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1 General information on the expert workshop

1.1 Organisation, date/time & location

Organisation: FernUniversitaet in Hagen, Viola Naust-Schulz

Date/time: 14 June 2006, 14:00-18:00

Location: University Extension Centre (Außeninstitut) of the Vienna University of Technology, Gußhausstraße 28, A-1040 Vienna

1.2 Agenda

The expert workshop took place after the second Project Management Meeting (11:00-13:30) and had the following agenda:

14:00 – 14:15

Welcome and short explanation of the goals of the workshop by Prof. Dr. P. Baumgartner

Short tour de table

14:15-16:00 – Expert presentations and short discussions

- Dr. Timo Borst, Distance University Hagen / Germany
- Prof. Keith G. Jeffery, CCLRC Rutherford Appleton Laboratory / UK
- Dr. Bernd Simon, Vienna University of Economics and Business / AT

Short break

16:15-18:00 – Expert presentations and discussion & conclusions

- Dr. Jan Hylén, OECD / France
- Dr. Volker Grassmuck, Humboldt University Berlin / Germany
- Joint discussion, Wrap-up & Next Steps

Note: After the workshop the project partners and invited experts had a Viennese dinner at the Wiedenbräu brewery.

1.3 Preparatory material for the experts

For the preparation of their input to the workshop the experts (and all other participants) received

- A handout on the goals and focus of the OLCOS project, definitions used (e.g. definition of ODEC) and information on the ongoing roadmapping work, etc. (not included in this document),
- A powerpoint template which contained some of the information from the handout and questions to receive expert opinions and further suggestions.

All experts made use of the powerpoint template to provide feedback and suggestions.

2 List of participants

Name	Institution
Dr. Guntram Geser, MAS	Salzburg Research Forschungsgesellschaft / Austria
Mag. Veronika Hornung-Prähauser	Salzburg Research Forschungsgesellschaft / Austria
Mag. Andreas Gruber	Salzburg Research Forschungsgesellschaft / Austria
Mag. Wernher Behrendt	Salzburg Research Forschungsgesellschaft / Austria
Prof. Dr. Peter Baumgartner	Distance University Hagen / Germany
Viola Naust	Distance University Hagen / Germany
Prof. Julià Minguillón Alfonso	Open University of Catalonia / Spain
Dr. Nuria Ferran Ferrer	Open University of Catalonia / Spain
Timo Väliharju	Mediamaesteri Group / Finland
Dr. Harald Gapski	European Centre for Media Competences / Germany
Ildiko Mazar	European Distance and E-Learning Network (EDEN)
Invited external experts:	
Dr. Jan Hylén	OECD / France
Dr. Volker Grassmuck	Humboldt University Berlin / Germany
Prof. Dr. Keith G. Jeffery	CCLRC Rutherford Appleton Laboratory / UK
Dr. Bernd Simon	Vienna University of Economics and Business Administration / Austria
Dr. Timo Borst	Distance University Hagen / Germany
Other participants:	
Thomas Nárosy, MAS	e-LISA academy / Austria
Petra Oberhuemer, MSc, MAS	University of Vienna / Austria

3 Background of invited experts

3.1 Presenters

Timo Borst, Distance University Hagen / Germany

Dr Timo Borst has a background in Computer Sciences and Social Sciences and is currently project manager of CampusContent (<http://www.campuscontent.de>).

The CampusContent project runs for five years and is funded by the Deutsche Forschungsgemeinschaft (DFG). The project establishes a Competence Centre in reusability of digital learning taken into account the didactical as well as technical aspects. The content on the CampusContent platform concentrates on multimedia for teaching and learning in the areas of information technology, natural sciences and engineering.

Volker Grassmuck, Humboldt University Berlin / Germany

Dr Volker Grassmuck is a researcher at the Humboldt Universität zu Berlin, Helmholtz-Zentrum für Kulturtechnik (<http://www2.rz.hu-berlin.de/kulturtechnik/>).

Grassmuck is a sociologist and has for several years been active in the area of Open Source Software and legal aspects of software and content. Grassmuck is a co-organiser of the Wizards of OS Conferences (the 4th conference is held in Berlin from 14-16 September 2006). He is also one of the initiators of Privatkopie.net, an initiative of mikro e.V., which concentrates on the advancement of media cultures and is a catalyst and independent platform for projects, discussions and events. He has worked on the iRights.info project, an exercise in “cooperative law making” which in 2006 received a Grimme Online Award in the category “information”. Grassmuck has also published the book *Freie Software. Zwischen Privat- und Gemeineigentum* (Bundeszentrale für politische Bildung, Bonn 2002) which since March 2004 is accessible online at <http://freie-software.bpb.de/>.

Keith G. Jeffery, CCLRC Rutherford Appleton Laboratory / UK

Prof. Dr. Keith G. Jeffery is Director of Information Technology and International Strategy of the CCLRC Rutherford Appleton Laboratory.

Jeffery previously was Director of their main IT department of the Central Laboratory of the Research Councils (CCLRC). This department employs 150 of the overall 2,000 people employed at the CCLRC, runs 1,100 servers and its services are used by about 360,000 individuals. Hence, Keith Jeffery’s presentation offered a perspective on Open Digital Educational Resources drawn from the experience and solutions of a large scale scientific and IT facility. The CCLRC Rutherford Appleton Laboratory has developed epubs.cclrc.ac.uk, which is one of the largest open access information resources in the UK, and has been involved in many e-learning projects with UK universities. Jeffery is also an expert advisor for DELOS, the Network of Excellence in Digital Libraries. One of his major research topic is metadata in which he has an experience of about 30 years.

Jan Hylén, OECD / France

Dr Jan Hylén currently manages the OECD/CERI study on Open Educational Resources (OER) that strives at mapping out important issues in concepts, access & usability, IPR, cost/benefits and sustainability of OER initiatives. Hylén has previously work for the Ministry of Education and Science in Sweden, was involved in the European Schoolnet for 4 years as well as worked as a private consultant for 3 years.

