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Tilman Küchler, Jan M. Pawlowski & Volker Zimmermann

Social Tagging and Open Content
A Concept for the Future of E-Learning and Knowledge Management?

Summary

Open Content is a promising concept for e-learning and knowledge management. It can improve sharing and re-using educational resources and create new business opportunities. However, in contrast to open source software, these opportunities have not yet been adopted by a wide community. This article discusses barriers and opportunities. The Content Explosion Model shows how content can be re-used and adapted to increase sharing and distributing Open Content. Social tagging is discussed, on the basis of an implementation example (SLIDESTAR), as a means of fostering content exchange on a content community platform.

1 Introduction

Open Content is a promising concept for certain fields of e-learning and knowledge management. Open Content denotes educational resources which are intended to be shared and distributed amongst interested stakeholders (cf. Attwell, 2005; Baldi et al., 2002; Clark, 2004). This does not necessarily mean that those resources are freely available and not intended for revenue generation. Those resources are only a base for businesses and organizations using different business models and licensing, e.g., using Creative Commons licensing models (Creative Commons, 2002).

It is widely accepted that open source software development (Raymond, 1999 – for a comparison see Baldi et al., 2002) or open access for publishing (Björk, 2004) can be successful models for both, (freely) sharing resources and developing businesses. From those fields, we have learned that these business models can be successful, e.g., by providing consulting services or developing commercial add-ons. Those concepts might be successful in the field of learning and knowledge management as well. However, Open Content has not yet been widely accepted and adopted by communities in learning, education, and training.

This paper shows potentials for Open Content initiatives for both areas, e-learning and knowledge management. The presented model shows opportunities for two

purposes: sharing and distributing open content to a wide community and developing business opportunities in this field.

2 Open Content

2.1 Concept and Examples

The term of Open Content (OC) is not yet clearly defined and can be misunderstood. Open Content in a narrow sense denotes sharable and re-usable content for the purpose of learning, education and training. However, a variety of content can be used for educational purposes: Besides E-Learning modules a huge amount of content for knowledge management purposes is available on the internet. In Communities of Practice (CoP), users share their knowledge on specific fields (Lave & Wenger, 1991; Reimann, 2008). They do not solely provide documents or information but work in a common field towards a common goal (e.g., problem solving). Therefore, Open Content can be seen as shared, distributed, and re-used content by stakeholders for educational and knowledge management purposes.

Open content in the field of E-Learning can significantly improve the access to content by learners, content providers and other stakeholders (Attwell, 2005; Vuorikari, 2004). Open content must be re-usable, accessible, interoperable to allow stakeholders to re-use open content – if this condition is met, open content can initiate a community-based, cooperative production process leading to an exponential increase of content – similar success stories can be found in the field of open source software (Baldi et al., 2002) or open access publishing (Björk, 2004). However, currently only very few stakeholders use this opportunity. Therefore it is necessary to adopt and evaluate Open Content Models regarding their potentials for knowledge sharing, knowledge distribution and business models.

Several communities provide open content for different purposes. The MIT OCW Open Courseware project in the USA and several US universities provide their content freely available. It can be argued that this content provision is done for marketing purposes as a degree from those high-profile universities is the main attraction to students, not the content itself. However, many European universities have formed communities sharing and distributing content using Creative Commons licenses (Creative Commons, 2002). One major initiative is the Open Content initiative OpenLearn (McAndrew, 2006) by the Open University UK. Other initiatives which mainly provide repositories to share OER are EducaNext[1], Ariadne[2], Gateway to Educational Material[3], Merlot[4] or the JISC Collections[5] (cf. OECD, 2007; Geser, 2007).

1 http://www.educanext.org
2 http://www.ariadne-eu.org
3 http://www.thegateway.org

A business-oriented activity for user-generated Open Content has been started recently as web 2.0 community service under the name SLIDESTAR[6]. The objective is to allow professors and students to publish and share e-lectures and lecture resources free-of-charge. Another focus is to create a social network between these stakeholders by linking related content and support the evaluation of lectures by the students themselves.

