

ENHANCING LEARNING AND TEACHING THROUGH TECHNOLOGY: A STRATEGY FOR HIGHER EDUCATION IN WALES

INTRODUCTION

- 1 This consultation document outlines a ten year strategy for the enhancement of learning and teaching through technology for higher education (HE) in Wales from 2007/08-2017/18.
- 2 This strategy was developed in consultation with the E-learning subgroup (ELSG) of HEFCW's Learning and Teaching Committee. Membership of the ELSG is available at **Annex A**.
- 3 Rather than refer to e-learning the ELSG has opted to emphasise the enhancement of learning and teaching facilitated and supported by the use of information and communications technology (ICT). In short form we shall refer to this as *technology-enhanced learning*. The strategy focuses on the enhancement of provision and ownership of the strategy by the sector.
- 4 The strategy aims to support Welsh Higher Education Institutions (HEIs) in embracing new technology and identifying how its application can further enhance teaching, learning and the overall student experience.
- 5 HEIs, further education institutions (FEIs) offering HE provision, students' unions and specialist bodies or groups with interests in learning technology are invited to comment on this strategy. Individuals attending our consultation event on 13 November 2007 will also be able to contribute their views. Responses are requested by **30 November 2007** using the form at **Annex B**. The responses to the consultation on this document will inform the final version of the strategy, which will be published in April 2008.

BACKGROUND

- 6 In January 2007 HEFCW published a consultation on the Statement of the Position of E-Learning in Higher Education in Wales (Circular W07/03HE). This was also developed in consultation with the ELSG. The outcome of that consultation is available at **Annex C**.
- 7 That consultation provided us with a broad perspective of issues facing the sector with regards to the enhancement of learning through use of technology in HE in Wales. This included drivers, barriers, priorities and collaboration issues. We have, with the ELSG, used the Statement of the Position of E-Learning in Higher Education in Wales and considered responses received to the consultation on that document in developing this strategy.

- 8 We support the view that institutions' policies should create conditions in which technology-enhanced learning will come to be considered a normal part of the mainstream provision, processes and practice of the institution, rather than being distinct from other forms of learning and teaching. Consequently, we believe in the benefits of seeking to normalise the use of technology within learning, teaching, assessment, the curriculum, strategic planning and other core processes in order to achieve their enhancement. We anticipate that your development of technology-enhanced learning will be informed by the teaching and learning aims both of your institution and the HE sector as a whole, including the Open University. It will therefore be subject to mainstream quality assurance procedures, while contributing to the general objectives identified in your Learning and Teaching Strategy.

OBJECTIVES OF STRATEGY

- 9 This strategy aims to support and encourage institutions in taking up the opportunities provided by technology, and to help create the conditions for the achievement of:
- the enhancement of learning, teaching, assessment, the curriculum and core processes;
 - the optimum learning experience, with an established threshold, based on robust technology, including encouraging developments at the forefront of this provision;
 - enhanced flexibility and accessibility of provision, including facilitating Welsh medium learning and addressing equality and diversity issues;
 - the effective dissemination and sharing of current and good practice, within Wales, the UK, Europe and globally, to facilitate the maintenance of competitiveness of Welsh institutions;
 - the ownership of the strategy by the sector.
- 10 Through this strategy we aim to accelerate the shift from 'pockets of innovation' to the mainstreaming of learning and teaching provision, processes and practice. We also aim to support those institutions which are at the vanguard of technology-enhanced learning in maintaining their momentum in this rapidly evolving area.

DEFINITION AND SCOPE

- 11 This strategy emphasises enhancement and mainstreaming, rather than e-learning *per se*, and we believe these concepts are sustainable over its ten-year span, even given the rapid pace of development of technology and its applications. Our focus has been informed by extending the Joint Information Systems Committee (JISC) definition of e-learning to read '*learning facilitated, supported and enhanced through the use of information and communications technology (ICT)*' (<http://www.jisc.ac.uk/whatwedo/themes/elearning.aspx>), which places emphasis on supporting and enhancing learning rather than on technology. It also

avoids the word 'deliver', which might lead to perceptions that the strategy refers only to distance learning. We recognise that you may wish to use other definitions, or no definition, to fit your individual mission and application of technology-enhanced learning. We also recognise that any application of technology must be pedagogically appropriate.

- 12 Through this strategy we encompass blended, mobile and distance learning, in addition to the wide range of learning and teaching activities which may be supported by technology. We also include enhancements to learning which utilise technology in its wider sense, including new technologies which are not yet known, and not limited to ICT.

ROLE OF COUNCIL

- 13 We recognise that ownership of and responsibility for learning and teaching rest with institutions. We will therefore only intervene where we add value, particularly when the 'public good' benefit of a 'centralised' intervention offers greater benefit than distributed action by individual institutions. We recognise the drivers for and barriers to technology-enhanced learning that you experience, as identified through the consultation in Circular W07/03HE (**Annex C**), and that these impact on the mainstreaming of technology-enhanced learning.
- 14 We provide a core teaching grant for institutions and also fund learning and teaching strategies. Given the role technology can play in supporting and enhancing the learning and teaching experience, we anticipate that you may wish to utilise some of this funding to support technology-enhanced learning. This may involve recognition of where technology can provide added value for money. You may also wish to include technology-enhanced learning within your plans for future allocations of capital funding for learning and teaching and IT infrastructure.
- 15 We will support, influence and draw on the expertise of UK-wide agencies such as:
 - the JISC - The JISC's aim is to provide world-class leadership in the innovative use of ICT to support education and research;
 - the Higher Education Academy (HE Academy) - The mission of the HE Academy is to help institutions, discipline groups and all staff to provide the best possible learning experience for their students. An important component of that experience is the use of technology and the Academy plays a key role both in researching its use and supporting the application of technology to learning in UK higher education. The Academy is undertaking a benchmarking exercise across the UK of current e-learning practice, in partnership with JISC. The Academy Subject centres also play a key role in regard to the application of e-learning in specific disciplines;
 - we part-fund the Welsh Video Network (WVN), which distributes and supports videoconferencing studios and other video facilities to

all Further Education and Higher Education Institutions throughout Wales.

We will consider whether other partners could appropriately be added to those listed above. We encourage you to analyse the use you are gaining from these HEFCW-funded resources and to maximise your utilisation of them.