Bernd Simon, Vienna University of Economics and Business Administration / Austria

Dr Bernd Simon is a researcher at the Vienna University of Economics and Business Administration, Department of Information Systems.

He has conducted research in Open Content and Knowledge Sharing since 1999 (> 20 publications) and lead a work package on Open Content in the EU-IST-funded research project UNIVERSAL (The Universal Exchange for Pan-European Higher Education, 03/2000-01/2003). Since 2001 he is Service Manager of the Open Content Brokerage Platform EducaNext.org. Simon also has been a consultant on Open Content projects to the Austrian Ministry of Education and has co-edited the specifications of the Austrian Learning Network for Higher Education.

3.2 Other invited experts

Petra Oberhuemer, University of Vienna

Petra Oberhuemer (MSc., MAS) is co-director of the Projektzentrum Lehrentwicklung (center for development of teaching) of the University of Vienna with a focus on the use of new media in teaching. Since 1997 she has been involved in the development and implementation of Web-based e-learning projects and Open Distance Learning solutions for schools, universities and further education. Such projects and solutions include, for example, mathematics online (www.mathe-online.at, mathe.vwv.at/odl), WebBasedLearning in Medicine (www.akh-wien.ac.at/WBLMed/) or learn4life (www.learn4life.at). Oberhuemer also teaches at the Center for Education and Media of the Donau Universität Krems, and is a consultant to the Austrian Ministry of Education, Science and Culture.

Thomas Nárosy, e-LISA academy (Austria)

Thomas Nárosy, MAS, is director of the e-LISA Academy (<http://www.e-lisa-academy.at>) which since 2005 is a department of the Education Highway, a leading Austrian competence centre in the implementation and use of information and communication technologies in secondary education. Previously, the Academy was a company established by most of the Austrian publishers of school books to explore the opportunities in educational e-content (for example, digital supplements to textbooks) and to provide online courses in the use of Web-based teaching and learning resources. Nárosy has been involved in several e-learning working groups of the Austrian Ministry of Education, Science and Culture and of the Austrian educational publishers. He has also been involved in the development of “Schulbuch Extra”, online supplements to school books and other educational e-content.

4 Workshop results

The following presentation of the workshop results does not only summarise the presentations of the expert workshop.

Rather, the content of the presentations (based on OLCOS' feedback template), additional opinions by the experts during the presentations, and the sometimes rich discussions during the workshop are documented and further detailed by the author of the workshop minutes.

The reason for this form of documentation is to enable an easy inclusion of the workshop results in the OLCOS Roadmap Report.

The workshop results are presented as follows

1. Section 4.1: In the form of bulleted lists, this section summarises and further details the expert feedback and additional information regarding certain questions in the feedback template.
2. Section 4.2: Documents further observations, ideas, and discussion results. The sometimes longer paragraphs, that in part contain very specific information, could not be included in the bulleted lists, but are considered for inclusion and further elaboration in the Roadmap.
3. Section 4.3: This section documents suggestions provided by the invited experts on how to develop the Roadmap.

4.1 Summaries of expert feedback and discussions

4.1.1 Definition of Open Digital Educational Content (ODEC)

As a start for developing a comprehensive definition of ODEC the OLCOS study team suggested to understand ODEC as

- all digital content
- that is used for teaching and learning (online/presence),
- can be freely accessed, modified and re-distributed, and
- conforms to open technical standards and formats.
-

Some general comments to the working definition

- While some experts thought this definition to be useful others thought that maybe the ODEC definition is too content-centred and it would be more useful to adopt the OECD/CERI definition of Open Educational Resources, because OLCOS takes into account content, software tools, and licenses,
- Jan Hylén (OECD) stressed that this would be important to not add to a proliferation of definitions and terms which could only be counterproductive. Rather, he considered it important to march in the same direction “under one banner” to achieve a stronger visibility of the movement toward open resources for education.

- Experts also meant that the ODEC definition is very “open” with regard to institutional considerations, i.e. with regard to which forms of learning are addressed (formal, and in-formal?)

Questions related to the working definition

Workshop participants asked for details about certain aspects of the definition and provided suggestions to create a more detailed definition...

What is meant by “open” and “can be freely accessed, modified and re-distributed”?

- Accessible, yes of course, but what about “searchable“? and metadata?
- Accessed publicly or by a specific community (without license fees)?
- Affordable or for free?
- Which restrictions can be accepted? (cp. CC licenses vs. OSI)

What is meant by “educational”? (“used for teaching and learning”)

- Only formal learning, or also non-formal/ in-formal learning?
- Instead of “is used for teaching and learning” maybe use “that can be used to facilitate teaching and learning”,
- Specification of “educational content” should be descriptive enough to allow for identifying and categorising such content.
- Does ODEC undergo some special treatment which makes it „educational“, or is any digital resource educational as long as it potentially serves didactical purposes?
- Relation to other ODEC-definitions (like the OECD/CERI definition of OER), which set more restrictions on the meaning of “educational”
- What about potential commercial re-uses of ODEC, is it possible or strictly excluded?
- Students as (co-)producers of educational content? – Is this realistic (such [co-]production may only be rare examples)?

What is meant by “content”?

- Clearly distinguish between digital content in general and „digital educational content“.
- Social software blurs distinction between tools and content

Open technical standards and formats?

- This should be changed to “technical standards and open specifications”.

4.1.2 Comparison of Open Source Software and ODEC/OER

The workshop handout included some details on the expected characteristics of ODEC. These characteristics have been in part developed on the basis a comparison of ODEC to the definition of Open Source (The Open Source Definition - Version 1.9, www.opensource.org). Such comparisons included the aspects “free redistribution”, “source code” (in comparison to open formats in open content), “derived works”, and others. The idea behind this approach was that with respect to similarities the project could build to some degree on established results of the Open Source community.

In the workshop, the experts addressed the question on whether such an approach is useful. The experts thought that...

