Designing Infrastructures Allowing Higher Education Teachers to Reuse, Adapt and Exchange Open Educational Resources

Background
Accessing and sharing as well as reusing and revising teaching and learning materials are crucial elements of taking advantage of collaborative use of Open Educational Resources (OER). Nevertheless, one key challenge for OER is establishing and designing platforms where learning materials can be uploaded and exchanged. Various initiatives all over the world currently investigate the development of OER repositories for finding and sharing OER in higher education.

However, current repositories are mainly designed for storing and finding OER rather than fostering collaboration and social interaction between users, even though collaborative instruments enable users to participate in extending OER in repositories (Clements et al., 2015).

When designing OER repositories and platforms it is essential to be aware of expectations and requirements higher education teachers have for digital environments while working with OER.

Approach
To support educators using OER repositories, detailed insights into teachers’ practices for reusing, adapting, and exchanging materials and their needs are necessary (Heck et al, 2020). Therefore, this contribution presents findings of a research project that analyses the requirements of higher education teachers for OER environments such as repositories to meet their expectations on working with OER. The interviews (N=23) were conducted with German-speaking higher education teachers (8 female; 15 male) from various academic departments with little to mature expertise with OER.

One particular focus of the study was version management, a concept widely used in software development to work on source code collaboratively as well as storing versions and tracking changes. These functions can also evolve their advantages in the joint creation and editing of text-based OER. Version management thus offers potential to be adopted for OER in terms of reusing, adapting, and exchanging materials. Thus, the study investigates how different versions of material as well as editing content and merging copies can be visualised and applied for OER. Moreover, collaborative elements of OER environments have been considered to support OER communities for higher education teachers. To exploit the potential of version management for the use of OER, one possible solution may be to transfer the processes into a user interface that facilitates access for users outside of software development (Ovadia, 2019). Consequently, further research regarding functions and design of a user-friendly interface for managing OER is necessary.

Based on the elaborated practices and needs of teachers in dealing with OER, requirements and functions for a collaborative environment for version management of OER could be derived. The implementation of the functions according to the requirements was carried out prototypically based on user stories in form of wireframes.

The first draft of the prototype has been tested regarding user-friendliness within a focus group workshop (N=12) as well as in six individual sessions with potential users. After this evaluation process the prototype has been revised and developed further.

Outcomes
Following practices of higher education teachers regarding different material types and handling versions as well as expectations while working with OER collaboratively can be summarised.
Higher education teachers often base materials on their own content whereas reusing external materials depends on availability in particular subject areas. OER that are published are often extensive material types with a high production effort, such as videos or courses. This contrasts with the fact that teachers prefer reusing external materials with a small scope that can be used independently, such as graphics, illustrations, or course modules. Providing a filtering option enables users to select different material types to show a subdivision into separate content elements. Furthermore, combining several materials as a remix, seems to be common practice among educators. Therefore, referencing of used materials need be transparent.

Lecturers consider the provision of new versions to be useful and sensible, also in terms of quality assurance. Likewise, deleting older versions should be possible to maintain freedom of choice in the availability of older versions so that incorrect versions do not remain in circulation. Reasons given for the availability of different versions include that changes over time can be shown and different editing scenarios can be provided. In addition, the community retains a freedom of choice. When presenting different versions, an overview in form of a version history is desired. It should also be possible to track changes between versions.

Teachers are very interested in learning about the external use, editing and further dissemination of their materials, e.g., to obtain suggestions for possible applications. It is therefore important to maintain a connection between the original content and derivates.

Moreover, teachers would like to receive feedback and suggestions on their materials to improve and develop their content. An active community could furthermore help to take over regular updating needs, as lecturers' own resources are not always sufficient. The development of an OER community with opportunities to exchange materials can also help to create collaborations. A separate community-area to get in touch with other users and to develop content collaboratively seems necessary.

Conclusion

In the conducted qualitative study, essential requirements of higher education teachers were identified. To be able to manage materials easily while reusing and editing them as well as exchanging about resources with a broader community appears to be crucial. To enable this, teachers need a tool with low-threshold access that supports collaborative version management functions for OER. Based on these findings a prototype concept was designed and developed further after an evaluation process. This prototype can be seen as a design concept for developing OER repositories.

References

