Scoping e-learning : use and development in Health Sciences and Practice

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1 Executive summary

This study funded by the HEA HS&P subject centre aimed to survey e-learning implementation in health sciences and practice disciplines throughout the UK.

Its objectives were to:

- explore issues influencing implementation and use by both early and late adopters
- identify barriers to implementation and good practice
- review the employment of e-learning within curricula representing a range of teaching models

In phase one, a postal survey obtained data from 25 higher education institutions relating to their uptake and development in this field. A second phase identified four case studies, two from early and two late adopters, reflecting the features identified from phase one. In the case studies interviews and focus groups with students and staff were conducted to gain a deeper understanding of the issues which were significant to them.

The main findings suggested e-learning development and use varies, with a spectrum of use across the sector. The predominant engagement is with instructivist learning approaches managed through a Virtual Learning Environment with only limited experimentation in interactive learning online.

The characteristics of early adopters included:

- Access to external funding
- Presence of committed local champions
- Strong institutional support
- Central and local learning and teaching strategies that reference e-learning
- Student and staff are external drivers for e-learning development
- Using online mechanisms for administrative processes

The characteristics of late adopters included:

- Lone enthusiasts
- Limited organisational support
- Limited need for e-learning
- Maintain paper based administrative processes

The key barriers to development and use include:

- Poor strategic approach to development
- Lack of a local and centralised staff development programme
- Staff lacking in IT skills

- Poor student IT skills
- Lack of student awareness of e-learning resources
- Technology not pedagogy driven
- Lack of computer resources in clinical workplace environments
- Lack of demand from students, educational purchasers and academic staff

Currently IT systems are being employed to administer student data by a number of providers and the majority are keen to move towards a single entry point, accessible by academics, students and administrators. Most e-learning applications are concerned with information retrieval and database use. A number of learning resources available concentrate on information provisions through CD Roms and PowerPoint presentations. The vast majority of course provision is centred on the institutional virtual or managed learning environment (VLE/ MLE). Employment of these was limited in many cases to information provision and retrieval and more limited use of interactive features such as discussion boards and virtual classrooms. The main method of communication between students and staff is through email with only limited examples of Web 2.0 technologies, such as wikis or social networking sites being used and additionally mobile technologies were under utilised. This may reflect a view that the e-learning is best used to deliver particular curriculum areas, such as biological sciences, where factual information takes precedence over discursive techniques used in the social sciences.

The development of institutional and local e-learning strategies has the potential to enhance uptake and future engagement. Local strategies are being influenced by national initiatives, such as the proposals for life long learning and widening participation agendas (e.g. Scottish Executive, 1999; DH, 1998; 2000; 2001; DfES; 2003; DfEE 2003; HEFCE, 2005). Curriculum review involving stakeholders can identify appropriate opportunities for e-learning that are context specific. From this institutions can target resources towards development, purchase of existing materials, review collaborative arrangements with other providers and consider the use of open source materials. Given the continuing variance in IT skills amongst students and staff, development programmes are required. Local provision of continuing staff development in IT use was seen as important to e-learning inception and use. The provision of student training and information on e-learning use should not be overlooked.

E-learning use could be supported through:

- Development of institutional strategy for e-learning, taking into account national drivers and local context
- The implementation of strategies may be aided by the inclusion of aims, targets, key roles, identifying resource base, monitoring and evaluation of effectiveness
- Identify ways forward in provision:
    - development (*resources, champions, training needs, funding)*
    - purchase or access existing materials e.g. Reusable Learning Objects
    - consider collaborative arrangements with other providers
    - consider the use of open source materials
- Provision of a local IT staff development programme
- Consider where staff might access more technical support for development

- Provision of a local IT student development programme
- Consider providing support materials for IT use on the web
- Provide students with key information on learning resources available within the institution and beyond
- Institutions developing IT materials to consider IPR, access, copyright and licensing issues to enable wider sharing

The findings suggest there is scope to engage late adopters in further appropriate work by establishing a support culture where e-learning practices and resources can be shared. Established centres of innovation have much to offer the broader sector, including their experience of operationalising strategy at institutional and individual levels; in addition to their expertise in e-learning development and use. Wider dissemination of e-learning might be facilitated through the sector by funding bodies such as Higher Education Academy Subject Centres. A broader understanding of the barriers to, and potential benefits of, e-learning should support further its development and effective employment in health sciences and practice. The recommendations for practice identified above include some key considerations and actions for potential new adopters and those wanting to develop the use of e-learning in the field. Given these conclusions the field is ripe for future development and engagement in e-learning.

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2 Introduction

This research was commissioned by the Higher Education Academy Health Sciences and Practice (HEAHS&P) Subject Centre to explore the use and development of electronically-delivered learning within the health sciences in the United Kingdom (UK). The uptake of e-learning throughout the health sciences and practice field varies from institution to institution, but reasons for these variations have not been fully examined (Moule, 2007). Factors such as organizational strategy, availability of resources, and degree of staff confidence are thought to play a part (Gilchrist and Ward, 2006), but other relevant aspects will be identified from this scoping exercise.

The healthcare sector within the UK is dominated by the National Health Service (NHS) with educational provision being split between Education Training and Development departments within the NHS, Higher and Further Education Institutions and the private sector. This study focused on the use of elearning within Higher Education Institutions (HEIs) who provide initial undergraduate and continuing post graduate education for professions within the Health Sciences and Practice subject domains.

In 2001 the NHS published *Working Together –Learning Together':* A Framework for Lifelong Learning for the NHS (Department of Health (DH), 2001) which set out plans for the development of the NHS university and included extensive plans for the design and use of e-learning. Since the demise of the NHSu these responsibilities have passed to strategic health authorities, who have taken a variety of approaches to the use of e-learning.

The sector is also informed by wider developments in e-learning such as the Department for Education and Skills(DfES) e-Strategy *'Harnessing Technology: Transforming learning and children's services',* which describes the use of digital and interactive technologies to achieve a more personalised approach within all areas of education and children's services.(DfES, 2005)

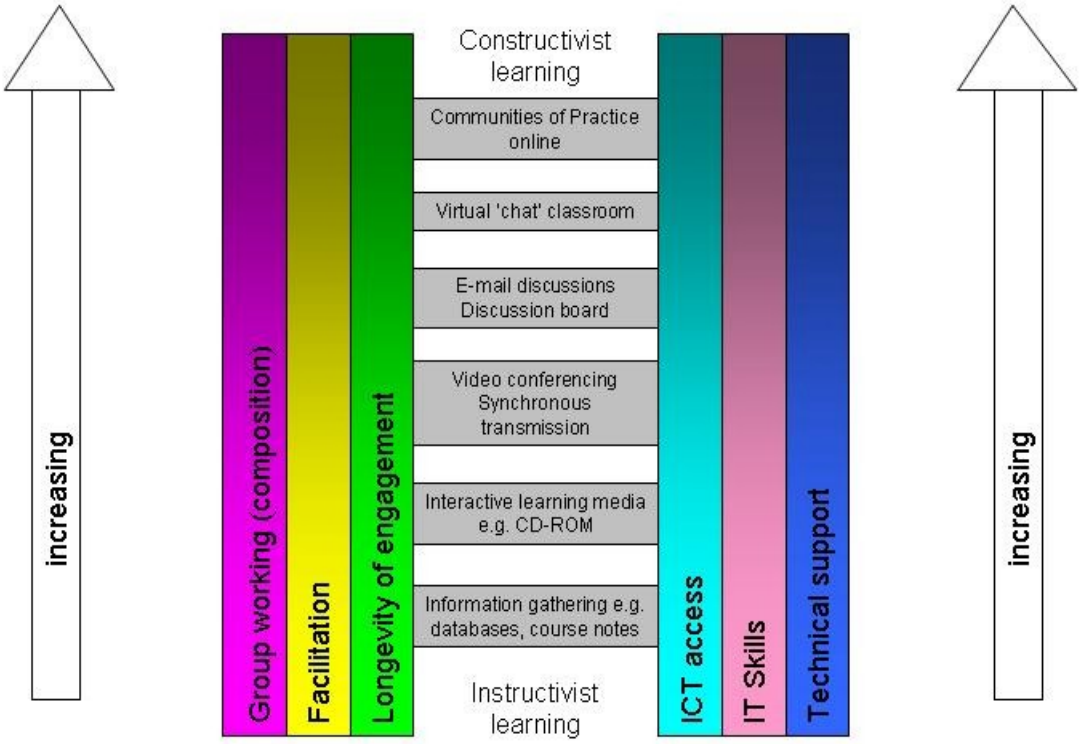
In 2005 the Higher Education Funding Council for Education (HEFCE) set out it's "aspirations for how e-learning can transform learning and teaching, and about supporting institutions in setting their own visions and plans". (HEFCE, 2005). This encouraged the development of e-learning strategies and has informed developments in this area in many universities.

2.1 Definition of e-learning and terms

There are a number of definitions of e-learning that tend to refer to the use of ICT to provide learning (HEFCE, 2005). Previous work presents a conceptual model for e-learning, the E-learning Ladder (See Figure 1) (Moule, 2007), that reflects a range of modes of e-based deliveries. The Ladder includes both 'sides' and 'rungs'. The 'sides' of the ladder represent the various areas of support that need to be considered by those developing and implementing e-learning, such as access to computer facilities, level of

IT skills and facilitation. These 'sides' represent some of the issues of e-learning use that will be discussed later in the chapter.

Figure 1 E-learning ladder



The 'rungs' of the ladder are positioned to reflect an instructivist approach, where the learner takes a more passive role in learning from provided knowledge, through to constructivist modes of e-learning, where the learner takes a more active role in learning and draws on previous experiences and those of others. The initial 'rungs' relate to using e-learning for information gathering through the use of databases, literature searching eg OVID, and learning materials such as power point presentations, lecture notes, online learning materials and CD-Roms. These learning materials might be used as part of a blended approach that combines e-learning with a face-to-face delivery (Moule and Gilchrist, 2001). The lower 'rungs' may also include the use of virtual simulations of environments, for example, the hospital ward and care delivery such as particular psychomotor skills.

The upper 'rungs' encompass more constructivist learning approaches that encourage problem-solving, critical thinking and support analysis and evaluation (Adams, 2004) through engagement. Examples of the types of e-learning include synchronous transmission of learning materials through video-conferencing, e-mail, discussion boards, virtual classroom discussions and the development of online Communities of

Practice (Wenger, 1998) through long periods of online engagement of a group with shared goals and language. It is envisaged that the ladder could be developed to include mobile learning tools, such as the use of SMS (text) messages, podcasts (digital audio files downloaded to personal digital audio players such as MP3 players) and might encompass social networking tools such as Face book, My Space and virtual worlds such as Second Life. In other words as e-learning technology continues to develop the ladder can be adapted to include a broader range of delivery modes.

Virtual Learning Environment (VLE) refers to the component(s) within an MLE that provides the "online" interactions of various kinds which can take place between learners and tutors, including online learning (http://www.elearning.ac.uk/mle/MLElandscapestudy/e-learning_survey_2005.pdf/download.)

Portal is a network service that brings together diverse/distributed content and services into an amalgamated form for presentation to the user. The presentation is usually via a web browser and can be customised and personalised for the individual user. (http://www.elearning.ac.uk/mle/MLElandscapestudy/e-learning_survey_2005.pdf/download.)

For an explanation of other technologies mentioned please see appendix 5.

3 Aims and objectives

The study aimed to survey e-learning implementation in health sciences and practice disciplines throughout the UK. Its objectives were to:

- explore issues influencing implementation and use by both early and late adopters
- identify barriers to implementation and good practice
- review the employment of e-learning within curricula representing a range of teaching models

The aims and objectives were achieved through a two phase approach including an initial survey and follow up selected case study visits.

4 Methodology

4.1 Phase 1

The Joint Information Systems Committee (JISC) funded Managed Learning Environment Study survey tool: (http://www.mlestudy.ac.uk/) was adapted for use in the

current study (see appendix one), with the permission of JISC. Some of the original sections were re-worded or removed, leaving a total of 62 questions. Elements of the survey would not necessarily be completed by all respondents, depending on their institutional position.

Paper copies of the questionnaire were printed, and it was also made available for download via a link on the UWE Health and Social Care departmental website: (http://hsc.uwe.ac.uk/net/research/HSPsurvey.aspx) and the HEA HS&P website.

An initial list was created from personal contacts. We also searched departments on the Quality Assurance Agency for Higher Education Major Review of healthcare programmes reports listing: (http://www.qaa.ac.uk/reviews/reports/healthReviews.asp) and the Nursing and Midwifery Admissions Service institution listing: (http://www.nmas.ac.uk/instit/index.html) . We added those HEAs not identified previously from the HS&P Subject Centre list of contacts. The HEA HS&P list contained a number of duplicates and no contact names. For reasons of confidentiality, names of key contacts from the HEA database were not divulged to the research team. A final sample of (n= 93) were sent a paper version of the survey.

An additional 20 copies of the questionnaire were distributed to delegates attending the HS&P Festival of Learning, held at the Royal College of Physicians, London in March 2007. This represented a convenience sample of informed participants, with an interest in e-learning. This gave a final potential sample of (n=113).

Notification of the survey was sent to those HEIs in the HEA newsletter mailing. An advertisement was also printed in the HEA newsletter and posted as a news item on the HS&P website, with a link to the survey url.

4.2 Phase 2

Four case study sites were identified from the responses to phase one using the criteria set out (see appendix two), to include both early and late adopters of e-learning. In this study the terms early and late adopters reflect both the numbers of staff and students involved in e-learning and the variety of e-learning activities undertaken. The full range of features associated with our categorisation of early and late adopters is given in appendix two. Our definitions are therefore not consistent with Rogers (1995) definition of early and late adopters that suggested the early adopters lead revolutionary change and risk taking. These included two sites in the midlands and two towards the south east.

