-maturity category
- their total score for learner expertise was **0-12**, the learner was placed in the **low** e-maturity category

If the learner selected statement D (“I’m very confident in using computers for a wide range of tasks”) and:

- their total score for learner expertise was **18-24**, the learner was placed in the **high** e-maturity category
- their total score for learner expertise was **12-17**, the learner was placed in the **medium** e-maturity category
- their total score for learner expertise was **0-11**, the learner was placed in the **low** e-maturity category

As can be seen, the method of assigning learners to one of the three e-maturity categories is designed to ensure that the lower the computer confidence of the learner, the less likely it is that they will be assigned to a higher e-maturity category on the basis of their self-reported skill levels in using computers for particular tasks.

This analysis results in the following distribution of learners across the three e-maturity categories:

Distribution of learner e-maturity

Base: All respondents	No. of learners	%
Wtd base:	4001	100
Low	1356	34
Medium	1445	36
High	1189	30
No classification	10	*

It should be emphasised that this rating of learner e-maturity is based on learner self-assessments of their own abilities and general computer confidence, rather than on an objective measurement of skills. Also, e-maturity is being conceptualised here in fairly narrow terms, and does not include important areas which could not be explored easily in a telephone survey (eg ability to assess the validity of information found on the internet). Nonetheless, this measure of learner e-maturity enables additional analysis of the survey dataset, which in turn provides further useful insights on technology attitudes and uses among the FE learner population.

Correlation and factor analysis of interrelation between ICT related tasks

Following initial analysis of learner e-maturity using the method described above, correlation and factor analysis was carried out to assess how closely each of the ICT tasks used in determining levels of learner e-maturity were interrelated to one another. The purpose of doing this was to help understand whether there was a pattern across the data with some computing tasks linked closely to one another. If this is the case, policy could be developed by FE colleges to focus on improving learner ICT confidence in a number of related tasks (as well as revising the scores allocated to each task within the process of calculating learner e-maturity).

The correlation analysis indicated that there is a high level of correlation between all the ICT related tasks and therefore there would be very few learners who reported a high level of expertise in some tasks but a beginner in others. Equally, very few would rate themselves a beginner in one task but an expert in others. This finding suggests that in developing the ICT skills of their learners, it is sensible for colleges to segment learners according to their self-professed levels of ability and to address their development needs (which will be largely consistent across the learners in each group) in appropriately tailored ways.

However, factor analysis revealed that there were some tasks that were more closely related to each other than others, as Table 3 below shows:

Factors analysis of ICT related tasks

Factor 1 (Application related tasks)
Analyse numerical information
Create a computer-based presentation
Add visual information or decoration to your work
Word-process a coursework assignment
Factor 2 (Internet related tasks)
Find information on the internet about the topic you're studying
Communicate with other people
Record and store evidence of your achievement

This analysis showed slightly stronger relationships between the tasks in Factor 1, which are related to using specific applications (such as Word or PowerPoint) to produce coursework or presentations and Factor 2 which are more related to using the internet and web based applications to communicate, search and record information.

Analysis of the research data showed that learners defined as low e-maturity were less likely to rate themselves as beginner on the internet related tasks compared with the application tasks, as Table 4 demonstrates.

% of low e-mature learners rating themselves as 'beginner'

ICT related task	% of low e-mature learners rating themselves 'beginner' (base: 1356)
Factor 1 (Application related tasks)	
Analyse numerical information	77%
Create a computer-based presentation	74%
Add visual information or decoration to your work	69%
Word-process a coursework assignment	56%
Factor 2 (Internet related tasks)	
Find information on the internet about the topic you're studying	42%
Communicate with other people	46%
Record and store evidence of your achievement	61%

The same pattern emerges if you examine the proportion of high e-mature learners who rated themselves as 'expert' on the ICT related tasks. These learners were much more likely to rate themselves as expert on the internet related tasks compared with the application related tasks.

% of high e-mature learners rating themselves as 'expert'

ICT related task	% of high e-mature learners rating themselves 'expert' (base: 1189)
Factor 1 (Application related tasks)	
Analyse numerical information	43%
Create a computer-based presentation	59%
Add visual information or decoration to your work	68%
Word-process a coursework assignment	77%
Factor 2 (Internet related tasks)	
Find information on the internet about the topic you're studying	89%
Communicate with other people	92%
Record and store evidence of your achievement	57%

The factor analysis indicates that learner perceptions of their own ability hinge more on their personal competence in application-related tasks than internet-related tasks, since self-reported skills in the latter are comparatively high across all learner e-maturity groups. This suggests that colleges should place more priority on developing learner skills in using computer applications relevant to their programmes of study.

These findings also have implications for the allocation of scores to particular tasks in calculating learner e-maturity. This is covered in more detail in Appendix A.

Further analysis was undertaken of the distribution of learners across the three e-maturity groups and where the points 'cut off' is for each group, to establish whether it could be re-aligned to better reflect the distribution of points – again, this has implications for the development of the method used to calculate learner e-maturity from the survey data. Information on the outcomes this analysis can be found in Appendix B.

Profile of learners by designated e-maturity

The following sections provides a profile of learners for each e-maturity category looking at subject of study, gender, age, mode of study, whether the learner has a disability or learning difficulty and college e-enablement.

By subject:

The following list shows the subjects which contained the highest proportions of each category of learner e-maturity (for example, 42% of learners studying Humanities were classified as high e-maturity learners). The survey found that learners studying subjects with the highest proportion of high e-maturity learners were more likely to agree that computer use was essential on their course and they were required by their tutor to use computers a lot to produce assignments. They were also more likely to be using IT regularly for a range of tasks on their course and to be making use of virtual learning environments. This suggests that this level of high e-maturity is partly driven by tutor and course requirements. However, it is unclear if e-mature learners are attracted to this type of course or whether by taking the course, they become more e-mature.

High

- Humanities (42% of learners were in the high e-maturity category)
- Science and Mathematics (41%)
- Visual and Performing Arts and Media (40%)
- Business administration, Management and Professional (38%)

Medium

- Hospitality, Sports, Leisure and Travel (44% of learners were in the medium e-maturity category)
- Business administration, Management and Professional (43%)
- Engineering, Technology and Manufacturing (43%)

Low

- Information and Communication Technology (42% of learners were in the low e-maturity category)
- Hairdressing and Beauty Therapy (39%)
- Construction (38%)
- English, Languages and Communication (37%)
- Health, Social Care and Public Services (34%)

* excludes Land-based provision, Retailing, Customer Service and Transportation, and Foundation Programmes – low base sizes

By age and gender:

As table 3 shows, men were more likely to be in the high or medium learner e-maturity category, whilst women tended to be in the medium or low e-maturity category. Younger learners, particularly those aged 16-24 were far more likely to be defined as high or medium e-maturity compared with those aged 35+. This could be related to mode of study as younger learners were more likely to be on full-time courses which tend to use computers more as part of their course. However, it should also be noted that younger male respondents are generally more likely to rate themselves as more confident or expertise compared with older and female respondents. As this categorisation is based on self-perceived levels of expertise and computer confidence, this should be borne in mind.

Learner e-maturity by gender and age

Base: All respondents (4001)	Total	Gender		Age				
		Male	Female	16-18	19-24	25-34	35-44	45+
Wtd base	4001	1623	2378	1253	643	546	751	809
	%	%	%	%	%	%	%	%
High	30	34	27	40	38	30	20	16
Medium	36	37	35	44	40	38	33	24
Low	34	29	37	16	22	32	47	60
No classification	*	*	*	*	*	*	1	*

By mode of study:

The table below shows that those studying full-time courses were more likely to be defined as high or medium learner e-maturity compared with learners on part-time courses. This would be expected, as younger learners were more likely to be taking full-time courses and the survey found that full-time courses were more likely to be making use of ICT as part of the course.

Learner e-maturity by mode of study

Base: All respondents (4001)	Mode of study		
	Total	Full-time	Part-time
Wtd base	4001	1593	2218
	%	%	%
High	30	37	25
Medium	36	43	31
Low	34	19	43
No classification	*	*	*

By Disability and learning difficulty:

We are able to identify and analyse the survey findings by learners with disabilities or learning difficulties. This was based on information provided by the learner on their ILR or if this was not present, from questions asked as part of the survey.

The definition of disability includes anyone who states they have any of the following disabilities: Visual impairment, Hearing impairment, Disability affecting mobility, Another physical disability, Another medical condition (for example epilepsy, asthma, diabetes), Emotional/behavioural difficulties, Mental ill health, Temporary disability after illness (for example post-viral) or accident, Profound complex disabilities or Multiple disabilities.

The learning difficulty definition includes anyone stating they have any of the following learning difficulties: Moderate learning difficulty, Severe learning difficulty, Dyslexia, Dyscalculia, Another specific learning difficulty, Multiple learning difficulties or other.

The table below shows that those who did not have a disability or learning difficulty were more likely to be defined as high e-maturity, whilst those with a disability or learning difficulty were more likely to fall into the low e-maturity category. Analysis of the individual learner confidence and learner expertise questions indicates that learners with a learning difficulty were generally less confident in using computers. Three in ten (27%) were very confident in using computers (compared with 36% of learners without a learning difficulty), and they were more likely to answer that they

were not confident at all (9% compared with 5%) or that they were ok for a few basic tasks (25% compared with 19%). In addition, learners with disabilities or learning difficulties rated their level of expertise significantly lower than average across the majority of computing related skills.

Learner e-maturity by disability and learning difficulty

Base: All respondents (4001)	Total	Has disability		Has learning difficulty	
		Yes	No	Yes	No
Wtd base	4001	277	3720	261	3734
	%	%	%	%	%
High	30	21	30	21	30
Medium	36	34	36	37	36
Low	34	44	33	41	33
No classification	*	1	*	1	*

By college e-enablement:

The data has been analysed by differing levels of technology use by FE colleges referred to as 'e-enablement'. This has been based on Becta's annual survey of ICT/e-learning use in FE colleges which captures data on various aspects of ICT provision and use in colleges and uses multiple variables to produce an overall rating of e-enablement (on a scale of 0-100), across the following dimensions:

- **Access:** this dimension describes students' access to the college infrastructure
- **Workforce:** this dimension describes the skills of the teaching staff and their ability to access ICT for their work
- **E-learning:** this dimension describes the extent to which ICT is deployed for teaching and learning purposes
- **Resources:** this dimension describes a college's ability to access, produce and deliver educational content
- **Management:** this dimension describes the extent to which ICT is used for management information and the extent to which e-learning activities are planned for at college level

The colleges for which there is recent e-enablement data (i.e. from 2004 or later) have been divided into four categories based on their scores, which are:

- E-enabled
- Enthusiastic
- Ambivalent
- Late adopter

The number of colleges and learners falling under each of the four e-enablement categories is shown in the table below.

E-enablement classification of college and learners in sample

Base: All respondents (4001)	Number of colleges	Number of learners
Wtd base:	314	4001
E-enablement classification		
E-enabled	32	486
Enthusiastic	101	1152
Ambivalent	43	574
Late adopter	41	386
Not classified	97	1403

Learners studying at colleges classified as e-enabled or enthusiastic were more likely to fall into the high or medium e-maturity categories, suggesting that investment in college to improve computer access and increasing the usage of ICT within colleges does have an impact on the learner's perception of their computer confidence and expertise.

Learner e-maturity by college e-enablement

Base: all respondents (4001)	College e-enablement				
	Total	E-enabled	Enthusiastic	Ambivalent	Late adopter
Wtd base	4001	486	1152	574	386
	%	%	%	%	%
High	30	33	33	27	25
Medium	36	38	37	36	35
Low	34	29	30	37	39
No classification	*	-	*	-	-

Home computer access and leisure usage

This chapter looks at home access to computing facilities as well as learners' existing level of computer use outside of the college setting.

Access to computing facilities at home

Learners were asked whether they have a computer at home that they use for their college course. Overall, 84% of learners did have a computer at home. Learners who were categorised as having high e-maturity were more likely to have a computer at home than either medium or low e-maturity learners (91% of high compared with 88% of medium and 73% of low).

Access to a computer at home for use on college course

Base: all respondents (4001)	Learner e-maturity			
	Total	High	Medium	Low
Wtd base	4001	1189	1445	1356
	%	%	%	%
Has computer at home	84	91	88	73
Does not have computer at home	16	9	12	27

Amongst learners who did not have a computer at home, over four in ten (43%) indicated that they (or someone else in their household) intended to get a computer within the next twelve months. This figure was found to be higher amongst high e-maturity learners (58%) when compared with low e-maturity learners (38%). Learners categorised as medium or low e-maturity were more likely than those categorised as high e-maturity, to say they were not intending to acquire a computer (48% and 35% respectively).

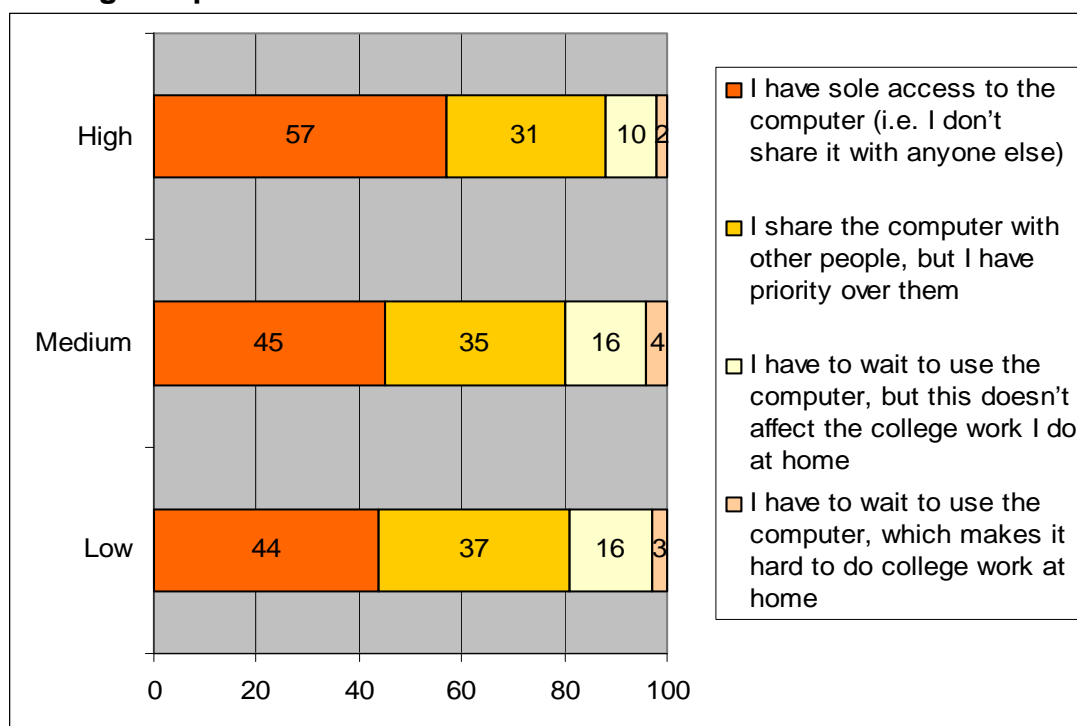
Intending to acquire a computer in the next 12 months

Wtd Base: all respondents all respondents without a computer at home that they use for college course (653)	Learner e-maturity			
	Total	High	Medium	Low
Wtd base	653	106	181	363
	%	%	%	%
Intending to acquire a	43	58	45	38

computer				
Not intending to acquire a computer	45	35	48	47
Don't know	12	7	7	15

Amongst learners with access to a computer at home, nearly half (48%) answered that they have sole access to the computer and they don't share it with anyone else. This figure was higher amongst high e-maturity learners (57%) compared with medium and low e-maturity learners (45% and 44% respectively). By contrast, low and medium e-maturity learners were more likely to respond that they have to share the computer with others, although they have priority over them (37% and 35% respectively compared with 31% of high e-maturity learners), or that they have to wait to use the computer but this doesn't affect the college work they do at home (both 16% compared with 10% of high e-maturity learners).