- 16 We will encourage you to share current and good practice and to mainstream this within learning, teaching and the curriculum. We have addressed this to date through promoting your participation in the UK e-learning benchmarking exercise, led by the HE Academy in partnership with the JISC, which facilitates capacity/capability analysis and enhancement at institutional level. We will provide opportunities for all Welsh HEIs, including those which have not engaged in benchmarking to date, to share current and good practices and build on the outcomes of the benchmarking project in order to advance the normalisation of technology-enhanced learning. This will also facilitate identification of an established threshold for the optimum student learning experience. In addition, we will work with our partners regarding the specific needs of HE provided in FEIs.
- 17 We will provide some additional funding to support technology-enhanced learning developments and contribute to transformational change. We will publish details of this funding and its distribution at a later date.
- 18 We will exploit the benefits of SuperJANET5, the all-Wales broadband network and emerging technologies to meet the evolving needs for teaching and learning in Wales (eg real-time multimedia applications).

THE STRATEGY

- 19 We aim to support and encourage you in achieving the enhancement of learning through the use of technology, and to facilitate change. In order to achieve this the strategy comprises the following:

Enhancement of Learning, Teaching, Assessment, the Curriculum and Core Processes

- 20 **Emphasising learning rather than technology**
This strategy focuses on how the use of technology can enhance learning, teaching and the overall student experience. The emphasis is therefore on learning, rather than on technology. It recognises that changes are taking place with regards to how students learn, which may require new approaches to staff and student support, and that any use of technology must be pedagogically appropriate. The strategy acknowledges the role which technology plays in the management of student learning via, for example, Virtual Learning Environments (VLEs). It specifically emphasises the pedagogic opportunities afforded by new technologies in terms of actively participating in, developing, identifying,

and using the range and type of learning activities that will engage students in collaborative work and social networking as well as supporting them in their individual reflective and research activities.

21 Mainstreaming the role of technology in enhancing learning, teaching and the curriculum

We want to support you in enhancing the learning experience for students and the teaching experience of staff by building the capacity and capability of your institution to a point where informed use and application of technology to provide a high quality experience has become the norm. We encourage you to use the range of funding we provide (see para 14), including that provided specifically to support technology-enhanced learning (see para 17), and the expertise which we fund (see para 15) to help you achieve these objectives.

22 Staff development

We believe your staff development programmes are crucial in helping to maintain the currency of knowledge and skills of your staff, including: appreciation of the potential benefits of technology; pedagogical issues relating to technology-enhanced learning; use of technology to support teaching; skills in effective use of technology to support teaching and learning; and learning and quality indicators in effective use of technology to support and enhance learning. We also wish to support you in encouraging innovation and ensuring that available resources are used to best advantage. The UK Professional Standards Framework, developed by the Academy on behalf of Universities UK (UUK), GuildHE and the funding councils, is a means by which you may wish to recognise and reward excellent teaching, including utilising technology to enhance learning.

23 Normalising the role of technology within other core processes

We wish to support you in achieving a position where it is unremarkable to enhance processes such as student selection, enrolment and assessment, which are core to your business, through the use of technology. We realise that this may require collaboration between traditionally separate functions and roles and may also have an impact on the form and function of learning spaces. There have been initiatives to use e-assessment for summative as well as formative purposes, an area that is likely to develop further over the duration of this strategy. We recognise that among your concerns will be the need to have robust technology and system interoperability for the learning platform, plus administrative and learning support to facilitate the mainstream use of technology to enhance core processes.

The Optimum Learning Experience

24 Supporting the learning experience

We wish to support you in using technology to enhance the learning experience regardless of location of delivery, but designed with the delivery location in mind, including campus, home and the workplace. This will increase the flexibility and accessibility of provision (see para

28). We recognise the diversity of the HE sector and that each institution will thus wish to adopt an individual approach to technology-enhanced learning which supports its mission and markets.

25 Research

We encourage you to carry out research to: provide evidence for developments and changes and informing decisions, including in relation to Welsh medium and bilingual education; investigate the development of technologies to support a variety of learning styles and pedagogies; determine the importance of technology in enhancing learning and teaching; and evaluate the impact of technology on learning and teaching.

26 Maintaining competitiveness

We recognise the role technology-enhanced learning may play in ensuring that HEIs in Wales maintain competitiveness in the global marketplace. Through this strategy we aim to encourage you to utilise technology to support and enhance your institution's mission and remain competitive. We advocate collaboration and networking at local, European, and international levels in order to maintain awareness of new developments in technology, facilitate their application where applicable, and provide the optimum learning experience for students.

27 Benchmarking provision

We believe it is important to analyse your institution's capacity and capability to determine the effectiveness with which technology is supporting and enhancing learning provision, processes and practice. The Academy-led e-learning benchmarking exercise is building a significant network of UK institutions who have undertaken this process and you are encouraged to build relationships with these institutions or discipline areas in order to benefit from any ongoing activities in this area. We believe insights from participating in, or periodically repeating, such an exercise will help your institution to maintain its competitiveness.

Enhanced flexibility and accessibility of provision

28 Increased flexibility and accessibility

This strategy acknowledges that the use of technology can increase accessibility and flexibility of learning and support resources, help to address equality and diversity issues, and foster lifelong learning. This includes identifying how the use of technology can assist in strengthening and enhancing the Welsh medium and bilingual agenda. Such use will support the lifelong learning agenda as well as the principles cited in the final report of the Leitch Review (2006).

Effective Dissemination and Sharing of Current and Good Practice

29 Strategic collaboration

We encourage strategic collaboration between institutions where it can add value, including sharing learning resources if appropriate. We have provided funding for such collaboration, to include technological initiatives, through our Reconfiguration and Collaboration Fund and our

Strategic Development Fund (see www.hefcw.ac.uk for more details).

Ownership

30 Ownership of the strategy

The final objective of this Strategy is to ensure that Welsh HE institutions, individually and collectively, 'own' this Strategy so that it supports the sector's ambitions and helps to drive the mainstreaming of the use and application of technology to enhance learning and teaching. In order to achieve this we carried out the consultation in Circular W07/03HE (**Annex C**), we are holding a consultation conference on 13 November 2007, and we are consulting on this document to inform the development of the final version of the strategy. We anticipate that you will wish to integrate and align this strategy with your strategic planning in addition to learning and teaching and other appropriate strategies, in order to ensure that institutional structures and processes act as enablers to such normalisation. We do not require the development of separate strategies for e-learning or technology-enhanced learning, although you may wish to consider how you may best raise the internal profile of the use of technology to enhance teaching and learning. We encourage you to address the issues emerging in this strategy in accordance with your institution's mission.