- OSS “is both part of and paradigm” for Open Educational Resources (OER),
- ODEC needs some adaptations to align with OSS,
- OpenContent IS NOT OpenSource IS NOT OpenAccess (different target groups, different aims, different conditions...),
- for open source software the advantages are more readily apparent (although, OSS usually needs much local maintenance / development effort),
- in the development of OSS dozens, hundreds and even more people work on bits of software, this may only be compared to larger open content productions such as, for example, Wikipedia (medium size works may consist of bundlings or collages of content); however websites that provide free access to large amounts of single units of images, podcasts, etc. may certainly not be compared to OSS,
- For example, compare Sourceforge (OSS) vs. Flickr (content: images): Sourceforge concentrates on software teams, maintenance, collaboration, Flickr supports single producers of content (photographs) and does not foster collaboration, etc,
- Maybe even more important, software and content are subject to different legal regulations (e.g., there are no patents for content; content is subject to IPR law),
- However, as re-use is important for ODEC, mandatory open formats could be seen as an equivalent to make the source code available for OSS.

4.1.3 Further development of the working definition / characterisation of ODEC

With respect to the characteristics of ODEC the experts missed:

- learning resources which are not only content but related to it such as tools, services, human resources,...
- if the ODEC definition remains limited to content, a detailed explanation could provide a taxonomy of such content,
- quality criteria of, and assurance mechanisms for, ODEC with regard to potential certification,

- rewarding mechanisms that acknowledge the work of producers and providers of open content,
- community aspects such as collaborative production and sharing of open content,
- integrating ODEC into institutional offerings,
- issues of re-use which has technical and pedagogical dimensions that should be elaborated further,
- licensing is not present in the working definition,
- references to applicable IP law (copyright, patents, trademarks) (note: in the USA business methods are patentable, could this apply to methods of teaching?),
- financing of ODEC, and relation to commercial use of content.

The experts suggested strengthening of the following aspects:

- “educational” use of ODEC, i.e. provide criteria for distinguishing such content and uses of such content from other, not educational content and related practices,
- identify critical stages in the ODEC-lifecycle,
- emphasise metadata, because, if metadata for ODEC are not available the content is undiscoverable / not linked to context / non-interoperable / non-manageable, etc.
- however, experts pointed in different directions with respect to the type of metadata; some suggested to use simple metadata standards (such as RSS metadata), others suggested to take the route towards “formalised” metadata (i.e. use of Semantic Web specifications such as RDF),
- typed linkages between learning objects and their context – including dates, provenance, origin of content, authors/contributors, etc.
- features like automatic quality assurance and provenance detection,
- reward mechanism (incentives) for the production and (re-)use of ODEC,
- the aspect of modification of open content, and the required technological interoperability,
- the aspect of open formats which is crucial for modifiability, e.g. , for derived, combined or mixed material (Notes: such works should clearly be marked as such. In technical terms, for new versions or material that considerably builds on work by others, metadata must be created that inform about the re-use made. Formats should be used that have metadata “embedded” and carry them with them),
- clarify moral rights (e.g. if your work is placed in a context you do not like), consider also issues of “recall” of formerly published works (change of mind of the original authors, etc.),
- clarify the recommended CC license (e.g. BY-SA),
- it should be stressed that ODEC is content for which IPR issues have been sorted out, consider whether it is possible to specialize existing licensing (such as CC) to educational software (for use by open content repositories and search engines).

4.1.4 Added value of ODEC

The experts were asked to state what they consider to be the core added value of ODEC in education. Answers to this question included

- to provide a long-term conceptual and legal framework for reusability,
- to foster informal learning, rather than institutional frameworks (as seems to be more the case with respect to the OECD/CERI focus on courseware),
- to foster asynchronous teaching and learning practices,
- to promote user-centred approaches (e.g. learn at own pace),
- to support distributed educational activities,
- to foster national and international alliances in content production and exchange,
- to share development costs among institutions or professional communities,
- to allow for more cost-effectiveness, e.g., electronic distribution channels for educational material increase “return on investment”,
- to “open the market” for producers and providers of ODEC other than, but not excluding, commercial providers (in fact, ODEC may to some degree promote offline educational material, e.g. increased sales of textbooks, course material, etc.
- to gain reputation by providing highly demanded educational material (which is not catered for by commercial publisher, e.g. due to not large enough potential user base),
- to provide feedback and quality control & management via an active user community (which may be more transparent than top-down formal quality management),
- to enrich institutional curricula and teaching & learning material through access to material from other contexts.

4.1.5 Benefits of ODEC for different user groups

The experts considered the following could be benefits...

For learners...

- Empowering the learner, e.g., own pace, own environment of learning, etc.
- Easy access to good content for free,
- A greater variety in available learning resources,
- More affinity towards informal learning,
- Potential to participate in the production or/and sharing of resources.

For teachers / tutors / researchers...

- Higher flexibility, e.g. in terms of “more flexible materials” (for example, in a survey conducted at the University of Vienna [with over 200 respondents] “more flexible materials” were one of the most important criteria for good e-content),
- Easier modification and integration of ODEC on the basis of open content formats and technical interoperability,
- Saving time (and thereby costs) through reusing resources,
- Learning from others, potential to receive more user feedback on their teaching,
- Recognition and reputation of content creators and providers,
- Greater clearance of licensing agreements.

For educational institutions ...

- Publicity and reputation based on the recognition “to do the right thing”,
- Higher degree of cost effectiveness (cost savings) through sharing the costs of content production and management,
- Leverage on taxpayers’ money through sharing and reuse,
- “What you give, you receive back improved” – cuts costs for content development of high-value content,
- Improvement of content quality through quality control also by content partners,
- Fostering of standardisation of content and metadata,
- Stimulus to develop new business models in a growing competition for students, funding, international cooperation, etc. (for example, Distance Learning Universities can reach students before they decide to attend an (online) course).

4.1.6 Factors influencing the future of ODEC

This section pulls together, summarises, and further elaborates results from the expert feedback and workshop discussion related to two points in the expert feedback template.

The first of those points asked for “the most important” factors which will influence the future of ODEC, the second asked for potential enablers of, and hindrances to, a first tentative ODEC scenario formulated by the study team.

