

# EdReNe – Educational Repositories Network

## EdReNe – Rede de repositórios educacionais

**Abstract:** Many countries establish educational repositories in order to bridge the gap between providers of learning resources and potential users who are not aware of the opportunities. In the EdReNe – Educational Repositories Network owners of repositories share experiences with other central stakeholders on strategies at a general level and implementation at the operational level. EdReNe arranges strategic seminars and expert workshops for members and invites any key actor in the area to join the thematic network. The close collaboration also results in helpful public information regarding educational repositories. This paper summarises some of the key findings, reported in the network's State of the Art report of December 2008, which describes the current status of educational repositories in Europe.

**Keywords:** Networking. Educational repositories. Learning resources. State of the art in Europe.

**Resumo:** Muitos países estabelecem repositórios educacionais a fim de aproximar o distanciamento entre fornecedores de recursos de aprendizagem e usuários potenciais, que não estão cientes das oportunidades. Na EdReNe – Rede de Repositórios Educacionais – os proprietários de repositórios compartilham experiências com outros acionistas centrais sobre estratégias, em geral, e implementação, em nível operacional. A EdReNe organiza seminários estratégicos e workshops específicos para seus membros e convida qualquer ator-chave na área a aderir esta rede temática. A estreita colaboração também resulta em informações úteis ao público, com respeito a repositórios educacionais. Este trabalho resume algumas das principais conclusões publicadas no relatório do Estado da Arte da Rede, de dezembro de 2008, que descreve a atual situação de repositórios educacionais na Europa.

**Palavras-chave:** Rede, Repositórios educacionais, recursos de aprendizagem, Estado da Arte na Europa.

Leo Højsholt-Poulsen  
UNI-C

Tommy Byskov Lund  
UNI-C

### 1 Educational Repositories and the EdReNe Network

To make it easier for teachers and students to find the best relevant learning resources, authorities and/or companies in many countries have launched web based educational repositories. Repositories are key disseminators of information of available learning resources. In repositories users search or browse for relevant resources (text books, websites etc.) among the vast supply on the market.

The variety in educational repositories across Europe is huge. Some repositories are merely catalogues (sometimes also called referatories) of learning resources. They contain only descriptions of the learning content. However, about 80% of European repositories contain a brief description of each title and the (digital) content, meaning they have both metadata (a description of the resource) and data (the learning resource itself).

The resources can be any type of content from “traditional” texts books to digital materials, but most countries focus on digital learning resources in order to encourage the

teachers' uptake of innovative materials and new learning styles.

The digital content may be an uploaded file (spreadsheet, text file etc.), but in most cases it is a web resource (a collection of web sites), and this resource may be part of the repository or the repository simply links to it at another server somewhere in cyberspace. This does not really matter to the user.

It is certainly the case that the approaches taken by the various European countries differ. However, all countries and developers share the objective of making resources visible and available to the users, and they face the same challenges of e.g. reaching many users, managing rights and adopting standards.

### 1.1 EdReNe – Organisation and Objectives

The EdReNe thematic network<sup>1</sup> was established in 2007 with support from the European Union's eContentplus programme<sup>2</sup>. The objective of EdReNe is to bring together web-based repositories of learning resources with content owners and other stakeholders within education in order to share, develop and document strategies, experiences, practices, solutions, advice, procedures etc. on the organisation, structuring and functionality of repositories. The overall goal is to improve the provision of and access to learning resources.

January 2009 EdReNe comprises 39 members covering most European countries. The members represent key players from national authorities to producers, users and researchers. This gives an insight into really many initiatives as well as different perspectives to the issues analyzed. Any institution, organisation or company etc. from all over the world can apply to become an associate member and participate in the network's sharing of experiences.

At a series of strategic seminars and expert workshops members and invited external experts identify the issues of highest priority,

and they present strategies and concrete examples of practice, which they then discuss in further detail in group sessions.

The workshops are centred on four themes:

*Repository strategies* - Analysis and discussion of issues on the general/strategic level of educational repositories;

*Engagement of producers and users* - With a focus on the daily operational level of repository life this theme encompasses issues such as user interface, community building, attracting and maintaining users;

*Standards and interoperability* - Discuss and document best practice examples of the use of technical standards facilitating and supporting learning resource discovery and use;

*Rights issues* - Identify, discuss, document and produce guidelines and roadmaps for issues concerning intellectual property rights.