Sharing computers at home and effect on coursework



Wtd base: all respondents with computer at home that they use for college course (3348)

Notably, respondents in the high e-maturity category were most likely to state that their home computing facilities were good enough to let them do all of their college work (83% compared with 76% of medium and 70% of low). Given the fact that high e-maturity learners were by definition using computers at a higher level of expertise across a range of tasks, this would suggest that high e-maturity learners were more likely to own or have access to higher specification or more up-to-date computers, as well as a fuller range of software applications.

Conversely, a higher proportion of low and medium e-maturity learners felt that the computer facilities they have at home were good enough to let them do some, but not all of their college work (23% and 21% respectively, compared with 16% of high e-maturity learners). This would seem to suggest that fewer of these learners have access at home to either the equivalent or necessary software utilised at college, or that their computers are not capable of running the necessary software.

Quality of home computing facilities at home

Wtd Base: All respondents who have a computer at home (3348)	Learner e-maturity			
	Total	High	Medium	Low
Wtd base	3348	1084	1265	993
	%	%	%	%
Good enough to let me do all of my college work	76	83	76	70
Good enough to let me do some, but not all of my college work	20	16	21	23
Not good enough to let me do a lot (or any) of my college work	2	1	2	3
Don't know	2	1	1	4

Access to the internet at home

Access to advanced technology was more evident among more e-mature learners, as around nine out of ten high and medium e-mature learners had broadband internet access at home (92% of high learners and 88% of medium learners). This compares with just three-quarters of low e-maturity learners (75%), who were the most likely to be using dial-up internet access (13% compared to 4% of high and 6% of medium), or to have no internet access at home at all (9% compared to 4% amongst both high and medium).

Home internet access

Wtd Base: All respondents who have a computer	Learner e-maturity			
	Total	High	Medium	Low

at home (3348)				
	Total	High	Medium	Low
Wtd base	3348	1084	1265	993
	%	%	%	%
Access via broadband	86	92	88	75
Access via dial-up	8	4	6	13
No internet access at home	5	4	4	9
Don't know	1	1	1	3

Computing leisure activities

Learners with access to a home computer were asked which of the following leisure activities they took part in on a regular basis (once a week or more often):

- Communicating with others (for example, through email or instant messaging)
- Surfing the net
- Online shopping
- Playing computer games
- Maintaining a personal website, blog, online journal, myspace page, etc
- Creating things (for example, digital photography/video, music, writing, etc)
- Taking part in an online community, for example an internet forum or message board; a 'virtual world' such as Second Life
- Downloading music, video, podcasts, etc
- Learning about something other than your college course (for example, a foreign language; a musical instrument)

Leisure activities carried out regularly on home computer

Base: all respondents with a home computer that they use for their course (3348)	Learner e-maturity			
	Total	High	Medium	Low
Wtd base	3348	1084	1265	993
% saying they do activities regularly	%	%	%	%

Communicating with others	81	91	85	64
Surf the net	88	94	92	77
Online shopping	50	59	52	37
Play computer games	35	42	35	26
Maintain a personal website, blog, online journal, etc	33	45	34	18
Create things	49	60	51	33
Take part in an online community	21	32	19	10
Download music, video, podcasts, etc	48	61	51	29
Learn about something other than your college course	43	53	41	33

Overall, 88% of learners regularly surfed the internet. This figure was highest amongst high e-maturity learners (94%), compared with 92% of medium e-maturity learners and 77% of low e-maturity learners. As previously mentioned, internet access at home was lowest amongst low e-maturity learners (9% compared with 4% of both high medium e-maturity learners). However, even when this is taken into account, low e-maturity learners were still much less likely to be regularly surfing the internet than those in the high and medium e-maturity categories.

A similar pattern was apparent for all other home computing leisure activities, as high e-maturity learners were significantly more likely to undertake an activity on a regular basis than medium e-maturity learners, who in turn were significantly more likely than low e-maturity learners to regularly undertake each activity.

Furthermore, high e-maturity learners were also the most likely to learn about something other than their college course, which suggests that high levels of e-maturity encourages self-directed or individual study outside of a formal curriculum. However, it should be considered that the survey does not ask if learners were learning about something other than their college course through other means (e.g. books, audio, visual), therefore it is not clear if learner e-maturity acts as a driver to further learning.

Summary

The survey revealed a strong correlation between learner e-maturity and the regular participation across a number of leisure-based computing activities. There was also a correlation between home computer access and e-maturity. High and medium e-maturity learners were more likely than learners defined as low e-maturity to have access to a computer at home and more likely to have sole access to their home computer. The intention to acquire a computer within the next twelve months also increased among learners with higher levels of learner e-maturity.

The findings also suggest that e-mature learners had better access to higher specification home computers and/or the necessary software for their college work, as they were more likely than low e-mature learners to say their home computing facilities were good enough to let them do all of their college work. Levels of broadband internet access also increased with more advanced learner e-maturity.

Learner access to and college provision of ICT

This chapter examines the provision of computing at colleges, including learner access to computers and whether the computers were sufficient for learners' needs, as well as the computing support provided by the college.

Computer provision at college

Learners were asked to consider which of the following statements best described their access to computers outside of timetabled class sessions:

- it is always possible to get onto a computer
- it is usually possible to get onto a computer but sometimes I have to wait
- it is often difficult to get onto a computer
- it is usually impossible to get onto a computer
- don't know as I never use computers in college

Overall, 77% of learners had used the computers at colleges and were able to rate their level of access to computers. Generally, access to computers within college was seen to be fairly good: Four in ten (41%) felt it was always possible to get onto a computer, whilst three in ten (29%) stated that it was usually possible to get onto a computer, but sometimes they had to wait. Five percent often found it difficult to get onto a computer, whilst 2% said it was impossible. In addition, almost a quarter of learners overall (23%) said they never used computers in college.

Medium e-maturity learners were more likely to answer that it was usually possible to get onto a computer but sometimes they had to wait (35%) than either high (31%) or low (21% e-maturity learners. Learners in the low e-maturity category were more likely to state that they never used computers at college (30%) compared with one in five medium and high e-maturity learners (19% and 20% respectively).

Access to computers outside timetabled class sessions

Base: all respondents (4001)	Learner e-maturity			
	Total	High	Medium	Low
Wtd base	4001	1189	1445	1356
	%	%	%	%
It is always possible to get onto a computer	41	42	39	43
It is usually possible to get onto a computer but sometimes I have to wait	29	31	35	21
It is often difficult to get	5	5	6	4

onto a computer				
It is usually impossible to get onto a computer	2	2	2	2
Don't know as I never use computers in college	23	20	19	30

Overall quality

Learners who used computers in college were asked about the quality of computer equipment in terms of its speed and reliability. Overall, nearly three-quarters of learners (74%) considered their college computers to be good enough to let them do all of their college coursework, whilst a fifth (21%) stated that college computers were good enough to let them do some, but not all of their college coursework. Just 2% found their college computers to not be good enough to let them do a lot (or any) of their college coursework.

Learners classified as having low e-maturity were more likely to rate college computers as 'good enough to let them do all of their college coursework' (76%) compared with medium e-maturity learners (72%). Additionally, low e-maturity learners were less likely to consider that college computers were 'good enough to let them do some, but not all of their college coursework' (18% compared with 23% of medium and 22% of high e-maturity learners). This seems to highlight the fact that any shortfall in the quality of computers will have the greatest impact on more e-mature learners who, by the nature of their computing expertise, were found to utilise computers in carrying out more advanced tasks.

Quality of college computers for doing coursework

Wtd Base: All respondents who use computers at college (3079)	Learner e-maturity			
	Total	High	Medium	Low
Wtd base	3079	950	1174	947
	%	%	%	%
Good enough to let me do all of my college coursework	74	74	72	76
Good enough to let me do some, but not all of my college coursework	21	22	23	18
Not good enough to let me do a lot (or any) of my	2	2	2	1

college coursework				
Don't know	3	2	3	4

College internet

Learners were asked if they had ever used the internet whilst at college. Overall, 82% of learners had used the internet at college. However, this varied by levels of learner e-maturity, where 90% of high e-maturity learners had used the internet whilst at college compared with 86% of medium and 69% of low e-maturity learners.

Interestingly, this figure was higher among learners who also had a computer at home than those that did not (85% compared with 67%). This suggests that those accessing the internet at college were not necessarily doing so because they could not access it elsewhere. Furthermore, the proportion of learners accessing the internet at college was significantly greater among home computer owners who regularly surfed the internet as a home leisure activity (86% compared with 75% who did not).

Accessed the internet at college

Wtd base: All respondent s who use computers at college (3079)	Learner e-maturity				Have a computer at home		Regularly surf the net (as a home computing leisure activity)	
	Total	High	Medium	Low	Yes	No	Yes	No
	%	%	%	%	%	%	%	%
Wtd base	3079	950	1174	947	2632	447	2344	289
Yes	82	90	86	69	85	67	86	75
No	18	10	14	31	15	33	14	25

Learners who had accessed the internet whilst at college were asked about the speed of the internet connection (compared with the speed of access at home, at their workplace or any other location).

- 44% stated that it was always fast
- 44% stated that it was usually fast but sometimes it slowed down
- 8% said that it was slow most of the time
- 3% thought it was always slow

Notably, there were no significant differences based on learner e-maturity. This would seem to suggest that, despite higher levels of home broadband access

amongst more e-mature learners (compared to dial-up or no access), the perceptions of internet speed were consistent across all levels of learner e-maturity.

Speed of internet access at college

Wtd Base: all respondents who have accessed the internet at college (2526)	Learner e-maturity			
	Total	High	Medium	Low
Wtd base	2526	855	1015	650
	%	%	%	%
Always fast	44	42	46	44
Usually fast but sometimes slows down	44	46	43	43
Slow most of the time	8	8	7	9
Always slow	3	3	3	2
Don't know	1	*	1	2

Email

Over a half of learners (55%) who used college computers said that their college provided them with an email address. Just 46% of low e-maturity learners answered that they were provided with an email address by their college (compared with 57% of medium and 61% of high e-maturity learners). However, it should be noted that significantly more full-time learners said that their college provided an email address, than part-time learners (66% compared with 44%), and a higher proportion of part-time learners were classified as low e-maturity learners.

College provided e-mail address

Base: all respondents who use computers in college (3079)	Learner e-maturity				Mode of study	
	Total	High	Medium	Low	Full-time	Part-time
Wtd base	3079	950	1174	947	1547	1397
	%	%	%	%	%	%
Yes	55	61	57	46	66	44
No	41	36	39	48	31	50

Don't know	4	3	4	5	3	6
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Technical support

Learners were asked which member of staff they would ask for assistance with computing problems (e.g. if a computer crashes or if they needed assistance with a particular computer program). Overall, four in ten (40%) of learners would approach a member of the college IT support staff for assistance, while the same proportion (40%) would ask their tutor for assistance. Just over one in ten learners (13%) would ask another member of college staff, while 8% responded that they don't know or would never ask a member of staff for help.

Low e-maturity learners were most likely to ask one of their course tutors for help (51% compared to 34% of high and 36% of medium), whereas high and medium e-maturity learners were more likely to ask a member of IT support staff (47% and 43% respectively, compared to 28% of low e-maturity learners). It could be suggested that those who were most experienced in using computers were less likely to feel intimidated explaining a computing problem to IT support staff. However, less advanced users were more likely to be using computers in class than in their own time (35% of low e-maturity learners compared with 24% of medium and 21% of high e-maturity learners) and therefore the course tutor was likely to be the most immediate source of help.

Who learners would approach for assistance with computer problems

Wtd Base: All respondents who use computers in college (3079)	Learner e-maturity			
	Total	High	Medium	Low
Wtd base	3079	950	1174	947
	%	%	%	%
One of your course tutors	40	34	36	51
A member of IT support staff	40	47	43	28
Another member of staff	13	12	13	13
Don't know / would never ask a member of staff for help	8	8	8	8

Encouragingly, nine out of ten learners (89%) considered it easy to get help with computers from college staff (very easy 41%, quite easy 47%), while just 7% found it

difficult. High e-maturity learners were more likely than low e-maturity learners to consider it very easy to get help (45% compared with 38%).

Printing

Over a third of learners (36%) were required to pay for printing out work at college, whilst 57% said they got all their work printed for free. Seven percent of learners have never used the printing facilities at college. Of those who did pay for printing, 67% had some of their work printed for free, but had to pay for the remainder.

Fewer low e-maturity learners were required to pay for printing work at college (29%) compared with medium and high e-maturity learners (38% and 40% respectively). Again, this could be linked to the higher proportion of low e-maturity learners studying part-time, as almost twice as many full-time learners as part-time learners had to pay for printing out work at college (47% compared to 25%).

Summary

Generally access to computers at college (outside of timetabled classes) was found to be fairly good across all levels of learner e-maturity. However, three in ten low e-maturity learners never used computers in college, compared with one in five medium and high e-maturity learners.

Whilst the survey found that three-quarters of learners overall considered college computers to be good enough to let them do all of their college coursework, high and medium e-maturity learners were more likely to state they were not good enough to do all of their coursework. This finding suggests that lower quality computers has a greater impact on more e-mature learners who, by the nature of their computing expertise, were carrying out more advanced tasks.

The survey revealed that e-mature learners were more likely than lower e-mature learners to have accessed the internet at college. Interestingly, learners who had a home computer and those who regularly surfed the internet at home were more likely to have accessed the internet at college.

When asked about getting technical support in college, learners in the low e-maturity group were more likely to ask their tutor for help, whilst high e-maturity learners were more inclined to ask IT support staff. This disparity was likely to be related to less advanced users using computers more in class with their tutor than more e-mature learners, rather than a decision not to approach IT support staff.

Use of computers/ICT at college

This chapter covers the use of computers in college in more detail including courses where computers were seen as essential, tutor directed computer use, and whether computer are used more in lessons than in the learners own study time. It also examines how often learners were carrying out a range of learning-related tasks using computers.

This chapter also covers the use of e-learning such as virtual learning environments and e-portfolios in addition to other technologies such as laptop computers and mobile phones.

Essential computer usage in college or on course

Learners were asked to state their level of agreement with the statement “on my course, it’s essential to use a computer to learn about the subject.” Almost two-thirds (62%) agreed (Agree strongly/Agree) that this was the case, while almost a third (30%) disagreed (Disagree strongly/Disagree). Learners classified as being high or medium e-mature were more likely to agree with this statement than those classified as having low e-maturity (66% and 63% respectively, compared with 59%). Whether this suggests that learners become more e-mature as a result of having to use a computer on their course is not clear however, as it may also be considered that learners with a higher level of e-maturity were more likely to be drawn to courses where computer use is essential.

Essential computer use on course

Base: All respondents (4001)	Learner e-maturity			
	Total	High	Medium	Low
Wtd base	4001	1189	1445	1356
% stating ‘agree/ agree strongly’	%	%	%	%
Agree/ agree strongly	62	66	63	59
Disagree/disagree strongly	30	28	31	31

Tutor-required use of computer

Learners were asked to state their level of agreement with the statement “when I use computers to study on my course, it’s because I’ve been directed to do so by my tutor”. Six in ten (62%) learners were in agreement (14% agreed strongly, 48% agreed), suggesting that computer use is driven strongly by tutors’ requirements. However, 21% of learners disagreed with this statement (17% disagree, 4% disagree strongly).

