

3 Curriculum Design

An important aspect of the quality of e-learning concerns the design of the curriculum. E-learning curricula offer considerable opportunities but are accompanied by risk. It is assumed that curriculum design is broadly constrained by European and national expectations on the knowledge, skills and professional outcomes-based curriculum elements. This section addresses the particular challenges of curriculum design presented by e-learning. Key factors concern: flexibility in time and pace of study, programme modularity, building the academic community, and integration of knowledge and skills development. The challenge that institutions face is that of designing curricula that combine the flexibility in time and place of study offered by e-learning without compromising standards of knowledge and skills development or the sense of academic community associated with campus based provision that will continue to be regarded as the benchmark against which other provision is measured.

Curriculum design should address the needs of the target audience for e-learning programmes that, in the context of growing emphasis on lifelong learning, may differ significantly in prior experience, interest and motivation from the traditional young adult entrant to conventional universities.

Benchmarks

7. E-learning components should conform to **qualification frameworks**, codes of practice, subject benchmarks and other institutional or national quality requirements
8. Curricula should be designed in such a way as to allow **personalisation and a flexible path** for the learner consistent with the satisfactory achievement of learning outcomes and integration with other (non-e) learning activities. Use of formative and summative assessment needs to be appropriate to the curriculum design.
9. Curriculum design should ensure that appropriate provision is made for the acquisition of general educational objectives and the integration of **knowledge and skills** specifically related to e-working across the programme of study. The contribution of e-learning components to the development of educational objectives needs to be made clear.
10. Curricula should be designed in such a way as to require broad participation in an **academic community**. As well as student-student and student-tutor interactions this should include, where appropriate, interaction with external professionals and/or involvement in research and professional activities.

3.1 Flexibility



E-learning offers the opportunity to provide flexibility in the time, place and pace of learning. The presentation of content can be more flexible and the didactic approach more open. A key consideration may be the integration of e-learning with other study modes and providers need to demonstrate that they allow students to extract the maximum benefit from the flexibility offered.

Institutions need to have clear policies and practices for scheduling programmes and courses that take due account of student requirements for flexibility in time

and place of study. The impact of these policies and procedures on course and programme completion, skills development and the development of student communities should be assessed.

Institutions should identify and analyse patterns of usage and use these to inform policies on flexibility.

3.1.1 Time and Pace

The 24 x 7 access to computer network systems commonplace in the commercial world is a feature that facilitates flexibility and is considered in the student support section. Flexibility at the macro and micro levels must be addressed in programme design.

At the **macro** level students may have the flexibility to start and complete courses and programmes to schedules of their own choosing.

At the **micro** level e-learning offers the possibility for students to work to flexible timetables of their own choosing within a cohort of students progressing through the course or programme to overall schedules established by the institution.

In curriculum design the focus is usually on the macro level with the presumption that the detail relating to course materials design and delivery system availability will be implemented to maximise micro level flexibility.

While conventional annual or semester-based cycles of course provision may not be appropriate for students on e-learning programmes, the scheduling of courses with no fixed start or finish times is not necessarily educationally effective or desirable. Fixed start and finish dates for course modules constrain student flexibility but facilitate the management of student cohorts and allow for participation in group activity.

Fixed times for submission of assignments provide target dates for task completion and provide a structure analogous to the lecture or seminar schedule of a face-to-face programme but may place significant restrictions on the flexibility required by students facing pressures from family or employment obligations.

Indicators

There is an institutional policy for course scheduling which curriculum designers adhere to.

At excellence level:

This policy provides curriculum designers with a range of options for the scheduling of course presentations.

The selection of particular options is influenced by market research amongst potential students.

There is consistency in the scheduling patterns adopted such that student movement across related courses or programmes is facilitated.