5 Data collected

5.1 Phase 1

Responses were received from n=25 (28%) departments/HEIs by June 2007 (see appendix three). Data were entered into SPSS.

5.2 Phase 2

At the case study sites visited we reviewed learning and teaching strategy documents and e-learning strategy documents for the faculty and HEI, interviewed key staff and viewed e-learning materials using an outline schedule (see appendix four). Focus groups were held with students in each site. The table below indicates the actual numbers of staff and students involved.

Table 1 Case study sites

Case study site	Interviewed				
	Management	**Teaching staff**	**Technologists**	**Students**	**Total**
3	1 Head of Dept	2 programme leaders 3 senior lecturers		10 Year 2 Adult nursing students	16
4	1 Director Centre for the Development of Teaching & Learning	1 Lecturer		6 Public health nursing students	8
11		1 Reader in Education 1 Senior lecturer	1 Web developer	3 Students	6
20	1 Deputy Director of e-learning unit	1 Teaching development fellow 2 Lecturers	2 Learning Technologist		
Total	3	11	3	19	36

6 Data analysis

6.1 Phase 1

The questionnaires were coded and the data set entered into SPSS vs 13. Descriptive statistics were calculated. Further analysis did not demonstrate any significant differences between those HEIs who were developing their e-learning support centrally and those developing this within faculties or schools.

6.2 Phase 2

Qualitative data obtained from the site visits and interviews was transcribed and thematically analysed, using procedures outlined by Miles and Huberman (1994).

7 Results

7.1 Phase 1

7.1.1 E-Learning Development

Twenty (80%) respondents stated the developmental organisation of processes to support e-Learning were devolved to Faculty/School/Department level within an institution wide initiative (Table 2).

Table 2 Processes to support e-learning

	Number	*Percent*
Devolved Responsibilities to Faculty/School/Department within institution wide initiative	20	**80%**
Departmental/Local initiatives with little or no integration	3	12%
Activity predominantly centralised in the HEI	2	8%

The importance of a range of driving factors for e-learning developed were considered using a five-point scale ranging from 'Not very important at all' to 'Very important' (Table 3); a number of factors were viewed neutrally, attracting responses relatively equally across all the response categories. Those factors which a majority viewed as unimportant included 'Attracting home students' where 50% believed this to be unimportant, and 'Help standardise own institution with other' where 62.5% felt it to be unimportant. A single factor, 'Attracting international students' was felt by 72% of the respondents to be 'neither important nor unimportant'. Seven factors were rated as important or very important by over 45% of the respondents. These were 'Enhancing quality of learning and teaching' (80%), 'Improving access to learning for part time students' (70.8%), 'Improving access to learning for students off campus' (66.7%), 'Widening participation/inclusiveness' (66.7%), 'Students expectations' (52%), 'HEI/ Faculty/ School Learning and Teaching Strategy' (60%) and 'Improving access to overseas students' (45.8%).

Table 3 Major driving forces for e-learning development

	Not very important	*Unimportant*	*Neither important nor unimportant*	*Important*	*Very important*	*Not relevant*
Enhancing quality of learning & teaching (n=25)	4%	8%	8%	20%	**60%**	-
Improving access to learning for part time students (n=24)	4.2%	-	20.8%	12.5%	**58.3%**	4.2%
Improving access to	-	12.5%	20.8%	12.5%	**54.2%**	-

	Not very important	*Unimportant*	*Neither important nor unimportant*	*Important*	*Very important*	*Not relevant*
learning for students off campus (n=24)						
Widening participation/ inclusiveness (n=24)	8.3%	12.5%	12.5%	29.2%	37.5%	-
Students expectations (n=25)	-	20%	28%	16%	36%	-
Improving access to learning for overseas students (n=24)	25%	4.2%	16.7%	12.5%	33.3%	8.3%
HEI/ Faculty/ School learning and teaching strategy (n=25)	4%	12%	24%	32%	28%	**-**

Possible supporting factors for e-learning were also rated by the respondents on the same five-point scale (Table 4). Two factors were rated as important by over 50% of the respondents. These were 'A committed local champion' (84%) and 'Technological changes/developments' (60%). Three respondents highlighted other factors, although only two clarified these as technological support and in becoming a new university.

Table 4 Major supporting factors for e-learning

	Not very important	*Unimportant*	*Neither important nor unimportant*	*Important*	*Very important*	*Not relevant*
Availability of external funding (n=25)	24%	4%	16%	12%	28%	16%
Availability of internal funding (n=25)	12%	12%	24%	8%	40%	4%
A committed local 'champion' (n=25)	**-**	12%	4%	16%	**68%**	**-**

Respondents cited a range of staff consulted as their institution developed e-learning support processes; all the respondents stated that academic staff were consulted. Other groups were not consulted by all HEIs; with 92% consulting Learning Resources, library and IT support staff, 84% consulting administrative and learning technologies staff and 76% consulting senior managers.

The respondents added their own methods of consultation that they deemed to work best (Table 5), a wide range of consultative processes were highlighted with differently focused meetings dominated the responses.

Table 5 Methods of consultation that work for respondents (staff)

- Direct contact with all groups of staff following ideas generated at online learning meetings
- Open, informed and from the beginning consultative
- Constant contact and an overall strategy in the HEI with regular planning and review meetings
- Consensus meetings following champion presentations
- Targeted meetings
- Strategic meetings across the university
- Curriculum meetings
- Opportunistic meetings
- Joint consultative meetings
- Face to face discussion
- Electronic communication with staff
- Web casts
- Prototyping
- Promotional material (e.g. leaflets, posters, and websites)
- Presentation and demonstrations of completed work and 'work in progress'
- Development with committed staff and identified focus
- School e-learning portal task group
- Training by staff development
- Team networking with colleagues
- Dissemination of ideas through school learning enhancement groups
- Forum where staff have a presentation and then move to small workshops followed by feedback from the workshops
- Contextualised, localised staff development
- Workshops

Students were consulted by a majority of the responding institutions when they were developing processes to support e-learning with only two (8%) stating they did not consult with students. The largest group of consulted students were those who were full time and campus based (76%), with 68% of institutions consulting with off campus and distance learning students and 64% consulting with part time campus based students. Only 36% consulted with overseas students.

Respondents added those methods they found worked well when they consulted with students (Table 6)

Table 6 Methods of consultation that work for respondents (students)

- E-mail discussions
- Face to face discussion
- Classroom discussion
- Listening road shows
- Online evaluations
- Paper evaluation

- Questionnaires
- Surveys of student success via blackboard
- Working with Web CT
- Focus groups
- Through student representatives
- Student representation on curriculum development
- Student/staff liaison committees
- Student consultative meetings
- Student forum committee consultation
- Student feedback and evaluation on specific e-learning projects
- Formal and informal module/course/programme evaluations
- Induction sessions and programmes
- Demonstration of systems

Twenty (80%) of the responding institutions stated had plans for future collaboration with others as a way of overcoming barriers to the development of processes to support e-learning. Methods of consultation that were deemed to have worked with external partners are outlined in Table 7.

Table 7 Methods of consultation that work for respondents (External partners)

- Initial e-mail then direct contact
- Telephone
- Online forums
- Informal groups and discussions
- E-learning special interest groups
- Workshops and conferences
- Networking at seminars and conferences
- Via organisations such as the HEA
- Via personal communication with colleagues
- Via faculty learning and teaching committee
- Meetings
- Relationship building
- Engaging external partners in Programme development/review Committees
- Specialist centre in the University

Organisations that the responding institutions planned to collaborate with and the nature of the collaboration are shown in Table 8.

Table 8 Potentially collaborative organisations

- Other universities regarding collaborative funding projects
- London Metropolitan and Cambridge (CETL)
- Northampton, Chester and Peninsular Medical School about the development of health reusable learning objects
- Leeds Metropolitan about Mobile Learning
- BT, NHS Connecting for Health, NHS Health Informatics Faculty
- NHS education for Scotland, Universities of Edinburgh and Aberdeen
- Partner FE Colleges, HEA, Other Universities, HEA Subject Centres about learning

Objects and Course development
- University of Adelaide and Virginia Commonwealth University about a Distance leaning programme collaboration
- York University sharing good practice on support systems and Huddersfield University about adopting their developed system of Penfield Virtual University
- North West support groups for Non Medical prescribing
- HEI partnerships development
- Pharmaceutical Companies
- University of East Anglia and University of Essex about VLE development
- University of Greenwich and University of Kent about Janet to N3 link project

7.1.2 E-Learning Environments – Current and Future Developments

A series of questions were asked outlining the functions of processes, services and systems that support learning and teaching. Four levels were given for each function ranging from level 1 (paper based systems) to level 4 (single point entry on line systems) and respondents were asked to assess their current level and that their institution aspired to. Not all of the respondents answered each question. Some did not clarify an aim on all the questions leading to the supposition that their institution did not plan on developing that process further.

The seven commonest responses given for where Faculties of Health Sciences within HEIs view themselves now (60% plus) are shown in table 9 and the ten most common aims (80% plus) are given in Table 10.

Table 9 Levels of processes, services and systems to support learning and teaching - now

Process and level	***No***	***%***
Student access to library/learning resource centre (LRC) **Students can access the library catalogue and electronic resources from one common interface (n=25)**	20	**80%**
Monitoring of students use of online resources **Individual staff can choose and are able to monitor students use of online resources (n=24)**	17	70.8%
Tracking students attendance **Attendance data is tracked manually (n=24)**	15	62.5%
Module selection **Choice of elective modules made using paper forms (n=22)**	14	63.6%
Recruitment/application (non UCAS) **Prospectus can be viewed and simple enquires can be made online (n=23)**	14	60.9%
PDP transcripts **Transcripts only available in paper format (n=23)**	14	60.9%
Signing on to access e-learning resources and environments **Students access all e-learning resources and environments using a single user name**	15	60%

Process and level	*No*	*%*
and password (n=25)		

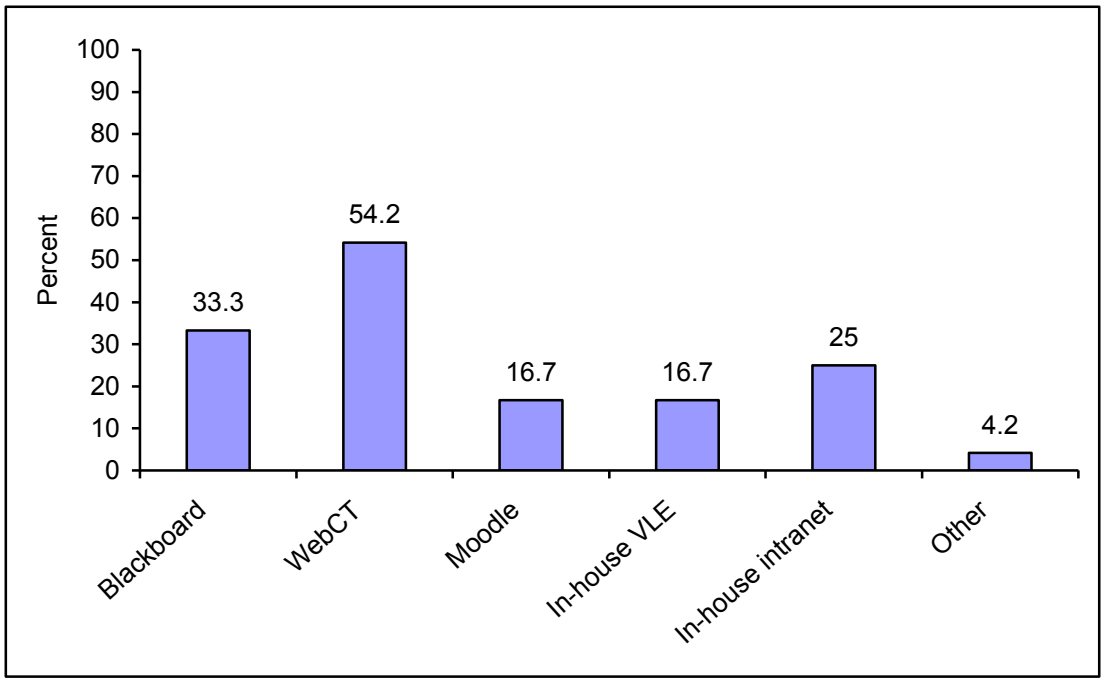
Table 10 Levels of processes, services and systems to support learning and teaching - Aims

Process and level	*No*	*%*
Staff access to course administration **Staff are automatically provided with access to and authorisation for administering courses (n=9)**	9	**100%**
Signing on to access e-learning resources and environments **Students access all e-learning resources and environments using a single user name and password (n=9)**	9	**100%**
Access to course descriptions and learning outcomes **Course descriptions and learning outcomes are available to students from a single entry point (n=13)**	12	92.3%
Recruitment/application (non UCAS) **Prospectuses can be viewed, applications can be made and tracked online (n=17)**	15	88.2%
Accessibility of resources for students and staff with a wide range of access needs **All online systems can be customised to support students with a wide range of access needs (n=16)**	14	87.5%
Support for users of library/LRC managed electronic learning resources **On request, students receive online guidance and support from information professionals for their subject areas (n=7)**	6	85.7%
Curriculum development process **Academic staff have online access to an institutional quality and validation documentation with facilities for update and discussion (n=13)**	11	84.6%
Monitoring of students use of online resources **Integrated systems report students use of online resources, leading to staff intervention where necessary (n=17)**	14	82.4%
Personalised access to e-learning and support resources **Students have personalised access to all e-learning and support resources (n=15)**	12	80%
Student access to library/learning resource centre (LRC) **Students can access the library catalogue and electronic resources from one common interface (n=5)**	4	80%
Personal development planning (PDP) process and e-portfolios **PDP tools, process and e-portfolios available from a single entry point (n=15)**	12	80%

7.1.3 Future Development of Processes to Support e-Learning

Twenty-four respondents stated their faculty, department or school currently uses a virtual learning environment (VLE); one respondent did not answer the question. The e-learning applications used are shown in Figure 2. Just over half (54.2%) the respondents are using Web CT with Blackboard (33.3%) the next most commonly used followed by an in-house intranet (25%).

