EUROPEAN COMMISSION
Directorate-General for Education and Culture

Vocational training
Multimedia: culture - education - training

Brussels, 05 January 2005
DG EAC/BH D(2004)

*e*Learning
Designing Tomorrow's Education

Report on the consultation workshops

'Access Rights for e-Learning Content'

&

'Creating, sharing and reusing e-Learning Content'

Held in Brussels on 27 & 28 October 2004

Version: Final

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Copyright

1. INTRODUCTION

The objective of the EU's *e*Learning Programme[1] is to support European co-operation for the effective integration of ICT in education and training. Running from 2004-2006, the programme has a budget of €44 million, which is divided into four priority areas, as follows:

1. Digital literacy	10 % of programme funding
2. Virtual campuses	30 %
3. School eTwinning	45 %
4. Transversal actions	7.5 %

The e-learning[2] consultation workshops were organised in support of the transversal actions element of the programme[3]. Their purpose was to explore the issues associated with the themes of '**Access Rights for e-Learning Content'** and '**Creating, sharing and reusing e-Learning Content'** and provide recommendations to the Commission in the following areas:

- Possible topics for future Calls for Proposals under the *e*Learning Programme
- Input for ICT in education & training policy development
- Input to other Commission programmes & policies

The workshops involved invited experts representing a cross-section of interests from education and training, industry, media, research, academia and government, together with representatives of relevant Commission services. The list of participants is provided in Annex A.

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[1] DECISION No 2318/2003/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 5 December 2003 adopting a multi-annual programme (2004 to 2006) for the effective integration of information and communication technologies (ICT) in education and training systems in Europe (*e*Learning Programme)
http://europa.eu.int/comm/education/programmes/elearning/programme_en.html

[2] E-learning is defined as '… the use of 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.' The *e*Learning Action Plan *Designing tomorrow's education,* 28.3.2001, COM(2001)172 final

[3] Transversal actions address the promotion of e-learning in Europe, building on the monitoring of the *e*Learning Action Plan. The objectives are the dissemination, promotion and transfer of good and innovative practices and results from the projects and programmes and to reinforce cooperation between the various actors involved, in particular by fostering public-private partnerships.

2. 'ACCESS RIGHTS FOR E-LEARNING CONTENT'

2.1. Discussion summary

The need for innovation in learning

There was general consensus that e-learning has tended to reproduce those traditional models of learning that are based primarily on knowledge transfer, rather than embrace the opportunities offered by more innovative, learner-centred models based on constructivism, collaborative learning, etc. Here, learners create knowledge by assimilating information, solving problems and interacting with others.

Supporting Europe's cultural and linguistic diversity

There is a predominance of US/English content and more needs to be produced in different languages across Europe. The importance of ensuring that we overcome the digital divide was mentioned and in this respect e-learning content must reflect Europe's cultural and linguistic diversity.

New business models are required

The opportunities offered by Open Content were raised, though there was concern that any approach to content should balance the rights and obligations of all stakeholders, and encourage a flourishing content market. In this regard, it was suggested that the Creative Commons[4] approach might be useful for adaptation and application to e-learning in Europe.

A balance here should include the publishers who already have content available in the form of books and digitised forms of these. This is a valuable form of content resource to be included with rich multimedia resource in the full spectrum of digital content. If we are to make use of this then appropriate business models for the publishers are essential.

The importance of interoperability, standards and specifications

Current standards and specifications related to e-learning are fragmented and their application does not sufficiently address the semantics of learning. Those involved in the production and distribution of digital e-learning content currently face a number of significant problems. Content creation tools from different vendors are not only functionally disparate but in most cases not interoperable. Moreover, the learning objects produced using them cannot be combined. This frustrates efforts to share and re-use content, leading to unnecessary duplication. The development and adoption of Europe-wide standards for tools and learning objects, describing how they fit together semantically and not just syntactically, is seen as being a key priority for EU action.