Notably, it was found that high e-maturity learners were less likely to agree that when they use computers to study on their course, it's because they have been directed to do so by their tutor (60% compared with 64% of both medium and low e-maturity learners). This would suggest that high e-maturity learners were more inclined to use computers to study of their own accord, regardless of whether they had been directed to do so by their tutor or not.

Tutor required use of computer

Base: All respondents (4001)	Learner e-maturity			
	Total	High	Medium	Low
Wtd base	4001	1189	1445	1356
% stating 'agree/ agree strongly'	%	%	%	%
Agree/ agree strongly	63	60	64	64
Disagree/disagree strongly	21	24	21	17

The survey also examined how often learners were required by their tutor to use a computer on their course to do the following:

- learn about the subject you're studying (e.g. reading information about a topic on the internet)
- produce assignments
- communicate with your tutor
- work with other learners

Frequency of being required by their tutor to use a computer for tasks

Wtd Base: All respondents (4001)	Learner e-maturity			
	Total	High	Medium	Low
% saying 'a lot'				
Wtd base	4001	1189	1445	1356
	%	%	%	%
Learn about the subject you're studying	40	46	42	32
Produce assignments	51	62	56	38
Communicate with your tutor	27	24	27	29
Work with other learners	23	23	24	21

Around seven in ten learners overall were required to use a computer a lot or some of the time to produce assignments (71%) and/or to learn about the subject being studied (69%).

It was found that high e-maturity learners were required to use a computer 'a lot' to learn about the subject and to produce assignments (46% and 62% respectively) significantly more than medium e-maturity learners (42% and 56% respectively), who were also significantly more likely than low e-maturity learners (32% and 38% respectively).

Interestingly, low e-mature learners were more likely to be required to use a computer to communicate with their tutor 'a lot' compared with high e-maturity learners (29% compared with 24%). However, conversely, a greater proportion of low e-maturity learners answered that they were never required to use a computer to communicate with their tutor (37% compared 28% of medium and 27% of high e-maturity learners).

Less than a quarter of learners overall were required to use a computer 'a lot' to work with other learners. No differences were apparent based on learner e-maturity, although low e-maturity learners were the most likely to say that they are never required to do this (39% compared with 31% of medium and 29% of high e-maturity learners).

Whilst the requirement to use a computer is to some extent dependent on the subject being studied, more e-mature learners were required to use a computer 'a lot' to learn about the subject or produce assignments, in particular. As previously noted, whilst this may indicate that learners become more e-mature through required computer usage, it may also be the case that high e-mature learners favour courses where computer use is a requirement. However, it can also be suggested that tutors may tailor their teaching and assessment methods to some extent, based on the computing capabilities of the learner/s.

Usage of ICT in classes or own study time at colleges

The survey examined whether learners were more likely to use computers in their own time or in timetabled classes. Four in ten learners (42%) used computers more often in their own study time than in timetabled classes. Over a quarter of learners (28%) said they used computers equally in class and in their own study time, whilst a quarter (26%) used computers more often in classes than in their own study time.

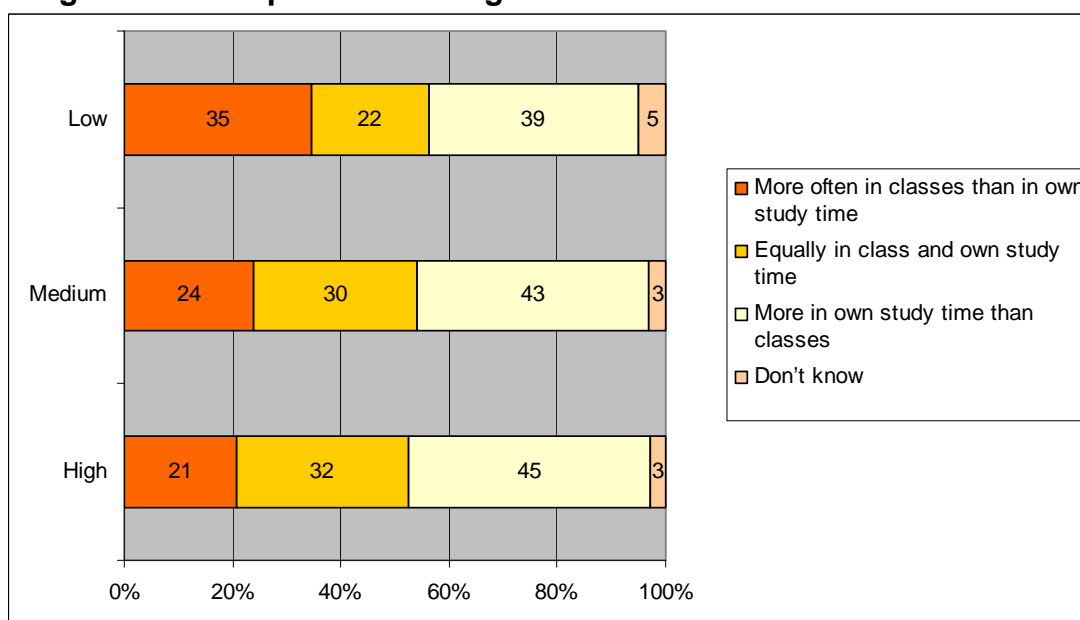
Whilst learners across all levels of e-maturity were most likely to use computers more in their own study time than in classes (45% of high, 43% of medium and 39% of low e-maturity learners), a higher proportion of low e-maturity learners used computers more often in class than in their own study time when compared with medium and high e-maturity learners (35% compared with 24% and 21% respectively). Furthermore, a smaller proportion of low e-maturity learners responded

that they use computers equally in class and their own study time (22% compared with 30% of medium and 32% of high e-maturity learners).

Use of computers at college

Wtd Base: All respondents who use computers in college (3079)	Learner e-maturity			
	Total	High	Medium	Low
Wtd base	3079	950	1174	947
	%	%	%	%
More often in classes than in own study time	26	21	24	35
Equally in class and own study time	28	32	30	22
More in own study time than classes	42	45	43	39
Don't know	3	3	3	5

Usage of the computers at college



Frequency of using ICT for a range of purposes

Learners were asked how often they had made use of information technology for the following purposes:

- Present written work or data (for example, writing a coursework assignment using a word processor or spreadsheet)
- Research topics (for example, finding information on the Internet)
- Create and deliver presentations (for example, using PowerPoint)
- Create graphics, music, photos or video
- Revise and follow up on what you've learned in taught sessions
- Take a computer-based test or a quiz set by the tutor
- Submit assignments or work to your tutor (for example, by email)
- Organise and manage your college workload (for example, knowing when your classes are; what the assignments are on and when they're due in, etc)
- Contact your lecturer/tutor with queries (e.g. via email)
- Work with other students on a group project – using a computer in a face-to-face meeting; collaborating with other learners through email or over the Internet
- Communicate with other learners about the course (for example, using email or an online discussion group)
- Catch up on sessions that you've missed (for example, by downloading tutor's notes)

Learners were asked to state whether they used computers and Information Technology 'all the time' (once a fortnight or more often), 'occasionally' (once a month or less), or never.

Overall, information technology and computers were more frequently used for purposes such as presenting written work or data (44% said they used IT 'all the time' and a further 38% said 'occasionally') and for researching topics (41% said 'all the time' and 45% said 'occasionally').

Information technology and computers were least likely to be used to catch up with sessions that had been missed (32% said 'never' and only 10% said 'all the time') or for communicating with the tutor or other learners (31% said 'never') or participating in group projects (29% said 'never').

For all tasks, there was a gradual increase in the proportion of learners using computers 'all the time' as the level of e-maturity increased. These results demonstrate a close correlation between learner e-maturity and the propensity to use computers regularly across a number of tasks.

Frequency of using information technology and computers 'all the time' to carry out tasks

Wtd Base: All respondents (4001)	Learner e-maturity			
	Total	High	Medium	Low
% stating 'all the time'				

Wtd base	4001	1189	1445	1356
	%	%	%	%
Present written work or data	44	54	49	31
Research Topics	41	54	46	24
Create and deliver presentations	25	33	29	14
Create graphics, music, photos or video	15	23	15	7
Revise and follow up on things learned in taught sessions	24	32	26	16
Take a computer-based test or a quiz set by the tutor	15	18	15	12
Submit assignments or work to tutor	21	26	24	12
Organise and manage college workload	22	27	24	16
Contact lecturer/tutor with queries	12	18	13	6
Work with other students on a group project – using a computer in a face-to-face meeting; collaborating with other learners through email or over the Internet	11	16	11	7
Communicate with other learners about the course	13	17	14	9
Catch up on sessions missed	10	15	11	6

Reasons for never using Information Communication Technology and computers at college

Learners who stated that they never used computers for each purpose were asked why this was the case. Of those who never used computers for the following tasks, half or more stated that it was because their tutor doesn't require them to do so:

- Take a computer-based test or a quiz set by the tutor (66%)
- Create and deliver presentations (59%)

- Present written work or data (58%)
- Create graphics, music, photos or video (50%)
- Submit assignments or work to tutor (50%)
- Work with other students on a group project (50%)

Interestingly, high e-maturity learners were more likely to state that their tutor didn't require them to do so for the following tasks:

- Create and deliver presentations (73% compared with 65% of medium and 51% of low e-maturity)
- Create graphics, music, photos or video (59% compared with 49% of medium and 47% of low e-maturity learners)

However, it should be noted that low e-maturity learners were more likely to never carry out tasks than high e-maturity learners. It was found therefore, that low e-maturity learners were more likely to give additional reasons for never using computers at college for certain tasks, which suggests that high e-maturity learners were generally more able to carry out a task if it was required by their tutor. For example, for the following tasks, low e-maturity learners were more likely to state that they did not know how to carry out a task:

- Create and deliver presentations (12% of low e-maturity learners compared with 3% of both medium and high e-maturity learners)
- Create graphics, music, photos or video (15% of low e-maturity learners compared with 9% of medium and 7% of high e-maturity learners)

Use of e-learning

Virtual Learning Environments

The survey asked whether learners had to use a 'virtual learning environment' or 'learning platform' as part of their course. Overall, just over a quarter of learners were required to use a virtual learning environment (or learning platform) as part of their course (27%). Amongst high and medium learners, this figure was around a third of learners (34% of high and 31% of medium), compared with just 17% of low e-maturity learners. The requirement to use a virtual learning environment was correlated with the e-enablement of the college, as well as to the particular course being studied. To some extent, it can also be suggested that the mode of study is important in determining whether the use of a virtual learning environment is a requirement, as full-time learners were much more likely to be using a virtual learning platform (41%) compared with part-time learners (18%).

Among those that had used a virtual learning environment, the survey covered whether they had used it for any of the following tasks:

- To read messages from your tutor(s) about the course

- To access resources about the subject that you're studying (e.g. tutor's notes and handouts; video clips)
- To send messages to other learners on your course
- To take tests or quizzes
- To submit assignments to your tutor
- To check your progress on your course (e.g. the marks you've obtained so far)

Use of virtual learning environment for the following tasks

Wtd Base: All respondents required to use a virtual learning environment (1080)		Learner e-maturity		
		Total	High	Medium
Wtd base	1080	405	442	232
	%	%	%	%
Read messages from tutor about the course	66	69	68	59
Access resources about subject studied	86	90	85	83
Send messages to other learners on your course	35	39	35	30
Take tests or quizzes	53	55	49	59
Submit assignments to tutor	47	50	43	47
Check progress on course	48	49	48	44

When analysed by learner e-maturity, it was found that:

- High e-maturity learners were more likely than either medium or low e-maturity learners to have used a virtual learning environment to access resources about the subject they were studying (90% compared with 85% of medium and 83% of low e-maturity learners).
- High and medium e-maturity learners were more likely to have used a virtual learning environment to read messages from their tutor about their course (69% and 68% respectively, compared with 59% of low e-maturity learners).
- High e-maturity learners were more likely than low e-maturity learners to send messages to other learners (39% compared with 30%)

Despite the fact that fewer low e-maturity learners had used a virtual learning environment, and that they had used it for fewer tasks, when asked "how useful do you think the virtual learning environment is in helping you do your course", no differences were apparent by learner e-maturity. Overall, nine out of ten learners (90%) considered that it was either very helpful or moderately helpful.

E-portfolios/computer-based assessment

This section covers whether learners had used an e-portfolio as part of their course. Overall, a fifth of learners (20%) had used an e-portfolio on their course, while just over three-quarters (77%) had not. Over a fifth of high and medium e-maturity learners (23% and 22% respectively) had used an e-portfolio compared with 15% of low e-maturity learners. Again, there was a difference between full-time and part-time learners (29% of full-time learners were using an e-portfolio compared with 14% of part-time learners), which may account for the lower proportion of low e-maturity learners using an e-portfolio.

The survey also covered whether the e-portfolio counted towards the final mark of the course. Among those using an e-portfolio, over three quarters (76%) said that their e-portfolio did count towards the final mark on their course. No differences were apparent based upon learner e-maturity or mode of study, but instead this appeared to be more related more to the subject being studied. Indeed, learners studying the following subjects were more likely to say it counted towards the final mark:

- Hairdressing and beauty therapy (89%)
- Construction (85%)
- Science and Mathematics (82%)
- Engineering, technology and manufacturing (82%)

In terms of the benefits of using an e-portfolio:

- Nine out of ten learners (89%) agreed that their e-portfolio helps them to see how well they were meeting their course objectives
- 86% agreed that their e-portfolio helps them to plan how to improve the quality of their work

No differences were apparent based on levels of learner e-maturity. This is an encouraging point to note, where it suggests that despite the fact that a lower proportion of low e-maturity learners were found to be using an e-portfolio, all learners are able to benefit from using an e-portfolio, regardless of their level of individual e-maturity.

Overall, over a quarter (27%) of all learners had received feedback from their tutor electronically (e.g. via email). Over a third of high e-maturity learners (35%) had received feedback electronically compared with 30% of medium and 16% low e-maturity learners.

Just under a third of all learners (30%) had taken part in a computer based test or quiz that counted towards their final mark. However, no differences were apparent based upon learner e-maturity.

Other use of technology at college

Laptop computers

Around four out of ten learners (39%) were found to have their own laptop computer or a handheld computer/personal digital assistant (PDA). Not surprisingly, ownership of a laptop/PDA was highest amongst more e-mature learners. Half of high e-maturity learners (49%) had their own laptop/PDA, compared with four in ten medium e-maturity learners (39%) and three in ten (29%) low e-maturity learners.

However, the survey found that very few learners took their laptop computers into college to use in their studies on a regular basis (just 8% answering once a week or more). Eight out of ten (82%) stated that they never took their laptop to college, while a further 10% took it to college occasionally (once a month or less). Again, learners classified as having high e-maturity were more likely to take their laptop to college once a week or more, than either medium or low e-maturity learners (11% compared with 5% and 6% respectively).

Among learners who owned a laptop or PDA, only 13% used it to connect to the college computer network. A higher proportion of high and medium e-maturity learners were connecting to the college computer network (14% and 15% respectively) compared with 9% of low e-maturity learners who owned a laptop/PDA.

Among those that did connect to the network, the majority (61%) connected their computer to network wirelessly. High e-maturity learners were more likely than medium e-maturity learners to connect wirelessly (69% compared to 53%), although it should be noted that the base sizes at this question were low.

Laptop/PDA ownership was higher amongst more e-mature learners and in addition, they were more likely to make use of them (for example by connecting to the college network).