The brief summary of this summary is provided below:

Summary of the ODEC Scenario(s) 2012:

- The prevailing mindset in education has changed to collaborative evolution of knowledge in communities.
- ODEC as a means to increase technology enhanced learning will be a very well-established and intensively used concept in many educational institutions.
- A general mindset has emerged that the distribution of costs and benefits of producing and

using open content is different from traditionally produced content.

- Content sharing communities will be encouraged through EU-wide awards and programmes.
- There will be few and large repositories for educational content (as opposed to too many and small).
- The re-use and re-linking of content will be supported through legislation (rather than hindered).
- ODEC is easily identifiable and findable.
- There will be clear and easy to be used licensing schemes.

Potential positive factors (enablers) include...

- Strong movement towards “openness” in science, education and culture (because this is felt to be “the right thing to do”).
- Currently there are several high-level initiatives in this direction such as the survey of the OECD’s Centre for Educational Research and Innovation (CERI) on Open Educational Resources (launched in August 2005 with an expected completion end of 2006) and the forum on Open Educational Resources of the UNESCOs International Institute for Educational Planning (IIEP).
- Open Content licensing schemes have been developed in several areas of creative production. In particular, Creative Commons has put in place a mechanism to easily apply an appropriate license; and the CC initiative is present in many countries around the world and locally managed and propagated by prestigious institutions.
- There already exist many open content repositories that develop best practices, exchange their know-how, and can serve as blue prints for further initiatives (for example, Ariadne, Merlot, Connexions, Open Courseware initiative [US University], Open University Open Content initiative, and others [note the OLCOS Roadmap will contain a list of selected and briefly described exemplary projects]).
- For open access repositories there exist tried and tested technical service infrastructures, in particular, the service set-up based on the Open Archive Initiative’s Protocol for Metadata Harvesting (OAI-PMH), which over the last years has seen a broad uptake.
- Adoption and propagation of “open content” approach by leading institutions (e.g. many initiatives have started after the extensive media coverage for MIT’s Open Courseware project).
- Strong promotion of lifelong learning and a tendency towards more informal, Web-based modes of learning.
- European educational policies such as the Bologna Process, in which so called “Joint or Integrated Programmes” may also increasingly develop and share educational material.
- Public bodies that fund academic and educational projects will increasingly demand that the results are made available for “open access” in order to leverage the investment of taxpayers money through knowledge transfer and potential broader innovation.
- The “academic publishing crisis” (increasing costs, but also the recognition of an unbalanced distribution of costs and benefits) has made it clear that in the digital

environment new content publishing and access models should be put in place (e.g. online peer-review, kitemarking, open access repositories,...).

- Educational institutions increasingly become aware that they need to develop new strategies regarding the development, quality assessment, provision and exchange of content (e.g. to decrease development and management costs).
- Demonstrations of the cost-effectiveness of ODEC; cost-effectiveness arguments will be a strong driver, however, the pace and success may to a considerable part be determined by appropriate technology.
- Increasing recognition of the importance of non-proprietary content formats and open technical specifications, promoted by the success and a broad uptake of Open Source Software such as Linux (e.g. for e-government systems), and also by the awareness by many institutions of the demands of long-term archiving of content in a situation of rapid change of information technologies, software, formats, etc..
- Widely used new cultural techniques such as forwarding, posting, linking, web-logging, embedding (e.g. including freely available java applets in a HTML document), etc.
- Low barrier, user-friendly end-user software makes it easier to participate, and ever more people (including teachers and students) not only consume, but, also themselves become producers of digital content.
- Easy to use “social software” applications make it possible for communities to collaboratively create and share content (e.g. Wikis, Weblogs, Podcasting, and others).
- New technical applications and infrastructures that allow for easy provision, syndication and sharing of content see a rapid uptake (e.g. RSS feeds & aggregators, peer-to-peer applications, and others).

Possible negative factors (barriers, hindrances) include...

- Limited funding resources and, consequently, high competition for funding.
- Unfavourable legal frameworks (e.g. amendment of copyright law in Germany: scientific publications must not be distributed electronically if commercial publishers hold distribution rights).
- Entrenched interests and unfavourable strategies of academic and educational publishers.
- Implementation of rigid Digital Rights Management Systems, not only by commercial players, but also by associations who want to protect the original work of the authors.
- Associated legal obfuscation and legalistic fears of producers, providers and end-users of open content.
- Little expertise in business models for open content (models that work will often require the right of different approaches that is not easy to achieve).
- Conservatism of academic teachers and unfavourable mindset with regard to re-use of resources from other institutions (“not invented here syndrome”).
- Institutions under pressure to develop new income streams (“profit centres”) may increasingly take copyrights from research and teaching staff in efforts to commercialise e-learning offerings.

- Increasing workload of research and teaching staff under a situation of decreasing funding resources.
- Resistance from researchers and academic teachers fuelled by fears of plagiarism of material.
- Models that build on teachers as producers of open educational content will need to take into account considerable efforts dedicated to training and support.
- Lack of reward system for researchers and teachers who create educational resources – an uneven balance between rewarding research vs. pedagogical/didactical work still exists in many academic institutions.
- Educational institutions often lack expertise in IPR, copyright, and application of licensing schemes.
- Lack of commonly agreed licensing schemes, which do not affect (different) national copyright law.
- Increasing standardisation of educational resources, which may impose formal restrictions of what is deemed to be “good” or “legitimate” educational content.
- Institutions would like to make users stick to „home repositories“.
- Central repositories may often not scale or due to limited resources not be able to implement state-of-the-art mechanisms for content management, search, licensing, etc.
- Slow development of technical platforms that support reusability, i.e. mechanism that allow for “on the fly” creation of new educational material from different content sources also taking into account didactical points of view.
- Lack in rich metadata (e.g. the widely used Dublin Core has considerable limitations), and slow uptake of (formal) Semantic Web content description schemas for educational content.

4.1.7 Key success factors

In the workshop discussion the following have been identified as key success factors for ODEC:

Provision of convincing demonstrators

A further diffusion of the concept and the practices implied in ODEC will require convincing demonstrators for decision makers of key target groups. In particular, this applies to the argument of cost-effectiveness.