## 2 Some Trends of Successful Educational Repositories

The issues that top the agenda during the workshops and seminars are of course biased towards the issues deemed most relevant by EdReNe members. Despite the fact that the main focus of the EdReNe network is on repositories targeting K-12, the set of problems is quite similar to the issues currently discussed for repositories within higher education/universities<sup>3</sup>.

In its State of the Art report of December 2008 EdReNe describes and summarises the current status of educational repositories in Europe<sup>4</sup>. Even though the contexts in which repositories are initiated and further developed differ substantially, many problems are similar. This section extracts but a few of the trends

1 EdReNe – Educational Repositories Network. See <<http://edrene.org>>

2 From January 1st 2009 the eContentplus programme was continued under the Information and Communications Technologies (ICT) Policy Support Programme ("ICT PSP"), one of three specific programmes implemented in the Competitiveness and Innovation Framework Programme (2007-2013) ("CIP"). See <[http://ec.europa.eu/cip/index\\_en.htm](http://ec.europa.eu/cip/index_en.htm)>

3 IYOSHII, T.; KUMAR, M.S.V. (Ed.): *Opening Up Education: The Collective Advancement of Education through Open Technology, Open Content, and Open Knowledge*. Cambridge, MA: MIT Press, 2008. Available from: <<http://mitpress.mit.edu/catalog/item/default.asp?Ttype=2 &tid=11309>>

4 HØJSHOLT-POULSEN, L.; LUND, T.B. *EdReNe State of the Art II: Educational repositories in Europe*. Available from <http://edrene.org/results/currentState/index.html>.

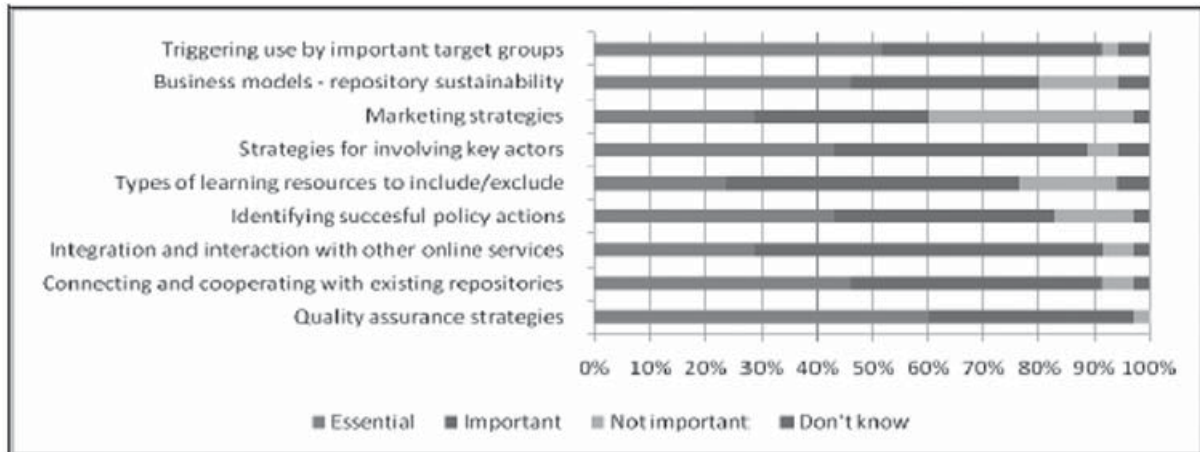


Figure 1- Repository strategies, priority issues for their successful definition and implementation. EdReNe survey, 2nd strategic seminar (Lisbon, June 2008).

that have emerged during the discussions and presentations at EdReNe events and it also draws on surveys of members.

## 2.1 Repository Strategies

Most repositories share the goals of ensuring safe and easy access to a critical mass of continuously evolving quality content – and as an important success parameter have a high percentage of their target groups as returning users. The roads to obtaining this are however quite different.

In Britain Becta is developing *Guidelines for Repository Owners*<sup>5</sup> to support this. These guidelines will cover the topics: Quality of resources, IPR and Copyright, Metadata, Exposing repositories to other systems, User interface, Marketing to users, Sharing mechanisms, Accessibility and E-safety. These topics align nicely with most of the issues that EdReNe members find to be most relevant to share experiences about.

### 2.1.1 Types of learning resources

More than 80% of the EdReNe repositories include both metadata and content. The tendency seems to be that older repositories are “referatories” linking to external websites with a move to repositories where you can deposit finished content and the next probable

<sup>5</sup> Currently an internal draft is available to EdReNe members. A recent report on higher education (institutional) repositories in the UK also gives advice on standardization, best practice and community engagement. See <<http://ie-repository.jisc.ac.uk/259/>>

step being co-development of content at the repository (EdReNe repositories have launch years from 1993 to 2009).