HOLISTIC APPROACH

31 We anticipate that you will wish to consider the use of technology in a holistic manner in order to make connections with institutional strategic planning and other internal strategies, particularly your Learning and Teaching Strategy (see para 34). Other strategies include:

- Widening Access Strategy;
- Third Mission Strategy;
- Welsh medium Strategy.

32 You may also wish to consider the role of technology in relation to other issues, including:

- Accessibility and Flexibility
- Equality and Diversity
- Work-based learning
- Welsh Medium provision
- HE-FE links
- Research priorities
- Internationalisation.

HOW WILL WE KNOW WHEN WE HAVE ACHIEVED OUR GOAL?

33 Indicators of success which we will use to determine whether the stated objectives have been achieved broadly across the sector in Wales cover many of those determined through the consultation on Circular W07/03HE. We acknowledge that a consequence of embedding

technologies into everyday operations of your institution is that the impact of technology may not always be easily measurable in the achievement of these objectives, because the focus is the enhancement of the learning experience rather than the availability of technology *per se*. It is for this reason we have used the term 'indicators' rather than 'measures'.

- 34 We invite you to report on how you have enhanced learning in the previous year through the use of technology, and how you expect to do so in the next year, through the annual monitoring statements on your learning and teaching strategy.
- 35 We anticipate that you will achieve the indicators of success through use of the core teaching grant, learning and teaching strategy funding, and capital funding allocations as appropriate (para 14), in addition to the additional funding provided by us to support this strategy (para 17).
- 36 Indicators of success which we will use include the following short term targets, which we anticipate institutions will have achieved by 2010/11, with appropriate quantitative and/or qualitative evidence:

Enhancement of learning, teaching, assessment, the curriculum and core processes;

- (i) Institutional strategies and strategic planning are considered in a holistic manner and include the use and application of technology where relevant;
- (ii) Senior management support for the use of technology to enhance the learning and teaching experience is evident;
- (iii) Staff are provided with support, guidance, development and excellence recognition to facilitate their expertise and continuous improvement in delivering a quality learning experience to students;

The optimum learning experience

- (iv) Students and teaching staff make informed and appropriate decisions about when and how to use technology to support and enhance learning and achieve potential efficiencies;

Enhanced flexibility and accessibility of provision

- (v) Students are able to communicate, gain support, and access information regardless of their location;

Effective dissemination and sharing of current and good practice

- (vi) Staff and students are widely aware of the opportunities provided by technologies and provide positive feedback on their use;

Ownership

- (vii) Institutions have ownership of this Strategy.

- 37 We have also identified longer term indicators of success. We anticipate that you will have achieved all of the longer term indicators of success

identified which are appropriate to your market and mission by 2017/18, and will have identified relevant qualitative and quantitative evidence.

Enhancement of learning, teaching, assessment, the curriculum and core processes;

- (i) Technology is used appropriately to strengthen and enhance the Welsh medium, bilingual and lifelong learning agendas, including facilitating student progression from school and FE to HE;

The optimum learning experience

- (ii) Technology is used to maintain competitiveness;
- (iii) Capacity and capability to support and enhance learning and teaching using technology has been analysed periodically by benchmarking provision with other Welsh and UK institutions;
- (iv) Research is being carried out in the field of technology-enhanced learning, particularly where it supports institutions' individual missions;

Enhanced flexibility and accessibility of provision

- (v) There is flexible and accessible delivery of programmes with measurable impacts on recruitment, retention and student success;

Effective dissemination and sharing of current and good practice

- (vi) Increased collaboration has been noted within and between institutions in Wales, the UK and globally, resulting in added value for students and/or institutions, including sharing learning resources if appropriate;

REVIEWING THE STRATEGY

- 38 The nature of technology means that developments in this field are rapid. We will therefore review this strategy three years after the publication of the final document, ie in 2010/11. The annual monitoring statements for learning and teaching strategies will form part of the review process. In reviewing this strategy we will reconsider the objectives and indicators of success in order to reflect further developments in the use of technology in enhancing the learning and teaching experience.

QUESTIONS FOR CONSULTATION

- 39 HEIs and other stakeholders are invited to comment on this draft Strategy. You are invited to discuss some or all of the following questions in your response.
 - (i) Do you agree with the stated strategy?

- (ii) Do you agree with the stated objectives?
 - (iii) Can you think of any additional objectives that the strategy should have?
 - (iv) Is there any other role you think we could play in helping to mainstream the use of technology?
 - (v) Can you think of any other elements which should be included within the strategy?
 - (vi) Are there any other appropriate measurable indicators by which we will know if we have achieved our goal?
 - (vii) Are there any other means, in addition to those described in para 30, which we might utilise to enhance ownership of this strategy by the sector?
 - (viii) Do you have any other comments or suggestions?
- 40 Responses to this circular are invited by **30 November 2007**, using the form at **Annex B**. Please address your responses to Dr Cliona O'Neill, Senior Learning and Teaching Manager, here at the Council's offices.

REFERENCES

Leitch Review of Skills. 2006. Prosperity for all in the global economy - world class skills, Her Majesty's Stationery Office, Norwich.

ANNEX A

Membership of the E-Learning Subgroup of HEFCW's Learning and Teaching Committee

MEMBERS

Professor Robert Pearce (Chair)	Higher Education Wales
Lawrence Hamburg/Derek Morrison	Higher Education Academy (HE Academy)
Frances Good	Higher Education Funding Council for Wales (HEFCW)
Karen Jones	Higher Education Wales
Paul Bailey/David Kernohan	Joint Information Systems Committee (JISC)
Peter Scott/Lis Parcell	JISC Regional Support Centre (RSC) Wales
Mike Cole	National Leadership and Innovations Agency for Healthcare (NLIAH)
Professor Paul Clarke	Open University
Janet Peters	Wales Higher Education Libraries Forum (WHELP)
Christine Major	Welsh Assembly Government

IN ATTENDANCE

Celia Hunt	Head of Learning and Teaching, HEFCW
Dr Cliona O'Neill (Secretary)	Senior Learning and Teaching Manager, HEFCW

ANNEX B

Response form for Circular W07/42HE 'Enhancing Learning and Teaching Through Technology: A Strategy for Higher Education in Wales.'

This form is available electronically with the main document at www.hefcw.ac.uk under Publications/Circulars. Completed forms should be e-mailed to cliona.oneill@hefcw.ac.uk no later than **30 November 2007**.