There are several points here that should be brought out separately. The first is the notion of tools being 'interoperable'. It is the tool support for 'processes' that should be interoperable in the context that if the process can be defined then the functionality of the tool to support the process can be made interoperable i.e. users can use tools, produced

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[4] http://creativecommons.org/

by different vendors, to support the same process. The tools are interoperable as long as we have an abstract definition of the process to be supported by the tool. Hence the potential of using a description of the process which is then independent of language and platform and can be taken as the starting point for the vendor implementation (such as WSDL[5]).

SCORM[6] compliant learning objects produced by the tools that claim to be such can be combined i.e. they can be sequenced by the LMS[7] but they may not be a sensible combination in that they do not necessarily form a coherent learning experience. An objective of learning design must be to produce a coherent learning experience. At present, the descriptions of learning objects are not sufficiently rich to allow for additional factors to be described so that this requirement can be satisfied.

Public and corporate responsibility

There were also calls for a European digital content strategy for the public sector, which would provide a sustainable framework for content creation and aggregation. In particular, it was mentioned that dominant organisations should recognise their obligations and help ensure that citizen's rights are upheld.

Managing access rights

As for the management of copyright of digital content (DRM), there is a need to develop a system which is simple enough for content creators such as teachers to understand and use. At the same time, it must of course provide proper legal protection of digital content rights and be technically well designed and robust. A template-based approach, using existing standards where appropriate, could be a pragmatic way forward.

It has to be recognised that a pragmatic approach to digital content rights must allow for content from different sources to be combined in a legal manner. Users[8] who design content will want to draw upon several sources and there should be clear guidelines about what is legal use of existing content.

It was also generally accepted that digital content is created, modified and kept locally. Whilst this might have complicated the DRM process, it is important to recognise that this need not be the case. There are also the associated issues of joint authorship and controls over the aggregation of content. In addition, the disparate interpretation of copyright across the EU causes confusion and needs to be addressed.

Recognising re-use

It was suggested that licensing mechanisms should recognise the possibility for content re-use and for users to modify, combine and re-purpose original content from a variety of

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[5]   WSDL: Web Services Description Language http://www.w3.org/TR/wsdl

[6]   SCORM : Sharable Content Object Reference Model
      http://www.adlnet.org/index.cfm?fuseaction=scormabt

[7]   LMS : Learning Management System

[8]   'Users' include teachers, trainers, tutors and the learners themselves

sources. In this respect, it is essential that metadata[9] schemes facilitate the tracking and attribution of changes and that this be carried out systematically as part of the re-use process.

2.2. Key Issues

During the workshop a total of eight issues were highlighted as being of particular relevance to the topic of access rights for e-learning content in Europe (see Annex B). Of these issues, the group decided to focus on four in particular, for which they then developed a series of recommendations outlined in the next section.

2.3. Recommendations

In considering their recommendations, the workshop members worked on the premise that '*issues of access, pedagogy, tools, intellectual property rights (IPR), etc are interlinked and cannot be considered in isolation*'.

Issue 1.

The management of rights for education is too complex, difficult, dispersed, diverse, uncoordinated… There is a need to integrate IPR/DRM into tools and standards (transparent), which support users in a typical usage scenario (eg create, process, consume and re-purpose content).

- Develop IPR components & templates, especially related to modification and re-use of commercial/non-commercial (open) content, based on use-cases and business models (perhaps even the notion of automatic audit methods to register the use of content especially in the case of the re-use of learning objects)
- Identify & implement requirements for 'light touch', pragmatic IPR support in all activities in a typical usage scenario
- Refine IPR support to cover the preferences capture process
- Establish enforcement/influence models
- Awareness raising amongst actors (eg publishers) about re-use scenarios
- Scope out an IPR tracking system

It should be noted that DRM systems can stimulate author content design, but can also stunt innovation while blocking content re-usability. A balance needs to be struck here.