The current distribution between various types of content differs quite a lot. Except for specialized video/photo collections the tendency is that repository content is a fairly broad mix of text documents, video, audio, graphics etc. A few repositories also include non-digital materials (e.g. text books). A little less than a third of repositories have a mix between free and commercial materials.

*The majority of the teachers still prefer traditional textbooks, so a repository may impact better if it includes these traditional learning resources, too. However, in many countries public authorities establish repositories to bring focus to and to encourage the innovative use of digital learning resources.*

National (public) *broadcasting companies* have established popular services by which schools can subscribe to TV and radio productions, and *cultural heritage repositories* have also emerged in a number of countries.

### 2.1.2 Quality assurance

*Ensuring high quality content* tops the agenda of EdReNe members and other networks<sup>6</sup>. Most quality measures implemented so far are either based on central editing and technical measures (link check etc.). This is also one of the reasons that this is considered important – central quality assurance methods don’t scale and are not always transparent to end

<sup>6</sup> Q4R - Quality for Reuse. See <<http://www.q4r.org/>>

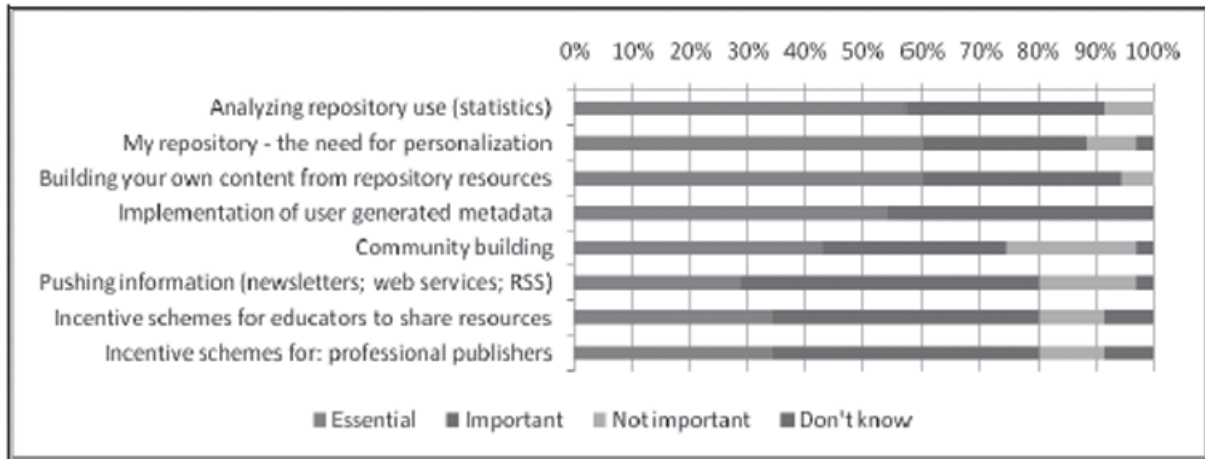


Figure 2 – Engagement of users priority issues. EdReNe survey, 2nd strategic seminar.

users. There seems to be a trend correlating with other web 2.0 initiatives, where quality assurance to a higher degree than earlier will be based on user tagging, resource popularity, peer trust and similar mechanisms.

In a number of countries metadata and content will go through quality assurance, e.g. evaluation and quality check of especially resources from teachers and other non-commercial providers. Becta has published *Quality Principles*<sup>7</sup>, which serve as guidelines related to designing, choosing and using digital learning resources to support effective learning and teaching.

### 2.1.3 Integration and interaction with other online services

Increasingly the users meet the repository or a collection of repositories at their local school web portal or in their own virtual learning environment. The user interface or search facility can be embedded in the familiar local system. This interface connects to a search engine that passes the user's search to a central repository from where it returns the selection of titles that matches the search.

Some countries and regions combine their initiatives on central repositories with school learning platforms. A repository is seen as a set of services with a decreasing need for a dedicated user interface – or perhaps rather that access to the content should be available through a number of tailored contexts

including VLE/LMS, RSS readers, social web sites, mobile devices, browser search bars etc.

More than half of EdReNe repositories have implemented metadata harvesting from other repositories as an effort to provide easier resource retrieval – and the same is true for federated search.