Adoption by leading educational institutions, associations, and individuals

As has been the case with MIT’s Open Courseware initiative, the adoption and further propagation of the ODEC concept by leading institutions and association is to be seen as an important driver of the open content movement. Related to this, the movement could gain much additional momentum if renowned individuals are „leading by example“.

Further, academic and educational organisations could include the volume of various open access content in there balance of intellectual capital assets.

Reward mechanisms

Several workshop participants stressed the importance of appropriate rewarding mechanism for individuals (e.g. teachers) who provide content to Open Content repositories. The possibility to gain reputation alone may not be a strong enough driver to create high-value content and share it also with users outside a limited circle of peers and colleagues. Other incentives (e.g., monetary or institutional) will be needed to motivate potential creators of high-value content. It was understood that reward mechanisms could be “the factor that could make or break” the success of ODEC initiatives. It was also felt that institutional decision makers seem to ignore this important factor. Hence, there is a considerable need for awareness rising on this issue.

Importance of sharing open content for leveraging the quality and re-use of educational content

In the workshop discussion it was understood that content sharing should be promoted because a wider circulation will leverage the quality and re-use of educational content. As Jan Hylén (OECD/CERI) put it in the workshop, “what you give, you receive back improved” – this cuts costs of content development”. In fact, if educational institutions cooperate and use a shared pool of resources, cost effectiveness can be increased through savings in content production and management.

Furthermore, increases in content quality can be achieved through external quality control within a community of institutions who share content. The fact that the content made available will be assessed critically by partner institutions will most likely also have a positive effect regarding the implementation and control of internal quality criteria.

Regarding levels of use and re-use it must be stressed that open content will most often be produced by people whose salary is paid from public money. Hence, a wider circulation of content, enhancements in quality, and a broader use and re-use of such content means that taxpayers’ money sees a better return on investment in terms of learners who benefit from the content made available. More specifically, educational institutions may enrich their pool of available resources for study programmes with specialised content from partner institutions. In a truly open access environment also lifelong learners or companies may benefit from such content pools.

Adapt ODEC to existing practices

A broad usage of ODEC can be fostered by taking into account how people go about re-using content. Hence, ODEC should not run against the existing “copy & past culture”, but, at the same time allow for easy licensing of derived, combined or mixed works (e.g. on the basis of licenses such as the GNU Free Documentation License or the Creative Commons Attribution Share Alike License).

4.1.8 Measures to promote and support ODEC

It is clear that the provision and use of Open Digital Educational Content (ODEC) will not flourish if institutions and educational agents do not recognise, actively promote and support practices implied in the ODEC concept.

The following are measures and actions different stakeholders could apply in order to capitalise on the added value of ODEC and reap the benefits as summarised in a previous section.

More production and usage of ODEC could be encouraged...

If educational policy makers...

- Become aware of, and foster the uptake of, open access principles throughout the academic and educational sectors.
- Provide for a favourable regulatory framework regarding IPR, copyright, and licensing arrangements.
- Strengthen exceptions in copyright regulations for research and educational purposes.
- Funding bodies demand that results of academic and educational projects are made available for open access.
- Support competence and service centres in the implementation and management of state-of-the-art open access repositories and integrated content catalogues.
- Demand benchmarking of open access repositories and adherence to best practice guidelines.

If academic and educational decision makers and managers...

- Recognise the opportunities in open content and promote the concept of open access (e.g. to e-learning centres and research and teaching staff).
- Support the acquisition of the required organisational, legal and technical know-how.
- Pave the way for establishing cooperative approaches in content production and management in order to achieve cost-effectiveness.
- Establish reward systems for research and teaching staff in which the creation, provision, and re-use of open content is given a prominent role; and appropriately reward exemplary cases of open content production and sharing.
- Demand the implementation of quality control mechanisms in order to ensure that state-of-the-art content is made available.
- Provide clear institutional regulations in support of overcoming authors and users fears regarding provision and re-use of content.
- Define which licenses are to applied for own content as well as accepted when acquiring resources from external sources.
- Demand the implementation of mechanism for easy application of such licences.

If technology developers and implementers...

- Strive for developing applications that are user-friendly and help in changing user behaviours towards collaborative content production and re-use.
- Resist using proprietary technical specifications and strive to enhance the interoperability of software applications and content.
- Consider the specific requirements of educational applications (which includes to collaborate more intensively with educational experts that provide advise regarding pedagogical/didactical issues).
- Use technical approaches and specifications that distinguish between structure, layout and information of educational content.
- Foster the use of open content formats.
- Create applications for easy generation of standardized metadata descriptions of content.
- Implement open access infrastructures and repositories with state-of-the-art content submission, management, search, and access tools.
- Consider how to integrate smaller repositories into resource discovery networks.
- Develop enhanced linkage between LMS or VLE to ODEC libraries (e.g. domain based content in open access repositories).
- Take account of the importance of sharing metadata for federated search of available resources across repositories (e.g. services based on the Open Archives Initiative Protocol for Metadata Harvesting).
- Provide open interfaces for metadata distribution such as SQI and RSS.

If teaching staff (academic and school teachers, e-tutors, and others)...

- Learn to stimulate and manage open processes and practices of teaching and learning, e.g. collaborative creation of content.
- Recognise the potential in commons-based peer production e.g. with respect to content quality.
- Become more aware of the existence and opportunities in open content and open access repositories.
- Identify useful e-content from such repositories which may enrich rather than replace their already available content.
- Develop a good understanding of open content licensing and learn to apply appropriate licenses for their own content they wish to make available to others.
- Use / re-use to a higher degree e-content from open access repositories, rather than sticking to their own content.
- Use open content formats when creating teaching and learning material.
- Consider requirements of content reusability not only from the perspective technical interoperability but also didactical aspects.
- Consider to make their content available beyond the often very small circle of colleagues with whom they share teaching resources (e.g. to domain or cross-domain open access repositories).

- Are rewarded properly for their commons-based production and provision of teaching and learning material.