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[9] Metadata : 'In general, "data about data;" functionally, "structured data about data." Metadata includes data associated with either an information system or an information object for purposes of description, administration, legal requirements, technical functionality, use and usage, and preservation. . In the case of Dublin Core, information that expresses the intellectual content, intellectual property and/or instantiation characteristics of an information resource'
http://dublincore.org/documents/usageguide/glossary.shtml

<u>Issue 2.</u>

New models are required for selecting, producing, using and re-using content for e-learning; eg learning objects, co-ownership, public-private, free/open. Users need the skills and competence to deal with this.

- Develop a pan European framework for IPR for e-learning, which guides authors as to the degree of access, use and reuse which may be applied to each piece of content
- Map appropriate tools to provide support for the implementation of the IPR framework, with automated meta-tagging of content
- Encourage and enable collaboration-based public/private sector business models

<u>Issue 3.</u>

Need also to support the equity of access to quality, relevant, unfiltered, public, open content.

- The term 'equity of access' needs to be better defined and understood and stakeholder groups such as teachers, politicians, learners, etc need to be educated about the issues surrounding content and IPR.
- Need to identify primary access problems, eg social, geographical, etc
- Develop common standards for public access rights
- Promote a peer-review process amongst content creators, along with self-evaluation and content critique by content users

<u>Issue 4.</u>

Need to educate stakeholders in opportunities offered by educational content and IPR, DRM issues, and encourage them to work together.

- Develop technology projects to demonstrate rights management, content protection and use monitoring, based on different use models.
- Identify and bring together key stakeholder groups to create a definition of the market and potential business models
- Conduct a survey of existing business models and best practice in IPR protection
- Create an online information resource about content publishing and in particular the issues relating to IPR

3.   'CREATING, SHARING AND REUSING E-LEARNING CONTENT'

3.1.   Discussion summary

Understanding the needs

First and foremost, it was recognised that the current discussions about what is desirable regarding controlling and creating e-learning content are far removed from the present reality in the classroom. However, the views of many delegates are informed by recent first-hand experience in just such environments.

Second, it is important that all stakeholders and influencers have a clear understanding of the needs of educators in terms of using digital content, and this should start at the top, in member state education ministries, and permeate down to the learners themselves.

Encouraging public-private partnership

It should also be remembered that the needs of business and education can vary in terms of digital content and e-learning. Nevertheless, there is considerable scope for the public and private sectors to forge much closer co-operation to create and re-use content, as there are lessons each can learn from the other. This should be accompanied by the development of acceptable business models that recognise the royalties and IPR.

Overcoming the practical problems

In the education sector it was noted that there are many practical difficulties that hinder the creation, sharing and use of digital content. For example, it's not easy to use streamed video content in the classroom because of a lack of equipment and broadband connection. In addition, cultural differences are very great across Europe and the perspective of many subjects is specific to the country. However, it may at least become technically and economically easier in the future with the advent of low cost mobile, multi-platform devices

It was suggested that the lack of interoperability between learning object metadata at a semantic level is hindering digital content re-use. It is possible to map application profiles however. Indeed, this is already being done to some extent, but this does not remove the need for learning objects to be interoperable.

Application profiles have a specific meaning in the context of the definitions of the specifications being put forward by the IMS[10]. It relates to the acceptable terminology of the application domain, the words and phrases used by those working in the domain. Taxonomy is important here and the structure and content of a taxonomy has to be agreed by the relevant community of practice.

Making learning more relevant

In many organisations, learning activities are separated from daily activity which makes the learning process much less relevant. A solution is to embed learning into companies' daily activities. This has 3 implications:

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[10]   IMS Global Learning Consortium : http://www.imsglobal.org/

1. Content production should relate to the context of the ordinary work process. Moreover, this should not just be left to specialist content creators: subject- based experts and supervisors in the workplace can use their knowledge to good effect

2. Delivery in working environment must respect local circumstances

3. Professional content production may be visually attractive and in short supply, but it cannot always be used in working environments because it has not been designed for reuse and adaptation. A standards-based approach would help overcome this problem of re-use, as well as facilitate the division of large pieces of content into smaller modules (re-usable learning objects).