Higher Education Institutions, further education institutions offering HE provision, students' unions and specialist bodies or groups with interests in learning technology are invited to comment on this strategy.

All responses may be disclosed on request, under the terms of the Freedom of Information Act. The Act gives a public right of access to any information held by a public authority, in this case HEFCW. This includes information provided in response to consultations. We have a responsibility to decide whether any responses, including information about your identity, should be made public or treated as confidential. We can refuse to disclose information only in exceptional circumstances. This means responses to this consultation are unlikely to be treated as confidential except in very particular circumstances. Further information about the Act is available at www.informationcommissioner.gov.uk

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Questions from Circular W07/42HE ‘Enhancing Learning and Teaching Through Technology: A Strategy for Higher Education in Wales.’

You are invited to discuss some or all of the following questions in your response.

(i) Do you agree with the stated strategy?

(ii) Do you agree with the stated objectives?

(iii) Can you think of any additional objectives that the strategy should have?

(iv) Is there any other role you think we could play in helping to mainstream the use of technology?

(v) Can you think of any other elements which should be included within the strategy?

(vi) Are there any other appropriate measurable indicators by which we will know if we have achieved our goal?

(vii) Are there are other means, in addition to those described in para 30, which we might utilise to enhance ownership of this strategy by the sector?

(viii) Do you have any other comments or suggestions?

ANNEX C

OUTCOME OF CONSULTATION ON THE STATEMENT OF THE POSITION OF E-LEARNING IN HIGHER EDUCATION IN WALES, CIRCULAR W07/03HE

INTRODUCTION

- 1 Circular W07/03HE provided a consultation on the *Statement of the position of e-Learning in higher education in Wales*.
- 2 Seventeen responses were received to this consultation, of which sixteen were from organisations and one from an individual. The list of respondents is attached at **Annex D**. The composition of responses was as follows:
 - 11 Higher Education Institutions;
 - 2 Further Education Institutions;
 - 3 specialist bodies;
 - 1 individual response.
- 3 The E-learning subgroup (ELSG) of HEFCW's Learning and Teaching Committee (LTC) considered these responses and discussed the way in which they could inform the statement. The principal points emerging from the consultation are summarised below.

SUMMARY

- 4 Broadly speaking, respondents agreed that the statement of position was both an accurate and a fair reflection. Issues raised by respondents are brought to your attention through this circular.
- 5 A range of definitions of e-learning was provided. Not all respondents used a formal definition. The overview was that the emphasis should be on learning rather than technology, with e-learning being part of a pedagogically informed use of technology to enhance the learning experience.
- 6 A number of priorities for future developments in e-learning was identified, the most frequently cited being staff development, collaboration and research.
- 7 Drivers for e-learning most frequently reported by respondents included accessibility and flexibility, students, staff and institutional drivers.
- 8 Barriers most often cited by respondents included staff development, availability of funding and resources and staff time.
- 9 Collaboration was noted by respondents to occur both within and between institutions, within Wales, the UK and globally. A range of collaborative activities was cited.
- 10 Measures of success identified by respondents were broadly similar to those identified in the original statement of position, although some additional measures were identified.

- 11 The outcomes of this consultation have been used to inform the development of the e-learning strategy consultation document.

ACCURACY AND FAIRNESS OF THE STATEMENT

- 12 Broadly speaking, respondents agreed that the statement of position provided an accurate and a fair reflection of the practices being carried out in the experience of respondents, with 12 responses in agreement. Three responses stated that the e-learning statement was outdated or reflected a limited perspective of how e-learning has been viewed. These responses acknowledged that, whilst the statement captured many of the developmental activities in institutions, it did not appear to engage with more recent developments in institutional approaches to enhancing learning and teaching through use of technology. Two responses did not state an opinion on this matter. Additional suggestions made by respondents regarding the accuracy and fairness of the statement are available at **Annex E**.

DEFINITION OF E-LEARNING

- 13 Respondents offered opinions on definitions, but only four institutional responses indicated use of a formal definition. One defined e-learning as '*the pedagogically-informed use of technology to enhance learning, as opposed to the use of technology in learning per se*'. Another used a definition of '*any systematic use of new technologies to support, enhance and deliver learning and teaching*.' One used the ELWa definition, which defined e-learning as '*the use of electronic technology to support, enhance or deliver learning*,' and the fourth respondent did not provide the definition used. A fifth respondent used a definition for blended learning.
- 14 Six respondents specifically stated that no formal definition of e-learning was used. Two noted that this was strategic, in order to ensure that e-learning was not treated separately to '*normal*' pedagogy, and to ensure that perceptions regarding e-learning were not restricted. One stated that it would '*probably define it as the delivery of learning that was traditionally classed as distance learning, via electronic means*.' The remaining institutional respondents indicated the definitions they favoured, but did not specifically indicate whether a definition was used by the institution. One specialist body did not use a definition, but defined learning technology as '*the broad range of communication, information and related technologies that can be used to support learning, teaching, and assessment*'.
- 15 Five respondents reported that the ELWa definition was applicable (see para 13), although only one respondent indicated that it had been formally adopted.
- 16 Two respondents, including a specialist body, cited the JISC E-Learning Programme definition '*learning facilitated and supported through the use of information and communications technology (ICT)*'. This stresses the importance of learning and avoids the word 'deliver', which one respondent noted might be perceived as '*carrying outdated connotations of a content-driven model of e-learning*'.
- 17 One respondent favoured the term 'technology enhanced learning' and used the European Union definition '*the use of the new multimedia technologies and the*

Internet to improve the quality of learning by facilitating access to resources and services, as well as remote exchanges and collaboration’.

- 18 Six responses referred to blended learning, where technology is blended with more traditional learning approaches. One respondent defined blended learning as follows: *‘The thoughtful integration of face-to-face classroom (spontaneous verbal discourse) and Internet based (reflective text-based discourse) learning opportunities. These are not an add-on to a classroom lecture nor an online course; they involve a fundamental redesign of the learning encounter. We encourage the optimal (re)design to enhance and extend learning by rethinking and restructuring learning and teaching to create a blend of learning which meets the needs of the student and of the subject discipline.’* Three respondents identified that their institutions had taken a blended learning approach to complement and supplement e-learning.
- 19 Overall respondents viewed that the emphasis should be on learning rather than technology, with e-learning being part of a pedagogically informed use of technology to enhance the learning experience.