If individual learners

- Can participate in open processes and practices of knowledge creation and acquisition, e.g. collaborative re-use and creation of new content.
- Become more aware of the existence and opportunities in open content and open access repositories, e.g. learn to identify useful content and to enrich their pool of learning resources.
- Were engaged to a higher degree in the quality control of open educational content (e.g. with respect to their fit to learning needs and requirements).
- Demand for learning content in non-proprietary formats, and use such formats when documenting results of their own studies.
- Develop a good understanding of open content licensing and learn to apply appropriate licenses for their own content they wish to make available to others.
- Demand licensing of learning content to have the opportunity to re-use and share the content with others.
- Consider to make their study results available beyond the often very small circle of colleagues with whom they share learning resources and outcomes.

4.2 Further observations, ideas, and discussion results

The following paragraphs contain valuable observations, ideas, and discussion results which could not be included in the overviews in the form of bulleted lists above:

4.2.1 Attitudes and behaviours

Understanding “the reputation game”

Bernd Simon also drew the workshop participants’ attention to the importance of understanding “the reputation game”, i.e. that most academics (and other people) are particularly interested to develop a reputation, and that the Open Content concept would flourish the more the better it can take into account this motivation.

Prof. Baumgartner added to this that players such as MIT with their OpenCourseware project “play on reputation”, and that the project not only added to their reputation but also attracts additional students to the “bricks and mortar” university campus.

Cultures of Sharing

- Timo Borst pointed out the importance to understand the “culture of sharing”, which may differ from community to community.
- In successful online sharing of resources there often existed a practice of exchanging content before new online opportunities became available. For example, content was

shared through sending hard drives, CD-ROMs, etc. to a smaller group of colleagues in other universities (e.g. randomised exercises for tests in engineering and physics).

People often prefer to share their material (only) their peer community

Bernd Simon stressed that repository infrastructures should acknowledge that people often want to share their knowledge and content not with everybody, but their community of peers (for example, a mathematics teacher may want to make his material freely available only within a certain community whose borders are clearly defined).

Hence one or a few central repositories may not succeed in aggregating a critical mass of content, rather, there will emerge a multitude of smaller repositories for which appropriate infrastructures (e.g. metadata harvesters) would be required.

Further, licensing arrangements also could be very different if the content is created in the context of a community-oriented initiative or not.

Attitudes towards reusing content

- Timo Borst also thought that teachers tend to stick to their content and only seldom re-use or add content from others.
- This attitude has several reasons including technical problems in reusing content and unclear copyrights.

What teaching staff expect from LCMS and shared content

Petra Oberhuemer briefly informed the workshop participants that the Projektzentrum Lehrentwicklung (center for development of teaching) of the University of Vienna recently has carried out a survey on the expectations of research and teaching staff regarding the implementation of a new Content Management System the University is planning to implement (among the systems that are considered are Fedora and Libris).

Interestingly, most are interested in the long-term archiving & preservation of their academic material. Next, but with an in comparison rather small percentage come topics such as “learning objects” or “metadata”.

4.2.2 Business models

Importance of exploring feasible business models for ODEC

Thomas Nárosy, director of the e-LISA Academy, stressed the importance of business models for Open Digital Educational Content (ODEC) He pointed out that there will not exist one business model for all producers and providers of such resources, but, that they may differ considerably according to the different groups and combinations of stakeholders.

Nárosy understood ODEC to be a strategy which is driven by a vision of open access to educational e-content. Further, he asked what methodology would be most likely the best one

for implementing an ODEC strategy, for example: Starting bottom-up and see what turns out to work best? Starting top-down with a “master plan”? A mix of methods?

For developing an ODEC strategy Nárosy suggested to address and further detail the following set of questions:

What is the problem addressed by ODEC? In other words: Why is ODEC absolutely necessary “to make the world go round” in a better way (core benefits)?

What are feasible “business models” for ODEC (note: “business models” in the widest possible sense)?

What is the added value for end-users such as educational institutions and their staff? (e.g. relevant time-saving? quality enhancements?)

Who will pay the people who produce the content? What is their motivation and the “currency” of their payment? (Reputation? Extra money? Other incentives?) - How to prevent “forced obligation” imposed by institutions on staff to produce content, which may not bring about good results?

Who would be the ones to pay for the set-up and maintenance of an ODEC repository, to run the required business processes, establish metadata interoperability, etc.? - If access to the repository is “for free”, could there be income streams from special services?

Importance of provenance

Keith Jeffery stressed the importance of understanding and modelling the workflow of an institution (research, educational or any other) to allow for capturing metadata incrementally. This allows for “provenance”, i.e. to provide in a systematic fashion information about the context of content production, management, and various uses of content assets.

The CCLRC has developed such an approach from the viewpoint of supporting R&D, but it can also be applied by larger education bodies.

The CCLRC has implemented a system (CERIF) which provides for managing and accessing the content of their stakeholders based on first order logic reasoning mechanisms.

The whole set-up in certain instances also allows to test or exploit older datasets further by playing them back to the original software or use such software to analyse new datasets in a particular field of research.

Academic publishing crisis

Keith Jeffery pointed out that in academic publishing the current business model poses several problems that in recent years have led to a “publishing crisis”. A major point is the increasing cost of printed journals and conference proceedings (e.g. increases in prices above the rate of inflation). When it comes to e-journals these sometimes are only made available if also the paper journal is purchased. Furthermore, publishers “bundle” publications, i.e. academic and educational libraries have to buy titles not needed to get the ones needed. Furthermore, for institutional libraries also the real estate costs of the storage of paper journals and the costs of cataloguing paper journals must be taken into account. The whole approach becomes unaffordable.

At a closer look, the current business model of academic publishers seems rather unjust: Authors produce the work - no charge, peers review the work - no charge, editors revise the work - no charge, but when the publisher publishes the work this comes with a considerable

prize tag to be paid by the libraries that subscribe / obtain the work (e.g., a journal) on behalf of the researchers.

Regarding copyright most publishers demand(ed) copyright assigned to them, which prevents other publication of the work by the author (e.g. on Web pages). Further, publishers also retain Database Rights, which function like copyright but are renewable (15 years) if changes to the work are made (which can be made perpetual).