However, it is not yet clear how those initiatives influence the development of education in general. But it is expected that they will impact the quality and excellence of teaching by creating more transparency and benchmarking possibilities.

2.2 Barriers and Opportunities

The summary of current activities and approaches shows that Open Content can be a successful model for content development and adoption. However, currently several barriers prevent a broad range of stakeholders from using and providing Open Content (cf. OECD, 2007):

1. Critical mass of available content: Currently only a few providers consequently publish their resources, materials, and courses under an open content license – stakeholders interested in participating in such an initiative can only be attracted to join the open content initiative if there are other colleagues from their community also participating.

2. Lack of interoperability of repositories and tools: Learners and teachers are not able to access open content repositories, teachers and learners are not able to provide their content to these repositories under open content licenses. Repurposed content is not identified as such.

3. Lack of communities of developers and users: In the field of open source software, many communities have been established to systematically improve their products. In the field of learning, education, and training, there are no communities with a critical mass of developers and teachers aiming at cooperative improvement of learning materials.

4. Non-formal vs. formal use: An OER is usually used as additional material for formal courses. Also content from Communities of Practice is usually considered online as supporting material. Therefore new ways have to be identified to include non-formal resources into formal education and training. (cf. Scardemalia, 2002).

5. Lack of exploitation activities: Currently, open content providers and stakeholders have not had a focus on exploiting the opportunities created by open con-

4 http://www.merlot.org
5 http://www.jisc.ac.uk/index.cfm?name=coll
6 http://www.slidestar.net

tent. In the open source community, several models have been successfully validated (such as developing commercial add-ons to software, consulting services).

6. Lack of adoption of open content: Stakeholders do not participate because they feel that content can only reach a certain quality if they develop it themselves. Sharing, re-using and improving resources requires stakeholders to give up a certain level of independence and have to trust others (e.g., concerning the quality of the materials). Therefore, a paradigm change for teachers is necessary, aiming at trust, collaboration, and a re-definition of the value chain. At the same time support for reuse needs to be improved.

Those barriers show that new models have to be developed to share resources as well as creating business opportunities. In the following, we will focus on the use and adaptation processes for institutions and users.

3 Adaptation and Adoption of Open Content

3.1 Adapting Open Content

Generally, the idea of open content is to provide educational resources to all stakeholders. Open content intends to initiate a dynamical process: based on an initial resource, content should be used, enriched, improved, and then provided to the community again (cf. Bailey, 2005; Cedergren, 2003). This dynamical process can lead to an exponential increase in the number of resources (and re-users). Open content does not necessarily mean free resources – as an example, in the open source community, several business models have been successful, such as shareware concepts or the development of commercial add-ons or consulting services. A variety of business models can be applied to Open Content (cf. Downes, 2007) leading to new services as shown below.

Therefore, it is necessary to enable re-use as well as advanced scenarios of usage, such as internationalization, re-contextualisation, or commercialisation.
This means that an adaptation process is necessary when re-using or re-contextualizing Open Content. Adaptation means that for example learning objects or knowledge pieces are modified for usage in a new context. This adaptation process can differ in the degree of adaptation needs: from minor adaptation (e.g., changing media formats) to a full re-authoring (e.g., translation, adaptation to a different culture) (cf. Gütl et al., 2004; van Rosmalen et al., 2006). The adaptation process consists of five phases (Fig. 1):

- Search: In this phase, actors search for useful learning objects, e.g. in a learning object repository or a knowledge base.
- Validate Re-Usability: As a first step, the (intended) context and the new context are compared, e.g. using similarity comparisons and recommender systems.

The recommender systems can be improved incorporating previous usage behavior (Wolpers et al., 2007) or experiences (Pawlowski & Bick, 2006).

- Re-Use / Adapt: In this phase, the learning scenario is retrieved and changed. Typical scenarios include re-using scenarios for a new purpose or context (e.g., from Higher Education to corporate training).
- Validate solution: In this phase, it is tested how the changed learning scenario fits the needs of the new context.
- Re-Publish: Finally, the new learning scenarios are shared with other users in a repository.