The importance of localisation

Localisation is a key issue, in view of the number of different languages and cultures which can be involved. Often this is not simply a question of translation, but of adaptation of the whole learning approach. Hence localisation is a design rather than a production issue.

Usability is also an issue throughout the content creation chain, although a modular approach could be used to help mitigate this. Organisational culture can make a difference in uptake of learning objects.

A more active role for the user

It was suggested that too much software requires the user to change the way he or she works. A partial solution to this is the involvement of the user in the specification of the learning content development process and matching approaches to innovative pedagogical models which are better suited to the learning scenario. It would also allow the processes to be more clearly defined so that tools and services to support the processes can be built by the tool vendors. This is an important aspect of digital content production lifecycle.

The process of involving content users in creation needs to be formalised and encouraged, for both individuals and groups of users. Not only does this create more and better content, it also strengthens and enriches the learning process. This is particularly true for young people, who already have the ICT skills necessary for content development.

The importance of quality

However digital content is created, a key to its ongoing use and re-use is the development of a quality assurance process that is integral to the creation process. This can incorporate peer review and will help to ensure that students, teachers and trainers develop the ability to appraise content critically.

A dynamic service approach

Unlike traditional learning materials, digital content is not static. As it is shared and re-used, it changes and develops. In future, the content creation process should not be seen as linear and unidirectional, but rather as multi-directional and inclusive. This has important implications for the commercial provision of e-learning, where business

approaches need to better reflect a services model, rather than a traditional consumer-supplier model.

Supporting the practitioners and learners

In an educational environment, a consequence of these trends in digital content creation will be a change in the role of the teacher. Indeed, this is already happening: teachers are finding that they are no longer the sole guardians of knowledge and some see this as a threat. However, it can also be seen as an opportunity: teachers can develop new skills in digital learning object creation, in facilitating access to and use of digital knowledge resources and in teaching digital competence. The teacher training process must change to recognise this.

It is necessary to support teachers with easy to use tools having the relevant functionality to support the processes involved in creating high quality learning experiences. And the schools will also need to implement important organisational changes; for example to their incentive schemes, their curricula and their assessment procedures. Perhaps when this change is fully integrated and reflected throughout the organisation will teachers be less reluctant to create and share content.

There is a need to create a community of teachers developing learning objects across Europe so they can exchange them. Even if only a few teachers are willing to create content, this can still mean thousands across Europe, resulting in a lot of content development. The same consideration can be applied to other user groups.

In using digital learning objects in education it is important to build an information environment around the student so that full advantage can be taken. This means full provision of internet access and good quality digital content, for example.

The changing role of content

Digital content should be seen as the raw assets in the learning process, which must be produced in a flexible enough way to be combined to suit each different learning situation and subject area. For example, some would argue that e-learning may work well in technical subjects, but less well in philosophy. Whereas others would disagree and argue that if applied appropriately, ICT can support creative and innovative learning in non-technical settings. Re-use of digital content is to be encouraged but not everything can be re-used because the context and cultural environment changes significantly. Furthermore, there are times when the real value for learning comes not from the *use* of content but from the process of *generating* the content; for example, when students create original art works. Here re-use is less valuable than the opportunity to create the content in the first place.

Well described Learning Objects

It was suggested that, whilst the development of SCORM[11] had drawn a lot of different work together, much more still needs to be done, particularly to make SCORM relevant to educational content. Teachers need help to access content for its reuse from a variety of sources, and to do this there needs to be a richer description of learning objects. We

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[11]   SCORM : Sharable Content Object Reference Model
    http://www.adlnet.org/index.cfm?fuseaction=scormabt

also need easy to use tools for learning design to support teachers and foster greater innovation in the design of learning experiences.

Public sector strategy

It was also reinforced that we need a European digital content strategy for the public sector, which would provide a sustainable framework for content creation and aggregation. In this respect, one view expressed was that what publishers/Ministries really need to know (nationally) is where there is already a surfeit of digital material and where there are current gaps and future needs. At a European level it might be very useful for a Ministry to know that, while there is a lack of products with interactive geographical models in one country (surveys in the UK currently highlight this), another country may have an oversupply of such content that could be licensed/localised. This is sometime referred to as the "amenability and gap analysis".