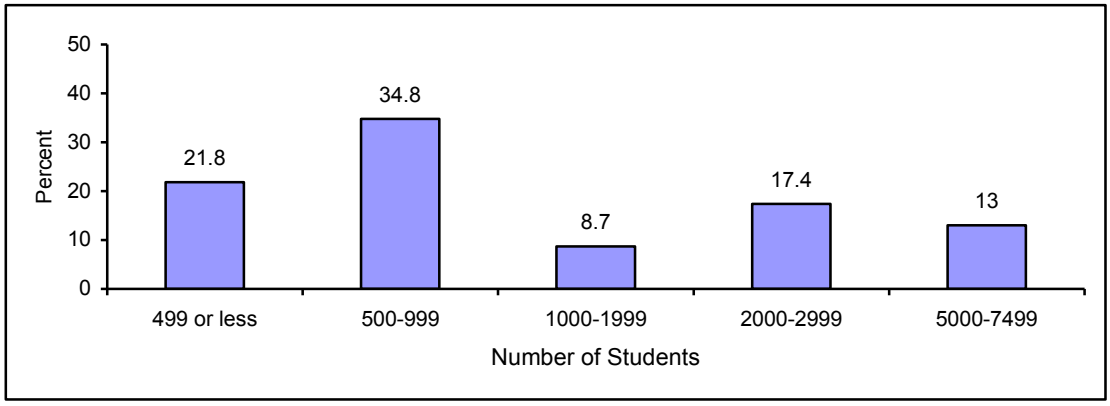
Figure 2 E-learning application used (n=24)



Twelve (48%) respondents stated that conformance and compliance to e-learning standards and specifications had influenced their choice of e-learning applications.

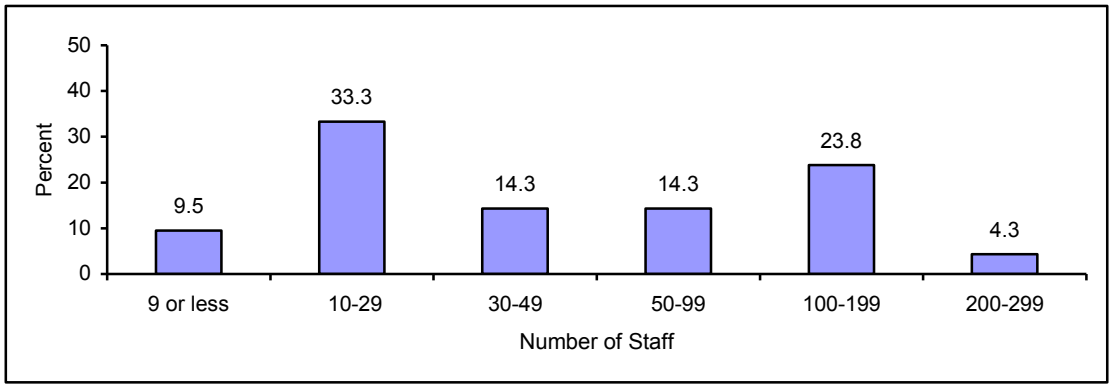
Numbers of students using e-learning applications in the respondent's faculty, school or department ranged from less than 499 to between 5000 to 7499; two stated that this information was not collected and one did not answer the question (Figure 3). Around one-third stated between 500-999 students were using e-learning applications in their HEI.

Figure 3 Number of students using e-learning applications (n=23)



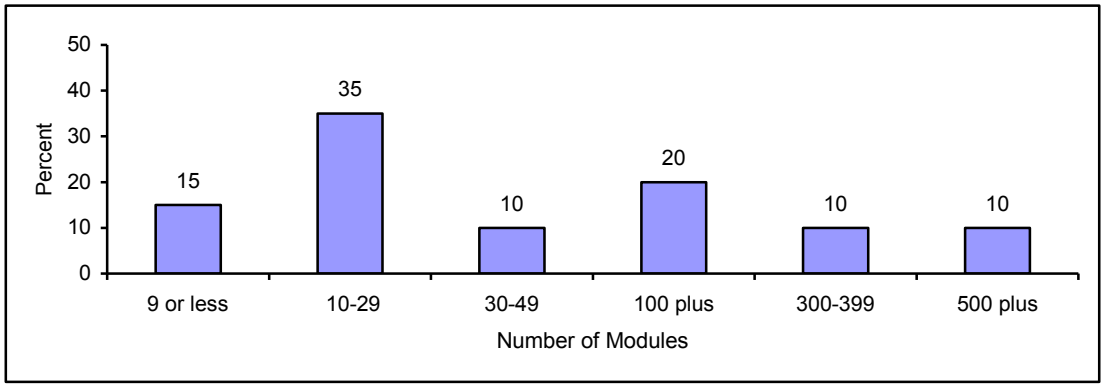
The number of staff using e-learning applications ranged from less than nine individuals within a single school, department or faculty to between 200 to 299; three respondents stated this information was not collected in their institution and one did not answer the question (Figure 4). Approximately one third of respondent's had between 10 and 29 teaching staff currently using e-learning applications within their faculty, department or school.

Figure 4 Number of teaching staff using e-learning applications (n=21)



The number of modules currently actively using e-learning reported by respondents ranged from nine or less to 500 plus; again four reported this information was not collected in their institution and one respondent did not answer the question (Figure 5). Approximately one third of respondent's had between 10 and 29 modules currently using e-learning applications within their faculty, department or school.

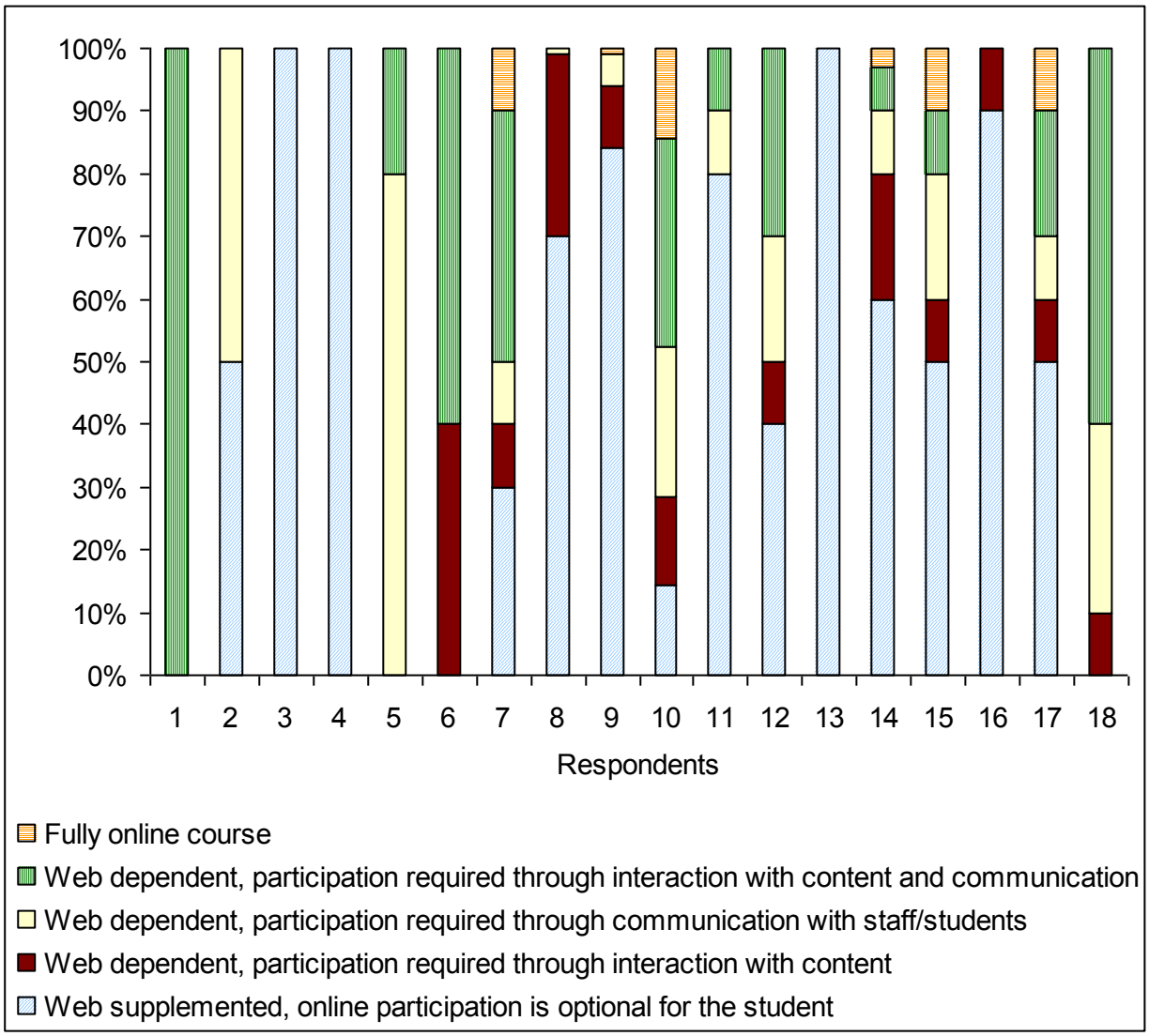
Figure 5 Number of modules currently actively using e-learning applications (n=20)



When asked how many complete awards, programmes or courses were delivered entirely by e-learning nine respondents (36%) stated none, 13 (52%) said nine or less, one (4%) said 10-29 and two (8%) stated this information was not collected in their institution.

Figure 6 demonstrates how for 18 respondents the e-learning applications divide between five categories. Fourteen (77.8%) of the respondents stated that some modules or units of study were web supplemented, and online participation was optional for the students. Only six (33.3%) ran any fully online courses and these at most were 15% of provision.

Figure 6 How e-learning applications divide



Respondents were asked which, out of a list of possible uses, did their institutions apply e-learning applications (Table 11). All of the respondents stated their HEIs used e-learning applications for access to course material and access to web based learning resources. E-learning applications were used least for online student presentations (both individual and group) and learning design with only 28% of respondents giving these as examples. One respondent gave an extra example, which was using a virtual patient.

Table 11Uses of elearning applications

	Number	*Percent*
Access to course material	25	**100%**
Access to web based learning resources	25	**100%**
Problem based learning	20	80%
Peer support	19	76%
e-Assessment	17	68%
Collaborative working	17	68%
Assignment submission	17	68%
Formative assessment	17	68%
Access to multimedia resources, including simulations and games	15	60%
e-Portfolio	14	56%
Online student presentations (individual and group)	7	28%
Learning design	7	28%

Respondents indicated the units responsible for installing and maintaining the e-learning applications (Table 12); one respondent gave stated they used “subject area champions and expert users” to assist in this endeavour.

Table 12 Units responsible for installing and maintaining e-learning applications

	Number	*Percent*
Central Information Technology support	20	**80%**
Distributed Information Technology support	11	44%
Curriculum staff	9	36%
Vendor/ external support	2	8%

Respondents highlighted a number of ways through which e-learning application development was supported in their faculty, department or school (Table 13). One respondent stated that in their institution e-learning application was not fully supported as there was no “incentive or reward although technical support was available if required”.

Table 13 Support for e-learning application development

	Number	*Percent*
Project funding	13	**68%**
Allowing academic staff development time	17	56%
Funding as a service	14	52%
Allowing support staff development time	10	40%
Career enhancement	6	24%
Contractual obligation/ part of job specification	8	32%

Units across the faculty, department or school the respondents belonged to used a range of support to provide staff development and support in using e-learning applications (Table 14). Learning technology support units were the most commonly cited type of support for staff. The creation of web pages however tended to be supported by central IT support services. Other support services highlighted by respondents included school based IT and LT support.

Table 14 Units providing staff support and development in use of e-learning applications

	Staff development of learning and teaching use of e-learning applications	*Support in creating new courses*	*Support in adding content and maintaining courses*	*Creating web pages*
Central Information Technology support	32%	20%	32%	**36%**
Distributed Information Technology support	12%	12%	16%	20%
Learning Technology Support Unit (LTSU)	**44%**	**40%**	**44%**	32%
Educational development Unit (EDU)	16%	12%	8%	4%
Staff Development Unit	56%	20%	12%	24%
Dedicated VLE support	40%	32%	32%	12%
Local	32%	**36%**	**40%**	**36%**
Other	16%	12%	12%	12%

Training and development activities offered to support staff, whose role includes enabling other staff in the use of e-learning applications, are shown in Table 15. The least used where Regional Support Centre events (16%) and Universities and Colleges Information Systems Association (UCISA) events (12%). Internal staff development (88%) and national conferences and seminars (76%) were the most common medium for training and development opportunities for support staff, least used were UCISA events (12%).