### 2.1.4 Business models – repository sustainability

The general picture now is that creating and maintaining national educational repositories requires public funding in some way or another. In most cases the public involvement is based on a government strategy to promote e-learning by encouraging the (re-)use of digital resources and tools in education. An important element of these policies is also to form communities of teachers interested in collaboration and willing to share educational experiences and materials.

*Some ministries finance and produce digital learning resources themselves* or provide specific funding for schools enabling the free access to or purchase of learning objects produced by professional publishers. However, some private publishers experience success with subscriptions to the companies' materials.

## 2.2 Engaging Users and Producers

The EdReNe network repositories almost all consider educators their primary target group, and the second most important group is pupils/students. In this sense there is a

<sup>7</sup> Quality Principles for Digital Learning Resources. See <[http://partners.becta.org.uk/index.php?catcode=\\_sa\\_cs\\_cf\\_03&section=sa](http://partners.becta.org.uk/index.php?catcode=_sa_cs_cf_03&section=sa)>

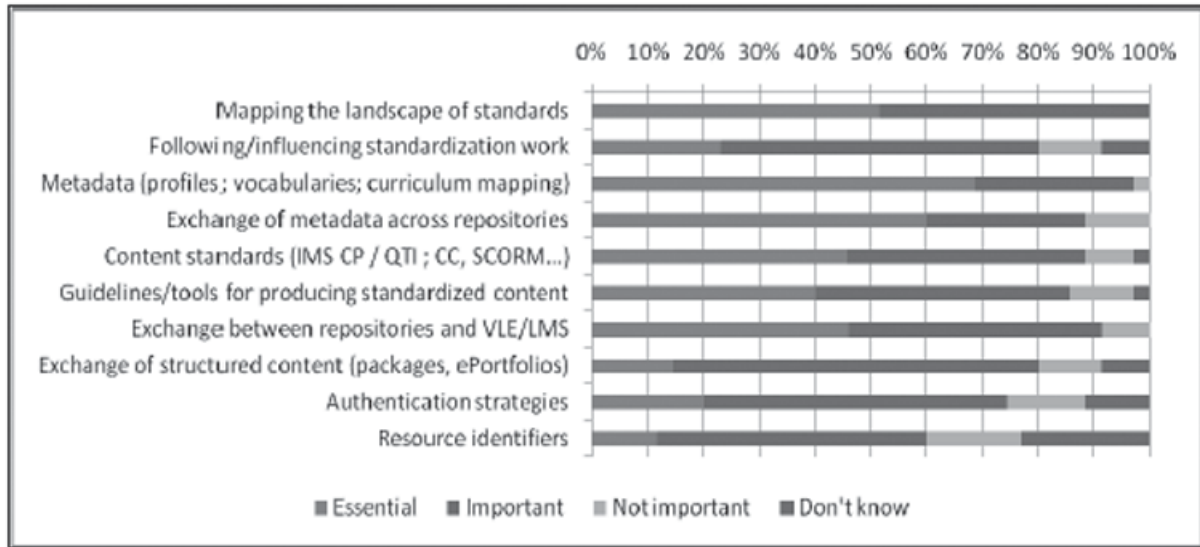


Figure 3 – Standards and interoperability priority issues. EdReNe survey, 2nd strategic seminar.

shared challenge in identifying the decisive benefits that will trigger repository use by these groups.

90% of surveyed member repositories have an ambition of teachers visiting their repository at least once a week. This should be seen in comparison with estimates from the same repositories stating that from 5% to maximum 60% of the primary target group actually visited during the last month.

A general observation is that it is not easy to make teachers share materials, documented by research findings from Becta that identify *drivers and blockers* to teachers accessing, repurposing and sharing digital resources.

Examples<sup>8</sup> indicate that bottom-up approaches or user-based repositories seem to have more success with involving teachers and creating *an active community around their repository* than is the case for most traditional top-down approaches.

A successful repository<sup>9</sup> must be *available for a long time*, not vanishing when a given project is finished. Both teachers and students appreciate *subject based references* edited by teachers, and of course they must be up-to-date.

### 2.3 Standards and Interoperability

8 KlasCement. See <http://klascement.net> ; Lektion.se. See <http://lektion.se>

9 EduHi is an example of a very successful repository. See <http://www.eduhi.at/>

#### 2.3.1 Metadata

Metadata in most European repositories are *application profiles of the IEEE LOM standard*: DANLOM, LOMFR, CZP, UK LOM Core etc. When taking a closer look at the mandatory elements of these profiles they almost inadvertently fall within the Dublin Core Education metadata set. Furthermore, repositories are facing a new situation where the recognition of LOM insufficiencies in some areas means that the future is likely to bring application profiles based on multiple schemas.