3.2. Key Issues

During the workshop a total of seven issues were highlighted as being of particular relevance to the topic of access rights for e-learning content in Europe (see Annex C). Of these issues, the group decided to focus on three in particular, for which they then developed a series of recommendations outlined in the next section.

3.3. Recommendations

Issue 1.

Content and its contribution to e-learning

- Undertake an audit of existing tools for content production and use, and support research into the interoperability function of new and existing design tools
- Develop freely accessible web based services for citizens to access and produce content, supported by a simple interface
- Identify and provide for integration of different content production standards as appropriate
- Monitor feedback on content and its use in a learning context
- Develop an EU strategy for the re-purposing of existing and future digital content
- Develop a better understanding of the real demand for content, using a proper business model

Issue 2.

Understanding different learning styles and processes, and the impact of using ICT. Developing a quality assurance model for educational content

- Research into different learning styles and processes using ICT constructions as evidence, formulate and evaluate the 'learner model'.
- Develop learning material which can be adapted to different learning processes, and learner models, and test IMS learning design
- Identify and demonstrate best practices in content production and use, taking account of varying learning processes and new business models
- Develop and promote use of quality assurance methods across all usage scenarios
- Develop pedagogically sound and practically useful standards and specifications

- Research new articulations of domain ontologies including educational ontology. Identify connections and use comparative approaches.
- Bring together research in knowledge management and education

Issue 3.

Overcoming institutional barriers to change (legal, commercial and structural)

- Promote cross-institutional collaboration in areas such as assessment and accreditation, e-portfolios and smartcards and curriculum relevance
- Encourage support for pro-active change
- Explore interoperability tools to transfer information about individuals' achievements
- Support the use of multiple means of accessing content, eg TV, mobile phone, PC, telephone and emerging hand-held devices.
- Promote e-learning as an enabler of organisational change through the creation of communities of practice
- Research and evaluate new models for content production and pedagogy which do not emulate traditional print models
- Create processes for professional development and ensure that it accompanies the change process and is embedded in institutional development
- Develop mechanisms to find and store digital content, evaluate through peer and user review, and maintain appropriate use records

It should be noted that peer groups can stimulate quality improvement, but can also stunt innovation. A balance needs to be struck here.

4. CONCLUSION

Information and Communication technologies (ICT) have the potential – when used effectively – to open-up access to education and training, especially to persons who might otherwise be excluded; to act as a catalyst for innovation in learning; to facilitate organisational change within public and private institutions; and to help us achieve the political goals of lifelong learning and the Lisbon agenda. However, for the full potential to be realised we need (inter alia) access to relevant, contextualised, high quality content. A major source of such content is the suppliers of e-learning systems and courses. But equally there are the learners and educational practitioners themselves who generate valuable content during learning.

A significant debate is now taking place within the educational community on access rights and protection of educational content. On the one hand there are the commercial suppliers who wish to see a fair return on their investments. On the other hand there are the teachers and the learners, for example, who wish to be free to produce their own content, and to use relevant parts of proprietary content were appropriate. There is also a growing concern for content which is of a public nature, for example relating to our cultural heritage, and how this can be made widely available for free, or at a fair price.

Risk management and process support in respect of Digital Rights Management (DRM), Intellectual Property Rights (IPR) and Free/Open Source Software (F/OSS) are topics of increasing importance to e-learning. They could either facilitate the take-up of e-learning or alternatively act as a barrier to its realisation.

Similarly, providing the right conditions, tools and services for content to be easily created, shared and re-used is clearly a priority for Europe. And there are many factors and dimensions which need to be considered, including: tools to support users to generate their own content; brokerage systems & services for e-learning content (commercial & public); issues related to interoperability such as learning objects, metadata and the use of emerging standards; ensuring that content embraces the linguistic and cultural diversity of Europe; encouraging the emergence of a sustainable European market for content; … to mention but a few.