Table 15 Training and development activities for support staff

	Number	*Percent*
Internal staff development	22	**88%**
National conferences/ seminars	19	76%
Association for Learning Technology (ALT) events	14	56%
Regional seminars	13	52%
External training courses	13	52%
Higher Education Academy (HEA) subject centre events	13	52%
Regional Support Centre (RSC) events	4	16%
Universities and Colleges Information Systems Association (UCISA) events	3	12%

Most respondents highlighted a number of units across their faculty, department or school that provided student support and training in the use of e-applications (Table 16). Most units provided support in a relatively small number of institutions. Academic staff were the single most common point of support with 76% of respondents stating they delivered face to face training as part of their course delivery or as part of the IT skills induction (48%). Online training and support from central Information Technology Units were used by a majority (52%) of institutions. Other units named as providing student support were a learning support development unit who provided face to face training, printed guides and online training and support and librarians who supplied printed guides and information on the intranet and internet

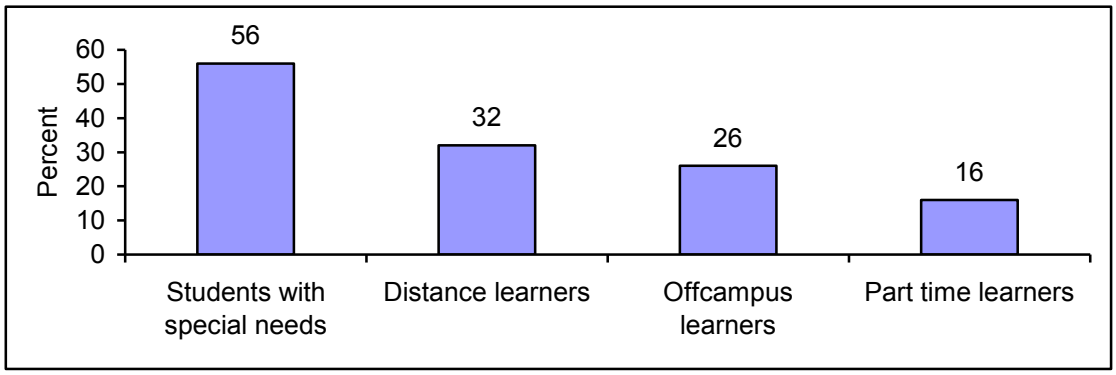
Table 16 Units providing student support and training in e-learning applications

	Face to face training as part of course delivery	*Face to face training as part of an IT skills induction*	*Printed guides*	*Information on Intranet/ Internet*	*Online training and support*
Central Information Technology support /LIS	20%	24%	**48%**	**44%**	**52%**
Distributed Information Technology support	12%	12%	12%	16%	4%
Learning Technology Support Unit (LTSU)	4%	8%	24%	16%	20%
Educational Development Unit (EDU)	4%	-	8%	8%	4%
Dedicated VLE support	8%	16%	8%	8%	20%

	Face to face training as part of course delivery	*Face to face training as part of an IT skills induction*	*Printed guides*	*Information on Intranet/ Internet*	*Online training and support*
Local	20%	28%	12%	16%	8%
Academic staff	**76%**	**48%**	44%	40%	24%
Other	4%	8%	12%	8%	8%

Some groups of students received more focused or specialised support and training in the use of e-learning applications (Figure 7). The most commonly cited group were students with special needs (56%) through the use of study support units running extra workshops, study support tutors, individual plans for students or specialised Centres for Academic Practice. Other groups such as distance learners were brought on campus as a group for induction, residential schools or were offered local workshops. Off campus learners were offered support at induction, at their own site, or residential schools.

Figure 7 Student groups receiving specialist support



Mobile technologies used to connect or support e-learning applications included pilots using mobile phones, WIFI, iPods, PDA's, Blackberries and Bluetooth.

Nine (36%) respondents stated they were using commercial portfolio/ PDP systems in their faculty, department or school. These included Pebble Pad, Web CT, my PDP and Blackboard e-Portfolio, and Blackboard Academic Suite

In house portfolio/PDP systems developed included electronic personal and Academic records (ePARS) and Clinical portfolios.

7.1.4 Learning Implementation

E-learning technologies used by the respondents' faculties, schools and departments are shown in Table 17. E-mail (96%), CD Roms (84%), DVDs (80%), and discussion boards (84%) were used the majority of the respondents' institutions, while SMS texting (8%) and mobile phones (16%) were used by a minority. Four respondents gave further examples including live web casting, the Penfield virtual hospital, video conferencing, and reusable learning objects (RLOs).

Table 17 E-learning technologies used

	Number	*Percent*
email	24	**96%**
Discussion boards	21	84%
CD-ROMS	21	84%
DVDs	20	80%
Online videos and sound	16	64%
Blogs	11	44%
iPods	8	32%
Wikis	7	28%
Mobile phones	4	16%
Other	4	16%
SMS Texting	2	8%

Subject areas ranged in levels from undergraduate to Masters level in Nursing, Midwifery, Medicine, Public Health, Physiotherapy, Occupational Therapy, Speech Therapy, Nutrition, Podiatry, Radiography, and Pharmacy.

Subject areas and courses not using e-learning applications included Midwifery, Audiology, Music Therapy, Art Therapy, and Post-qualifying courses

Respondents were asked which students and which aspects of students e-learning in their faculties, schools or departments were supported. Their responses are summarised in Table 18. Further examples included supporting students based with collaborative partners and franchises.

Table 18 Student groups e-learning is used to support

	Number	*Percent*
Students on campus	22	**88%**
Students on placements	21	84%
Discussion boards	19	76%
Distance students off site	18	72%
International students	16	64%
Other	2	8%

Respondents were asked to give examples of learning materials or e-learning applications which worked well and those which did not work well (Table 19 and 20)

Table 19 E-learning materials that work well

- On line statistics courses
- Formative assessments through Blackboard
- Discussion boards as they create a learning community, particularly if the facilitator 'weaves' the discussion
- Course content with calendar, web links and quizzes as formative assessment
- Discussion boards to share practice with post registration students
- Virtual patient (Penfield virtual patient and hospital)
- Virtual laboratory and microscope
- Problem based learning
- Support materials such as Web links, DVDs, CD-ROMs, Web CT
- Pod casts (audio only) with Year 3 Distance Learning Research Methods students
- Videoed lectures
- Online PowerPoints supplemented by audio track, pod cast content, integrated quizzes, video clips
- Video clips
- E-Journals (access to information outside of library hours)
- Video conferencing between two cohorts one on Campus and one in South Africa

Table 20 E-learning materials that do not work well

- Programme or course exercises: students either do not do them or do not seem to learn from them
- Wikis in post registration courses as they rely on collaboration
- Large complex computer packages; students want quick answers
- Nursing practice modules where 'hands on' practice is required
- CD-ROMS (too passive)
- Text based content (boring)
- Have experienced technical problems with E-pop web conferencing software
- PowerPoints without sound or animation (boring and not engaging)
- Discussion forums have not worked well probably as all students are based on campus and do not need to go online to have a discussion
- Discussion boards do not work well for post graduate students who do not know each other in advance
- Chat facilities particularly if they require moderation by an academic who may not have their workload moderated to take the new role into account
- Staff need training in running e-discussions
- E-mails
- Macro-media Breeze; there are infrastructure issues
- Any materials not assessed by students to relate to their assessment

7.1.5 Portals

Nineteen (76%) of the responding institutions had institutional portals. Respondents indicated their institutional portals provided the following access (Table 21). Over half gave access to internal and external online resources, local and remote information recourses and access to collaborative tools. Ten (40%) allowed access to transaction based services.

Table 21 Access via an institutional portal

	Number	*Percent*
Access to local and remote 'information resources'	17	**68%**
A personalised single point of access to internal online resources	16	64%
Access to collaborative tools (e.g. email, discussion board)	14	56%
A personalised single point of access to external online resources	13	52%
Access to transaction based services (e.g. room booking)	10	40%

The response to the question 'Who is responsible for the development of your institutional portal' is shown in Table 22. For the majority (52%) this was their Central IT services. Two respondents gave a further example one stated it was an IT strategy group that including all staff members, the second stated that academic staff were responsible.

Table 22 Responsibility for developing institutional portal

	Number	*Percent*
Central IT	13	52%
Central Administration	2	8%
Library/ Learning Resource Centre	3	12%
Other	1	4%

None of the respondents gave any examples of specific packages used to develop the institutional portal. Three gave written responses to the question. One felt the development appeared unclear but that it seemed to be a work in progress. A second noted it was being developed locally and customised; whilst the third stated at the time of the survey it was being developed in house but for the academic year 2007 – 2008 the were moving to Moodle.

7.2 Phase 2

The qualitative data collected from focus group and individual interviews in the case study sites are presented as verbatim statements under headings that reflect the three main groups included: staff, technologists and students. The main themes are shown in table 23:

Table 23 Main themes from qualitative data

Staff	Students reluctance to engage Strategies to facilitate student engagement Drivers and enablers Barriers to e-learning use
Technologists	Keep pedagogy not IT as driver

	Need for academics to understand/be aware of technologies
Students	Variation in IT abilities and confidence in use, Limited access to IT in practice settings, Poor understanding of resource availability, Limited use of e-learning.

7.2.1 Staff views

Students reluctant to engage

Staff reported that lack of student IT skills and lack of relevance of IT use for practice, resultant from computer access issues in the workplace, contributed to student reluctance to engage in e-learning.

Student IT skills

There were issues in the level of IT skills possessed by some health care students. Social work students, for example, complete the European Computer Driving Licence (ECDL) as part of their pre-registration courses. These students were seen as more IT literate than nursing students in case study 4.

> '*...whereas for nursing students in particular some of them are quite technophobic.,.. so you have to get the student over the actual access to IT when they arrive…. I've included some assessment tasks that are [threaded] discussions and things like that, which I know the rest of the world are doing, but for our students that is quite challenging*.' Case study 4.

In contrast case study 20 felt students were, '*often more highly skilled than staff*,' in IT use. This position was felt to reflect the use of social networking software by a number of students, such as My Space and the gender differences seen in the past weren't apparent , '*the younger students, but surprising the women seem to be, I haven't seen any gender difference'*. This said, other staff from Case Study 20 felt there were differences in student groups, '*medics are [more proficient*]'.

Lack of computers in the workplace

There are issues with a lack of availability of computers in workplace settings, poor password provision and technical support. This was felt to hamper student computer use as they are unable to transfer IT use from the university to the clinical setting, losing opportunities to further develop IT skills and use computers to enhance working. Additionally, the lack of collaborative development in IT between the education provider and the clinical settings compounds issues of transference.

'A lot of them complain that they don't have access in practice. ..If the health service is embracing e-learning it's in completely different technology, different style to what the university is.' Case study 4.

'One of the discussion board complaints that goes on, "I haven't got a computer, I haven't got access to the Internet [at work]" '. Case study 20.

Strategies to facilitate student engagement

Where students were reluctant to engage in computer use a number of strategies were employed to support engagement. These included demonstrations for students in how to access IT, using clinical practice visits as opportunities to review computer use, developing IT use into modules that links to assessment and relates to practice, such as the use of hyperlinks. Additionally more formal processes were in place.

'..our students are supposed to access their email every week, that's part of the contract as a student.' Case study 4.

'.. *made it mandatory and nearly everybody participated.'* Case study 20

'*on many of the courses they are[students] introduced to e-learning right at the beginning…I say I think in terms of keeping the students coming back to Web CT, it's very much at the module level and how tutors work*,' Case study 11

Drivers and enablers

There are a number of drivers and enablers working to support e-learning development and use.

Institutional Strategies and resources

All the case study sites had an e-learning strategy, either incorporated into or separate from the teaching and learning strategy. The strategies aligned to corporate plans, that reflected the permanence of e-learning, Case study 4*, 'e-learning is here to stay'.*

'*the university has its own e-learning strategy I mean we obviously work with that..we've got a meeting in a few weeks time to actually to look at our e-learning strategy again'*. Case study 11

To support achievement of the strategies various resources and development opportunities were in place. Case study 4 '*the new PVC has got quite big ideas about people not being sufficiently rewarded for the amount they do on the teaching side'*, had introduced a teaching fellow scheme.

Support was also present at local level in one institution,

'*well the school, in 2000 the school made a decision that e-learning was sufficiently important that they needed a role , you know somebody in a role to actually lead e-learning…the school has always supported that role and will continue to support e-learning development.'* Case Study 11

Some institutions were drawing on Centres of Excellence in Teaching and Learning (CETLs) located within the institutions to support e-learning development. This tended to happen through secondments to the CETLs, buying staff time to develop e-learning materials. In this way the existing skill base was enhanced and staff were able to cascade their learning when returning to schools and departments. Other universities had secured external HEFCE funding for e-learning developments.

' We just use the HEFCE learning fund.' Case study 4

'They put out for secondment for a certain number of days depending on how big, if you like.' Case study 20

'*for example the facilities we have got here though mainly funded by the CETL funding, the school also supported us using these facilities and converting all the rooms to become a sort of dedicated e-learning unit*.' Case study 11

It is worth noting however, that mainstream funding was only likely to cover the costs of the virtual learning environment (VLE) licensing and that development was dependent on finding capacity within existing provision for development or more often on securing external monies.

Students

Students can act as commercial drivers to IT development and use.

"particularly felt this, whereas case study 4, dealing with more mature students, felt student demand was low amongst health care students prior to engagement. Though once students had experience e-learning they were 'hungry for more'. "Case study 20

'.. the market, the student, if you don't have an all singing and dancing platform then the students will not come'. Case study 20.

'..having come from secondary schools for example, they're sort of expecting these things [online learning]..its another selling point for the university' Case study 4

Staff 'Champions'

Staff were equally thought to have the potential to drive e-learning forward, particularly those seen as 'champions' who adopt new technologies and incorporate them into their teaching and often drove central IT services to increase technological availability. There were however, some concerns that technologies might be used because they are there, rather than for pedagogic reasons, though others felt pedagogy was a strong consideration.

> *'we do have a few enthusiasts who are using it* [IT] *in more sophisticated ways'* Case study 4*'*

> *'..but the problem is that some people want to harness the technology without thinking about what they want to achieve pedagogically'* Case study 4

> *'I mean I think in the early days we feel we very much had to drive things ourselves, I think the university is quite slow to take on e-learning as an overall university strategy..we use a sort of strategy whereby you target the enthusiasts and get them to try and encourage their colleagues and their own students to use e-learning'.* Case study 11

> *' I think what an introduction to e-learning has done for me* [provided through a secondment to the CETL] *is to focus my attention much more on the pedagogy not on the technology but on the learning'* Case study 20 *.*

Technological support

Technological support was seen as valuable to enabling e-learning development and delivery, including help with the production and presentation of materials. It was also seen as important to supporting users.