Many countries/repositories consider pedagogical metadata important and also *link content to the curriculum*<sup>10</sup>. To minimize costs of metadata creation automatic metadata creation and user tagging are increasingly important. The current tendency concerning metadata standardization seems to be a move away from a very elaborate scheme toward abstract models building on semantic web technology, as exemplified by RDF and the DCMI abstract model.

Concerning metadata exchange between repositories the most widespread solutions appear to be metadata harvesting using OAI-PMH – with examples of push strategies (ATOM) being implemented as well. Federated search (SQI) is also implemented at a number

10 France, see <http://www.educasources.education.fr/>; Ireland, see <http://www.scoilnet.ie/>; Denmark, Hungary, Iceland, Austria, Norway and the UK (the now closed Curriculum Online service).



Figure 4 – Priority of rights issues. EdReNe survey, 2nd strategic seminar.

of repositories – either within a single country or as part of an international federation<sup>11</sup>.

### 2.3.2 Content standards

Currently the *dominant standard for digital content is SCORM* – but less than half of the surveyed repositories indicate that they host standardized content packages, and for many of those who do they often only make up a minor part of the content. Conforming to the standards should help content to exist much longer and facilitate interoperability of systems. The general picture still is one of a lack of easy-to-use authoring tools supporting the relevant standards and a great variety in the details on how different tools and platforms comply with standards and specifications. Other content standards more tailored to meeting the needs of K-12 education (such as IMS learning Design and Common Cartridge) are even less widely used. It should also be noted that flexibility and adaptability of the content is considered very important by many teachers, something that is often not easily obtained with many existing content packages.

One area that is increasingly coming into focus is the interaction between repositories and learning platforms. A common problem across deployments is the inability of teachers to access and share digital learning resources via the learning platforms.

The discussion on whether – or when – the

current learning platforms will be challenged or replaced by more personal learning environments / web 2.0 technologies and how this will affect repositories has also been discussed among members.

Adding to this somewhat muddled and heterogeneous picture is the fact that quite successful repositories,<sup>12</sup> do not apply these international standards.

### 2.3.3 Authentication and authorization

More than 80% of member repositories do not require users to log in to gain access to metadata and resources – and even depositing of content can be done anonymously in some cases (this “general” picture is of course somewhat biased by the fact that much of the content in the surveyed repositories is freely available).

Providing Single Sign On solutions to all content and tools needed by teachers and students is however still an important goal in most countries. The strategies for achieving this are quite diverse (often for historical reasons) and will be further discussed within the network.

## 2.4 Rights Issues

Copyright issues still present one of the really important barriers and challenges to the

11 Primarily the projects MELT & CALIBRATE. See <<http://melt.eun.org> & <http://calibrate.eun.org>>

12 Britannica Online. See <<http://info.eb.com/html/educators.html>>

development of successful repositories. This is especially true in the case of user generated content. Much progress on Open Educational Resources has been made through the advent of for example *Creative Commons*<sup>13</sup> although it is still in its infancy and with a number of problems in K-12 repositories.

Even though a number of repositories base their licensing on Creative Commons there is not necessarily a coherent strategy from the political level. More often than not the decision is left to the user based on advice formulated by the repository owners. Coordination within this area is important to ensure the best possibilities of reuse of content.

In many repositories everybody, who registers a new title, must agree to an online declaration, and the publishers or teachers, who created the learning resource, must also enter the descriptive metadata. In most

countries, all users subsequently have free access to the resources. The philosophy is to reduce barriers of use. However, some (successful) repositories request a membership or subscription in order to register, upload or download a resource.

### 3 Conclusion

An updated national status of educational repositories is available at edrene.org together with public proceedings from the seminars and workshops. In 2009 and 2010 the EdReNe network will produce public synthesis reports on the four themes. The proceedings and reports offer possible solutions to the problems identified by the members. Existing repositories can cut some corners and new repositories may have a less costly and much less complicated path in life.

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13 Creative Commons. See <<http://creativecommons.org/>>

## References

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**Leo Højsholt-Poulsen**

UNI•C, Denmark, leo.hojsholt-poulsen@uni-c.dk

**Tommy Byskov Lund**

UNI•C, Denmark, tommy.byskov.lund@uni-c.dk