3.1.2 Place

E-learning programmes should offer learners considerable flexibility in the place of study with the optimum being the full provision of learning facilities via any internet access point. If the institution operates a network of study centres that provide elements of e-learning on an intranet basis (*e.g.* for reasons of software licensing or specialist video conference services) the requirement for attendance at such centres should be clearly recognised as placing a restriction on student flexibility.

Provision of aspects of the curriculum that require access to specialist facilities such as laboratories, and direct face to face human contact may detract from institutions offering programmes fully on line. In these circumstances blended provision is the only practicable mechanism.

A major issue for curriculum designers is the temporal distribution of activities that are restricted in place. Designers may choose to aggregate face-to-face activities in a small number of modules within a programme with the result that these modules require similar levels of attendance to conventional provision. Alternatively curriculum designers may distribute the activities so that the majority of modules have a limited requirement for attendance.

It is envisaged that institutions will address issues of eligibility for study by virtue of place of residence at national, European Education Area and broader international presentation and will have adequate policies relating to rights issues, fee levels, examination arrangements *etc.*

Indicators

Institutional policies provide a consistent approach to defining the circumstances under which students should be required to attend a particular location. These will be (i) for pedagogical reasons or (ii) for reasons associated with identity verification. Programme information clearly indicates the pattern of any attendance requirements and the eligibility for study by place of residence.

3.1.3 Blended Learning

Most e-learning is likely to take place in conjunction with other forms of learning either face-to-face or using more "traditional" distance methods. As in other aspects of flexibility there are macro and micro dimensions. At macro level combining e-learning and face-to-face modules provides a coarse grained blend, at micro level a single module may integrate e-learning and face-to-face teaching.

Curriculum designers must consider what is the optimum mixture of online and traditional approaches in particular contexts. The mixture should depend on several factors, such as actual distance (time and place) between student and teacher, the nature of the learning outcomes, skills acquisition, modes of assessment, *etc.*

The institution may offer students the opportunity to blend their learning by offering equivalent course modules through different modes of delivery. For example a student may choose to study the preliminary parts of a programme through e-learning but choose to attend campus based courses for the remainder. Consistency in module size, clearly stated learning and skills development outcomes will assist students in the selection of programmes and study modes that best suit their requirements.

Blended learning within a module may be achieved through provision of conventional teaching sessions supporting e-learning materials. Whether face-to-face contact is provided directly or delivered through synchronous technologies such as video conferencing may be dependent on student distribution and technology infrastructure.

Indicators

Where blended learning is employed, the curriculum provides a balanced mixture of online and traditional approaches to learning, including assessment.

Curriculum designers have assigned clear pedagogic functions to the components of the programmes and these match well with the delivery mode envisaged.

At excellence level:

There are opportunities to complete programmes by integrating e-learning and face to face courses within a single programme.

3.1.4 Modularity

Appropriately designed and implemented modular programmes enable institutions to offer their students a broad curriculum and optimise utilisation of resources.

The costs of e-learning development dictate that many institutions will seek to work in institutional consortia for curriculum development. Under these circumstances agreement over modular structures at programme and course levels is imperative.

The institution should adopt a structure for programme and course sizes that is consistent with national and European norms and aligns with systems for credit accumulation and transfer. These should be based on student workloads (expressed in notional study time) and the conversion rate into credit points should be widely understood.

Students should be presented wherever possible with short and flexible elements or courses from which to build a programme which meets their needs.

Indicators

The institution has a clear and consistent policy in respect of modular programme design.

3.1.5 Credit Transfer

Credit transfer between programmes within an institution and more broadly between institutions and across national boundaries contributes to the flexibility offered to e-learning students.

Policies on credit transfer and the technical features of credit systems should be applied to e-learning programmes in the same way as for other modes of provision. These need to be aligned to national and European systems for credit recognition and transfer.

Curriculum designers need to be clear about definitions of credit and credit value, workload measures, credit levels, qualification requirements, learning outcomes, generic skills development, assessment criteria, *etc.* Each of these factors will impact on the policy for credit transfer into and out of the programme.