> *'she'd* [student] *be emailing the technologists… support from the technologists is really good'* Case study 20.

> ' *very good and very proactive team there that's encouraging us in the pilot studies, they will literally come out'* Case study 4

> *'the electronic session once a week is really good at helping students with any IT problems'* Case Study 3

Though central teams were enabling, local support was particularly valuable,

> *' I think without technical support* [in the CETL] *you know I think people simply wouldn't be as enthusiastic…'* Case study 20

Barriers to e-learning use

Lack of demand

The late adopter case study 4 site talked about a lack of demand from staff and students for any new development and a lack of purchaser interest in e-learning.

> '*I'm not kind of clever enough to think if I need more, I don't ever move it any further, I just stick with what I've got.'* Case study 4

> *'they* [purchasers] *demand lots of other things and this* [e-learning] *isn't a priority]* Case study 4

The staff were happy to use the functions they had within Blackboard, not wishing to explore further potential within the VLE or from other e-learning and mobile technologies. The reasons for this seemed to reflect some lack of understanding of the scope of e-learning but also a lack of incentive and need to develop the use of technology supported learning. The main stakeholders were not making demands for change. The purchasers of education didn't offer challenges for development and the students, who weren't engaging with IT in the University or necessarily in practice seemed happy with the current position.

> *'in some cases the students are driving the use of technologies, especially through the use of IT..you have a different profile of students..' 'As they tell me all the time ''your students are not normal'.'* Case study 4

Lack of resources

The late adopter site highlighted a lack of time, difficulties of skill base and of supporting staff to undertake e-learning development as barriers.

> '*I think the restrictions are* [our] *time'* Case study 4

> *'…..the difficulty there is finding someone to write it all in an interactive way, because we haven't got the skills to write it so they have online activities'* Case study 4

> *'Well quite a few of the ones that you bid for* [projects] *have to be endorsed by the Head of School and agreed that they will give you the time out, ..but who, who does your work..'* Case study 4

There were opportunities to bid for monies to complete e-learning developments but the small staff base made staff buy-out problematic. Additionally, there seemed to be concern that staff didn't have the necessary pedagogy skills to develop interactive e-learning materials.

Technicians/Learning Technologists views

The people interviewed included several working in learning technologist roles. They had a range of titles and backgrounds, with some coming from IT backgrounds and others who had previously been working in learning support and similar roles. It was noticeable that those from early adopter sites were specifically connected with or employed by the particular faculty or school, whereas those in the late adopter sites were generally from central university departments.

> *'we need to have the technicians allocated to the faculty/school rather than centrally in the university'* Case Study 3

Generally they appeared more knowledgeable and, in some cases enthusiastic about different technologies, than the academics interviewed but still clearly recognised that the technologies are not an end in their own right but need to be used to support learning and teaching. They wanted to keep pedagogy not IT as the driver of developments.

> *'so from my point of view the computer is a tool, and that's it, but tools can be used in various different ways and it's a matter of finding the optimum way that it can be used, sometimes the most wonderful looking idea or wonderful looking movie or something like that on the computer isn't any good from a learning point of view because people just don't engage with it,'* Case Study 20

> *'but the problem is that some people want to harness the technology without thinking about what they're trying to achieve pedagogically and I think that can be quite dangerous, cos that's why the students then don't quite get what's going on*,' Case Study 4

They described the use of VLEs within their organisations. In general it was felt that academic under-utilised the majority of features on offer.

The importance of having minimum standards to ensure things get done was emphasised. In one example students had been employed over the summer to ensure minimum standards were met, these included putting up basic details about modules onto the VLE.

> *'we are responsible for making course documents accessible online for all students all courses and these are documents like basic course information like student handbooks, and timetables and things like that but we also have more interactive elements on the students course websites, things like discussion forums*,' Case Study 11

> *'We've been using an online environment here at XXXXX, went live for the whole university, every student, every module in 1999, but that's a bit of an overstatement in that it was there for use by every student on every module, at the end of the first year it was 10% usage, at the end of the 2nd year 20% and now we've been going for 7 years and surprisingly we have got 70% of the*

modules are using it on a regular basis all the time such that if it stopped working we would have a lot of people shouting […] it does mean we've still got 30% of the modules that are not using it,' Case Study 20

They felt there was a need for academics to understand/be aware of technologies.

The use of audio recordings of lectures was used to illustrate the need for specific learning to be supported by the technologies, rather than just adding "e" to everything:

'because I mean, I would listen to an audio probably fall asleep but if I had to listen to something specific and need to, have the ability to replay it at my own pace, then I would suggest that would be very useful.' Case Study 20

The learning technologists discussed the importance of having "champions" for e-learning amongst the academic staff. It was also the learning technologists who highlighted the importance of ensuring that materials met the needs of those with disabilities.

A variety of technologies (both hardware and software) were mentioned as being used with varying levels of success. These included Smartboards, streaming servers, blogs and other tools (see appendix five).

7.2.2 Student views

Four main themes emerged from the student discussions to include: Variation in IT abilities and confidence in use, Limited access to IT in practice settings, Poor understanding of resource availability, Limited use of e-learning.

Variation in IT abilities and confidence in use was a factor.

It was apparent that the students held different levels of IT skills and varying levels of confidence in IT use. Those who were less confident had relied on colleagues and family members, often children, to assist them with their IT use and felt the university provided only minimal instruction in computer use.

' I hadn't really done that much before and I was quite you know stumbling along a bit at the beginning..it helps if you live with someone who can use a computer.' Case study 4

We've not been taught how to use it and it's just we are dinosaurs as my son calls me, it's really hard….I really struggle with the email. Case study 11

In contrast the postgraduate students who had already completed a university course felt they had the necessary IT skills:

'At my old uni we did a course on sort of word, Powerpoint, Excel, so I'm quite good at that and how to use the internet so I think most people on my course just kind of got on because we'd already had the training.' Case study 11

Limited access to IT in practice settings

The student's highlighted issues with computer access in clinical and practice settings. For many there had been no use of IT in the practice environment:

'No, we've not used them .There tends to be one in the nursing office but usually someone is on that or it will be one on the main desk so someone is sat there even if they are not using it'. Case study 11

'They are password protected where I've been working'. Case study 11

'I mean some of our places there is only one computer and you know you are in an office with six people'. Case study 4

They felt that the lack of computing facilities in placement settings was going to be a problem for them as a number of staff were trying to use the computers to access emails and e-learning packages as a number of statutory training packages are being introduced. They also felt that their own IT skills gained in the university may be redundant if they were unable to use computers for long periods. However students at Case Study 3 thought that access wasn't an issue, but that the culture was such that sitting down at the computer wasn't perceived as real work.

Students were also reluctant to use social networking sites because they see this as their domain.

Poor understanding of resource availability

Students were often unaware of the number of online resources available for them. This was particularly the case in the early adopter sites where there may be a range of materials produced.

One conversion highlighted this in particular when a student was suggesting a particular learning resource online would be helpful and others knew it was already available:

'A maths package, you know like the drug calculations, I don't think there is one….yeah, there actually is one on the system..is there...' Case study 11

Limited use of e-learning

Students were using e-learning mainly for information retrieval, with some learning taking place through interactive packages. It appeared that there was minimal

engagement with various Web 2.0 technologies available and only small parts of the VLEs available were in use, with little use of discussion boards. Some of the students were using social software outside the university, such as My Space and Facebook and were adamant that they wanted these preserved for personal use and that such media shouldn't be used by university staff.

> *'We can get reading lists..if you go into the schools website you can click on your own school and that comes up with your own stuff, modules and planners'*. Case study 11
>
> *'Blackboard..was good for going in and finding out when assignments were due in'*. Case study 4
>
> '*Blackboard is disorganised and it's difficult to find anything – needs a good search function'* Case Study 3
>
> '*..they say employers and everyone look on Facebook about what your profile is and thing like that and I wouldn't no, no I think it's separate..I wouldn't want to check my Facebook page and have an email by my teachers and everyone'.* Case study 11

The students did suggest that certain subject areas seemed to use e-learning more. Bio-sciences were particularly highlighted. Biology materials were provided as interactive online packages and worked well.

> *'I think biology are really into their computing..I don't know if you use like sociology and psychology, they're not quite so much into putting things on the web, they will give you web addresses like, 'look here' but there's no packages on, but then again I think it's easy to do for biology because of the type of subject it is'*. Case study 11
>
> *'it would be good to have videos of clinical skills*' Case study 3

8 Discussion

The discussion addresses the aims and objectives of the study and is presented under these key aims.

- explore issues influencing implementation and use by both early and late adopters
- identify barriers to implementation and good practice
- review the employment of e-learning within curricula representing a range of teaching models

8.1 Issues influencing implementation and use by both early and late adopters

8.1.1 Characteristics of early adopters

The early adopters exhibited a number of key characteristics that seemed to facilitate their status at the forefront of e-learning use. These characteristics included:

- External funding: the early adopter sites had access to specific funds allocated for e-learning development. These were often linked to a Centre of Excellence in Teaching and Learning or to other HEFCE funds. Whilst one of the later adopter sites also identified some external funding for e-learning development, this was held centrally and accessed through a competitive tendering process.
- Committed local champions: the institutions used a bottom up approach to e-learning development, encouraging enthusiasts to experiment and develop new resources for student learning.
- Institutional support: A range of mechanisms were in place to support individuals and teams that included internal funding, IT resources, staff secondments of technologists and academics, key roles in e-learning development, management support. Institutions also provided a range of staff development activities, tough the early adopter sites used a local delivery method for this and provided local support in the development of e-learning materials.
- Learning and teaching strategies: some institutions held learning and teaching strategies that included e-learning whereas others composed these separately. The strategies included minimum standards for use and targets for achievement. These legitmised e-learning activity and development.
- Drivers: the development of e-learning was seen as being important for enhancing the student learning experience. Both staff and students were making demands on the use of technology to support pedagogy. There was ambition to

increase engagement in e-learning and explore the use of new technologies, adopting them as appropriate for the learning experience.
- Using online mechanisms for administrative processes: a higher proportion are using electronic mechanisms to manage a range of administrative activities such as, enrolments, using single sign on and module selection.

8.1.2 Characteristics of late adopters

The late adopter sites possessed some common characteristics.

- Lone enthusiasts: these staff are the 'champions' of late adopter sites whose influence and impact is limited by the lack of institutional, management and funding support. They are situated in a culture where e-learning development and use is not a high priority.
- Limited organisation support and drive: though learning and teaching strategies are in place these are not necessarily operationalised, with local interpretation and delivery varying. Staff development programmes when in place are held centrally and can be problematic to access. Additionally, support for IT development is centralised and can fail to meet local needs. Students and staff, also commissioners of educational programmers appear happy with current provision methods. This position helps maintain the status quo and inhibits experimentation and development.
- Context: in reviewing e-learning provision one needs to take account of the local context and needs. For some of the late adopter sites there is apparently limited potential need for e-learning, where course cohorts are small and markets are local. The belief that e-learning delivers at instructivist levels best also determines enthusiasm. Those institutions with smaller group sizes operating at a constructivist level of learning see little benefit of online delivery, believing face-to-face delivery enhances learning.
- Using online processes for administrative processes: Late adopters learning and teaching processess appear to remain paper based in significant areas, manually tracking student attendance, requiring students to use a paper application form for elective modules and of responding HEIs requiring student Personal Development Planning transcripts in a paper format.

8.2 Barriers to implementation and good practice

There are a number of barriers affecting IT development and use in Health Sciences and Practice, with variance in the impact of these seen across the sector. The key issues include:

- Poor strategic approach to development
- Lack of a local and centralised staff development programme
- Staff lacking in IT skills

- Poor student IT skills
- Lack of student awareness of e-learning resources
- Technology not pedagogy driven
- Lack of computer resources in clinical workplace environments
- Lack of demand from students, educational purchasers and academic staff

These barriers fall into two main areas, that of not having the infrastructure, resources and skills in place to support e-learning and not having drivers that require engagement with technology.

A number of education and health care policies have expounded the potential of e-learning and sought to encourage its adoption within higher and professional education and practice (HEFCE, 2005; Department for Education and Skills (DfES), 2003). E-learning is viewed having the potential to support the development of professionals that will ultimately contribute to the digital and knowledge based economy (DfES, 2003) and the flexibility and accessibility of such modes of delivery are seen as offering opportunities to meet lifelong learning and widening participation agendas (Scottish Executive, 1999; Department of Health (DH),1998,2000,2001; DfEE, 2003). Despite these national drivers it is clear that local interpretation and implementation differs. Whilst institutions had an e-learning strategy in place, its emphasis and impact varied. The early adopter sites were more driven to meet targets and expected levels of engagement, such as providing all module information online. In contrast the late adopter sites were not as target driven and wanted staff to opt in, '*we want to get people on board because they want to*'. This said, there was an expectation that students would use the e-learning materials on offer and they were encouraged to do this through policies that required them, for example, to check email weekly.