PRIORITIES OF FUTURE DEVELOPMENTS IN E-LEARNING

- 20 A wide ranging selection of priorities was identified by respondents through the consultation. These are described in more detail below, with the numbers of respondents identifying each issue. Other priorities cited included: a funding model reflecting the opportunities available through e-learning; linking with publishers; and utilising materials which were already available.
- 21 **Staff development (8):** Staff development was considered important. This included: pedagogical issues; ensuring staff were aware of, competent and confident in using technology to support teaching and learning (eg Web 2.0 tools, ePortfolios); the value added through the use of technology to support learning and teaching; quality indicators in effective use of technology to support learning and teaching; encouraging innovation; and ensuring that e-learning resources were used to best advantage. Staff development needed to address the necessity to manage and provide support for e-learning on an institution-wide basis.
- 22 **Collaboration (8):** Collaboration was another area reported as a priority, with respondents noting that it could be beneficial for institutions, enabling the sharing of knowledge, best practice and learning resources. It could further encourage enterprise, innovation and community development, increase awareness of educational developments, and enable HEIs to become active at the frontier of such developments. Collaboration could extend to creating Wales-wide opportunities for sharing good practice and potentially extending to sharing learning resources, eg by developing a learning resource repository for Wales or the UK. Further information on collaboration is provided below.
- 23 **Research (7):** Research was highlighted as a priority. Purposes indicated for this included providing evidence for developments and changes, and informing decisions, including in relation to bi-lingual/Welsh medium education. Other uses included investigating the development of technologies supporting a variety of learning styles and pedagogies, and emphasising the importance, and evaluating the impact, of technology on learning and teaching.

- 24 **Learning and teaching (5):** Priorities for e-learning should match general learning and teaching priorities, including institutional, national and UK-wide priorities. The focus should therefore be on learning, teaching and the curriculum and enhancing the learning experience.
- 25 **Institutional priorities (5):** The management of e-learning within the wider processes of institutions, including changes in physical learning spaces and changes in pedagogy models, was identified as a priority.
- 26 **Robust technology and system interoperability (5):** Respondents identified a need for robust technology and system interoperability for the learning platform and administrative and learning support in order to allow collaborative ventures between institutions, maximise the development of e-learning, minimise barriers to learning, and increase efficiency for learners and teachers. Technology should be integrated into all aspects of the student experience.
- 27 **Flexibility, accessibility and support (4):** Increasing flexibility, accessibility of learning and support resources including digital inclusion, personalisation and supporting lifelong learning were considered important. This could include continuing to identify how e-learning can impact on all aspects of teaching and learning.
- 28 **Bilingual developments (3):** The importance of bilingual developments was also indicated. This included strengthening and enhancing the Welsh and bilingual agenda, developing and maintaining a Welsh Language Pack for the VLE interface and further developing Welsh language provision both internally and collaboratively to deliver modules and provide supporting materials.
- 29 **Current innovations (3):** Respondents identified the need to consider current innovations, eg Web 2.0 and Learning 2.0 methodologies, the role of interaction and social networking and their impact upon learning and teaching.
- 30 **Consultation and engagement (3):** Some responses indicated the importance of consulting and engaging with present and future students to inform future developments and adapting to their needs, including providing appropriate support.
- 31 **Setting vision and objectives (1):** Setting a vision and e-learning objectives and forming a strategy to achieve those objectives was also identified as a priority. The responses from this consultation will feed into the development of an e-learning strategy to set out objectives and how they might be attained.

DRIVERS OF E-LEARNING

- 32 Respondents identified a number of key drivers for e-learning. These corresponded with the drivers identified in the original statement and are described in more detail below together with the numbers of respondents identifying each issue. Collaboration was also cited by one respondent as a potential driver.
- 33 **Accessibility and flexibility (12):** E-learning was perceived by respondents as a means of addressing legal requirements and accessibility issues, including the disability agenda, where assistive technologies may be of benefit. Respondents reported that it could help institutions to meet targets set by the Welsh Assembly

Government, providing equality of opportunity and access to higher education for potentially disadvantaged students, as well as enhancing the learning experience. They also noted that it facilitated different learning styles and enabled flexible access to course resources, which was highly valued by students, including traditional as well as non-traditional learners. Respondents cited the importance of e-learning in the widening access agenda, supporting non-traditional and hard to reach learners who might be mature, part-time, work-based, studying at irregular hours or based off-campus. E-learning therefore facilitated active participation in learning regardless of physical ability, geographical location, or personal circumstance and could help to break down barriers between education and work. It was perceived to provide the opportunity for flexible delivery of programmes, which were not restricted to the standard academic year. The Credit and Qualifications Framework for Wales facilitates flexible learning, through the provision of credit for learning which is undertaken successfully. This could act as a driver as it helped to personalise learning and enhance the flexible approaches facilitated through the use of technology. E-learning might also play a role in facilitating, supporting and enabling the extension of bilingual/Welsh medium provision.

- 34 **Students (8):** Respondents reported that students were increasingly experiencing e-learning techniques and tools at school and elsewhere, prior to engaging in higher education. This, together with their experiences of online communities, mobile devices, asynchronous interaction and/or the use of e-learning materials gained in higher education, was leading students to demand their further use. This had resulted in changing student expectations, including increased demands for online resources, support, submission and assessment. One respondent cited that e-learning might contribute to meeting increased student expectations following the introduction of student fees. Institutions were also competing to provide a student experience which competes with that available elsewhere in the UK and abroad. The importance of virtual mobility was becoming an increasingly prominent feature of HE Provision. E-learning could also provide an international dimension to courses and enhance the international experience of students, even if they were unable to travel abroad. Other student issues which acted as drivers included recruitment, engagement, retention and completion
- 35 **Staff (7):** Staff were reported to act as a driver for e-learning as they adapted to new learning methodologies and demanded their wider use. Some staff were cited as perceiving e-learning as having the potential to further their careers, as more institutions were seeking staff who can integrate technology into teaching. They might also compare experiences with peers in other institutions, which could help to drive change. Innovative academic and support staff could also drive e-learning by piloting new ideas which might lead to a gradual demand for more features and tools by users.
- 36 **Institutional drivers (7):** Support at senior management level was cited as being very important in driving e-learning. The existence of institutional e-learning strategies and/or policies emphasised such support and was raising the strategic profile of e-learning. Good institutional models and examples of best practice could also drive e-learning developments. The necessity to merge student administration systems with those used for learning and teaching could also act as a driver. E-learning could help institutions to maintain their market share in the face of competition arising from the provision of distance learning by helping them to expand existing markets, reach new markets and develop new products. E-

learning could also be used to engage community groups and small and medium sized businesses (SMEs), thus improving opportunities in Third Mission Activities.