Indicators

The institution has a credit transfer policy that is widely applied. The credit transfer system is aligned with national and European systems of credit transfer and operates bi-directionally.

3.2 Academic Community Development

Participation in a scholarly community that values the exchange of knowledge and ideas is an essential component of higher education. Institutions presenting e-learning programmes should design their curricula to foster broad participation in an on-line academic community. In some instances participation is explicit through student (and staff) contributions to group activities designed as components of the curriculum. In other instances it is implicit through scholarly social interaction in a campus based environment.

To provide parity of experience between traditional forms of higher education and provision primarily delivered through e-learning, institutions should specifically address the issue of formal and informal community building across its academic community.

Policies for curriculum design should specifically address the knowledge and skills acquisition required by national and European award structures, identify those elements in which collaborative activity is required and provide broad direction as to how students following e-learning programmes should participate in the broader academic community

Three aspects of community development may be identified to which curriculum design needs to be sensitive. Firstly, a general academic community is required by all departments and divisions of the institution to provide a framework for student-teacher and student-student interactions.

Secondly, communities may need to be established to fulfil a specific academic objective, such as participation in research activity. Thirdly, communities may need to be established to link students in with broader professional communities.

3.2.1 Student-student, student-teacher

E-learning offers modern ways of building communities between teachers and students, and between students and their peers. Time, place and pace of study may be flexible, content may be presented remotely, however personal interaction between student and teacher (tutor) is a key component of e-learning in a higher education context. As there is no direct contact in the delivery of learning content, it should be a principle of curriculum design that alternative embedded prompts are used to initiate contact between the participants in the teaching-learning process.

If student-student interaction is required for a specific pedagogic function (*e.g.* to provide for the development of effective team working skills) curriculum designers should establish the requirement in programme specifications and ensure that the responsibility for teaching and assessing these skills is allocated appropriately between courses in the programme.

Students should be informed of those peer interactions that are essential to successful completion of a programme, and measures should be in place to ensure that such interactions are appropriately monitored and assessed.

Structuring remote student-student contact for discussion presents significant challenges but the institution should be supportive of the formation of on-line discussion groups.

The institution may work with student groups and associations in fostering on-line student groups that operate independently of programme structures. These groups may have a subject, professional or predominantly social focus.

Assessment policy may provide a structure for one to one contact between teacher and individual students. The role of the teacher as the leader of a student group provides the teacher with a rationale to act as a focal point for student discussion.

Teachers may be allocated the role of moderating student discussion areas to stimulate discussion and ensure that appropriate levels of netiquette prevail. Electronic forums for interchange of experience amongst teaching staff provide important mechanisms for staff development through exchange of good practice.

Indicators

There are institutional policies relating to the development of on-line communities allowing student-student and student-teacher interactions.

Criteria for the assessment of student-student interactions exist and are applied consistently across programmes and courses.

At excellence level:

Curriculum designers specify clearly the pedagogic role that student-student interaction plays in their programmes. Teaching staff are supported by formal and informal staff development activity in the use of on-line tools for community building.

3.2.2 Connectivity with non-campus professionals and professions

Programmes that are professional or vocational in nature may traditionally require students to spend some part of their study on placement activities in a professional organisation of some sort. Designers of e-learning programmes should explore how they might manage these situations particularly taking account of the fact that e-learning courses may have greatest appeal to students who are already in employment.

Institutions may adhere to conventional policies requiring students to be embedded in an organisation selected by the institution or alternatively they may develop modes of work-based assessment that relate to their students' current employment and allow for negotiation with their employers.

There are significant potential difficulties for workplace-based professional practice for institutions intending to operate across a broad geographic territory or national boundaries in the negotiation and management of placement arrangements.

Less formal community building with the professional sector may be achieved through structured links to professional body websites, jointly developed on-line events, *etc.*

Indicators

The institution offers mechanisms for students to participate in active communities of research and professional practice where this is an integral part of the programme.