Both early adopter sites had a Centre for Excellence in Learning and Teaching (CETL) with a focus on e-learning. It is difficult to determine whether the existence of the CETL reflects previous standing or has enabled development. Most probably, a combination of both factors is evident, with existing expertise and development being aided further by the CETL. The CETLs have a role in developing aspects of e-learning and as part of the process they support local staff development through offering secondments and providing technical support. This commitment to staff development contrasts with many institutions where the lack of a centralised and local staff development programme is evident with only 56% of respondents stating that there was a Staff Development Unit to support staff development. Staff development relied upon Learning Technology Support Units (LTSU) in 40% of the respondents' organisations in creating new courses adding content and maintaining courses. Around a third (36%) noted that support for staff that wised to create web pages came from Central IT support. This reported lack of IT skill development resonates with international research that found only 48% of nurse educators perceived they had the necessary IT skills for their job (Ragneskog and Gerdner, 2006). Where staff IT skills are under-developed and a system of local or central development support is absence, there is a lack of ability and reluctance to engage with new technologies or challenge the existing provision. Staff use only a

proportion of the capabilities of VLEs and leave 'champions' to experiment with newer technologies.

For many students poor IT skills and lack of confidence in IT use affect engagement (Boyle and Wambach, 2001). This remains the case, though it is clear that the level of IT skills varies amongst student groups. The post-graduate students seemed confident in their use of IT, having had some formal preparation in computer use in previous degree courses. In contrast, those engaging in higher education for the first time, particularly mature learners, felt unprepared for computer use. They had difficulties with some key functions such as email use and looked to families and colleagues for support and guidance in e-learning. The training offered was often brief and based on online or paper packages rather than hands-on sessions. Whilst those more confident and skilled students require little more, it is apparent that a number of students would benefit for greater preparation in the use of e-learning. Students also complained that they were unaware of many of the resources available to the online.

E-learning has been criticised for being technology rather than pedagogy led, focussing on providing technologically driven materials without consideration of learner or educationalist needs (HEFCE, 2005). Technologies being discussed more recently include Web 2.0 social networking sites, wikis, weblogs (blogs) and podcasts. Web 2.0 websites allow users to not only retrieve information but to use the network as a platform and create and own the data (O'Reilly, 2005). This social software can support online reflection and interpersonal and community based interactions and knowledge sharing (Levy, 2005). We found that the VLE provides the mainstay of e-learning provision. VLE use is however limited to repository functions, with limited use of discussion forums. This picture supports previous research suggesting e-learning systems are still predominately used to provide digital information access and dissemination (Crook and Barrowcliff, 2001), including the provision of lecture notes, reading lists, journal articles and images (Levy, 2005). Interestingly, the students commented that interactive packages were used more frequently in bio-sciences and commented that this may reflect not just a commitment by the staff to develop e-learning but also acknowledged that the subject lends itself more readily to online delivery when compared to the social sciences where face-to-face contact can benefit learning. In previous research asking students which areas of the nursing curriculum might be delivered online it was suggested that biology would be an ideal area, given the scope to demonstrate anatomy and physiology through interactive and moving media (Moule and Gilchrist, 2001). There is limited use of Web 2.0 technologies to support pedagogy, though some of the early adopters are drawing on a wider range of social software and mobile technologies.

Whilst IT provision in the workplace is set to expand as part of the NHS Connecting for Health agenda (NHS, 2006) that recognises the importance of IT access to support patient and user care, current access is problematic for many. Both education staff and students reported difficulties in accessing computers in a number of healthcare and voluntary sector settings. These experiences are borne out by previous reports suggesting computing facilities are sparse, software capability is low and usernames and passwords may not be readily available to students, denying access to key

networks (E-Health Insider, 2005; Ward and Moule, 2006; Gerrish et al, 2006). This situation presents an obstacle to use and affects how e-learning is perceived by healthcare practitioners. Case study 4 in particular suggested that institutional development is guided by relevance to practice and learner engagement is aided if students are able to transfer learning and IT skills from one setting to another.

Whilst there are reports of students, staff and purchasers requesting e-learning in the data, this again varies. The late adopter sites suggest the purchasers didn't see e-learning development as a priority and the students and staff were content with the current provision. One late adopter site provided only post-registration courses and training to a relatively small number of students. This current position meets local need, demand and reflects the capacity and capability to develop e-learning. The resources needed to develop packages can be high and small providers would need to see benefits of investing in such work. However the position also fails to acknowledge the potential benefits of using e-learning for those who have full time jobs and hectic social and personal lives (Bates, 2001).

Many health science professionals fit into this category and will be looking to technology to provide access to necessary education, training materials and opportunities. Those new to the workforce may make particular demands on e-delivery given their exposure to technology based learning as part of their school education. Additionally, as technology use in the workplace increases, not just in support of patient and user care, but also in the provision of e-learning for statutory training as mentioned by some of the students, educational providers will be under pressure to develop e-learning. Indeed the Department for Education and Skills predicted in 2003 that within ten years effective learning would be impossible without access to e-learning (DfES, 2003). This suggests that educational providers in the health sciences will need to look at some of the ways in which they can engage in e-learning, though this is a complex issue and will need to consider many of the points raised in the following guidance for implementation.

8.3 Employment of e-learning within curricula representing a range of teaching models

E-learning was adopted when it was believed that its inclusion would enhance the student's learning and teaching experience. Staff strove to use e-learning to support pedagogy, often employing the VLE as a repository to allow student access to course information and learning materials. The students confirmed that their main engagement with e-leanring was to collect information, view power points, use email and access databases, particularly for literature retrieval.

Those students based on campus undertaking full time courses received the main e-learning support. For groups needing specialist input support was rather more variable and not available equally across all student groups. In the case of special needs, 56% of

respondents stated specialist support was needed, however only 32% gave specialist support to distance learners, 26% to off campus learners and 16% to part time learners.

A range of prepriorty VLEs were in use across the institutions, with some preferring open source learning environments. WebCT and Blackboard together dominate the market at 87.5%. A total of four users (16.7%) were using open source products. It was noted however that the main functions used were repository, with minimal engagement with the discussion boards and online classroom faciltities. The students did suggest that subjects such as biology were taught using online interactive learning tools and these worked well. A number of studies describe the advantages of animation and self-assessment exercises in physiology programmes, in addition to the benefit of self-paced learning (Lowry and Johnson, 1999; Macklin, 2000; Steele et al, 2002). Students felt that those subjects where more discussion might be needed, such as the social sciences, would perhaps be better taught in a face-to-face environment. This would suggest that perhaps the 'social elements' of the VLE are under-used if those subjects that might draw on such resources are not being delivered online. Additionally, there are some concerns that faciltiation online requires new skills to ensure effective engagement (Sargeant et al, 2006) and can be time consuming.

E-learning is also being used as part of blended learning approaches, where the knowledge base is very often provided through online materials, followed by a face-to-face discussion or skills session. Students are also asked to look at online materials before attending lectures and seminars.

The use of problem based learning approaches online provides one example where students may spend the majority of their learning time online. These can develop into online communities of practice with the student group working together to achieve agreed 'shared enterprise'(Moule, 2006).

Currently it is apparent that the repository elements of the VLE are in use, as are databases. Health sciences are therefore mainly drawing from the instructivist rungs of the e-learning ladder (Moule, 2007). There is minimal use of the constructivist learning approaches sited on the upper rungs. Students are accessing emails and will use discussion boards in some insitutions, but this is not the mainstay. Only a relatively small number of responders were using Web 2.0 technologies such as podcasting (32%), blogs (44%), wikis (28%) and virtual worlds (16%). There was limited general use and little enthusiasm to develop these. The area gaining most consideration for future use was the development of e-portfolios. These tools support student learning, allowing recording of the achievement of learning outcomes and collation of evidence of experience and achievement in practice (Gomez and Lush, 2006). Given that many health sciences students are on distance placements, the use of such e-portfoios can support the recording of learning and comments from the mentor (faciltitator of learning in the workplace) and the university lecturer, across different geographical regions. The use of e-portfolios would also offer an opportunity for use of constructivist e-learning (Gulati, 2006), where the stduent can develop their own reflections of workplace learning.

Some of the students gave examples of work based learning being faciltitated through e-learning delivery. These included the provision of statutory training materials online. The lack of computer facilitities and the difficulties of access through password protection in many clinical settings, also the technical barriers preventing free movement of information from one institution to another, makes the use of computers in the health care setting problematic for many, as has been highlighted in previous work (Gilchrist and Ward, 2006; Ward and Moule, 2007). Until these issues are addressed the use of e-learning to support work based learning will remain limited.

8.4 Learning approaches that work well include:

The respondents identified a range of resources that worked well in practice. These are listed below under the headings of administrative use, learning resources and interactive applications.

Administration and support: Turnitin, course information

Information gathering: e-journals

Learning resources: powerpoint and lecture notes,
CD Rom, Re-useable Learning Objects, podcasts, virtual patient,
statistics and maths, non-medical prescribing

Interactive applications: email, discussion board, video conferencing, Problem based learning, quizzes, structured formative assessment, biological sciences

8.5 Learning approaches that are less successful include:

Those applications that are thought to be less successful includes a range of administrative functions, learning resources and interactive applications.

Administration and support: interface between module programmes and VLE, health doesn't conform to university calendar, lack of lecturer engagement, technological limitations

Learning resources: large complex computer programmes, hands on practice modules, CDRoms too passive, solely text based content, powerpoints, without sound and animation

Interactive applications: wikis, chat facilities,

8.5.1 Limitations of the study

It should be acknowledged that this study is limited by the low initial survey response rate achieving a sample of 25 (28% response rate) and four case study sites. The findings do however highlight some important barriers and enablers that impact on the development and use of e-learning in the institutions.

8.6 Recommendations for practice

8.6.1 Guidance for e-learning implementation

Guidance for adoption includes identifying the kinds of strategic considerations for individuals and institutions wanting to use e-learning to support pedagogy in health sciences and practice.

These include:

- Development of institutional strategy for e-learning use taking cognizance of national policy and local context *(student composition, student size, range of curriculum, resources to support e-learning delivery, demand from key stakeholders, staff IT skills, student IT skills*)

- Development of a local level strategy for e-learning use (*review institutional strategy, student composition, student size, range of curriculum, resources to support e-learning delivery, demand from key stakeholders, staff IT skills, student IT skills*)

- The implementation of strategies may be aided by the inclusion of aims, targets, key roles, identifying resource base, monitoring and evaluation of effectiveness

- Review curriculum areas with all stakeholders (*staff, students, purchasers*) to identify potential areas of e-learning use

- Identify ways forward in provision:

    - development (*resources, champions, training needs, funding)*
    - purchase or access existing materials e.g. Reusable Learning Objects (*review process, suitability, funding*)
    - consider collaborative arrangements with other providers
    - consider the use of open source materials

- Provision of a central and local IT staff development programme

- Consider where staff might access more technical support for development e.g. local or central IT services

- Provision of a local IT student development programme that follows a survey of IT skill needs and provides targeted training

- Consider providing support materials for IT use on the web

- Provide students with key information on learning resources available within the institution and beyond

- Institutions developing IT materials to consider IPR, access, copyright and licensing issues to enable wider sharing

- Higher Education Academy Subject Centres to consider how the Centres of Excellence in Teaching and Learning with an e-learning focus might further support and develop late adopter sites and the wider HE community through materials and expertise.

9 Conclusions

This scoping survey of the use of e-learning in Health Sciences and Practice has revealed that development and use varies across the sector. Uptake of e-learning is influenced by a number of factors including the existence of central and local strategies for development, access to resources that include technical, financial and human, demand for innovation and a climate that supports experimentation and development. The mainstay of use is the VLE. Major proprietary brands dominate the field, with users rarely exploiting their full potential, but limiting use to certain features such as information provision rather than interactive and constructivist applications.

There are a number of barriers affecting the uptake of e-learning. These include a culture in which e-learning remains low priority and this is illustrated by a lack of funding, time, and support for development. Even when there are ‘champions’ keen to develop e-pedagogy the lack of demand for e-delivery from students, colleagues and those commissioning educational programmes inhibits innovation. Student demand may be inhibited by inconsistency in IT skills that prevents access and an apparent lack of availability of computers in the workplace, reducing relevance for practice.

Although there are wider debates around the technology leading the pedagogy the findings of this study would seem to challenge this view. Use of Web 2.0 technologies and other recent developments occur in isolation, rather than being mainstream. The main use sits within the bottom three rungs of the e-learning ladder (Moule, 2006) being mainly of instructivist rather than interactive and constructivist. Additionally, there was a commitment to using technologies to enhance the student learning experience, putting pedagogy at the forefront of development. This suggests that those developing e-learning will be considering the student learning experience as the main driver, rather than focusing on opportunities to engage in new technologies.

There is scope to engage late adopters in further appropriate work by establishing a support culture where e-learning practices and resources can be shared. Established centres of innovation have much to offer the broader sector, including their experience of operationalising strategy at institutional and individual levels; in addition to their expertise in e-learning development and use. A broader understanding of the barriers to, and potential benefits of, e-learning should support further its development and effective employment in health sciences and practice. The recommendations for practice identified above include some key considerations and actions for potential new adopters and those wanting to develop the use of e-learning in the field. Given these conclusions the field is ripe for future development and engagement in e-learning.

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12 Appendices

12.1 Appendix one –Questionnaire

Project Title: Scoping e-Learning; use and development in Health Sciences and Practice.

This study has been funded by The Higher Education Academy (HEA) Health Sciences and Practice (HS &P) and aims to:

- Conduct a comprehensive survey of e-learning implementation in HS& P disciplines.
- Explore factors influencing adoption and use, identifying drivers and barriers.
- Review the employment of e-learning within curricula that represent a range of teaching models.
- Identify, explore and compare cases from exemplars and late adopters to make explicit barriers to implementation and good practice.
- Make recommendations for future practice.

This questionnaire is being distributed to al HEIs known by the HS&P to be running courses in the relevant subject domains. It has been adapted, from a survey instrument used in 2003 and 2005 by the Joint Information Systems Committee (JISC) and Universities and Colleges Information Systems Association (UCISA) to look at the wider university environment for e-learning, for use in Health Science faculties.