Mobile phones

Learners were asked for which of the following they have used a mobile phone on their course for:

- To send a text message to your tutor on an administrative issue (e.g. to say you can't attend the session today)
- To send a text message to your tutor about a subject you're studying on your course
- To send a text message to another learner about something you're studying on your course

As might be expected, learners were much more likely to have sent a text message to another learner about a subject they were studying on their course than they were to text a tutor (40% had sent a text to another learner). However, 14% had sent a

text message to a tutor on an administrative issue, for example, to say they could not attend a session, while 7% had sent a text to a tutor about a subject they were studying on their course. When analysed by learner e-maturity, it was found that:

- High and medium e-maturity learners were more likely to have sent a text message to their tutor on an administrative issue (15% and 14% compared with 11% respectively)
- More than half of high e-maturity learners (51%) had sent a text to another learner about something they were studying on their course, compared with 46% of medium and 25% of low e-maturity learners

This would seem to suggest that learners who are more competent computer users are also more inclined to use, or more comfortable using, other forms of technology as a means for communication in and around the wider learning environment.

Summary

The survey found that high and medium e-mature learners were more likely than low e-mature learners to state that it was essential to use a computer on their course and they were required by their tutor to use computers learn about the subject or produce assignments.

Interestingly though, high e-maturity learners were less likely to agree that when they use computers on their course, it is because they have been directed to do so by their tutor, suggesting that high e-maturity learners are more likely to use a computer of their own accord, regardless of whether or not it is a requirement of the course or tutor. Indeed, high e-maturity learners were more likely to use computers more in their own study time than in classes (when compared with low e-maturity learners).

When asked about how often they carry out a variety of college related computing tasks, there was a gradual increase in the proportion of learners using computers 'all the time' as the level of e-maturity increased. These results demonstrate a close correlation between learner e-maturity and the propensity to use computers regularly across a number of tasks.

The survey found the requirement to use a virtual learning environment was greater amongst high and medium e-maturity learners, who were using it to carry out a greater number of tasks. Similarly, the proportion of learners using an e-portfolio was greater amongst high and medium e-maturity learners. Despite these differences, learners of all levels of e-maturity recognised the benefits of using a VLE or e-portfolio.

It is unclear whether learners become more e-mature as a result of using a computer, VLE or e-portfolio on their course or if these types of learners were more likely to be drawn to courses where computer use is essential.

Perceived impact of technology on learning

This chapter examines learners' perceptions of the impact of technology on their learning. Learners were asked to indicate how much they agreed or disagreed with the following statements:

- I understand the subject that I'm studying better because of the way that computers are used on my course
- I do not rely on computers or information technology to keep in touch with other learners on the course
- Because of the way that computers are used in my course, I've got more choice as to where and when I can study
- I learn less well in classes when the tutor uses computer technology to teach the subject
- I prefer to read from a printed source such as a book or a handout rather than from a computer screen
- The way that computers are used on my course motivates me to study
- I learn better through face-to-face contact with tutors and other learners than by using a computer
- I believe that I do better in my assessments as a result of using computers for my learning
- I prefer learning through a variety of media (for example, text, video, audio) than by just reading books or listening to the tutor

Overall, learners were positive about using computers and recognised the benefits. Almost three quarters of learners (74%) agreed or agreed strongly that they preferred to learn through a variety of media than just reading books or listening to the tutor and around two-thirds of learners felt they did better in assessments as a result of using computers (65%). A similar proportion (66%) said because of the way computers were used on their course, they have more choices about where and when they can study. In addition, almost six out of ten (59%) were in agreement that they understood their subject better because computers were used on their course and only 28% felt they learnt *less well* when computers were used.

Despite this, many learners preferred traditional teaching methods and face-to-face contact rather than the use of computers. Almost three-quarters of learners (74%) said they learn better through face-to-face contact with tutors and other learners and over half of learners (53%) agreed that they preferred to read from a book or handout rather than a computer screen. In addition, only half of learners (53%) stated that using computers on their course motivated them to study and a similar proportion (55%) said they *did not* rely on computers to keep in touch with other learners on their course.

Therefore, although computers were not necessarily seen as a replacement for face-to-face contact and printed material, there was a sense that they provided more choice, a better understanding of the subject and helped improve the quality of assignments. Most learners valued the benefits of learning through a range of media rather than just books and listening to the tutor. However, there is still some way to go before computer technology is used by all learners for studying and communication purposes.

Perceived impact of technology on learning

Wtd Base: All respondents (4001)	Learner e-maturity			
	Total	High	Medium	Low
% stating 'agree/ agree strongly'				
Wtd base	4001	1189	1445	1356
	%	%	%	%
I understand the subject I'm studying better because of the way computers are used on my course	59	62	60	53
I do not rely on computers or information technology to keep in touch with other learners on the course	55	55	54	57
Because of the way that computers are used in my course, I've got more choice as to where and when I can study	66	71	71	56
I learn less well in classes when the teacher uses computer technology to teach the subject	28	25	29	28
I prefer to read from a printed source such as a book or a handout rather than from a computer screen	53	43	50	64
The way that computers are used on my course motivates me to study	53	57	54	49
I believe that I do better in my assessments as a	65	74	65	57

result of using computers for my learning				
I prefer learning through a variety of media than by just reading books or listening to the tutor	74	80	77	64
I learn better through face-to-face contact with tutors and other learners than by using a computer	74	68	74	79

When analysed by learner e-maturity, learners towards the higher end of the e-maturity spectrum were more likely to recognise that they were benefiting from using technology, with regards to the following statements in particular:

- I understand the subject that I'm studying better because of the way that computers are used on my course (62% of high and 60% of medium e-maturity learners agreed compared with 53% of low e-maturity learners)
- The way that computers are used on my course motivates me to study (57% of high and 54% of medium e-maturity learners agreed compared with 49% of low e-maturity learners)
- I believe that I do better in my assessments as a result of using computers for my learning (74% of high e-maturity learners agreed compared with 65% of medium e-maturity learners and 57% of low e-maturity learners)

However, as noted earlier, learners in the low e-maturity category were generally found to be using computers less (or required to use computers less) than more e-mature learners and this lower level of usage may impact on their perceptions of the benefits of using computers.

Low e-maturity learners were also less likely to agree with the statement "because of the way that computers are used in my course, I've got more choice as to where and when I can study" (56% compared with 71% of both high and medium e-maturity learners). However, as previously noted, low e-maturity learners were also less likely to have access to a computer at home. Indeed, when this statement was analysed by learners with or without access to a computer at home, 68% of learners with a computer at home agreed they had more choice of when and where to study compared with 55% of learners without a computer at home.

The following statements relating to learner preferences would seem to suggest that learners at the lower end of the e-maturity spectrum were also less enthusiastic about the use of technology in their learning and more inclined to favour conventional teaching methods:

- I prefer to read from a printed source such as a book or a handout rather than from a computer screen (64% of low e-maturity learners agreed compared with 50% of medium e-maturity learners and 43% of high e-maturity learners)
- I learn better through face-to-face contact with tutors and other learners than by using a computer (79% of low e-maturity learners agreed compared with 74% of medium e-maturity learners and 68% of high e-maturity learners)

This difference in preference could be related to the age profile of low e-mature learners who are much more likely to fall into the 35+ age category and have grown up with more traditional teaching methods. The findings suggest that the FE learning sector would benefit from tailoring teaching methods to the profile of learners on each course and balance the increasing use of ICT with more traditional teaching methods to suit all types of learners.

(In addition, analysis was undertaken using a range of statistical techniques to assess the relationship between learner e-maturity and attitudes to using ICT. This concluded that it was not possible to successfully and accurately 'predict' a respondent's e-maturity group purely from the attitudinal statements in this section of the survey. For full details of this analysis, please see Appendix C.)

Summary

Learners towards the higher end of the e-maturity spectrum were more likely to identify benefits in using technology, stating they understood the subject better, do better in assessments and feel more motivated as a result of using computers on their course. Low e-maturity learners were also less inclined to agree with the statement "because of the way that computers are used in my course, I've got more choice as to where and when I can study" which could be related to fewer having access to a computer at home.

Overall, learners at the lower end of the e-maturity spectrum were also less enthusiastic about the use of technology in their learning and more inclined to favour conventional teaching methods. As low e-maturity learners are also more likely to be in the 35+ age category, the FE learning sector needs to position the use of ICT alongside more traditional teaching methods (which older learners may be more comfortable with) to better suit their style of learning.

Learner satisfaction with computer facilities provision and quality of teaching with technology

This chapter considers learners' overall attitudes to technology use on their courses. In addition, it investigates whether prior expectations of using computers at college have been met and examines the reasons where expectations have not been met. Finally, it covers learners' opinions of the quality of teaching with technology received.

Learner attitudes to technology use on their course

All learners were asked how much they enjoy using technology on their current programme of study. Learners were able to choose from the following four responses:

- I enjoy using technology – I'd like more of it on the course
- It's OK – the current level is about right
- I don't really like it, and I want less of it on the course
- I really dislike it, and I want as little of it as possible on the course

Overall, learners were extremely positive towards using technology:

- 43% answered that they enjoy using technology and would like more of it on the course;
- a further 48% felt that the current level of technology use is about right.

Just 6% felt negatively about their technology use for learning, with 3% stating that they don't really like it and want less of it on the course, and 3% really disliking it and wanting as little of it as possible.

Overall attitude to technology use on course

Wtd Base: All respondents (4001)	Learner e-maturity			
	Total	High	Medium	Low
	4001	1189	1445	1356
	%	%	%	%
I enjoy using technology – I'd like more of it on the course	43	57	43	30
It's OK – the current level is about right	48	39	53	52
I don't really like it, and I want less of it	3	1	2	6

on the course				
I really dislike it, and I want as little of it as possible on the course	3	1	1	6
Don't know	3	1	2	5

High e-maturity learners were the most likely compared with other learners to state that they enjoy using technology. Almost six out of ten (57%) said they enjoy using technology and would like more of it on the course, whilst 39% considered the current level of technology use to be about right. Fewer medium e-maturity learners enjoyed using technology and would like to use more of it on the course (43%), but over a half (53%) thought the current level was about right. Interestingly, a similar proportion of low e-maturity learners considered the current level to be about right (52%), while three in ten (30%) enjoy using technology and would like more of it on their course. However, amongst low e-maturity learners it was also found that:

- 6% answered that they didn't really like technology, and wanted less of it on the course;
- a further 6% really disliked technology, and wanted as little of it as possible on the course

These findings suggest that for a small minority of learners at the lower levels of e-maturity, the use of technology on their course of study could be seen as a barrier to learning. As reported earlier, low e-maturity learners were less inclined than medium and high e-maturity learners to agree that they do better in assignments or that they understand the subject better as a result of using computers on their course. However, it should be noted that these learners were in the minority, as 82% of low e-maturity learners either indicated that they would like more technology on the course or the use of technology was about right.

Certainly, for learners who demonstrate higher levels of individual e-maturity, it can be argued that demand exists to further extend the use of technology within FE courses. Given this, FE colleges face a notable challenge in balancing the use of technology with the demands and abilities of learners at different ends of the e-maturity spectrum.

Whether prior expectations of using computers were met

- Learners were asked to consider how their experience of using computers in their college course compared with their expectations before starting the course. For the majority of learners, expectations were either met or exceeded, where:
- Three in ten learners (30%) considered it to be better than expected

- More than half of all learners (55%) felt it was about the same as they had expected
- Just 6% thought it was not as good as they had expected
- A further 8% answered that they didn't know or didn't have any prior expectations

Expectations of using computers on course

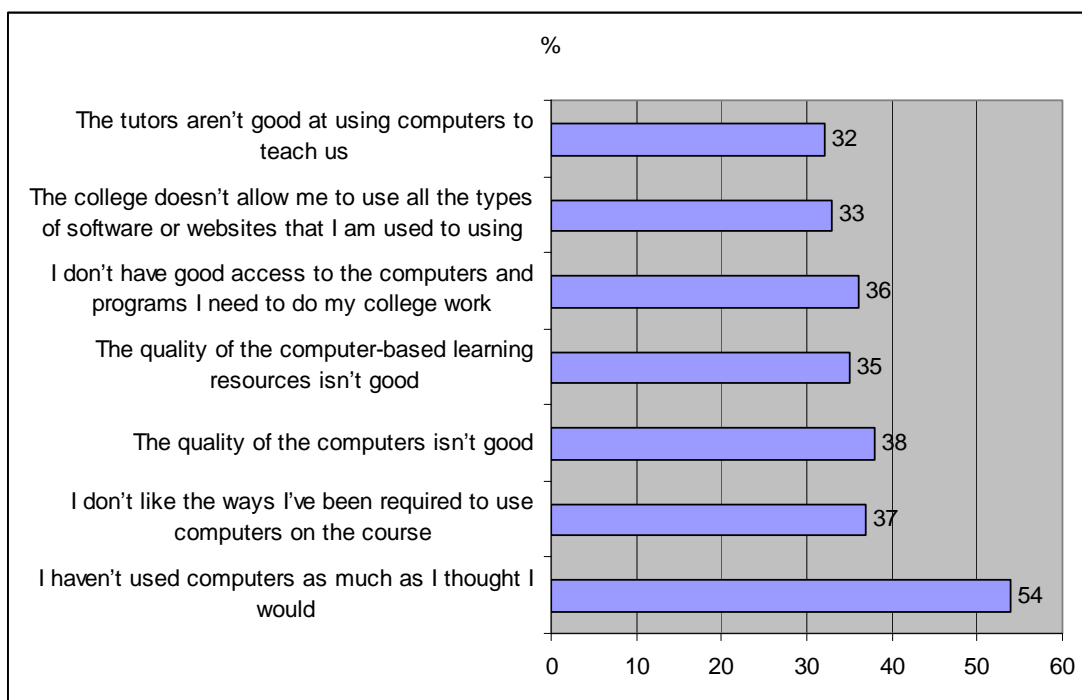
Wtd Base: All respondents (4001)	Learner e-maturity			
	Total	High	Medium	Low
	4001	1189	1445	1356
	%	%	%	%
It's better than I expected	30	30	29	32
It's about the same as I expected	55	58	61	47
It's not as good as I expected	6	6	7	6
Don't know/ don't have any expectations	8	6	4	15

Whilst around three in ten learners of all levels of e-maturity stated that their experience of using computers was better than expected, fewer low e-maturity learners felt that their experience was about the same as expected (47% compared with 61% of medium and 58% of high e-maturity learners). Notably, 15% of low e-maturity learners did not know or did not have any expectations of the use of computers on their course (compared with 4% of medium and 6% of high e-maturity learners). A similar proportion of high, medium and low e-maturity learners agreed that their experience of using computers was not as good as expected (6%, 7% and 6% respectively).

Learners who had found their experience of using computers to not be as good as they had expected prior to commencing their course were asked whether they agreed or disagreed with the following statements to determine why this was the case:

- I haven't used computers as much as I thought I would
- I don't like the ways I've been required to use computers on the course
- The quality of the computers isn't good
- The quality of the computer-based learning resources isn't good
- I don't have good access to the computers and programs I need to do my college work
- The college doesn't allow me to use all the types of software or websites that I am used to using
- The tutors aren't good at using computers to teach us

Reasons why expectations of using computers were not met



Wtd Base: all respondents whose expectations were not met (249)

Whilst for the majority of statements, there were no significant differences by learner e-maturity, there were some indications that computing facilities were more likely to fail to meet the expectations of high e-maturity learners in terms of quality and software/websites used:

- High e-maturity learners whose expectations had not been met were more likely than low e-maturity learners to agree that the quality of computers isn't good (44% compared with 27%)
- High e-maturity learners whose expectations had not been met were more likely than low e-maturity learners to agree that the college doesn't allow them to use all the types of software or websites that they are used to using (40% compared with 22%)

These findings suggest that high e-maturity learners tend to have higher and more specific expectations in terms of the quality of computers and ways in which they will be required to use computers on their course. In order to continue to engage and motivate these learners, FE colleges need to ensure they keep up with the pace of ICT advancement and the ways in which computers are being used by learners outside the learning environment. Nonetheless, it is clear that only a small proportion of all learners had expectations of computer use which had not been met.