At excellence level:

The curriculum offers opportunities for (distance) contacts between fellow students and with teachers, researchers, professionals, *etc* to stimulate and develop a critical attitude. The institution works closely with professional bodies in the development of on-line professional communities.

3.2.3 Research involvement

Development of research skills and participation in individual or group research activity is a requirement of national and European qualification structures at degree level. Institutions offering programmes delivered through e-learning must be able to demonstrate that these skills can be delivered and assessed using on-line technologies.

Access to library facilities now seldom presents problems for students studying remotely and web-based research forms the backbone of many conventional research projects.

On-line students may contribute to the work of campus-based research groups possibly participating in meetings using desktop video and audio conferencing methods.

Access to laboratory facilities poses greater problems but it should be recognised that many students choosing to study remotely by e-learning may be studying for professional reasons and be in a position to undertake research activity related to their full-time employment.

Curriculum frameworks should facilitate a broad interpretation of how research skills may be developed and not restrict the definition to focus solely on "traditional" campus-based research activity.

Curriculum design should address the placement of research modules in programmes taking due account of the skills and independence that will be demanded of students in conducting research remote from day to day contact with supervisors.

Research supervisors may require new skills to transfer their supervisory experience to an on-line context; staff development programmes should be available to support this transition.

Institutional policies regarding the publication and attribution of the outcomes of research should be reviewed to ensure that they adequately address issues associated with the contribution of e-learning students.

On-line publication is a natural dissemination and publication route for students undertaking e-learning. Publication within a closed on-line community associated with a programme or subject area will facilitate the development of a community of researchers and encourage a culture of supportive critique and review.

Indicators

The curriculum offers students the opportunity to undertake or be involved in research in order for them to develop appropriate research, critical evaluation and communication skills. A progressive development of research skills is an integral component of programme design.

At excellence level:

The institution has policies regarding the involvement of e-learning students in the activities of campus-based research groups.

Opportunities are provided for on-line publication and peer review in a supportive environment.

3.3 Knowledge and Skills

Curriculum design should ensure that the curriculum covers those aspects of knowledge and skills required of graduates in the domain under consideration.

Issues specific to e-learning are those of whether skills can be developed uniformly across all courses in a programme or whether there is a need to adjust programme structure as the mode of delivery demands some partitioning of skills and knowledge acquisition.

There remain issues of whether delivery of some aspects of skills acquisition can be achieved using e-learning technologies. In this domain institutions have a responsibility to demonstrate to their students and to regulatory bodies and employers that the delivery of skills and their assessment are valid and effective.

3.3.1 Transferable skills

The development of a suite of core transferable skills that relate to literacy, numeracy, critical analysis, presentation and communication together provide an essential aspect of higher education programmes. These skills are highly valued by employers who may regard them as of equal if not greater importance than the subject knowledge that graduates take with them to the world of employment.

Institutions offering e-learning programmes have a responsibility to provide these skills for their students and to demonstrate their provision and effective assessment to potential employers.

A key element in curriculum and programme design is the clear definition of learning outcomes and skills to be acquired at various stages. Curriculum designers should identify a logical progression of skills development and allocate responsibility for delivery and assessment of skills to courses in a programme.

Skills prerequisites may be as important as knowledge prerequisites in determining progression between courses in a programme.
The institution may need to develop specific assessment methods to verify skills acquisition.
The institution may support students in recording evidence of skills acquisition via an e-portfolio system.

Indicators

The institution has a clear policy regarding the acquisition and assessment of core transferable skills which apply to all programmes including those delivered by e-learning.

The institution has a common framework for the assessment of skills acquisition.

At excellence level:

The institution actively researches pedagogical techniques for the development of generic skills and findings are widely disseminated to those involved in curriculum design via publications, workshops *etc.*

The institution offers an e-portfolio service to assist students in recording their generic and transferable skills.