The precise terms used may or may not reflect those used by your institution – don't worry, the aim of the survey is to look at the functionality of your systems, whatever they happen to be called. The research team are also interested in responses from institutions that have as yet done little or no work in these areas.

Completing the questionnaire

The questionnaire has been given to you as someone with an institution-wide perspective on the use of e-learning in HS&P. However, you may want to consult with colleagues on some of the more detailed questions. It can take about an hour to complete the questionnaire.

If you have any questions then please get in touch with the research team:
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Please return the completed questionnaire to Dr Pam Moule by **Friday 23 March 2007.**

Section 1: e-learning development

The first three sections of this questionnaire look at processes and environments in which e-learning takes place, in HS&P.

1.1 **There are many ways of organising the development of processes to support e-learning within HS&P. Which one of the following options <u>best</u> describes how you are <u>currently</u> organising developments in this area?** Please tick <u>one</u> only

Activity predominantly centralised in the HEI	☐
Devolved responsibilities to the Faculty/School/Dept within institution-wide initiative	☐
Departmental/local initiatives only with little or no integration	☐
Work planned, but not yet started	☐
No real work done in this area	☐ → go to section 2

1.2 **Listed below are possible <u>driving factors</u> for e-learning development and the environments and processes that support this. Which of those have been important in your Faculty/Dept/School to date?** Please indicate the importance of each of these by scoring each from 1 (not very important at all) to 5 (very important). If a factor is not relevant to your Faculty/Dept/School then simply enter 0

Enhancing the quality of learning and teaching in general	
Improving access to learning for part-time students	
Improving access to learning for students off campus	
Improving access to learning for overseas students	
Keeping abreast of educational developments	
Attracting home students	
Attracting EU students	
Attracting international (outside EU) students	
Attracting new markets	
Widening participation/inclusiveness	
Creating or improving competitive advantage	
Student expectations	
To help standardise across your institution	
Formation of partnerships with other institutions/organisations	
To help standardise your institution with others	
Developing the regional role of your institution	
Achieving cost/efficiency savings	
Improving administrative processes	
The Special Educational Needs and Disability Act 2001	
HEI/Faculty/School learning and teaching strategy	
External e-learning strategies e.g. NHS, HEA, JISC	
Other – please write in below and score	

…….

1.3 **Listed below are possible <u>supporting factors</u> for e-learning development and the environments and processes. Which of those have been important in your Faculty/Dept/School to date?** Please indicate the importance of each of these in your Faculty/Dept/School by scoring each from 1 (not very important at all) to 5 (very important). If a factor is not relevant to your Faculty/Dept/School then simply enter 0

Availability of <u>external</u> funding (e.g. JISC, HE funding councils, NHS)	
Availability of <u>internal</u> funding	
A committed local 'champion'	
Availability of relevant standards	
Technological changes/developments	
Other – please write in below and score	

……

1.4 **Which, if any, of the following groups of <u>staff</u> are <u>consulted</u> as your organisation develops its processes to support e-learning?** Please tick <u>all</u> that apply

Academic		
Administrative		
Learning Resources/Library		
IT Support		
Senior Managers		
Learning Technologists		
Other groups of staff		
Do not consult with any groups of staff – please write in why:		→ go to 1.6

……..

1.5 **Which <u>methods</u> of consultation with staff have you found work <u>best</u>?**
Please write in

1.6 **Which, if any, of the following groups of <u>students</u> are <u>consulted</u> as your organisation develops its processes to support e-learning?**
Please tick all that apply

Full-time campus based	
Part-time campus based	
Off-campus or distance/remote learners	
Overseas	
Other groups of students	
Do not consult with any groups of students – please write in why:	

……..

1.7 **Which <u>methods</u> of consultation with students have you found work <u>best</u>?**
Please write in

1.8 **Which <u>methods</u> of consultation with external partners have you found work <u>best</u>?** Please write in

1.9 **Collaboration with others may be one way of overcoming barriers to the development of processes to support e-learning. Do you have any plans to collaborate with any other organisations in the future?**

Yes ☐
No ☐ → go to 2.1

1.10 **With which organisations are you planning to collaborate and about what?**
Please write in

SECTION 2: e-LEARNING ENVIRONMENTS – CURRENT AND FUTURE DEVELOPMENTS

2.1 **Listed below are <u>functions</u> of processes, services and systems that support learning and teaching. To what extent will these systems, services and processes be developed or integrated in your Faculty/Dept/School currently, and to what extent do you want them to develop in the future?**

Please tick <u>one</u> of the 'Now' boxes for each of the functions (rows) below to indicate the likely position now; and one of the 'Aim' boxes to indicate your longer-term ambitions.

Recruitment / application (non UCAS)	Recruitment and application enquiries are by telephone with paper forms Now ☐ Aim ☐	Prospectus can be viewed and simple enquiries can be made online Now ☐ Aim ☐	Prospectus can be viewed and applications can be made online Now ☐ Aim ☐	Prospectus can be viewed, applications can be made and tracked online Now ☐ Aim ☐
Course enrolment	Course enrolment is through paper forms only Now ☐ Aim ☐	Enrolment for some courses can be done on-line Now ☐ Aim ☐	On-line enrolment available for the majority of courses Now ☐ Aim ☐	Students primarily enrol for courses on-line Now ☐ Aim ☐
Signing-on to access e-learning resources and environments	No e-learning resources Now ☐ Aim ☐	Students have to use multiple user names specific to each resource to access e-learning resources and environments Now ☐ Aim ☐	Students access e-learning resources and environments using many user names; some cover multiple resources Now ☐ Aim ☐	Students access all e-learning resources and environments directly using a single user name and password Now ☐ Aim ☐
Personalised access to e-learning and support resources	No personalised access to e-learning and support resources Now ☐ Aim ☐	Students have personalised access to some e-learning and support resources Now ☐ Aim ☐	Students have personalised access to many e-learning and support resources Now ☐ Aim ☐	Students have personalised access to all e-learning and support resources Now ☐ Aim ☐
Access to course descriptions and learning outcomes	Course descriptions and learning outcomes are accessible in paper format only Now ☐ Aim ☐	Course descriptions and learning outcomes are accessible in a mixture of on-line and paper formats Now ☐ Aim ☐	Course descriptions and learning outcomes all accessible on-line from different systems Now ☐ Aim ☐	Course descriptions and learning outcomes are available to students from a single entry point Now ☐ Aim ☐

Module selection (where applicable)	Choice of elective modules made using paper forms Now ☐ Aim ☐	Elective modules are chosen on-line by academic staff in discussion with students Now ☐ Aim ☐	Elective modules are chosen on-line by students with prior authorisation of academic or admin staff only Now ☐ Aim ☐	Students primarily choose elective modules on-line Now ☐ Aim ☐
Student access to library / learning resource centre (LRC)	Students have limited or no on-line access to the library catalogue Now ☐ Aim ☐	Students can access the library catalogue on-line. Separate access routes exist to individual components of the electronic resources collection Now ☐ Aim ☐	Students can access the library catalogue on-line. There is a separate gateway that provides access to all components of the electronic resources collection. Now ☐ Aim ☐	Students can access the library catalogue and electronic resources from one common interface Now ☐ Aim ☐
Support for users of library / LRC managed electronic learning resources	There are no electronic learning resources Now ☐ Aim ☐	On-line support is not available for users of electronic learning resources Now ☐ Aim ☐	Students can e-mail a helpdesk with general queries about locating and using electronic learning resources Now ☐ Aim ☐	On request, students receive on-line guidance and support from information professionals for their subject area Now ☐ Aim ☐
Student access to administrative data	Students cannot see personal admin data directly and have to request updates to be made by admin staff Now ☐ Aim ☐	Students can see some pertinent personal admin data on-line Now ☐ Aim ☐	Students can read on-line pertinent personal admin data and electronically request changes to be made Now ☐ Aim ☐	Students can read on-line pertinent personal admin data and can update appropriate selected fields Now ☐ Aim ☐
Fee payment	Fees paid manually with no link to access to services Now ☐ Aim ☐	Fees paid manually, with admin staff creating access to services upon payment Now ☐ Aim ☐	Students can pay fees on-line and can see the status of their account; access to services and facilities is set up by admin staff Now ☐ Aim ☐	Students can pay fees on-line, automatically creating access to the services and facilities they have just paid for and can see the status of their account Now ☐ Aim ☐

Accessibility of resources for students and staff with a wide range of access needs	On-line systems do not support a range of access needs Now ☐ Aim ☐	On-line systems support a limited range of access needs Now ☐ Aim ☐	Some on-line systems support a wide range of access needs Now ☐ Aim ☐	All on-line systems can be customised to support students with a wide range of access needs Now ☐ Aim ☐
Staff access to course administration	Access is set up for each member of staff individually Now ☐ Aim ☐	Access is semi-automatically set-up for staff for courses Now ☐ Aim ☐	Access for staff is automatically set-up for courses but roles need assigning manually Now ☐ Aim ☐	Staff are automatically provided with access to and authorisation for administering courses Now ☐ Aim ☐
Tracking of students' attendance	Attendance data is not tracked Now ☐ Aim ☐	Attendance data is tracked manually Now ☐ Aim ☐	Individual staff collect data on students' attendance on-line Now ☐ Aim ☐	Integrated attendance systems report students attendance leading to staff intervention where necessary Now ☐ Aim ☐
Monitoring of students' use of on-line resources	No on-line resources Now ☐ Aim ☐	Use of on-line resources not monitored Now ☐ Aim ☐	Individual staff can choose and are able to monitor students' use of on-line resources Now ☐ Aim ☐	Integrated systems report students' use of on-line resources, leading to staff intervention where necessary Now ☐ Aim ☐
Automated computer based assessment	No Computer Aided Assessments (CAA) available Now ☐ Aim ☐	Distributed or local CAA available but no integration Now ☐ Aim ☐	CAA available from a centralised server and integrated with VLE and student record systems Now ☐ Aim ☐	CAA available from a centralised server and integration conforms to IMS Specifications Now ☐ Aim ☐
Assessment results	Assessment results are not integrated into the on-line environment Now ☐ Aim ☐	Assessment results are re-entered to the student record system by admin staff Now ☐ Aim ☐	Assessment results are updated in the student record through an electronic link following off-line verification by tutor Now ☐ Aim ☐	Assessments results are automatically updated in the student record system with on-line verification by tutor Now ☐ Aim ☐

Staff access to management information	Some staff have no online access to institutional management information Now ☐ Aim ☐	Staff have online access to some strategic institutional management information Now ☐ Aim ☐	Staff have online access to strategic and operational management information Now ☐ Aim ☐	All staff have online access to strategic, operational and financial management information with data analysis Now ☐ Aim ☐
Personal development planning (PDP) process and e-portfolios	PDP process and portfolios only available in paper format Now ☐ Aim ☐	Process and portfolios can be viewed online but no PDP tools Now ☐ Aim ☐	Online access to PDP process and e-portfolios but in different systems Now ☐ Aim ☐	PDP tools, process and e-portfolios available from a single entry point Now ☐ Aim ☐
PDP transcripts	Transcripts only available in paper format Now ☐ Aim ☐	Transcripts can be viewed online Now ☐ Aim ☐	Transcripts can be accessed online Now ☐ Aim ☐	Transcript and PDP tools available from a single entry point Now ☐ Aim ☐
Curriculum development process	Staff have no online access to institutional quality, validation and course development documentation Now ☐ Aim ☐	Appropriate staff have online access to institutional quality and validation documentation but cannot update Now ☐ Aim ☐	Appropriate staff have online access to institutional quality and validation documentation and can update but no forums for discussion Now ☐ Aim ☐	Appropriate staff have online access to an institutional quality and validation documentation with facilities for update and discussion Now ☐ Aim ☐
Timetabling / scheduling / calendars	No online scheduling or institutional calendars Now ☐ Aim ☐	Institutional and departmental calendars and timetables can be viewed online but not updated Now ☐ Aim ☐	Institutional and departmental calendars and timetables available online with some tools for update Now ☐ Aim ☐	Institutional and departmental calendars and timetables available online through a single entry point with personal diary Now ☐ Aim ☐

Please write in any further relevant comments.

SECTION 3: FUTURE DEVELOPMENT OF PROCESSES TO SUPPORT e-LEARNING

Please note that the term Virtual Learning Environment (VLE) in the section encompasses any online system that directly supports learning and teaching. This may include an institutional intranet that has a learning and teaching component or a system that has been developed in-house.