Reasons why expectations of using computers were not met

Wtd Base: All respondents whose expectations were not met (249)		Learner e-maturity
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% agreeing	Total	High	Medium	Low
	249	74	96	79
	%	%	%	%
I haven't used computers as much as I thought I would	54	54	57	51
I don't like the ways I've been required to use computers on the course	37	43	31	39
The quality of the computers isn't good	38	44	43	27
The quality of the computer-based learning resources isn't good	35	42	35	28
I don't have good access to the computers and programs I need to do my college work	36	31	44	33
The college doesn't allow me to use all the types of software or websites that I am used to using	33	40	37	22
The tutors aren't good at using computers to teach us	32	38	27	34

Quality of tutors in using computer technology to teach

All learners were asked how good the tutors were in using computer technology to teach them. Overall, tutors were considered to be good at using computer technology to teach by four out of five learners (79% answering either very or fairly good). Just 3% thought their tutors were poor (very or fairly poor) with a further 7% stating neither good nor poor. Notably, a lower proportion of low e-maturity learners agreed that the tutors on their course were good in using computer technology to teach (76%), compared with medium and high e-maturity learners (82% and 80% respectively).

These differences could be related to a number of factors. It may be that tutors are not always pitching computer-aided learning at the right level for low e-maturity learners, or that tutors are not using computers as much to teach low e-maturity learners particularly if these learners were on a course which requires or involves less computer usage. As noted previously, low e-maturity learners were less likely to perceive technology-use as beneficial to their learning. In addition, low e-maturity learners were also less likely to state that they were required by their tutor to use computers 'a lot' to learn about the subject they were studying (32% compared with 42% of medium and 46% of high e-maturity learners).

Summary

High e-maturity learners were more likely than other learners to state that they enjoy using technology and would like to use more of it, whilst low and medium e-mature learners were more likely to say the level of technology use was about right. A small minority of low e-mature learners (12%) said they did not like using technology and would like to use less of it. Although this was only a minority of learners, FE colleges face a notable challenge in balancing the use of technology with the demands and abilities of learners at different ends of the e-maturity spectrum.

Whilst around three in ten learners of all levels of e-maturity stated that their experience of using computers was better than they expected, fewer low e-maturity learners felt that their experience was the same as expected and 15% did not know or did not have any expectations of the use of computers on their course. Among those whose expectations had not been met, there were some indications that high e-mature learners have higher and more specific expectations about the quality of computers and how they would use computers and software at college. In order to continue to engage and motivate these learners, FE colleges need to ensure they keep up with the pace of ICT advancement and the ways in which computers are being used by these highly computer literate learners outside the learning environment.

A slightly lower proportion of low e-maturity learners felt that the tutors on their course were good in using computer technology to teach (76%), compared with medium and high e-maturity learners (82% and 80% respectively). It may be that tutors are not always pitching computer-aided learning at the right level for low e-maturity learners, or that tutors are not using computers as much to teach low e-maturity learners, particularly if these learners were on courses which require or involve less computer usage.

Additional analysis of drivers of e-maturity

Following initial analysis of the survey data, further analysis was carried out using a specific statistical technique (CHAID – **CHi**-squared **A**utomatic **I**nteraction **D**etection), in order to understand which factors that came out of the e-maturity analysis as being important, are driving learner e-maturity and which are more peripheral. Full details of the technique used and the outcomes of its application can be found in Appendix D.

The factors included in the analysis as possible drivers of learner e-maturity were as follows:

Gender
Region
Age (in breaks)
Mode of study (Full-time/Part-time)
Ethnicity
College e-enablement
Subject studied:
<ul style="list-style-type: none"> • Sciences and Mathematics
<ul style="list-style-type: none"> • Construction
<ul style="list-style-type: none"> • Engineering, Technology and Manufacturing
<ul style="list-style-type: none"> • Business administration, Management and Professional
<ul style="list-style-type: none"> • Information and Communication Technology
<ul style="list-style-type: none"> • Hospitality, Sports, Leisure and Travel
<ul style="list-style-type: none"> • Hairdressing and Beauty Therapy
<ul style="list-style-type: none"> • Health, Social Care and Public Services
<ul style="list-style-type: none"> • Visual and Performing Arts and Media
<ul style="list-style-type: none"> • Humanities
<ul style="list-style-type: none"> • English, Languages and Communication:
Frequency of being required by tutor to use PC:
<ul style="list-style-type: none"> • How much are you required by tutor to use PC to - Learn about the subject you're studying
<ul style="list-style-type: none"> • How much are you required by tutor to use PC to - Produce assignments
<ul style="list-style-type: none"> • How much are you required by tutor to use PC to - Communicate with your tutor
<ul style="list-style-type: none"> • How much are you required by tutor to use PC to - Work with other learners
QB2 Statements best describing your access to computers within college, outside of timetabled class sessions?
QB3 Have you ever accessed the internet while at college?
QB9 Does your college provide you with an email address?
QC10 Do you have a computer at home that you use for your college course?
QC14 Which of the following leisure activities do you do regularly at home with your computer?
<ul style="list-style-type: none"> • Communicate with others (for example, through email or instant messaging):
<ul style="list-style-type: none"> • Surf the net

• Online shopping
• Play computer games
• Maintain a personal website, blog, online journal, myspace page etc.
• Create things (for example, digital photography/video, music, writing etc)
• Take part in an online community, for example an internet forum or message board
• Download music, video, podcasts etc:
• Learn about something other than your college course (for example, a foreign language: a musical instrument):
QD17_01 How often computers and IT used to:
• Present written work or data
• Research topics
• Create and deliver presentations
• Create graphics, music, photos or video
• Revise and follow up on what you
• Take a computer-based test or a quiz set by the tutor
• Submit assignments or work to your tutor
• Organise and manage your college workload
• Contact your lecturer or tutor with queries
• Catch up on sessions that you
• Communicate with other learners about the course
• Work with other students on a group project
QD19 How good are the tutors on your course in using computer technology to teach you?
QD20 Agreement with - I use computers to study on my course because I am directed to by my tutor
QD21 Are you required to use a "virtual learning environment" or "learning platform" as part of your course?
QD25 Do you have your own laptop computer, or handheld computer/personal digital assistant (PDA)?
QD30 Do you use an e-portfolio in your course?
QD34 Have you taken a computer-based test or quiz that has counted towards your final mark?

The analysis assessed the comparative strength of these factors in relation to learner e-maturity, ordering them into a hierarchy of influence. Of all the possible predictors listed above, age came out as the biggest 'discriminator' of, and therefore influence on, learner e-maturity. The proportion of learners defined as high e-maturity increases to four in ten (40%) for under 25s compared with 30% of 25-34 year olds, 20% of 35-45 year olds and 17% of learners aged 45+.

Among learners aged under 25, the key discriminator after age was communicating with others via email and instant messenger. If under 25s were not communicating with others, or if they were not asked the question because they didn't have access to a home computer, the proportion of high e-mature learners declines. For learners in this age group who were using computers to communicate, the next strongest

discriminator was whether these learners were using their computer to create things (such as digital photos or music). If these learners were also online shopping, the proportion of high e-mature learners increases still further. These results demonstrate the importance of leisure usage in contributing to high levels of e-maturity, particularly among younger learners.

Among under 25 year olds who weren't using computers to communicate, the strongest discriminator was studying a maths or science subject. This increases e-maturity considerably compared with those not studying a maths or science subject. Among these learners, the strongest discriminator was whether they were submitting assignments or work to their tutor using their computer. These results indicate that if younger learners don't have a home computer or do not use computers to communicate, then the subject they are studying and the impact of the tutor have a strong influence on learner e-maturity.

For learners aged 25-34 years, the biggest discriminator after age was communicating with others via email and instant messenger (using a home computer). This increases the level of learner e-maturity, whilst using a computer to contact their lecturer or tutor, either 'all the time' or 'occasionally' increases e-maturity further. Playing computer games on a regular basis (using a home computer) again increases the level of e-maturity further (although the number of learners in this category is fairly low).

Amongst those 25-34 year olds who did not regularly communicate with others via email and instant messenger, the strongest discriminator was presenting written work or data 'all the time', increasing the proportion of high e-mature learners by 10% compared with those who did not present written work or data. Again, this demonstrates the importance of college computer use for those who are not leisure users or home computer owners.

For learners aged 35-44 years, the most influential factor after age was creating things using computers (for example digital photos or music), increasing the proportion of high e-mature learners by 9%. Creating and delivering presentations increases the proportion of high e-mature learners in this age group still further.

Among 35-44 year olds that don't create things using their computer, presenting written work or data is the biggest discriminator and the level of e-maturity increases further if these learners research topics using their computer. If they don't, the level of e-maturity drops with almost two-thirds of these learners in the low e-mature category.

Finally, among learners aged 45+ the strongest influence on e-maturity after age is online shopping. Among those who shopped online, e-maturity increases further if they use their computers to create things (e.g. digital photos or music) and if they own a laptop or PDA.

Among 45+ learners who do not shop online, e-maturity is increased if they use their computers to research topics 'all the time', with fewer learners in the low e-mature category compared with those not shopping online or researching topics.

Thus once age is taken into consideration, the analysis demonstrates the importance of leisure usage in improving learners' computer confidence and expertise with ICT tasks carried out for their course. It is interesting that leisure usage has more influence on learners than mode of study, subject studied or tutor directed usage, which indicates that learners using computers under their own esteem has a far greater influence on their computer ability and confidence. (It should be noted however, that mode of study is closely related to age, with part-time learners more likely to be from the older age categories and full-time learners predominantly from the younger age groups.) Furthermore, factors identified in the previous analysis such as gender and college e-enablement do not appear as key discriminators.

If learners do not have access to a computer at home or are not using it for leisure usage, predictors related to subject studied or tutor-directed usage come into play and these are the areas where national education agencies (such as Becta) can have more of an influence. It is clear that if learners are not using computers for leisure and do not need to use computers as part of their course, the level of e-maturity declines further. It is therefore suggested that embedding ICT usage or training within the courses of learners who do not otherwise participate in home computer leisure activities is likely to increase levels of e-maturity amongst less e-mature learners.

As home leisure usage is so crucial to computing confidence and expertise overall, it is important that these skills are encouraged by colleges, as once learners are using computers for leisure this leads to utilising computers for their course too. One area which is not examined on this survey is the extent to which learners use computers at college regularly for leisure usage, in the same way as we ask about leisure usage at home. These findings suggest that although such usage might not be related to the course (for example, where they may constitute a lunchtime or free-time activity), these tasks improve the learner's level of computer confidence and leads to them utilising computers for a range of purposes including helping them to study. Therefore, it can be suggested that colleges should be ensuring the adequate provision of computers for use during non-teaching time whilst providing access to email accounts and developing learners' interests towards the internet, in order to develop learners' ICT confidence and abilities.

Conclusion

The concept of learner “e-maturity” has yet to be fully defined, but broadly it relates to the skills and abilities that learners need in order to be effective within technology-rich learning environments. This concept was developed by Becta and applied to the findings of the FE learners survey, based upon the responses given to questions about learners’ expertise in relation to a range of specific ICT-based tasks and learners’ perceptions of confidence in using technology within their course.

The categorisation of learners based upon their individual e-maturity revealed a number of key differences based upon learner characteristics:

- Men were more likely to be in the high or medium e-maturity category, whilst women tended to be in the medium or low e-maturity category
- Younger learners, particularly those aged 16-24 were far more likely to be defined as high or medium e-maturity learners compared with those aged 35+
- Learners studying full-time courses were more likely to be defined as high or medium e-maturity learners compared with learners on part-time courses (this would be expected, as younger learners were more likely to be taking full-time courses and the survey found that full-time courses were more likely to be making use of ICT as part of the course)
- Learners who did not have a disability or learning difficulty were more likely to be defined as high e-maturity whilst those with a disability or learning difficulty were more likely to fall into the low e-maturity category
- Learners studying at colleges classified as e-enabled or enthusiastic were more likely to fall into the high or medium e-maturity categories, suggesting that investment in college to improve computer access and increasing the usage of ICT within colleges does have an impact on the learner’s perception of their computer confidence and expertise

It is reasonable to consider that learner e-maturity is, to some extent, driven by the required levels of ICT use of particular course subjects or tutors. The survey found that learners studying subjects with the highest proportion of high e-maturity learners were more likely to agree that computer use was essential on their course and that they were required by their tutor to use computers a lot to produce assignments. They were also more likely to be using IT regularly for a range of tasks on their course and to be making use of virtual learning environments. This suggests that this level of high e-maturity is partly driven by tutor and course requirements. However, it is unclear whether learners become more e-mature as a result of using a computer, VLE or e-portfolio on their course or if these types of learners were more likely to be drawn to courses where computer use is essential.

Indeed, it was also found that high e-maturity learners were less likely to agree that when they use computers on their course, it is because they have been directed to

do so by their tutor, suggesting that high e-maturity learners are more likely to use a computer of their own accord, regardless of whether or not it is a requirement of the course or tutor.

Certainly, the survey points to the importance of existing home computer access and leisure usage. In particular, the survey revealed a strong correlation between learner e-maturity and the regular participation across a number of leisure-based computing activities. Furthermore, high and medium e-maturity learners were more likely than learners defined as low e-maturity to have access to a computer at home and more likely to have sole access to their home computer. Levels of college computer usage would appear to be related to existing computing habits, where learners who had a home computer and those who regularly surfed the internet at home were more likely to have accessed the internet at college.

The survey results also highlighted the difficulties faced by FE colleges in meeting learner expectations and engaging learners across the full spectrum of learner e-maturity. Whilst the survey found that three-quarters of learners overall considered college computers to be good enough to let them do all of their college coursework, high and medium e-maturity learners were more likely to state they were not good enough to do all of their coursework. Certainly, among learners whose expectations of using computers had not been met, there were some indications that high e-mature learners have higher and more specific expectations about the quality of computers and how they would use computers and software at college. Indeed, the survey findings also suggest that e-mature learners had better access to higher specification home computers and/or the necessary software for their college work, whilst levels of broadband internet access also increased with more advanced learner e-maturity.

The survey would suggest therefore, that lower quality computers have a greater impact on more e-mature learners who, by the nature of their computing expertise, were carrying out more advanced tasks. In order to continue to engage and motivate these learners, FE colleges need to ensure they keep up with the pace of ICT advancement and the ways in which computers are being used by these highly computer literate learners outside the learning environment.

Learners towards the higher end of the e-maturity spectrum were more likely to identify benefits in using technology, stating they understood the subject better, do better in assessments and feel more motivated as a result of using computers on their course. High e-maturity learners were also more likely than other learners to state that they enjoy using technology and would like to use more of it, whilst learners at the lower end of the e-maturity spectrum were less enthusiastic about the use of technology in their learning and more inclined to favour conventional teaching methods. This difference in preference could be related to the age profile of low e-mature learners, who are much more likely to fall into the 35+ age category and have grown up with more traditional teaching methods. The findings suggest that the FE learning sector would benefit from tailoring teaching methods to the profile of

learners on each course and balancing the increasing use of ICT with more traditional teaching methods to suit all types of learners.

Given the desire to embed technology within the learning environment, FE colleges face a notable challenge in balancing the use of technology with the demands and abilities of learners at different ends of the e-maturity spectrum.

Appendix A: Correlation and factor analysis of interrelation between ICT related tasks

Correlation analysis was carried out to assess how closely each of the ICT related tasks on Q35 (level of computing expertise) were correlated with each other.

This analysis was conducted to help understand whether there was a pattern across the data with some computing related tasks closely linked to each other. If this is the case, scores allocated to each task could be amended to reflect this and if appropriate, policy could be developed to focus on improving ICT confidence in a number of related tasks.