- 37 **Strategic drivers (6):** Strategic issues were reported to help to drive e-learning developments. This included Welsh Assembly Government policies, debate surrounding e-learning issues, the lifelong learning agenda, the employability and skills agenda, and initiatives such as personal development planning. In FE the ILT Champions programme funded by DELLS has acted as a driver together with e-learning developments of HE partners.
- 38 **Innovation and enhancement (6):** Some respondents noted that the emergence of Web 2.0 technologies, new mobile devices and the emergence of mobile learning, and social networking were drivers for e-learning. Others cited the added benefits of VLEs eg plug-in plagiarism software checking. Plagiarism software such as Turnitin is available, and is recommended by JISC, which also offers a Plagiarism Advisory Service (JISCPAS). This can enhance academic standards. Innovation can help to provide engaging methods of teaching, assessment and support.
- 39 **Enhancing teaching and learning (5):** Enhancing, augmenting and widening the curriculum was perceived as a driver of e-learning. E-learning could facilitate different types of learning styles and enhance the quality and effectiveness of the learning experience when provided in a high quality pedagogically sound manner. It could also enhance the professionalism of teaching and benefit students both on and off-campus, enabling a diverse range of needs to be met. Students had described the enhancement that e-learning brings to their university experience as better communication. This was easily achieved electronically, with time and costs savings compared to traditional methods such as post and telephone. This applied particularly to off-campus communications.
- 40 **Cost (5):** Some responses to our consultation indicated that the long-term savings from e-learning provision could act as a driver. These included income from funded activity, cost reduction for delivery and efficiency savings as a result of new technology. Some respondents also identified that use of technology for communication could result in time and cost savings compared to traditional methods such as post or telephone. Collaboration between institutions on matters such as licenses and learning materials might also provide long-term cost savings.

BARRIERS TO E-LEARNING

- 41 Respondents were asked to identify the principal barriers to e-learning at their institution. Many of these covered the difficulties identified in the statement of position. Issues identified are described below together with the numbers of respondents identifying each issue as a barrier. One respondent also cited the existence of more than one VLE as a barrier.
- 42 **Staff development (13):** E-learning was reported to carry an increased need for staff development, which requires both financial input and time. It was essential to ensure that appropriate time and resources are allowed at the early stages to address staff training issues, as skills gaps create a divide in the adoption rate of technology. Training issues included lack of knowledge, skills and/or experience of e-learning, including its design and delivery. Staff needed to be able to make informed decisions regarding teaching approaches, including using tools to their

full potential, not employing them simply as replacements for traditional techniques, and keeping pace with technology. They needed to understand the opportunities and possibilities offered by innovative teaching methods, and how these can enhance learning and teaching. Lack of competence and confidence in IT skills and using technology to support learning and teaching could also impede progress. Staff development was therefore required in planning and development of pedagogically sound e-learning to enable staff to embed e-learning routinely into delivery. Specialised training might also be required. Some staff failed to appreciate the impact of the use of certain technologies and methods of communication among today's 'youth culture'. This could lead to a lack of enthusiasm on the part of staff for the integration of technology into learning. Lack of involvement of academic staff in the early stages of development of materials could lead to a lack of ownership, and hence may act as a barrier. Staff concerns regarding the effectiveness of e-learning and the monitoring of its impact on the learning process could also impede developments.

- 43 **Availability of funding and resources (11):** Barriers reported by respondents included lack of reward and recognition for staff, resources to facilitate progress in developing new, high quality e-learning and e-learning materials, innovative approaches and funding for hardware. Lack of funding for sector-wide large and small scale initiatives was also reported to be a barrier. The shortage of recurrent funding to maintain and extend mainstream e-learning activity when pedagogical and technical expertise were required was cited as a further impediment to e-learning. One respondent reported that increased support and system demands were also required in order to work effectively with collaborative partners. It was also noted that funding issues meant that e-learning staff might be employed on fixed term rather than permanent contracts, which limited continuity of developments. The lack of accessibility of high quality IT equipment and/or technology was also cited as a barrier.
- 44 **Staff time (9):** The staff time resource was also perceived as a major barrier. This included the availability of staff time beyond the normal course development time to engage with the range of approaches to learning and teaching, including e-learning and the development of new material and innovative approaches, whilst maintaining the quality of current delivery. This slowed the rate of development of e-learning materials. Learning which involves technology carries a significant development time, although some staff were reported to have over-estimated the level of effort required to embed e-learning tools into the curriculum. Competing claims on staff time, such as research, administration and the emphasis on 'traditional' teaching could restrict the time available for staff to engage in the development of e-learning materials. Measures of efficiency of space usage and the lack of a mechanism for allocating staff hours to e-learning were also reported as barriers.
- 45 **Support (6):** The lack of central and other support for e-learning/delivery was cited as a barrier to the effective application of e-learning. However, decentralised support was also required, as much development was subject-based. E-learning also carried a requirement for student development, to ensure that learners understood how to use the methods most effectively and were supported in doing so.
- 46 **Collaboration (6):** Some respondents reported poor sharing of materials within, and particularly between, institutions. This had led to the limited availability of e-ready content. There was unwillingness to adopt good practice not developed within the context of a particular subject/institution. Effective working with

collaborative partners required increased resources for support and system demands.

- 47 **Institutional (4):** Respondents reported that, at an institutional level, an e-learning strategy and champion could help to embed e-learning into an institution. However, there were difficulties in balancing e-learning with the priorities of achieving the educational and business targets of the institution. Some quality assurance and other organisational procedures assume traditional delivery of learning, and so these perceptions needed to change in order to facilitate the embedding of e-learning routinely into delivery, along with more traditional methods.
- 48 **Perception (4):** Some respondents reported that a perception of e-learning as focussing on technology rather than on learning and teaching could act as a barrier. This was compounded by the difficulties in changing a teaching culture and approaches to curriculum designs which had been in existence for a long time. A great many staff and students were reported to perceive e-learning to mean a replacement for face to face teaching, and thus a potential threat. Students might perceive face to face teaching as better 'value for money' for their education, with e-learning perceived as the utilisation of a cheap alternative by the institution. Some staff might fear the changing role of staff as academics, which could extend to concerns of being replaced by Information and Communications Technology (ICT).
- 49 **Legal compliance (3):** Respondents also reported issues surrounding legal compliance, including licensing, intellectual property rights, copyright, data protection, accessibility laws and related matters. These could act as a driver, encouraging investment in quality resources, staff development and collaboration between institutions (see para 40). However, they could also act as a barrier, leading to resistance to collaboration or use of shared resources.