However, now 80-90% of journals allow self-archiving (but no further publication).

Jeffery thought that the publishers will over the next years change their role to aggregators and managers of content and concentrate on secondary publishing, i.e. exploiting content through special editions, compilations, etc.

Open Access publishing models

Via commercial publishers:

- E-journals are made freely accessible, because the authors resp. the authors' institutions pay to publish,
- The peer review is carried out in a conventional fashion (no charge),
- Usually the copyright is transferred to the publisher, but the authors have the right to 'self archive' (e.g. in a closed institutional repository),
- The e-journal is published by placing it in a proprietary OA repository of the publisher and can be accessed with no charge.

Via institutional or domain Open Access repositories:

- Authors create the works and deposit them in the repository (no charge),
- The copyright is retained by the authors,
- The peer review is carried out online by using annotation (no charge),
- Learned Societies kitemark, i.e. provide a quality label (charged),
- The work is published by harvesting repositories directly on query or via subject-based repository catalogues (no charge),
- But the repository has to be set up and maintained (cost), however, if the OA repository is managed by an institution this provides a record of organisational IP.

Importance of exceptions in the emerging "license space"

Volker Grassmuck with respect to the strong forces at work in the commercialisation of content stressed the importance to protect exceptions, e.g. the private copy and the quotation exceptions.

4.2.3 Content and metadata

Simple formats vs. multimedia

Petra Oberhuemer stressed the importance to distinguish between content such as powerpoint slides and media-rich interactive content. She asked what could be mechanisms for rewarding teachers who often invest much time in developing multimedia content?

Issue of mixing open content

Timo Borst stressed that often one finds a rather naive view of mixing content and thereby “getting something new”. In practice this also applies to content that is published under a very liberal licence. For example, on Wikipedia contributions are published as „free” content“ under the GNU Free Documentation License (GFDL). However, if one wants to mix such content with other one may face objections to such re-use.

Research as the starting point of new teaching resources in Higher Educational Institutions

Keith Jeffery suggested taking a look at research as the start of the ‘food chain’ of new teaching resources in Higher Educational Institutions. Such a perspective may be useful if the project decides to include the creation of scientific/academic material as a starting point in the OLCOS value chain.

Levels of accessibility of content in terms of required knowledge

Keith Jeffery with respect to the accessibility of academic content in terms of required knowledge sees the following pyramid:

- experienced researchers in a research field,
- post-doc researchers specialising in the field,
- post-graduals, who need a bit of steering and guidance with respect to the most relevant content,
- undergraduates for whom “digested material” is required that needs to be presented appropriately,
- however, under certain circumstances teachers and students in secondary education could be encouraged to access results of academic work, and integrate them in learning material.

Powerpoint presentations as teaching and study material (EducaNeXt)

Bernd Simon at the begin of his presentation showed the online platform EducaNeXt (www.educanext.org) that has been developed by his institute to allow for better access to resources such as Powerpoint presentations of academic teaching staff. (In technical terms he mentioned that the application supports SQL, RSS and other features).

He explained that although Powerpoint presentations are often used in academic teaching they most often contain little information on the context of creation and use as well as IPR and copyrights. EducaNeXt provides some recommendations for best practise in this field.

Open Access - Open Archives Initiative (OAI)

Keith Jeffery considered the OAI as an important element of “the way forward” in Open Access. OAI provides a protocol for metadata harvesting (OAI-PMH) that allows to harvest metadata from repositories to provide catalogs. The protocol messages are XML-based and contain header, metadata (in Dublin Core) describing the resources, and “about”, e.g. rights, provenance.

Limitations of current metadata

Several experts stressed the limitations of Dublin Core which, however, is one of the most widely used metadata standard. In particular, Dublin Core is the core metadata standard used by systems that build on the OAI Protocol for Metadata Harvesting.

- For educational purposes, Dublin Core does not provide for sufficient learning content description (and also the Learning Object Metadata [LOM] standard was felt to need further specialisations in order to take into account didactical criteria).
- Jeffrey stressed that Dublin Core (even “qualified” DC) is too informal, i.e. machine readable, but not machine understandable. Dublin Core is aimed at human browsing and “does not scale”. However, there exist proposals for ‘formalised’ DC (1999, 2004)
- For advanced systems structured formalised metadata are required (e.g. based on Semantic Web standards such as RDF).
- Grassmuck thought that “Dublin Core has failed” and that people create their own metadata via tags (“folksonomies”).

Metadata and search mechanisms

Bernd Simon pointed out that many people are rather reluctant to provide metadata, in part due to a lack in obligations and rules set by universities and institutes. However, some “reasonable” metadata should be provided because otherwise search mechanisms fail to provide useful results.

He also suggested that besides trying to achieve a higher level in the provision of metadata it would be favourable to provide advanced search services including ranking mechanism for the presentation of search results.

Bernd Simon also mentioned that while Google supports finding content that has been made available under a CC licence, this could only be found when using “extended search”, yet, that only a small fraction of search engine users make use of such search options.

4.3 Some expert advice to the OLCOS study team

What should OLCOS not lose sight of?

- Means to communicate the benefits of ODEC – demonstrators / use cases – to convince policy makers / funders, institutions, teachers and students, and other stakeholders.
- The opportunity to draw on existing and new declarations of “open content” or “open access” principles by high-level forums and institution.
- The strength in having multiple motivational systems co-existing in the same movement (both altruistic and non-altruistic motives).
- Unexpected dynamics if a larger part of the educational communities actually gets involved in the movement (e.g. problems of scaling, etc.).
- The presumably changing needs of learners. Not everything that is being initialised today may be appropriate in the future or even in the next decade.
- Technological developments around Web 2.0, but also IMS Learning Design or new repository query mechanism (e.g. SQL, IMS Query Services Specifications).
- The importance of having rich metadata for ODEC.

What should OLCOS 2012 not get entangled in?