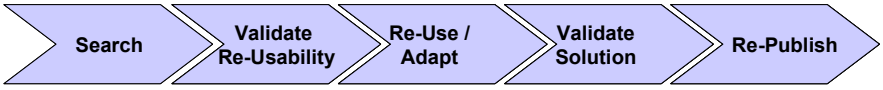

Fig. 1: The Adaptation Process

In the adaptation process, it is necessary to compare and analyze the context of learning scenarios. Therefore, it is necessary to develop a common language, i.e., a specification to represent the context. This specification can then be used in recommender and adaptation systems. A possible solution is provided in by Pawlowski & Richter (2007).

3.2 Content Explosion Model

It is essential that communities provide a critical mass of contents and users. It is also essential to establish a process of dynamical (exponentially growing) contents leading to a functioning growing community. The Content Explosion Model illustrates how Open Content is re-used and which additional services can be developed starting from single learning objects. It summarizes usage scenarios and business opportunities. The model consists of four different usage scenarios:

1. Open Content Enhancement: The first scenario assumes that a "basic version" of certain content is available. Teachers need to contextualize this content to their own environment: As a first step, they are required to change and contextualize the content itself. Secondly, they would develop extensions or enhancements improving the content for a certain context – as a third step, they would provide the changed versions in a common repository or to the original provider. This means that after a sufficient number of iterations a variety of content contextualization and extensions will be available, attracting a higher number of potential users and contributors.

2. Internationalization: The scenario "internationalization" can be viewed as a special case of the "contextualization process", which is currently often considered in the German educational market. In this case, teachers or service organizations

need to translate contents and identify aspects for the cultural adaptation (such as curricula regulations, cultural norms and values, media and presentation aspects, didactical traditions and methods). As a result, the initial content should become available in a multi-lingual, multi-cultural version.

3. Value added services: In this scenario, stakeholders will develop new contents and services using the content but providing additional services around it – as an example, many consulting services have been developed in the open source community.

4. Commercialization of content: Most commercial web-sites and contents use advertisements and sponsored links as a main source for revenue generation. Educational institutions rarely use this opportunity. As a start, content must be tagged to identify advertisement and marketing opportunities. As an example, in a learning object about knowledge management, related links about recent books, consulting services, or KM systems could be included. To implement this new business model, "commercial metadata" must be attached to educational materials.

For all four main scenarios, various business models can be applied (cf. Downes, 2007). It is crucial for the success of an open content initiative to provide validated business cases, both commercial and non-commercial to show opportunities and benefits to interested individuals and organizations.

The following figure summarizes the different scenarios:

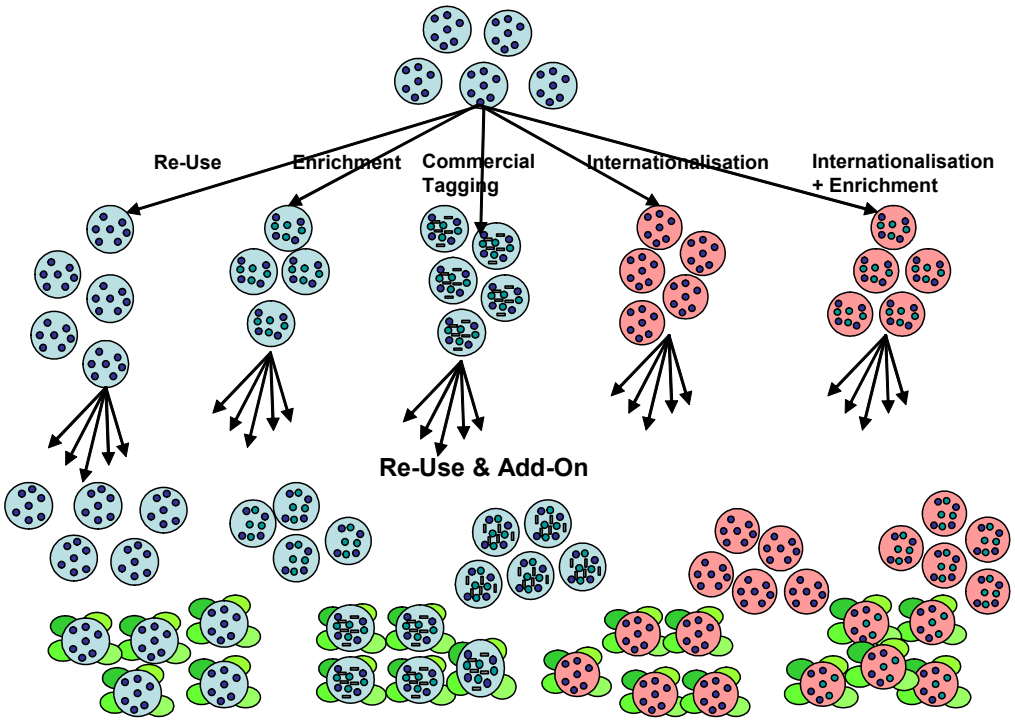

Fig. 2: Content Explosion Model

4. Implementation example

Figure 3 shows a screenshot of SLIDESTAR as one of the first implemented Open Content Community service that follows the above described content explosion model. It is based on a user-generated approach. This open content platform is a service for stakeholders in higher education. Professors and teachers can publish e-lectures and lecture material, provide open access and allow a rating by students. Students can use the material for own purposes such as studies, research, preparation of classes or learning. SLIDESTAR also creates a social network for learning and teaching, allows benchmarks between teachers as well as educational institutions.