COLLABORATION

- 50 Respondents noted that collaboration could occur both within and between institutions, within Wales (including between institutions and third parties such as the private sector, schools, public sector organisations etc), the UK and globally. Collaboration was important to minimise inappropriate duplication and to share expertise. It could also help to raise the overall standards of teaching and learning. It was noted that sharing on a UK level could provide additional exchange of best practice which might not be achievable at a Wales level. Given the increase in e-learning activities, increased sharing of good practice and expertise would be beneficial in increasing awareness of developments within the HE sector and in other sectors. One respondent noted that it could be hardest to achieve collaboration '*between different departments and professional cultures within institutions*'. Another identified little scope for collaboration '*as institutional differences of approach to VLEs and technology will be hard to resolve*'.
- 51 **Wales:** A range of collaborative activities in Wales was cited by respondents. These included:
- the JISC Regional Support Centre (RSC) Wales-led Moodle Wales User Group meetings and email discussion forum;
 - extensive collaboration between Blackboard users in the UK and Wales, particularly with regard to technical issues, eg in Wales this is evident through the Wales Blackboard Forum;

- The Wales e-Training Network (WETN), which was reported to have provided evidence to demonstrate the '*cost-effectiveness of collaborative development and the scalability of collaborative delivery.*'
 - Cross-institutional staff development, eg the annual Colloquium run by the Wales Higher Education Libraries Forum (WHELFL) and Higher Education Wales Information Technology forum (HEWIT) which includes e-learning topics;
 - Input by RSC Wales into some institutional staff development events;
 - Staff development events run by RSC Wales which are open to all HE;
 - Netskills, supported by the RSC, provides JISC-subsidised workshops at Welsh HE venues and some institutions also purchase Netskills' licensed course materials.
- 52 **UK:** Collaboration cited at the UK level included that facilitated by JISC, the HE Academy and the Association for Learning Technology (ALT). It included:
- The e-learning benchmarking project run by the HE Academy and JISC, which has provided a means of collaboration and sharing experiences on a UK level. Seven institutions in Wales will have participated in the three phases of the project by December 2007;
 - The HE Academy Subject Centres facilitate sharing of best practices;
 - The role of JISC in particular in supporting collaboration, infrastructure for the learning environment and the sharing of resources;
 - The JORUM service and the Collaborative Approaches to the Management of E-Learning (CAMEL) project;
 - The role of ALT in facilitating collaboration.
- 53 **Global:** Global collaboration could include attendance at international conferences, participating in global online discussion lists and linking with European networks, eg the eLearning network in Brussels. One respondent cited that global collaboration '*has tended to be focussed on research into blended learning and teaching.*' The nature of e-learning meant that global collaboration could be very beneficial, eg many modules on the Moodle open source VLE have been developed jointly by global partners. The drive of Web 2.0 technologies was also based on global cooperation and interaction. Online communities of practice could provide global as well as UK-wide collaboration. However, these communities were in their infancy and not easily sustained.
- 54 Videoconferencing and email forums provided means of collaboration and could be used more actively. Videoconferencing also offered the opportunity for collaborative teaching in English and Welsh. Some respondents indicated that there was scope to produce shared resources and tools for HE in Wales, including the development of a centralised learning repository. Such collaboration had been successful in the development of the Welsh language pack for Blackboard and could assist in the promotion of Welsh medium/bilingual learning. JISC's JORUM is a free online repository, from which Welsh HE benefits, and to which some are also contributing. This form of collaboration facilitated sharing of content and good practice. Collaborative purchasing of e-books, e-journals and digitised material might provide cost savings across the sector. There had also been developments in Welsh repositories, including the planned Welsh Repositories Network and the JISC-funded Repository Bridge (e-theses) project (<http://www.inf.aber.ac.uk/bridge/>).
- 55 Collaboration in programme design and delivery exists, such as that achieved through the WETN project. One respondent identified that the production of

discipline-specific materials across Wales could also be beneficial, although there might be difficulties in determining responsibility for maintenance of currency of materials and agreeing common delivery platforms. However, one respondent cited that the competitive nature of the HE market impedes collaboration. In addition, some e-learning might be specific to an institution's mission. Although it may be adaptable by similar institutions, such e-learning is not generic.

56 Collaboration could increase the control of HEIs over the delivery and assessment of franchised HE courses within other institutions regardless of the location of delivery. Collaboration can be used to promote innovation, share best practice, assimilate information and facilitate the professional development of staff. However, review and potential alignment of HE validation and quality regulations and systems might be required to maximise collaboration opportunities.

57 Many of the barriers to e-learning collaborations are related to institutional policies and procedures, including issues such as responsibility for projects, inter-institutional budgets, timescales, and contracts.

MEASURES OF SUCCESS

58 Measures of success identified by respondents were broadly similar to those identified in the original statement of position. One respondent noted that the same measures of success should be used for e-learning as for traditional learning. Some respondents noted that they had not identified any particularly useful performance indicators so far in relation to the success of e-learning. Measures of success identified can be summarised as follows, and indicate the numbers of respondents identifying each measure:

- Staff and students are widely aware of the opportunities that e-learning can provide – this is measurable through identifying the numbers of staff and students using the virtual learning environment and the extent to which e-learning is integrated into the curriculum (10);
- The quality of learning and teaching is enhanced to address student needs and offer flexible and accessible learning (4);
- Staff are provided with support, guidance, development and excellence recognition to enable their expertise and continuous improvement in delivering a quality learning experience to students (4);
- Technology is integrated into the curriculum and all aspects of the student experience of higher education, including strategic systems (eg enrolment, management information system) and strategic planning, in order to enhance the student experience (4);
- Students can achieve an enhanced range of learning outcomes through interaction with ICT based materials, services and support (1);
- An increase in student focus, accessibility and flexibility of delivery of HE programmes including distance learning, Welsh medium provision, and provision of learning materials in different formats (1);
- Students are able to communicate, gain support, and access information regardless of their location (1);
- Increased collaboration within and between Welsh HEIs and between sectors to enhance learning and teaching experiences, share knowledge and experiences gained, and support progression of learning methodologies (1).