3.1 **Does your Faculty/Dept/School currently use a virtual learning environment (VLE)?** Please tick one only

Yes ☐ → continue with 3.2
No ☐ → go to section 4

3.2 **What E-learning applications are used in your Faculty/Dept/School?** Please tick all that apply

Commercial products

Blackboard ☐
Colloquia ☐
FD Learning's le® ☐
FirstClass ☐
Lotus Domino ☐
Lotus Learning Space ☐
Lotus Librarian ☐
Merlin ☐
TekniCal Virtual Campus ☐
Top Class ☐
WebCT ☐
Other commercial VLE – please write in ☐

……

Commercial intranet based product – please write in ☐

……

Open Source

Bodington ☐
COSE ☐
Moodle ☐

Other

Other VLE – developed in-house ☐
Other intranet based – developed in-house ☐

Other – please write in ☐

……

3.3 **Has conformance/compliance to e-learning standards and specifications (e.g. SCORM, IMS content packaging, IMS, QTI) influenced your choice of E-learning applications?**

Yes	
No	

Please write in any comments

3.4 **How many <u>students</u> currently use E-learning applications in your Faculty/Dept/School?**

None	
499 or less	
500 – 999	
1000 – 1999	
2000 – 2999	
3000 – 4999	
5000 – 7499	
7500 – 9999	
10000 or more	
This information is not collected across the institution	

3.5 **And, how many <u>teaching staff</u> currently use E-learning applications in your Faculty/Dept/School?**

None	
9 or less	
10 – 29	
30 – 49	
50 – 99	
100 – 199	
200 – 299	
300 – 399	
400 or more	
This information is not collected across the institution	

3.6 **How many modules or units of study currently <u>actively</u> use E-learning applications in your Faculty/Dept/School?**

None	
9 or less	
10 – 29	
30 – 49	
50 – 99	

100 or more	
200 – 299	
300 – 399	
400 – 499	
500 or more	
This information is not collected across the institution	

3.7 **How many complete awards/programmes/courses are delivered entirely by e-learning?**

None	
9 or less	
10 – 29	
30 – 49	
50 – 99	
100 or more	
This information is not collected across the institution	

3.8 **How do all modules or units of study in the E-learning applications in use in your Faculty/Dept/School divide between the following categories?** Please enter a percentage figure in <u>each</u> of the categories below, using an estimate if needed

	%
Web supplemented, online participation is optional for the student	
Web dependent, participation required through interaction with content	
Web dependent, participation required through communication with staff/students	
Web dependent, participation required through interaction with content and communication	
Fully online course	

3.9 **For which of the following do you use your E-learning applications?** Please tick <u>all</u> that apply

e-assessment	
e-Portfolio	
Peer support	
Problem Based Learning	
Collaborative working	
Online student presentations (individual and group)	
Assignment submission	
Formative assessment	
Access to course material	
Access to multimedia resources, including simulations and games	

Access to web based resources	
Learning Design	
Access to course material	
Other – please write in	

…….

3.10 **What units are responsible for <u>installing and maintaining</u> the E-learning applications in your Faculty/Dept/School?** Please tick <u>all</u> that apply or write in the name of the unit responsible

Central Information Technology support	
Distributed Information Technology support	
Curriculum staff	
Vendor/external support	
Other – please write in	

…….

3.11 **How is e-learning application development supported or encouraged within your Faculty/Dept/School?**
Please tick <u>all</u> that apply

Funded as a service	
Project funding	
Allowing academic staff development time	
Allowing support staff development time	
Career enhancement	
Contractual obligation/part of job specification	
Other – please write in	

…….

e-learning application development not supported or encouraged	

3.12 **Moving on to consider the support offered to <u>staff</u>, which units across the Faculty/Dept/School provide staff development and support for use of e-learning applications?** Please tick <u>all</u> that apply in each column or write in the name of the unit responsible

	Staff development of learning and teaching use of e-learning applications	Support in creating new courses	Support in adding content and maintaining courses	Creating web pages
Central Information Technology support				
Distributed Information Technology support				
Learning Technology Support Unit (LTSU)				
Educational Development Unit (EDU)				
Staff Development Unit				
Dedicated VLE support				
Local				
Other – please write in ……..				

3.13 **What training and development activities are offered to support staff who help other staff in the use of e-learning applications?** Please tick <u>all</u> that apply

Regional seminars	
External training courses	
Internal staff development	
National conferences/seminars	
Regional Support Centre (RSC) events	
Association for Learning Technology (ALT) events	
Universities and Colleges Information Systems Association (UCISA) events	
Higher Education Academy (HEA) subject centre events	
Other – please write in	

…….

3.14 **And which units across the Faculty/Dept/School provide <u>student</u> support and training in the use of e-learning applications?** Please tick <u>all</u> that apply in each column or write in the name of the unit responsible

	Face to face training as part of course delivery	Face to face training as part of an IT skills induction	Printed guides	Information on Intranet/ Internet	Online training and support
Central Information Technology support /LIS					
Distributed Information Technology support					
Learning Technology Support Unit (LTSU)					
Educational Development Unit (EDU)					
Dedicated VLE support					
Local					
Academic staff					
Other – please write in ……					

3.15 **Do any of the following groups of <u>students</u> receive more focussed or specialised support and training in the use of e-learning applications?** Please tick any that apply and write in details of how the support or training offered is adapted for the group

Students with special needs ☐

……

Distance learners ☐

……

Off-campus learners ☐

……

Part-time learners ☐

……

Other group – please write in ☐

……

3.16 **Are you using any <u>mobile technologies</u> to <u>connect</u> to or support your e-learning applications?**
Please write in

3.17 **What portfolio/PDP systems, commercial or in-house, are used in your Faculty/Dept/School?**
Please tick <u>all</u> that apply

Vitaelity	☐
Folio/ePortado	☐
DfES Widening Horizons/3T	☐
iWebfolio	☐
Other commercial – please write in	☐

……

Other developed in-house – please write in	☐

…….

Section 4: learning implementation

4.1 **What e-learning technologies are in use in your Faculty/Dept/School?**
Please tick all that apply

CD Roms	
DVDs	
Discussion boards	
Wikis	
Blogs	
iPods	
SMS Texting	
email	
Mobile phones	
Online videos and sound	
Other – please write in	

…….

4.2 **Which subject areas and courses currently use e-learning applications?**
Please write in (include level of study eg MSc)

4.3 **Which subject areas and courses DO NOT currently use e-learning applications?**
Please write in (include level of study eg MSc)

4.4 **In your Faculty/Dept/School e-learning used to support?**
Please tick all that apply

Students on campus	
Students on placement	
Discussion boards	
Distance learning students off-site	
International students	
Other – please write in	

…….

4.5 **Can you give examples of learning materials or e-learning applications which work well and explain why?**
Please write in

4.6 **Can you give examples of learning materials or e-learning applications which DO NOT work well and explain why?**
Please write in

Section 5: portals

Portal is a network service that brings together diverse/distributed content and services into an amalgamated form for presentation to the user. The presentation is usually via a web browser and can be customised and personalised for the individual user.

5.1 **Does your Faculty/Dept/School have ……..**

An institutional portal ☐ → answer 5.2 – 5.4

Any other portal – please write in details of the portal and its functions ☐ → go to section 6

…….

…….

No portal ☐ → go to section 6

5.2 **Which of the following does your institutional portal provide?**
Please tick all that apply

A personalised single point of access to internal online resources	☐
A personalised single point of access to external online resources	☐
Access to local and remote 'information resources' (including books, journals, databases, web sites)?	☐
Access to transaction based services (room bookings, finance, and registration)?	☐
Access to collaborative tools (calendars, email, chat, discussion board)?	☐
Other – please write in	☐

…….

5.3 **Who has been responsible for the development of your institutional portal?**
Please tick all that apply

Central IT	☐
Central Administration	☐
Library/Learning Resource Centre	☐
Other – please write in	☐

…….

5.4 **Are you using any specific packages to develop your institutional portal?** Please write in the details of any packages you are using

Section 6: about yourself

6.1 **Please fill in the following details about yourself in case we need to contact you with any queries about the questionnaire**:

First name: ……..

Surname: ……..

Job title: ……..

Institution: ……..

Telephone number: ……

E-mail: ……

6.2 **Did you consult with anyone else to help complete the questionnaire?** Please write in the job titles of the individuals concerned and the sections you spoke to them about

6.3 **Would you be willing to be contacted again to help in this study? For example, we are going to complete more detailed case studies with a small number of Faculty/Dept/Schools in Phase 2 of this study.** Please tick all that apply

Yes – willing to clarify answers	☐
Yes – willing to answer extra questions	☐
Yes – willing to discuss being a case study	☐
Not sure – it depends, but by all means contact me to discuss	☐
No – would rather not be contacted again	☐

THANK YOU VERY MUCH FOR YOUR HELP IN COMPLETING THIS QUESTIONNAIRE
PLEASE NOW RETURN IT TO THE RESEARCH TEAM AT THE FOLLOWING ADDRESS:

Dr Pam Moule
Faculty of Health and Social Care,
University of the West of England,
Glenside Campus
Blackberry Hill,
Stapleton,
Bristol, BS16 1DD

12.2 Appendix two - Features associated with early and late adopter HEIs

From the questionnaire data, the following characteristics helped to identify early adopters:

Q 1.2.7 Used to attract EU students

Q 1.2.8 Used to attract international students

Q 1.2.9 Used to attract new markets

Q 1.2.17-18 Primary reasons for adoption not related to improving administrative processes or achieving cost-efficiency savings

Q 3.4 Larger numbers of staff and students using e-learning applications

Q 3.6 More modules currently using e-learning applications

Q 3.7 More complete awards/programmes/courses delivered entirely by e-learning

Q 3.8 Using e-learning applications in more complex ways e.g. fully online course, students required to engage

Q 3.9 More types of e-learning applications

Q 3.13.3 b/c LTSU supporting course development and maintenance

Q 3.13.7 a-d Local support for staff development, courses etc

Q 3.13.8 a-d Other support provided

Q 4.1 Use of more innovative applications and mobile technology

Q 4.4.5 Used to support international students

12.3 Appendix three – List of responding HEIs in Phase 1

NB one anonymous

HEIs which completed the survey in Phase 1

Aberdeen
Bedfordshire
Bolton
Buckingham
Canterbury Christ Church
Central Lancashire
Coventry
Glasgow
Keele (x2)
Kings College London
Northampton
Northumbria
Nottingham
Plymouth
Queen Margaret University
Reading
Robert Gordon
Royal Free and University College London (Medical School)
Sheffield
Suffolk College
Sunderland
Teeside
Winchester

12.4 Appendix four – Interview schedules

Project Title: Scoping e-Learning; use and development in Health Sciences and Practice.

Suggested Interview questions- Phase 2

Student questions:

Do you use any sort of e-learning in your course? If so, can you tell us what you use?

Was there any preparation to use e-learning in your course?

Could you tell us about any difficulties you have in using e-learning?

Are there any particular advantages to using e-learning?

Do you have any ideas about how e-learning might be developed?

Staff questions:

Could you give us some examples of e-learning use in the curriculum?

Could you tell us which e-technologies are used to support HS and P?

Can you tell us about any barriers to e-learning implementation? How might these be overcome?

Can you tell us about any advantages of using e-learning?

How did your faculty/ school/ department prepare itself for e-learning development and use?

Is there an e-learning policy / strategy in place? How is this implemented?

How does the university fund its use of technology in learning?

12.5 Appendix five - Technologies in use

Administrative tools – examples include putting timetables onto web sites

Audacity - a free digital audio editor application. Audacity is cross-platform, software library to provide a similar graphical user interface on several different operating systems.

Discussion boards – (also known as **Internet for a) are** web applications for holding discussions and posting user generated content. Messages within these sub-forums are then displayed either in chronological order or as threaded discussions.

Electronic Submission – a system whereby word processed documents can be submitted to the university electronically via web based forms.

Eportfolio - eg **Pebble Pad** a collection of electronic evidence assembled and managed by a user, usually on the Web. Such electronic evidence may include inputted text, electronic files such as Microsoft Word and Adobe PDF files, images, multimedia, blog entries, and hyperlinks. E-portfolios are both demonstrations of the user's abilities and platforms for self-expression, and, if they are online, they can be maintained dynamically over time. Some e-portfolio applications permit varying degrees of audience access, so the same portfolio might be used for multiple purposes.

Course genie - runs from within Microsoft Word as an add-on to that application so many of the formatting skills of Word can be used to create web pages. Each of the package resources is linked to the central web file created automatically by Word so learners can read materials, view presentations, search the internet or take quizzes.

Literature searching – electronic databases which enable students to search for publications using keywords, date limits etc Databases include; Medline, CINAHL, EMBASE, BNI, Psychinfo etc and the major suppliers include OVID and Silverplatter – often authenticated through the Athens system.

Mobile technologies – include mobile phones and hand held computers (PDAs) enable, voice, text, image, video or audio (or some combination of them) without connection to telephone or computer networks.

Penfield Virtual Hospital - a computer-based learning tool for health care professionals that simulates the care context for patients within the environmental context of a General Hospital. See http://www.hud.ac.uk/hhs/departments/nursing/penfield_site/default.htm

Plagiarism detection – systems to compare students word processed work with previously submitted materials and text available on the Internet. The most used is **TurnItIn** see http://turnitin.com/ which has been made available through the JISC Plagiarism detection service http://www.jiscpas.ac.uk/

Podcast - a collection of digital media files which is distributed over the Internet using syndication feeds for playback on portable media players and personal computers. Being used for some lectures and distribution of other audio materials.

Repository - a place where data are stored and maintained. In academic publishing, it can be a virtual facility for the deposit of academic publications, such as academic journal articles, but can also be used for storing **Reusable Learning Objects**, digital images, videos and sound files or other computer based objects.

Reusable Learning Objects - A digital, self-contained, reusable entity with a clear learning aim that contains internal changing and editable components: content, instructional activities (learning activities), and context elements. As a complement, the learning object should have an external component of information which helps its identification, storage, and recovery: the metadata.

Smartboards - a large, touch-controlled screen that works with a projector and a computer. The projector throws the computer's desktop image onto the interactive whiteboard, which acts as both a monitor and an input device. Users can write on the interactive whiteboard in digital ink or use a finger to control computer applications by pointing, clicking and dragging, just as with a desktop mouse.

Synchronous web based communication - eg chat rooms: a way of communicating by sending text messages to people in the same chat-room in real-time. Video conferencing: a set of interactive telecommunication technologies which allow two or more locations to interact via two-way video and audio transmissions simultaneously.

Video capture - can be used to record lectures or other learning opportunities. The recorded video in digital format can be distributed via the Internet, sometimes within **Virtual Learning Environments**.

Virtual Learning Environment - a software system designed to help teachers by facilitating the management of educational courses for their students. Can include lecture notes, PowerPoint presentations etc. The most commonly used in UK higher education are **Blackboard** and **WebCT** which have recently become one company. An open source alternative is **Moodle**.

Wiki - a software engine that allows users to create, edit, and link web pages easily. Wikis are often used to create collaborative websites and to power community websites. A wiki enables documents to be written collaboratively, in a simple markup language using a web browser.