3.3.2 Professional and vocational

The curriculum should offer students the opportunity to build relationships between different areas of content and between contents and skills used by professionals (including researchers) in their occupation. The development of professional and vocational skills should align with the expectations of professional bodies and employers.

Many students pursuing e-learning programmes may already be in employment, and institutions should make positive efforts to provide recognition for the professional skills and knowledge already held by their students.

Professional bodies may adopt a conservative approach to the potential of e-learning for provision of professional skills, and institutions may need to pay particular attention to ensure that their curricula develop and assess these skills, and that this is apparent to all.

Curriculum design may allocate responsibility for development of professional skills to specific modules that address their development in a blended learning format or even require attendance for the full duration of the module.

Indicators

Curriculum design ensures that students are able to build relationships between areas of content and with identified professional skills.

The responsibility for delivery and assessment of outcomes related to professional knowledge and skills is clearly assigned to particular components of the programme.

At excellence level:

Communications with professional and employer associations regarding their needs and the effectiveness of e-learning in developing and assessing professional skills have been undertaken at the curriculum design stage.

3.4 Assessment procedures

It should be the goal of all institutions engaged in e-learning to develop and implement assessment systems that are recognised as at least being equivalent to those used in conventional systems regarding their effectiveness and integrity.

Assessment should include both formative and summative elements. Individual items of assessment may fulfil either or both functions, provision of feedback on performance being essential to meet formative functions.

Curriculum designers should address all the intended learning outcomes for a programme and ensure that there is an overall strategy for their assessment that reflects the diversity of the modes of knowledge and skills acquisition.

3.4.1 Formative assessment

Formative assessment can take a variety of forms ranging from voluntary self-assessment tests with built-in feedback to more formal items of assessment, which may well have a summative assessment role, but which also demand individualised feedback from a tutor or examiner and through which a student can judge their progress and reflect on their further learning.

The role of formative assessment in e-learning curricula is a crucial one in overcoming the limitations imposed by self-study, and curriculum designers need to exploit the opportunities offered by e-learning platforms to provide feedback to students and to allow assessment of progress at regular intervals.

3.4.2 Summative assessment

Procedures for summative assessment need to be:

- explicit (*i.e.* the requirements for successful completion of the assessment item and the criteria by which marks are allocated should be clear to students and examiners alike)

- fair (*i.e.* the nature of the assessment should not favour or disfavour any particular student or group of students)
- valid (*i.e.* the assessment should be an effective test of the achievement of the particular learning or skills outcome(s) under consideration)
- reliable (*i.e.* the procedures for assessing performance and allocating marks should be consistent with respect to time, place, and the participants involved)
- plural (*i.e.* not over-reliant on one particular form of assessment)

Assessment judgements need to be exercised collectively, as far as possible. Where e-learning programmes involve the participation of examiners at widely dispersed geographical locations, measures need to be put in place to ensure that agreed marking criteria are being adopted consistently. This may involve workshops (physical or virtual) for training and dissemination of good practice, and will involve some form of second-marking between examiners. External moderation of summative assessments and their outcomes is regarded as good practice, and e-learning curricula generally lend themselves well to external moderation.

Particular care needs to be exercised in on-line summative assessments to ensure that the work submitted for assessment is that of the registered candidate for the award. Cheating can take the form of impersonation for a written examination or plagiarism of another's work in essays or assignments. Computer software is now routinely used to check for possible plagiarism. Preventing impersonation on-line is more difficult, and for this reason many e-learning programmes require candidates to attend a registered examination centre to undertake written examinations.

It is good practice to identify and analyse cases of significant discrepancy between individual students performance on different forms of assessment.

Indicators

The institution's processes for curriculum design take proper account of the particular requirements for effective formative and summative assessment on-line.

Assessment processes are well documented and all those involved in marking are trained in their role, work to common marking schemes and are subject to effective monitoring.

All involved in assessment are aware of the particular problems of the identification of the work of individual students and appropriate security arrangements are applied to summative components of continuous assessment and examinations.