59 The following were not in the original measures of success:

- Positive feedback from students and staff (9);
- Research regarding the development, implementation and success of e-learning (7);
- Measurement of the recruitment, retention, completion rates and success of students participating in e-learning (5);
- Increased efficiencies over time (4);
- Good outcomes in institutional reviews and other quality assurance processes (3);
- Dissemination of exemplars of best practice (1);

60 The following non-measurable points were also identified:

- Staff enabled to make informed decisions regarding the effective use and application of technology (2);
- Move from transmissive to transformative learning (1).

ANY OTHER COMMENTS

61 Other comments provided by respondents are identified below:

- The position of e-learning needed *'to be viewed in the context of education and lifelong learning in Wales.'*
- A perception that the statement focussed on distance e-learning;
- The statement included many generalisations, which is inevitable given the diversity of activities in this area. The response noted that it *'seems fairly clear that all HEIs in Wales have a written strategy which is either, already embedded into their Learning and Teaching Strategy, or is destined to become so over time. In view of this, it may be difficult to construct a meaningful all-Wales e-learning strategy.'*
- The following additional items suggested by one respondent could be included in the section on current practice in Welsh Institutions:
 - Videoconferencing to facilitate teaching and support (eg staff development);
 - Further exploration of Web 2.0 technologies (eg blogs and wikis) for teaching, learning and support
 - Some HE staff are utilising National Learning Network (NLN) materials, eg on projects with sixth forms
 - Growing interest in personal response systems (voting systems)
 - Use of wireless networks to enable more flexible learning spaces
 - Use of Shibboleth to enable seamless access management: these developments are well advanced in some larger institutions;
- the desirability of including informed opinion on the future direction of the *'technologies which are now commonplace for the new generation of communications technology consumer'*;
- There should be a clear rationale for employing e-learning, and the means by which it is employed, which should be clearly communicated to learners;
- The importance of maintaining quality standards for e-learning, noting that learning supported by use of technology may require different means of assuring quality of provision.

Respondents

Association for Learning Technology (ALT)
Wales Blackboard Forum
Cardiff University
Joint Information Systems Committee Regional Support Centre
Neath Port Talbot College
North East Wales Institute of Higher Education
Swansea College
Swansea Institute of Higher Education
Swansea University
Trinity College Carmarthen
University of Glamorgan
University of Wales Aberystwyth
University of Wales Bangor
University of Wales Institute, Cardiff
University of Wales, Lampeter
University of Wales Newport
One individual response

Comments made by respondents regarding the accuracy and fairness of the statement

- 1 Respondents who agreed that the statement was broadly accurate and fair noted that: the statement might not provide a good representation of current practice, due to variable levels of engagement; there was the potential to use technology to support the social interactions of staff and students, together with research, administrative and other aspects of the teaching and learning experience; the increased availability and affordability of technology meant that key areas for progress now centred on encouraging and enabling greater take-up of the technologies.
- 2 These respondents also identified areas where further information might be useful:
 - Stand-alone e-learning modules;
 - Strategic management of e-learning;
 - Emerging technologies, including the use of tools such as videoconferencing, blogs, podcasting and wikis;
 - Increasing linkages between organisations using, or affecting the use of, learning technology through formal and informal networks and the increasing importance of new methods of knowledge generation and dissemination;
 - Development of technology relevant to e-learning by the business world, including that to support learning, teaching and assessment;
 - Activity in the 'Free Culture movement', including Wikipedia, Open Access and Creative Commons;
 - Development activities relating to e-learning undertaken by the Higher Education Academy (HE Academy) subject centres and the role of subject-based initiatives in promoting innovation;
 - The link with the HE Academy UK Professional Standards framework for teaching and supporting learning in Higher Education;
 - The role of the Association for Learning Technology (ALT) and the Leadership Foundation.
- 3 Points made by those disagreeing the accuracy and fairness of the statement included the following:
 - The statement was too content-driven in its model of e-learning and did not sufficiently stress the complexity of the blended approach, which was widespread across Welsh HEIs;
 - The document appeared to be focussed on distance learning, content and Virtual Learning Environments (VLEs). It was noted that while in some instances this remains accurate, the document did not accurately reflect the current range of initiatives and trends in e-learning. The VLE was one of a wider range of tools and should not be perceived as the sole route for e-development;
 - More emphasis could be given to the use of multimedia, wireless and mobile technologies and use of Web 2.0 social networking tools such as blogs and wikis, which is leading to a more student-centred approach that reflects the principles of lifelong learning;
 - HEIs were at different stages of e-learning development. Some were using technology as a content repository as part of traditional teaching, but others had a much wider range of activity, with a gradual shift towards the development of new teaching methods embedding technology;

- Advances were being made in the administration of all aspects of the student experience, including electronic submission, plagiarism detection and online attendance monitoring;
 - E-learning activities were being used to improve the student learning experience, including the use of a/synchronous discussion tools, and tools to facilitate testing, assessment, and feedback.
- 4 Responses which did not state an opinion regarding the accuracy and fairness of the statement noted some points, as follows:
- Student ICT skills were increasingly taken for granted in the 18-25 age range, but these students may need to learn how the technology can be applied in an academic context, such as ensuring that information was used legally and ethically;
 - Staff ICT skills were often less developed than those of their students and they might lack the skills to handle large volumes of electronic information efficiently;
 - E-learning should be driven by pedagogical considerations rather than technical issues, with an aim of enhancing the learning experience, making it more effective, engaging and accessible;
 - The distinction between e-learning and other learning and teaching was starting to blur, and the notion that it was competing with traditional teaching is diminishing. It could not therefore be treated entirely separately to other learning and teaching;
 - E-learning development should be informed by the teaching and learning aims of individual institutions and the HE sector. Therefore many of the drivers, barriers and measures of success relevant to traditional teaching also related to e-learning;
 - E-learning should be integrated into mainstream quality assurance procedures, as any form of learning and teaching, and contribute to the general objectives established in the institution's learning and teaching strategy;
 - It could be useful to distinguish further between a Managed Learning Environment (MLE) and a VLE. The MLE was defined on the Joint Information Systems Committee (JISC) InfoNet as *'the joining-up or interoperation of several separate systems.'* The joining-up was key in order that they support learning and teaching, rather than forming a barrier <http://www.jiscinfonet.ac.uk/InfoKits/creating-an-mle>.
 - Trends in the last three years had included VLE implementation being embedded as a key component of most institutions' e-learning activity, but interest in other tools, eg web 2.0 tools, moving images and audio, was presenting a much richer picture than previously;
 - E-learning was engaging a range of staff across institutions;
 - Blackboard predominated but there was interest in open-source software such as Moodle.