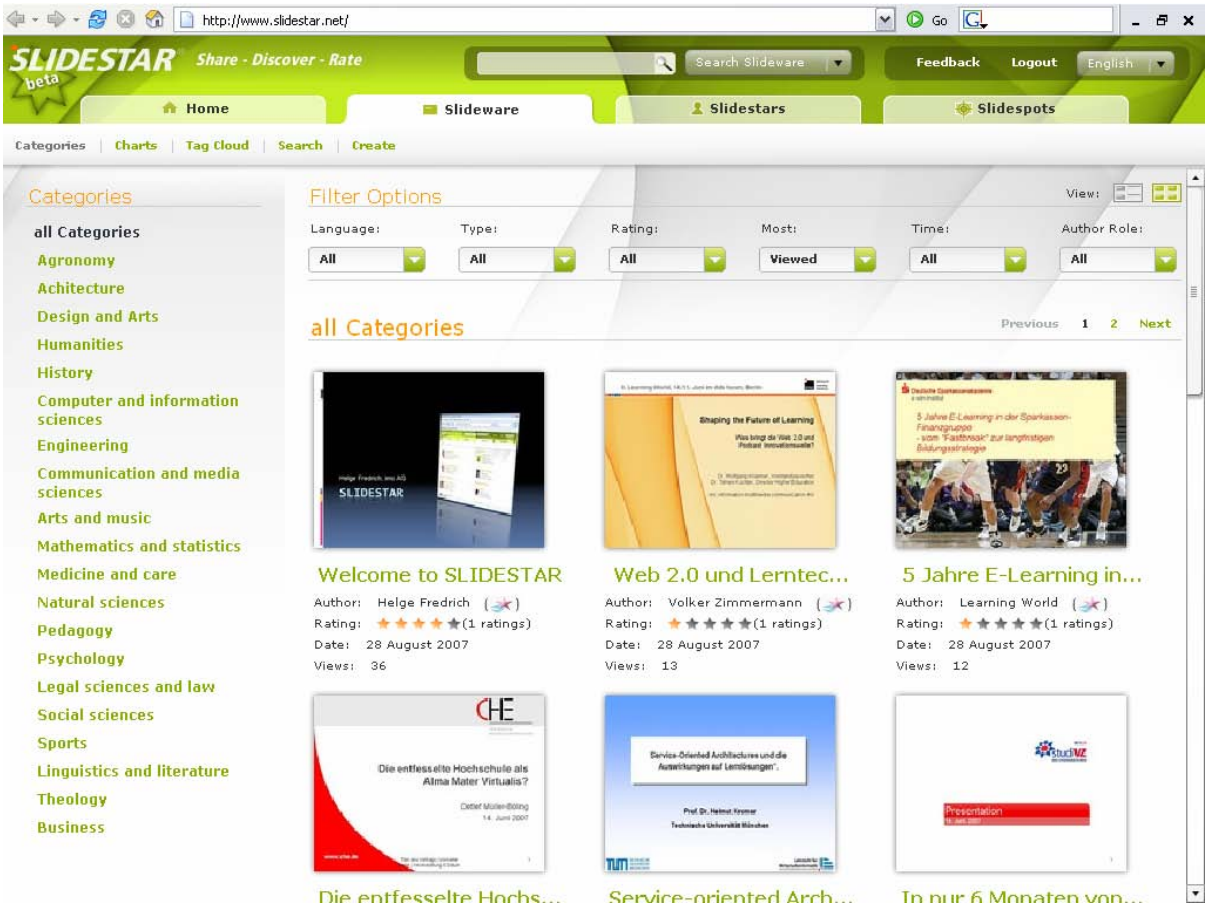

Fig. 3: Sample implementation of an open content community (SLIDESTAR)

Social tagging in Slidestar is one of the features that foster orientation within the collection of learning content uploaded; it also and most prominently supports community building among the platform users. Figure 4 shows the tag cloud based on the platform users' tagging activities. Tags complement the platform's ability to automatically index learning content during the upload process as well as the classification system provided on the basis of academic disciplines.

Fig. 4: Tag-Cloud in SLIDESTAR

In addition, geotagging in SLIDESTAR allows for the emergence of geographically oriented user-groups on the platform. Content is organized and presented based on where they originated and where they are made available, i.e. in Higher Education Institutions participating in the platform content exchange.

Fig. 5: Geotags in SLIDESTAR (“Slidespots”)

5. Conclusion

The article has shown barriers as well as opportunities for using Open Content or Open Educational Resources for the purpose of learning and knowledge management. It has been shown that there are a variety of potentials for both, sharing and re-using resources as well as creating business opportunities. First commercial and

non-commercial solutions are in implementation and expect to create a large impact on the next generation of learning and knowledge technologies. The Content Explosion Model summarizes those potentials in a methodological framework. It can therefore be used as a model to evaluate Open Content Initiatives but also as a roadmap (cf. Geser, 2007) to evaluate business cases.

References

Attwell, G. (2005). What is the significance of Open Source Software for the education and training community? In M. Scotto & G. Succi (Eds.): *Proceedings of the First International Conference on Open Source Systems* (pp. 353-358), Genova, 11th-15th July 2005.

Bailey, C.W. (2005). *Open Access Bibliography: Liberating Scholarly Literature with E-Prints and Open Access Journals*. Washington, DC: Association of Research Libraries.

Baldi, S., Heier, H., Stanzick, F. (2002). Open Courseware vs. Open Source Software – A Crticial Comparison, ECIS 2002, Gdansk.

Björk, B.-C. (2004). Open access to scientific publications – an analysis of the barriers to change. *Information Research, 9*(2), 1-24.

Cedergren M. (2003). *Open content and value creation*. Retrieved from: http://firstmonday.org/issues/issue8_8/cedergren/index.html [08.08.2003]

Clark, R. (2004). *Open Source Software and Open Content as Models for eBusiness*, 17th International eCommerce Conference, Bled, Slovenia, 21-23 June 2004, Retrieved from: http://www.anu.edu.au/people/Roger.Clarke/EC/Bled04.html [checked 11.07.08].

Creative Commons (2002): Licenses Explained, Retrieved from: http://creativecommons.org/learn/licenses/ [checked 11.07.08].