The correlation analysis indicated that there is a high level of correlation between all the ICT related tasks and therefore there would be very few learners who reported a high level of expertise in some tasks but a beginner in others. Equally, very few would rate themselves a beginner in one task but an expert in others.

However, factor analysis revealed that there were some tasks that were more closely related to each other than others, as Table 3 below shows:

Factors analysis of ICT related tasks

Factor 1 (Application related tasks)
Analyse numerical information
Create a computer-based presentation
Add visual information or decoration to your work
Word-process a coursework assignment
Factor 2 (Internet related tasks)
Find information on the internet about the topic you're studying
Communicate with other people
Record and store evidence of your achievement

This analysis showed slightly stronger relationships between the tasks in Factor 1, which are related to using specific applications such as Word or PowerPoint to produce coursework or presentations and Factor 2 which are more related to using the internet and web based applications to communicate, search and record information.

Analysis of the research data showed that learners defined as low e-maturity were less likely to rate themselves as beginner on the internet related tasks compared with the application tasks, as Table 4 demonstrates.

% of low e-mature learners rating themselves as 'beginner'

ICT related task	% of low e-mature learners rating themselves 'beginner' (base: 1356)
Factor 1 (Application related tasks)	
Analyse numerical information	77%
Create a computer-based presentation	74%
Add visual information or decoration to your work	69%
Word-process a coursework assignment	56%
Factor 2 (Internet related tasks)	
Find information on the internet about the topic you're studying	42%
Communicate with other people	46%
Record and store evidence of your achievement	61%

The same pattern emerges if you examine the proportion of high e-mature learners who rated themselves as 'expert' on the ICT related tasks. These learners were much more likely to rate themselves as expert on the internet related tasks compared with the application related tasks.

% of high e-mature learners rating themselves as 'expert'

ICT related task	% of high e-mature learners rating themselves 'expert' (base: 1189)
Factor 1 (Application related tasks)	
Analyse numerical information	43%
Create a computer-based presentation	59%
Add visual information or decoration to your work	68%
Word-process a coursework assignment	77%
Factor 2 (Internet related tasks)	
Find information on the internet about the topic you're studying	89%
Communicate with other people	92%
Record and store evidence of your achievement	57%

Becta have assigned a score or 'weight' to each ICT related task which is used to calculate learner e-maturity. These scores are based on the relative importance of learner capability in each area, in other words the tasks which are most important for learners to utilise as part of their course have been given higher scores.

Becta might consider amending the scores allocated to each task to take into account that the application related tasks are less widely used and may be seen as being more 'advanced' by learners not confident using computers. These types of tasks are less easy to pick up as you go along and more likely to involve some kind of training in order to master them. Higher scores could therefore be assigned to the following application related tasks (which currently are assigned 3 points out of a possible 4 points), as having mastered these tasks would be a good indicator of high learner e-maturity:

- To create a computer-based presentation (for example, using PowerPoint)
- To analyse numerical information (for example using a spreadsheet package)
- To add visual information or decoration to your work (for example, charts and graphs; graphics)

In contrast, lower scores could be assigned to the following internet related tasks because these are more widely used, easy to pick up and not necessarily an indication of learner e-maturity.

- To find information on the internet about the topic you're studying (by doing your own research rather than following web links you've been given by your tutor)
- To communicate with other people (for example, using email, Instant Messenger)

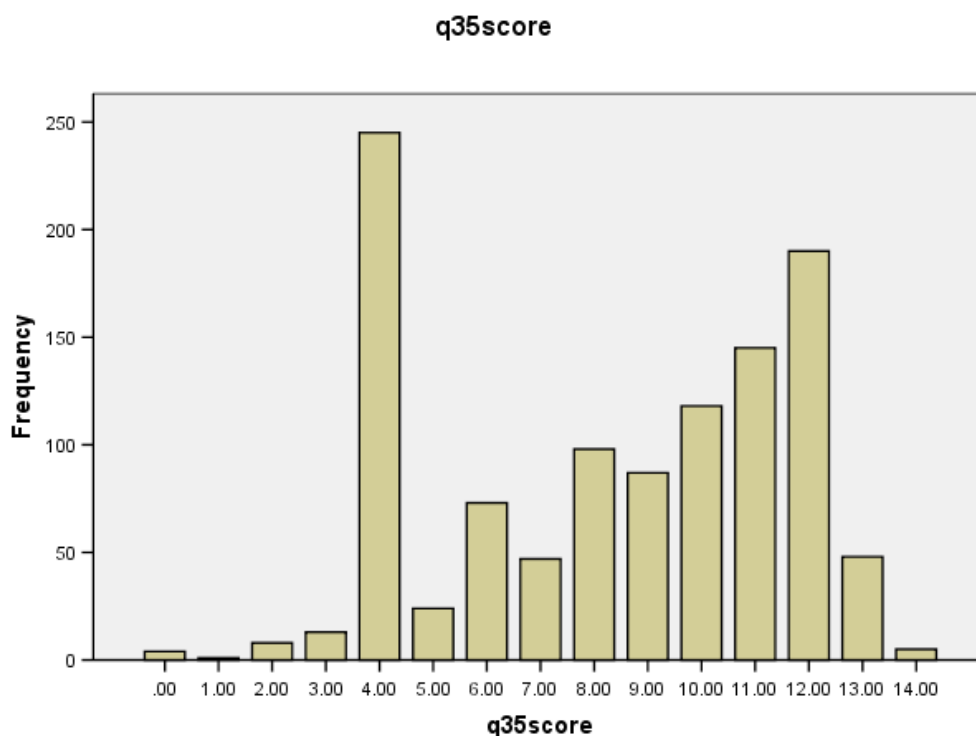
Appendix B: Distribution analysis of e-maturity score ‘cut offs’

Following the correlation and factor analysis, analysis was carried out to look at the distribution of learners across the three e-maturity groups and where the points ‘cut off’ is for each group to look into whether it could be re-aligned to better reflect the distribution of points.

The current e-maturity definition allocates higher scores to learners who say they are confident at using computers, even if their level of expertise is relatively low. In contrast, if a learner rates themselves high on expertise but does not rate themselves as being a confident user, they will score less well and are likely to be assigned to a lower e-mature category. Although this is a valid way of allocating scores, and in most cases expertise and confidence would be closely linked, research has shown that men are typically more likely to rate themselves as more confident users whilst women underestimate their abilities. Examination of the expertise scores for each e-mature group will help identify out lies where learners level of ICT expertise does not match their reported level of confidence.

Chart 3 shows the distribution of points at Q35 (level of expertise in ICT related tasks) for learners defined as low e-maturity. There are a large number of learners in this group who score only 4 points (rating themselves as beginner or don’t know for the majority of tasks) and only a small number with 13-14 points. This is to be expected, as learners with 14 points would have only have fallen into the low e-mature category if they had rated themselves intermediate or expert on ICT expertise, but “I’m not confident at all in using computers” at Q36. Becta might consider moving the cut off for those saying ‘not confident at all’ at Q36 to 12 points, so that those scoring 13-14 on ICT expertise are re-allocated to the medium e-maturity group.

Distribution of expertise points for low e-mature learners



The next chart shows the distribution of points at Q35 for learners defined as medium e-maturity. The majority of learners in this e-mature category score between 13-18 points on level of ICT expertise. Only a small number of medium e-mature learners few score between 19-20 points. If the cut off was amended to 18, those scoring 19-20 on ICT expertise but rating themselves as either not confident at all or ok for basic tasks only at Q36, would be re-allocated to the high e-mature group because they may be underestimating their level of ability.

Distribution of expertise points for medium e-mature learners

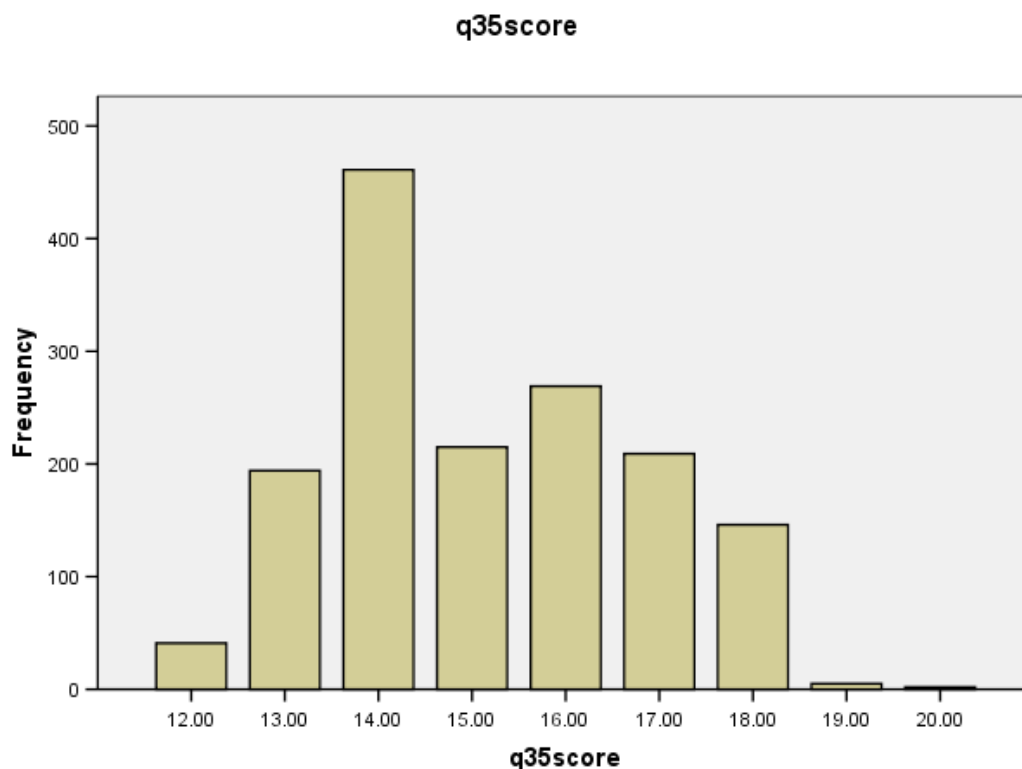
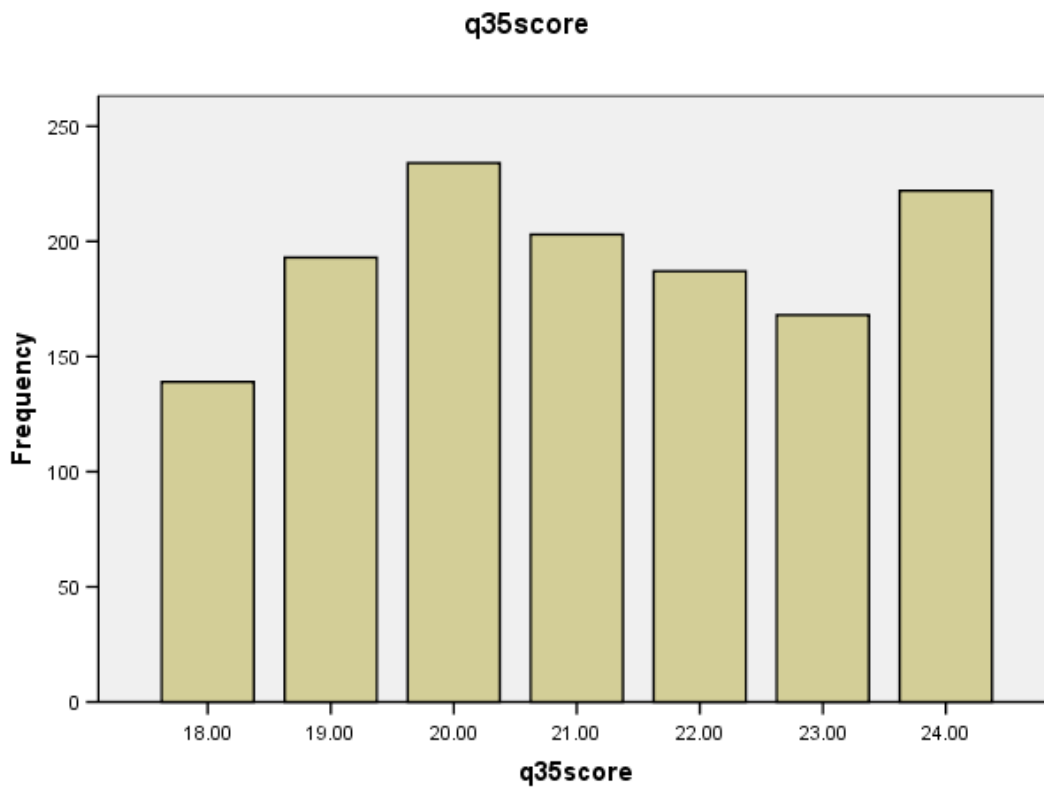


Chart 5 (next) shows the distribution of points at Q35 for learners defined as high e-maturity. This cut off seems sensible given that most learners in this category score between 18-24 points and this represents those with high levels of ICT expertise and those fairly confident about their computing ability.

Distribution of expertise points for high e-mature learners



Appendix C: Driver analysis to assess the relationship between e-maturity and attitudes towards using ICT

The relationship between e-maturity and statements relating to attitudes towards learning and ICT (question 37A) were investigated. The statements considered were:

- On my course, its essential to use a computer to learn about the subject
- I understand the subject that I'm studying better because of the way that computers are used on my course
- I do not rely on computers or information technology to keep in touch with other learners on the course
- Because of the way that computers are used in my course, I've got more choice as to where and when I can study
- I learn less well in classes when the tutor uses computer technology to teach the subject
- I prefer to read from a printed source such as a book or a handout rather than from a computer screen
- The way that computers are used on my course motivates me to study
- I believe that I do better in my assessments as a result of using computers for my learning
- I prefer learning through a variety of media (for example, text, video, audio) than by just reading books or listening to the tutor
- I learn better through face-to-face contact with tutors and other learners than by using a computer

For each of these attitudinal statements, the respondent stated how strongly they agreed or disagreed using a 5 point scale. A number of different models were built, using different statistical techniques to best understand the drivers of e-maturity. These included modelling drivers of;

- the 3-band e-maturity classification
 - using Ridge Regression
- the underlying e-maturity score
 - using Ridge Regression
- the drivers of High e-maturity & Low e-maturity
 - using Logistic Regression

The resulting models all had very low "R-Square" values (typically between 5% & 8%). The R-Square is a measure of how much of the 'variance' (i.e. the difference in e-maturity between respondents) can be explained by underlying attitudinal statements. Looking at the data in more detail, the reason for the low R-square is due to the relatively low amount of variation in the mean scores across the e-maturity groups, as the table below shows:

Attitudes towards learning and ICT: mean scores by e-maturity

	E-Maturity		
	Low <i>Mean</i>	Medium <i>Mean</i>	High <i>Mean</i>
On my course, its essential to use a computer to learn about the subject	3.49	3.52	3.66
I understand the subject that Im studying better because of the way that computers are used on my course	3.35	3.43	3.54
I do not rely on computers or information technology to keep in touch with other learners on the course	3.37	3.21	3.21
Because of the way that computers are used in my course, Ive got more choice as to where and when I can study	3.42	3.63	3.69
I learn less well in classes when the tutor uses computer technology to teach the subject	2.76	2.71	2.57
I prefer to read from a printed source such as a book or a handout rather than from a computer screen	3.53	3.21	3.06
The way that computers are used on my course motivates me to study	3.26	3.33	3.40
I believe that I do better in my assessments as a result of using computers for my learning	3.44	3.53	3.72
I prefer learning through a variety of media (for example, text, video, audio) than by just reading books or listening to the tutor	3.49	3.74	3.82
I learn better through face-to-face contact with tutors and other learners than by using a computer	3.80	3.71	3.63

Or across the proportions of learners that strongly agree as the table below shows:

Attitudes towards learning and ICT: strongly agree by e-maturity

	E-Maturity		
	Low <i>Strongly Agree</i>	Medium <i>Strongly Agree</i>	High <i>Strongly Agree</i>
On my course, its essential to use a computer to learn about the subject	19%	18%	23%
I understand the subject that Im studying better because of the way that computers are used on my course	13%	13%	18%
I do not rely on computers or information technology to keep in touch with other learners on the course	10%	9%	8%
Because of the way that computers are used in my course, Ive got more choice as to where and when I can study	8%	9%	15%
I learn less well in classes when the tutor uses computer technology to teach the subject	3%	3%	3%
I prefer to read from a printed source such as a book or a handout rather than from a computer screen	13%	8%	9%
The way that computers are used on my course motivates me to study	6%	5%	6%
I believe that I do better in my assessments as a result of using computers for my learning	10%	10%	14%
I prefer learning through a variety of media (for example, text, video, audio) than by just reading books or listening to the tutor	7%	13%	15%
I learn better through face-to-face contact with tutors and other learners than by using a computer	15%	12%	14%

Although some of these differences between the e-maturity groups are statistically significant due to the large sample size, there is too much similarity in the responses for the models to successfully and accurately 'predict' a respondent's e-maturity group purely from the attitudinal statements.