- In too much discussion about legal framework (which requires involvement of legal experts).
- Fights with publishers who have entrenched interests.
- Attempts at “good” Digital Rights Management.
- Conceptual issues - rather than investing too much work in elaborating definitions take a pragmatic standpoint.
- Issues in the standardisation of e-learning content and technologies (up to now, very few e-learning standards emerged, e.g. LOM).

Practical suggestions regarding developing the OLCOS Roadmap

- Scope of research: It may be advisable to narrow the research areas with regard to the main issues as important to the key target groups of the project.
- Main type(s) of educational / learning considered: Decide on whether it is more important to cater for institutions that provide formal education or if ODEC is more about informal learning opportunities.
- Take a closer look at underlying trends and driving forces, starting with factors (e.g., technical, political, economic) already described in more detail by other projects.
- Distinguish between probable and desirable futures and the eventual gap between the two.
- Actions needed to go from probable to desirable future.

- Provide a “living model” of the ODEC life cycle, i.e. where / when / by whom / with which results activities such as “create”, „modify/re-use“, „share“, etc. take place.
- Maybe develop a strategy integrating results of best practice examples for the different stages in the ODEC life cycle.

5 Annex: Information on the OECD/CERI project on Open Educational Resources

Jan Hylén at the begin of his presentation briefly addressed the ongoing survey on Open Educational Resources of the Centre for Educational Research and Innovation (CERI) of the Organisation for Economic Co-operation and Development (OECD).

This survey was launched in August 2005 and will be finishing end of 2006.

The term Open Educational Resources (OER) has been introduced and promoted in the context of the UNESCO’s aim to on a global scale provide free access to educational resources for non-commercial purposes. The term has been adopted by UNESCO in 2002 in the final report of the Forum on the Impact of Open Courseware for Higher Education in Developing Countries, to refer to “the open provision of educational resources, enabled by information and communication technologies, for consultation, use and adaptation by a community of users for non-commercial purposes”. (UNESCO 2002)

With respect to this definition, it is of particular importance to stress that “resources” is not limited to content, but includes “the creation of open source software and development tools, the creation and provision of open course content, and the development of standards and licensing tools” (cf. UNESCO – IIEP 2005)

The OECD/CERI project analyses and maps the scale and scope of initiatives regarding OER in terms of their purpose, content, and funding. It looks into different sustainable cost/benefits models and intellectual property right issues linked to OER initiatives. Furthermore, the project addresses questions regarding incentives and barriers for universities and faculty staff to deliver their material to OER initiatives and how to improve access and usefulness for users of OER.

Hylén stressed that Open Educational Resources (OER) as defined by CERI are “a vast area” to map as well as is “a fast evolving landscape”.

Four main activities are planned within the project:

- a concept analysis of the concept “open educational resources”;
- a mapping activity with the purpose of giving the contours of an “OER initiatives map” in order to grasp the scope and scale of OER activities [For example, of the over 3,000 universities in the OECD area, 1,8000 were e-mailed, 120 replied, 80-90 said “yes, we do something in this area”];
- two web-surveys: one to a restricted number of higher educational institutions and one open survey. These will be complemented with site visits, telephone interviews etc. to further investigate how institutions tackle the above mentioned issues;
- a close co-operation with UNESCO International Institute for Educational Planning (IIEP) Forum on Open Educational Resources/Open content.

6 List of projects and resources mentioned in the expert workshop

ArXiv (hosted by Cornell University Library): Domain-based repository model (instead of institutional repository approach), in June 2006 it provided open access to 372,283 e-prints in physics, mathematics, computer Science and quantitative biology, <http://arxiv.org>

Assche van, F. / Duval, E. / Massart, D. / Olmedilla, D. / Simon, B., Sobernig, S. (2006): Spinning Interoperable Applications for Teaching & Learning using the Simple Query Interface. In: *Educational Technology & Society*, 9(2), 51-67, http://www.ifets.info/journals/9_2/5.pdf

CampusContent, <http://www.campuscontent.de>

CCLRC ePublication Archive, <http://epubs.cclrc.ac.uk>

Connexions, <http://cnx.org>

Dublin Core Metadata Initiative, <http://dublincore.org>

EducaNext.org (an open content brokerage platform), <http://www.educanext.org>

Freedomdefined.org, <http://freedomdefined.org/Definition>

Grassmuck, Volker (2002): *Freie Software. Zwischen Privat- und Gemeineigentum* (Bundeszentrale für politische Bildung, Bonn 2002), <http://freie-software.bpb.de>

iRights.info (an information resource on IPR and copyright; information only in German), <http://irights.info>

OECD/CERI, www.oecd.org/edu/ceri/.

OECD/CERI: Think Scenarios, Rethink Education. OECD 2006. Executive Summary, <http://www.oecd.org/dataoecd/52/49/36702582.pdf>

OECD/CERI: Open Educational Resources - project information: http://www.oecd.org/document/20/0,2340,en_2649_35845581_35023444_1_1_1_1,00.html

OECD/CERI Background Paper on the Project “Open Educational Resources: Opportunities and Challenges”, <http://www.oecd.org/dataoecd/1/49/36243575.pdf>

OECD/CERI: Schooling for Tomorrow project, http://www.oecd.org/document/6/0,2340,en_2649_34521_31420934_1_1_1_1,00.html

Open Archives Initiative, <http://www.openarchives.org/>

Privatkopie.net, <http://privatkopie.net/>

Simon, Bernd (2003): *Erfolgsfaktoren für den Austausch von Bildungsinhalten über Wissensmärkte*. In: Information Management & Consulting, 18 (2003) 1, p. 17-22.

UNESCO (2002): Forum on the impact of Open Courseware for higher education in developing countries. Final report. Paris: UNESCO.

UNESCO IIEP - International Institute for Educational Planning (2005): Internet Discussion Forum: Open Educational Resources – Open Content for Higher Education, 24 October – 2 December 2005. Final forum report, <http://www.ifap.ru/library/book064.pdf>

Wizards of OS 4 “Information Freedom Rules”. International Conference, Berlin, 14-16 September 2006, <http://www.wizards-of-os.org>