Downes, S. (2007). Models for Sustainable Open Educational Resources, Interdisciplinary *Journal of Knowledge and Learning Objects, 3*, 29-44.

Geser, G. (2007). Open Educational Resources and Practices. OLCOS Roadmap 2012. Retrieved from: http://www.olcos.org/cms/upload/docs/olcos_roadmap.pdf. [checked 11.07.08].

Grohmann, G. Kraemer, W. Milius, F. & Zimmermann, V. (2007). Modellbasiertes Curriculum-Design für Learning Management Systeme: Ein Integrationsansatz auf Basis von ARIS und IMS Learning Design. In A.Oberweis et al. (eds.), *Proceedings of the 8th International Conference Wirtschaftsinformatik "eOrganisation: Service-, Process-, Market Engineering"* (pp. 795-812), Karlsruhe.

Gütl, C., García-Barrios, V.M. & Mödritscher, F. (2004). Adaptation in E-Learning Environments through the Service-Based Framework. In: *Proceedings of E-Learn* (pp. 1891-1898), Washington, USA.

Lave, J. & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.

McAndrew, P. (2006). *Motivations for OpenLearn*. the Open University's Open Content Initiative, OECD experts meeting on Open Educational Resources, 26-27 Oct.

2006, Barcelona, Spain, Retrieved from: http://kn.open.ac.uk/public/document.cfm?docid=8816 [checked 11.07.08].

OECD (2007). *Giving Knowledge For Free: The Emergence Of Open Educational Resources*, OECD, Paris.

Pawlowski, J.M. & Bick, M. (2006). Managing & Re-Using Didactical Expertise: The Didactical Object Model. *Educational Technology & Society, 8*(1), 84-96.

Pawlowski, J.M. & Richter, T. (2007). Context and Culture Metadata – a Tool for the Internationalization of E-Learning. In: *Proceedings of Ed-Media* (pp. 4528-4537), Vancouver, Kanada.

Raymond, E.S. (1999). *The Cathedral and the Bazaar: Musings on Linux and Open Source by an Accidental Revolutionary*, Sebastopol, CA: O'Reilly & Associates.

Reimann, P. (2008). Communities of Practice, In: H.H. Adelsberger, P. Kinshuk, J.M. Pawlowski & D. Sampson (eds.), *Handbook on Information Technologies for Education and Training* (pp. 277-294), 2nd ed. Berlin: Springer.

Van Rosmalen, P., Vogten, H., Van Es, R., Passier, H., Poelmans, P. & Koper, R. (2006). Authoring a full life cycle model in standards-based, adaptive e-learning. *Educational Technology & Society, 9*(1), pp. 72-83.

Scardamalia, M. (2002). Collective Cognitive Responsibility for the Advancement of Knowledge. In B. Smith (Ed*.), Liberal Education in a Knowledge Society* (pp. 67–98). Chicago: Open Court.

Vuorikari, R. (2004). *Insight Special Report: Why Europe Needs Free and Open Source Software and Content in Schools*, Retrieved from: http://www.eun.org/insight-pdf/special_reports/Why_Europe_needs_foss_Insight_2004.pdf [checked 11.07.08].

Wolpers, M., Najjar, J., Verbert, K. & Duval, E. (2007). Tracking Actual Usage: the Attention Metadata Approach, Educational Technology and Society, Special Issue on *Advanced Technologies for Life-Long Learning*. *International Journal Educational Technology and Society, 7*(7), 1176-3647.

Zimmermann, V. & Faltin, N. (2006). Integration of Business Process Management Platforms and Learning Technologies: The PROLIX Process-oriented Learning Life Cycle. In *Proceedings of eLearning 2006 Conference,* Helsinki.

Zimmermann, V. et al. (2005). Authoring Management Platform EXPLAIN: A new learning technology approach for efficient content production integrating authoring tools through a web-based process and service platform, ARIADNE Prolearn Workshop, Berlin 2005, Retrieved from: http://elearning.dbta.tu-berlin.de/data/abstract_im-c_zimmermann.pdf [checked 11.07.08].