Appendix D: CHAID analysis (Chi-square Automatic Interactive Detection) to determine which factors are driving e-maturity

CHAID (**CHi**-squared **A**utomatic **I**nteraction **D**etection) is a segmentation technique which separates a sample into separate (mutually exclusive) groups based on the Chi-Square statistic. It is an explanatory and predictive tool with output provided in the form of a tree diagram or decision tree. This analysis was carried out to understand which factors that came out of the e-maturity analysis as being important, are driving learner e-maturity and which are more peripheral. It should be noted that it is only possible to run CHAID analysis based on unweighted data. Therefore the percentages shown throughout this section will not necessarily match those shown in the main e-maturity report.

CHAID works by using one dependent variable (in this case learner e-maturity) and a set of independent predictors (a number of key learner demographics and behavioural groups which are listed below). It performs a series of Chi-square tests for each independent predictor in the model to search for relationships with the dependent variable and when it finds the 'best predictor' (which has the largest Chi-square and the biggest discrimination when compared against the dependent variable) the sample is split. This is repeated until a tree diagram is produced of the biggest predictors. The CHAID tree finishes when there are no more significant relationships.

The independent predictors used as part of the CHAID analysis were based on key demographics and behavioural and attitudinal question on the survey. We were unable to include questions which were only asked to a small sub set of learners, as the filtering would bias the CHAID analysis. Although all these predictors were fed into the CHAID model, only the significant predictors will appear in the CHAID diagrams.

CHAID analysis independent predictors

Gender
Region
Age in breaks
Mode of study (Full-time/Part-time)
Ethnicity
College e-enablement
Subject studied:
<ul style="list-style-type: none"> • Sciences and Mathematics
<ul style="list-style-type: none"> • Construction
<ul style="list-style-type: none"> • Engineering, Technology and Manufacturing
<ul style="list-style-type: none"> • Business administration, Management and Professional
<ul style="list-style-type: none"> • Information and Communication Technology
<ul style="list-style-type: none"> • Hospitality, Sports, Leisure and Travel
<ul style="list-style-type: none"> • Hairdressing and Beauty Therapy

<ul style="list-style-type: none"> • Health, Social Care and Public Services
<ul style="list-style-type: none"> • Visual and Performing Arts and Media
<ul style="list-style-type: none"> • Humanities
<ul style="list-style-type: none"> • English, Languages and Communication:
Frequency of being required by tutor to use PC:
<ul style="list-style-type: none"> • How much are you required by tutor to use PC to - Learn about the subject you're studying
<ul style="list-style-type: none"> • How much are you required by tutor to use PC to - Produce assignments
<ul style="list-style-type: none"> • How much are you required by tutor to use PC to - Communicate with your tutor
<ul style="list-style-type: none"> • How much are you required by tutor to use PC to - Work with other learners
QB2 Statements best describing your access to computers within college, outside of timetabled class sessions?
QB3 Have you ever accessed the internet while at college?
QB9 Does your college provide you with an email address?
QC10 Do you have a computer at home that you use for your college course?
QC14 Which of the following leisure activities do you do regularly at home with your computer?
<ul style="list-style-type: none"> • Communicate with others (for example, through email or instant messaging):
<ul style="list-style-type: none"> • Surf the net
<ul style="list-style-type: none"> • Online shopping
<ul style="list-style-type: none"> • Play computer games
<ul style="list-style-type: none"> • Maintain a personal website, blog, online journal, myspace page etc.
<ul style="list-style-type: none"> • Create things (for example, digital photography/video, music, writing etc)
<ul style="list-style-type: none"> • Take part in an online community, for example an internet forum or message board
<ul style="list-style-type: none"> • Download music, video, podcasts etc:
<ul style="list-style-type: none"> • Learn about something other than your college course (for example, a foreign language: a musical instrument):
QD17_01 How often computers and IT used to:
<ul style="list-style-type: none"> • Present written work or data
<ul style="list-style-type: none"> • Research topics
<ul style="list-style-type: none"> • Create and deliver presentations
<ul style="list-style-type: none"> • Create graphics, music, photos or video
<ul style="list-style-type: none"> • Revise and follow up on what you
<ul style="list-style-type: none"> • Take a computer-based test or a quiz set by the tutor
<ul style="list-style-type: none"> • Submit assignments or work to your tutor
<ul style="list-style-type: none"> • Organise and manage your college workload
<ul style="list-style-type: none"> • Contact your lecturer or tutor with queries
<ul style="list-style-type: none"> • Catch up on sessions that you
<ul style="list-style-type: none"> • Communicate with other learners about the course

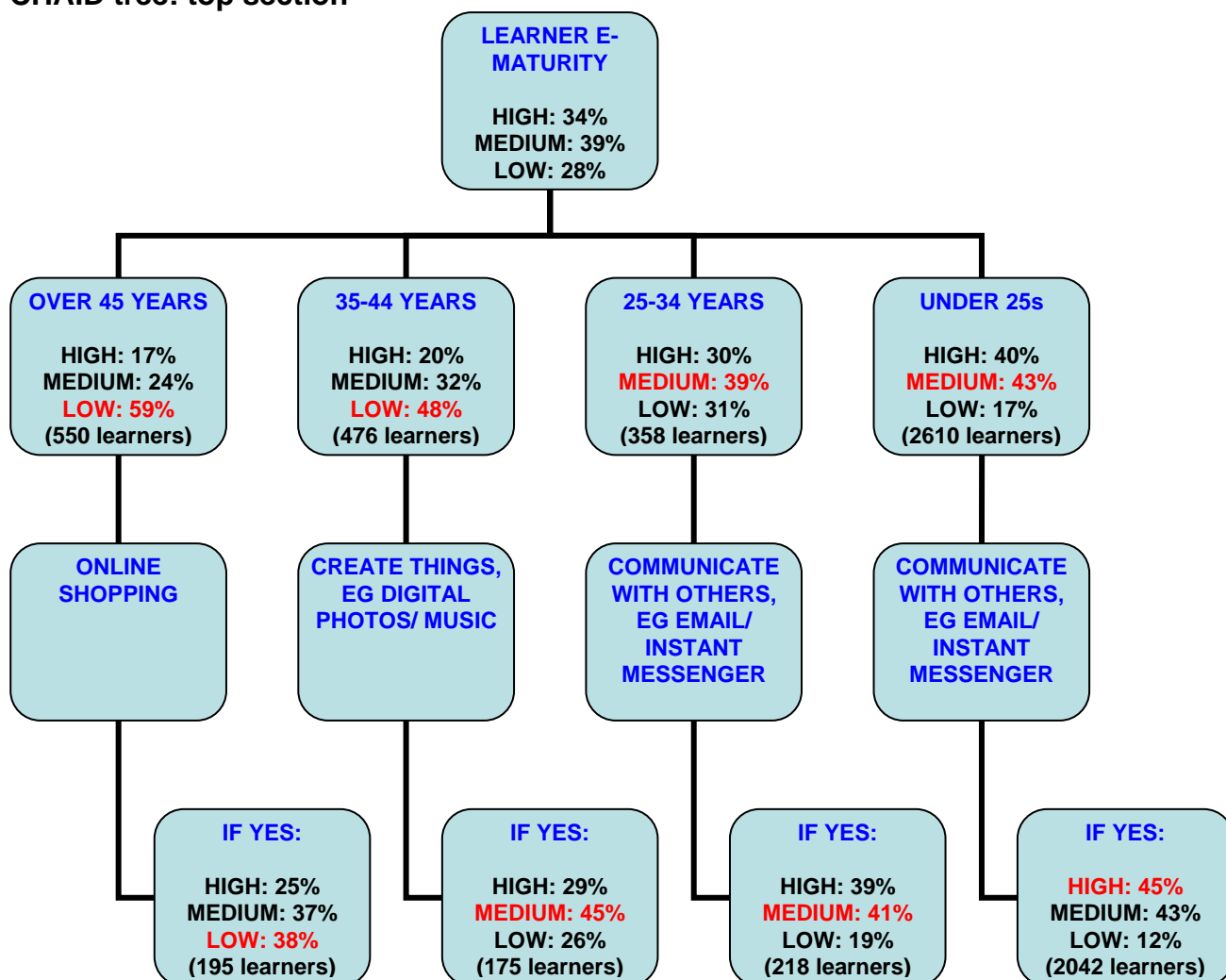
<ul style="list-style-type: none"> • Work with other students on a group project
QD19 How good are the tutors on your course in using computer technology to teach you?
QD20 Agreement with - I use computers to study on my course because I am directed to by my tutor
QD21 Are you required to use a "virtual learning environment" or "learning platform" as part of your course?
QD25 Do you have your own laptop computer, or handheld computer/personal digital assistant (PDA)?
QD30 Do you use an e-portfolio in your course?
QD34 Have you taken a computer-based test or quiz that has counted towards your final mark?

The CHAID diagram below shows the top section of the CHAID tree. The dependent variable (learner e-maturity) is at the top of the tree with the proportions of learners falling into the three e-mature categories within the total learner sample (34% high; 39% medium and 28%

Of all the possible predictors listed above, age came out as the biggest discriminator and therefore has the largest influence on learner e-maturity. Learners defined as high e-maturity increases to four in ten (40%) for under 25s compared with 30% of 25-34 year olds, 20% of 35-45 year olds and 17% of learners aged 45+. The CHAID analysis collapses together categories if they behave in a similar way and for this reason, learners aged 16-18 and 19-24 have been grouped together.

The next level in the CHAID diagram shows the biggest discriminators (or influencer on e-maturity) after age. This varies considerably across the learner age groups, but all the key discriminators are related to leisure usage of computers. Among 16-34 year olds, using computers at home for communicating with others via email or instant messenger has the strongest influence on e-maturity. In contrast, in the 35-44 age group, creating things using computers is the biggest discriminator, whilst within the 45+ age group, online shopping came out as being the most key. It should be noted that this predictors based on QC14 (leisure activities carried out regularly at home with computer) are filtered on those who had a computer at home, so there were a number of learners falling into the 'not applicable' category. These have been combined with those answering No for the purposes of this analysis.

CHAID tree: top section



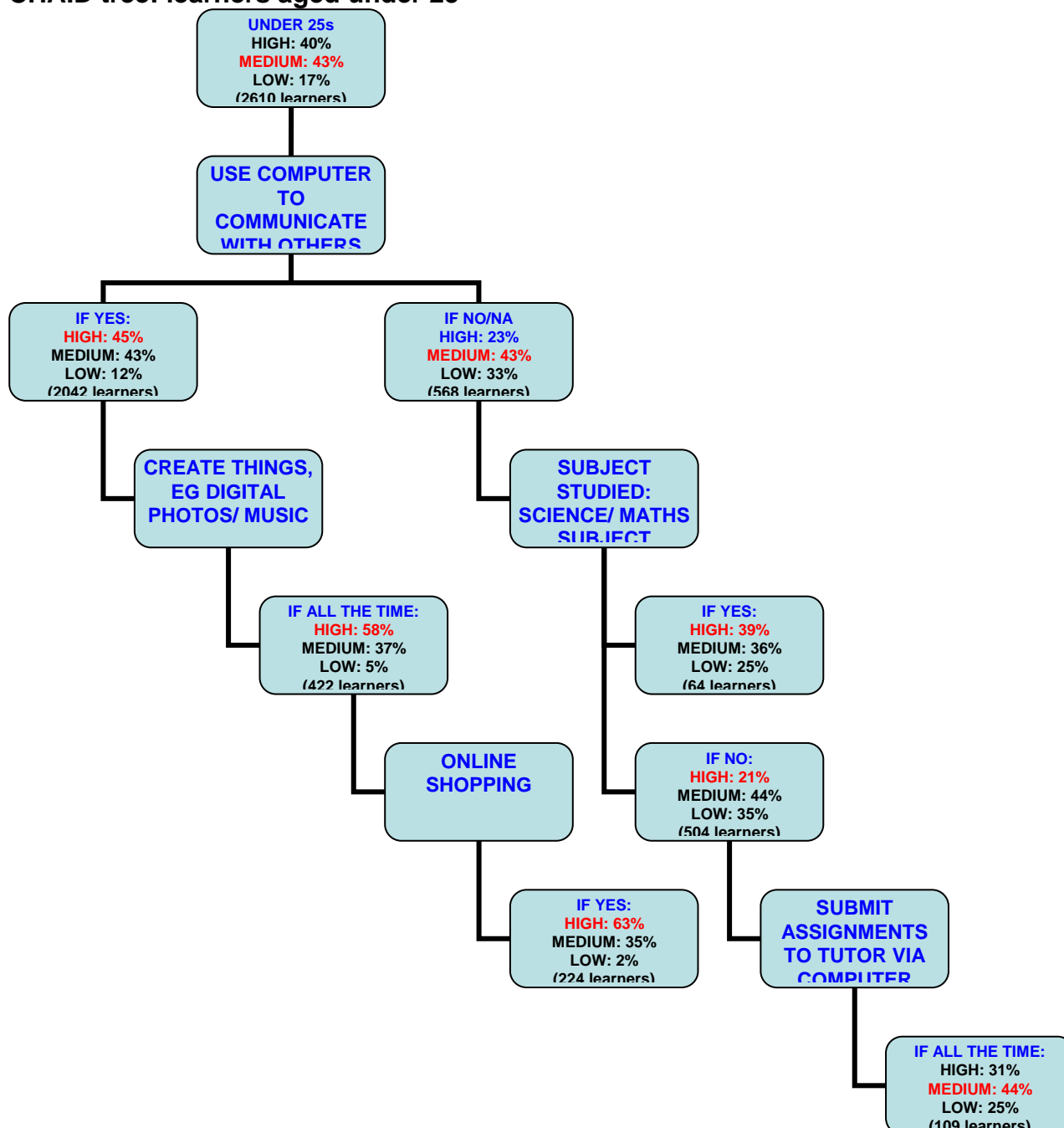
The following CHAID diagram shows the strongest discriminators (or influencers on e-maturity) among learners aged under 25. As previously mentioned, following age, the key discriminator in this age group was communicating with others via email and instant messenger. If under 25s were not communicating with others, or if they were not asked the question because they didn't have access to a home computer, the proportion of high e-mature learners declines.