These workshops have shown that content is indeed a hot topic. However, its importance within the e-learning process must not be exaggerated; content may be important, but it's not necessarily king. ICT offers possibilities for us to learn in different – some would say better – ways; where learners take greater control of their own learning; where teachers and trainers become facilitators of learning rather than sources of knowledge; and where predefined content acts more as a catalyst for a process in which learners interact, collaborate and generate their own rich content as a valuable by-product of their learning. In these new learning scenarios, content continues to have an important albeit different role to play.

The workshop participants presented a number of complementary, if at times conflicting views. But there was considerable consensus on the fact that e-learning must not simply repeat existing ways of learning. Its true potential comes from doing things differently. As such it can facilitate innovation and provoke change. In this scenario content has a different role to play and must be handled differently.

These workshops have provided a valuable contribution to the debate on content. They have identified a number of important issues to be addressed if we are to achieve the true

potential of e-learning and provided some concrete recommendations for action. Our attention must now turn to making these happen.

A. LIST OF PARTICIPANTS

<u>Access Rights for e-Learning Content</u>

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Support for both workshops was provided by Peter MORGAN of DPA corporate communications ltd.

B. KEY ISSUES IDENTIFIED FOR 'ACCESS RIGHTS FOR e-LEARNING CONTENT'

Premise: issues of access, pedagogy, tools, IPR, etc are interlinked and cannot be considered in isolation.

Issues:

- Revise traditional models for supply and licensing of content for e-learning, as part of an interactive learning process

- Management of rights for education is too complex, difficult, dispersed, diverse, uncoordinated…Need to integrate IPR/ DRM into tools and standards (transparent), which support users in a typical usage scenario (eg create, process, consume and repurpose content)

- New models of selecting, producing, using and re- using content required for e-learning; eg learning objects, co- ownership, public- private, free/ open. Need skills and competence to deal with this.

- Need also to support equity of access to quality, relevant, unfiltered, public, open content

- Need to balance proprietary/ commercial rights with public remit and citizen's access

- Need to educate stakeholders in opportunities offered by educational content and IPR, DRM issues, and encourage them to work together

- There is a lot of good content, however the market is fragmented, immature, traditional. We need to clarify stakeholder (eg institutional) responsibilities and explore new business models

- Technology and tools need to support description and searching of relevant content, rather than filtering access and reducing linguistic/ cultural diversity

C. KEY ISSUES IDENTIFIED FOR 'CREATING, SHARING AND REUSING E-LEARNING CONTENT'

Premise:

– **There are a variety of stakeholders involved in learning (eg the learner, peer, teacher/trainer, expert, publisher, ICT industry, etc) and each may be involved with the creation, selection, commissioning, revision, use and re- use of content, at different times.**

– **Content varies in complexity and granularity from small media assets (eg a picture) to a whole on-line course. Its value may change over time.**

– **Content needs to be adapted and localised to the context; it is dependant on domain, sector, language, culture, learning situation, the learner, etc**

Issues:

- Tendency to imitate existing ways of learning, rather than transform and use content differently (eg collaboration, constructivism, etc). Need to develop e-content competence in teachers, tutors, trainers & learners

- Need institutional cultural and organisational change to overcome reluctance to share and encourage innovation. Need to instil a strategic approach.

- Need to research, analyse, understand and describe better the learning processes and role of stakeholders, in the context of an open system architecture. Need to define content and its contribution.

- Need new models for content selection, expectation, commissioning, creation, use and re-use; co-production, partnerships, personal/ citizen publishing, FOSS, etc. Support communities where benefits of sharing outweigh the cost & inconvenience. Need to look at interoperability at the semantic level

- Authoring, revision and LM tools need to be easier, interoperable and should automatically process & maintain metadata for users. Need new services. Localisation is important, as is the domain

- Quality assurance should be assured for educational content. Standards need to be encouraged and applied; users need to get involved

- Explore publicly/ subscriber funded interoperable content portals/ repositories, supported by dialogue and communities. Disseminate information about existing, quality content and its context for use. Promote & share best practice