Among learners aged 25 who were using computers to communicate, the next strongest discriminator was whether these learners were using their computer to create things (such as digital photos or music). If these learners were also online shopping, the proportion of high e-mature learners increases still further. These results demonstrate the importance of leisure usage in contributing to high levels of e-maturity, particularly among younger learners.

Among under 25 year olds who weren't using computers to communicate, the strongest discriminator was studying a maths or science subject. This increases e-maturity considerably compared with those not studying a maths or science subject.

Among these learners, the strongest discriminator was whether they were submitting assignments or work to their tutor using their computer. These results indicate that if younger learners don't have a home computer or do not use computers to communicate, then the subject they are studying and the impact of the tutor have a strong influence on learner e-maturity.

CHAID tree: learners aged under 25

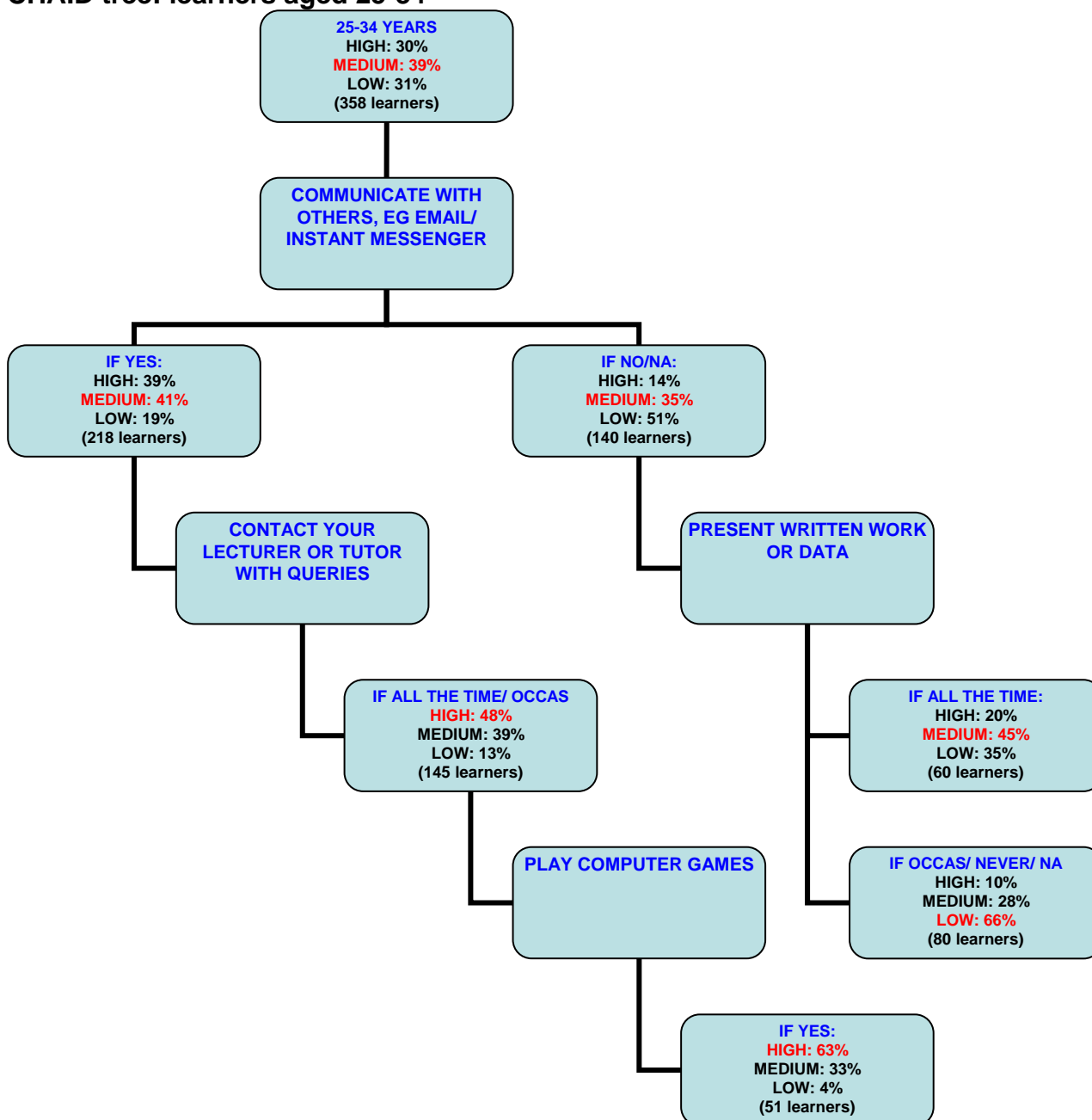


The next CHAID diagram shows the outcomes for learners aged 25-34 years. As with learners aged under 25, the biggest discriminator within this age category was communicating with others via email and instant messenger (using a home computer). This increases the level of learner e-maturity, whilst using a computer to

contact their lecturer or tutor, either 'all the time' or 'occasionally' increases e-maturity further. Playing computer games on a regular basis (using a home computer) again increases the level of e-maturity further (although the number of learners in this category is fairly low).

Amongst those who did not regularly communicate with others via email and instant messenger, the strongest discriminator was presenting written work or data 'all the time', increasing the proportion of high e-mature learners by 10% compared with those who did not present written work or data. Again, this demonstrates the importance of college computer use for those who are not leisure users or home computer owners.

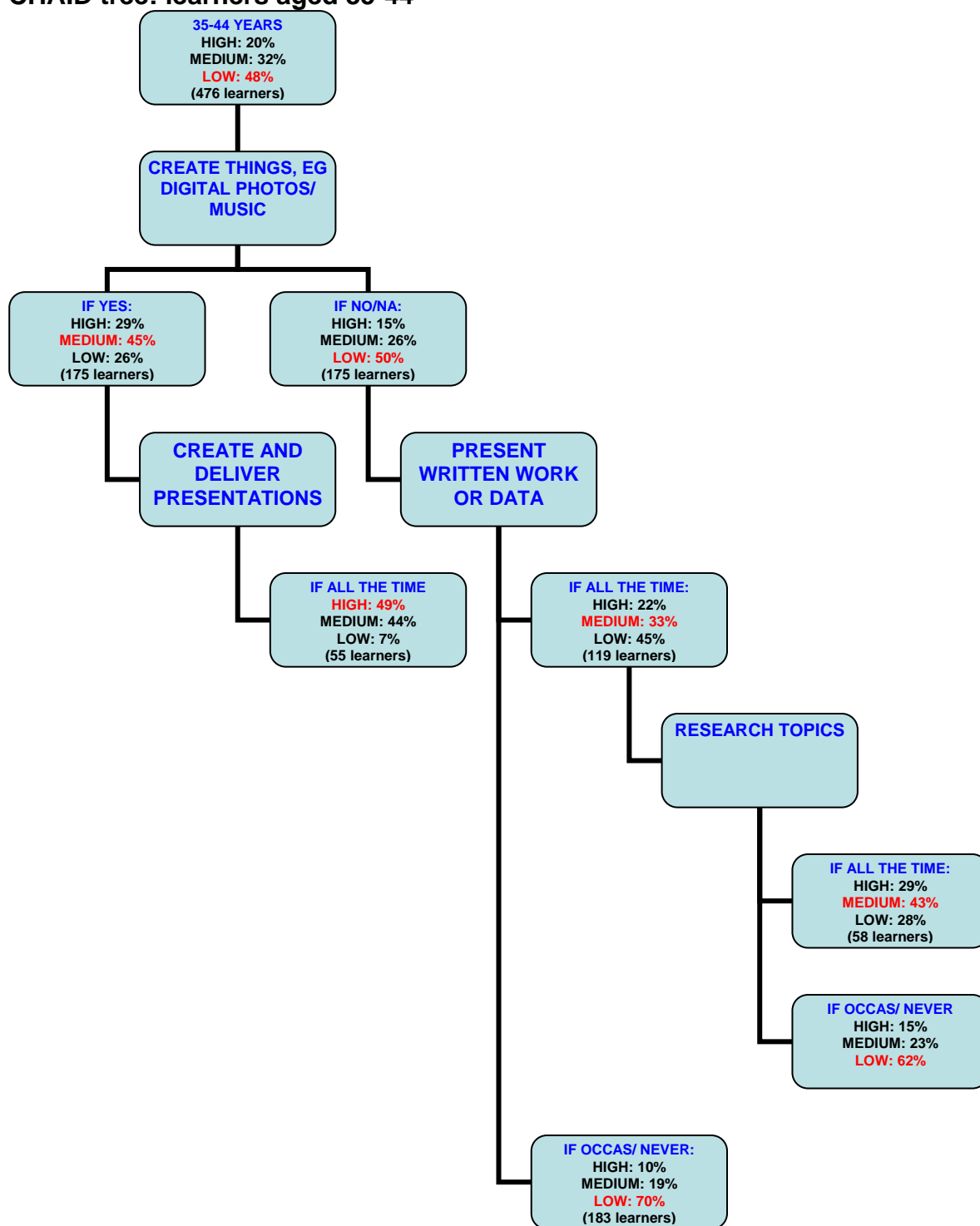
CHAID tree: learners aged 25-34



The following diagram shows the key discriminators for learners aged 35-44 years. Creating things using computers (for example digital photos or music) comes out as being the most influential, increasing the proportion of high e-mature learners by 9%. Creating and delivering presentations increases the proportion of high e-mature learners in this age group still further.

Among 35-44 year olds that don't create things using their computer, presenting written work or data is the biggest discriminator and the level of e-maturity increases further if these learners research topics using their computer. If they don't, the level of e-maturity drops with almost two-thirds of these learners in the low e-mature category.

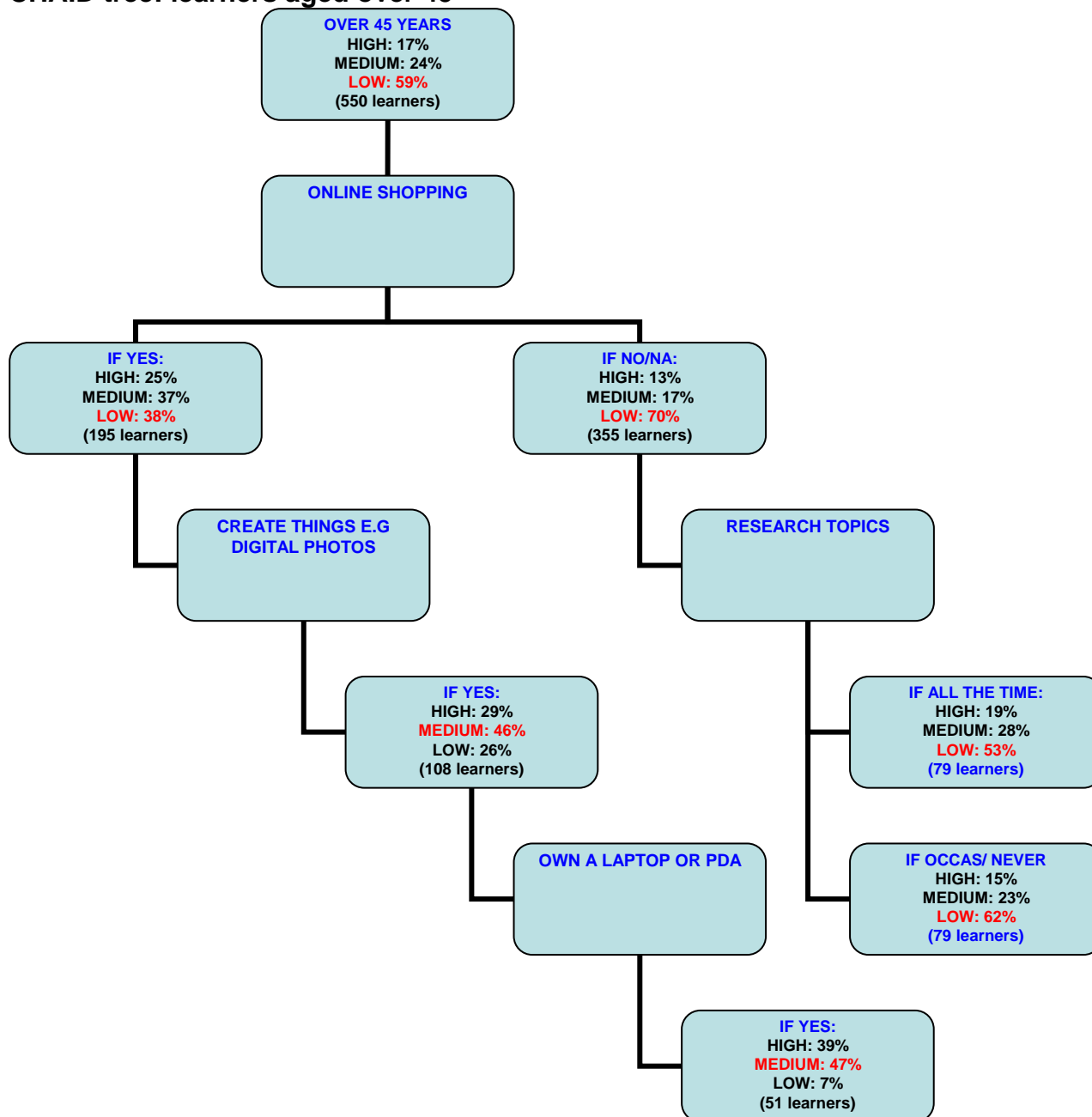
CHAID tree: learners aged 35-44



The last CHAID diagram shows the key discriminators for learners aged 45+. As mentioned previously, online shopping comes out as having the strongest influence on learner e-maturity in this age group. Among those who shopped online, e-maturity increases further if they use their computers to create things (e.g. digital photos or music) and if they own a laptop or PDA.

Among 45+ learners who do not shop online, e-maturity is increased if they use their computers to research topics 'all the time', with fewer learners in the low e-mature category compared with those not shopping online or researching topics.

CHAID tree: learners aged over 45



Summary of CHAID analysis

Of all the possible predictors available, age came out as the biggest discriminator and therefore has the largest influence on learner e-maturity, where learners in the younger age groups display higher levels of e-maturity. Once age is taken into consideration, the CHAID analysis demonstrates the importance of leisure usage in improving learners' computer confidence and expertise with ICT tasks carried out for their course. It is interesting that leisure usage has more influence on learners than mode of study, subject studied or tutor directed usage, which indicates that learners using computers under their own esteem has a far greater influence on their computer ability and confidence (it should be noted however, that mode of study is closely related to age, with part-time learners more likely to be from the older age categories and full-time learners predominantly from the younger age groups). Furthermore, factors identified in the previous analysis such as gender and college e-enablement do not appear as key discriminators.

If learners do not have access to a computer at home or are not using it for leisure usage, predictors related to subject studied or tutor directed usage come into play and these are the areas where Becta can have more of an influence. It is clear that if learners are not using computers for leisure and do not need to use computers as part of their course, the level of e-maturity declines further. It is therefore suggested that embedding ICT usage or training within the courses of learners who do not otherwise participate in home computer leisure activities is likely to increase levels of e-maturity amongst less e-mature learners.

As home leisure usage is so crucial to computing confidence and expertise overall, it is important that these skills are encouraged by colleges, as once learners are using computers for leisure this leads to utilising computers for their course too. One area which is not examined on this survey is the extent to which learners use computers at college regularly for leisure usage, in the same way as we ask about leisure usage at home. These findings suggest that although such usage might not be related to the course (for example, where they may constitute a lunchtime or free-time activity), these tasks improve the learner's level of computer confidence and leads to them utilising computers for a range of purposes including helping them to study. Therefore, it can be suggested that colleges should be ensuring the adequate provision of computers for use during non-teaching time whilst providing access to email accounts and developing learners' interests towards the internet, in order to develop learners' ICT confidence and abilities.