Barriers and Motivators for Using OER in Schools

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For this study we investigated German teachers to see how they use, reuse, produce and manage OER. The research explored what motivators and barriers effect their use of OER, what others can learn from their Open Educational Practices, and what we can do to raise the dissemination level of OER in schools. The survey revealed some unexpected results, notably the fact that participating German teachers do not to feel they need special OER-licenses, since they consider everything available in the Internet as being public – even their own products. Regarding barriers, insecurity on the correctness of information was one of the biggest issues and also, a concern regarding the lack of expertise and guidance during the adaption processes.

1. Introduction

Open Educational Resources, as it is used here are educational resources, publicly accessible through the Internet, that freely can be used within non-profit but also within profit oriented educational scenarios (Hewlett, 2005). Great amounts of Open Educational Resources (OER) are available for download in the Internet. The UNESCO recognizes OER as having the potential to help level out the educational challenges of 'developing countries' but also bear a risk of "educational neo-colonialism", because most of them originate in western countries and bear western style education values (Daniel 2010). Large repositories of OER have been built, such as those from Merlot, MIT or Connexions. Still, new resources often are produced instead of reusing and adapting existing OER. A basic condi-tion for a successful dissemination of OER is building trust into those learning resources being fully capable to support high-quality education. Research, particularly in the European framework shows, that OER still are not used in the level, as they could be. (OLCOS, 2006)

The EU project OPAL, emphasizing the shift from focusing on resources to focusing on practices focus, advances the view that the key to a higher dissemination-level of OER is not the accessi-bility itself, but much more understanding and overcoming the gaps preventing the use of OER. Trust in OER as first-rate choice and not second-rate quality has been identified as one key factor for better acceptance of OER in educational organizations. Therefore, the project focuses on the various stake-holders in educational scenarios, supporting potential users by making available a portfolio of good Open Educational Practices, which are defined as the use, reuse, management and production of OER with the intention to improve quality and innovation in educational scenarios (Conole et al, 2010).

For this paper, we have conducted an explorative study covering schoolteachers in Germany, with the aim, to also understand their specific situation. We wanted to reveal their motivators for their exposure to OER but also and particularly their barriers, which are to be overcome. First of all, we briefly will explain the German school system. We invited teachers from different school forms to par-ticipate in group-discussions, focusing issues on their usage,

management and production of OER. The results of the group discussions will be presented after a discussion of the setting and limitations of the study. Afterwards we will deduce conclusions on how teachers can be supported in their Open Educational Practices.

2. The German Educational System

The German education system foresees 10 years of compulsory education, with a primary level of 4 years and a secondary level of 6. For secondary education a selective three-type school system exists: 'Hauptschule', 'Realschule' and Gymnasium.

With the 'Berufsschule', an additional school type is available. In the traditional German professional education, teenagers can undergo an apprenticeship in a self-chosen profession, which usually take three years. The specialized education is organized in the so-called dual system: The apprentices first of all learn on the job, by working in a company. There, they learn the specific practical knowledge the company can teach. Complementary, the apprentices visit a professional school where the theoretical background to the profession is taught.

3. The Explorative Study – Setting and Limitations

In our explorative study, we have determined the views and experiences of teachers from four school types to get a deeper understanding of their successes and failures (problems) regarding their use of OER. For each investigated school form, we asked related teachers to participate in informally orga-nized group discussions as experts. We investigated the school forms 'Grundschule' (3 teachers), 'Hauptschule' (5 teachers), 'Gymnasium' (4 teachers) and 'Berufsschule' (4 teachers).

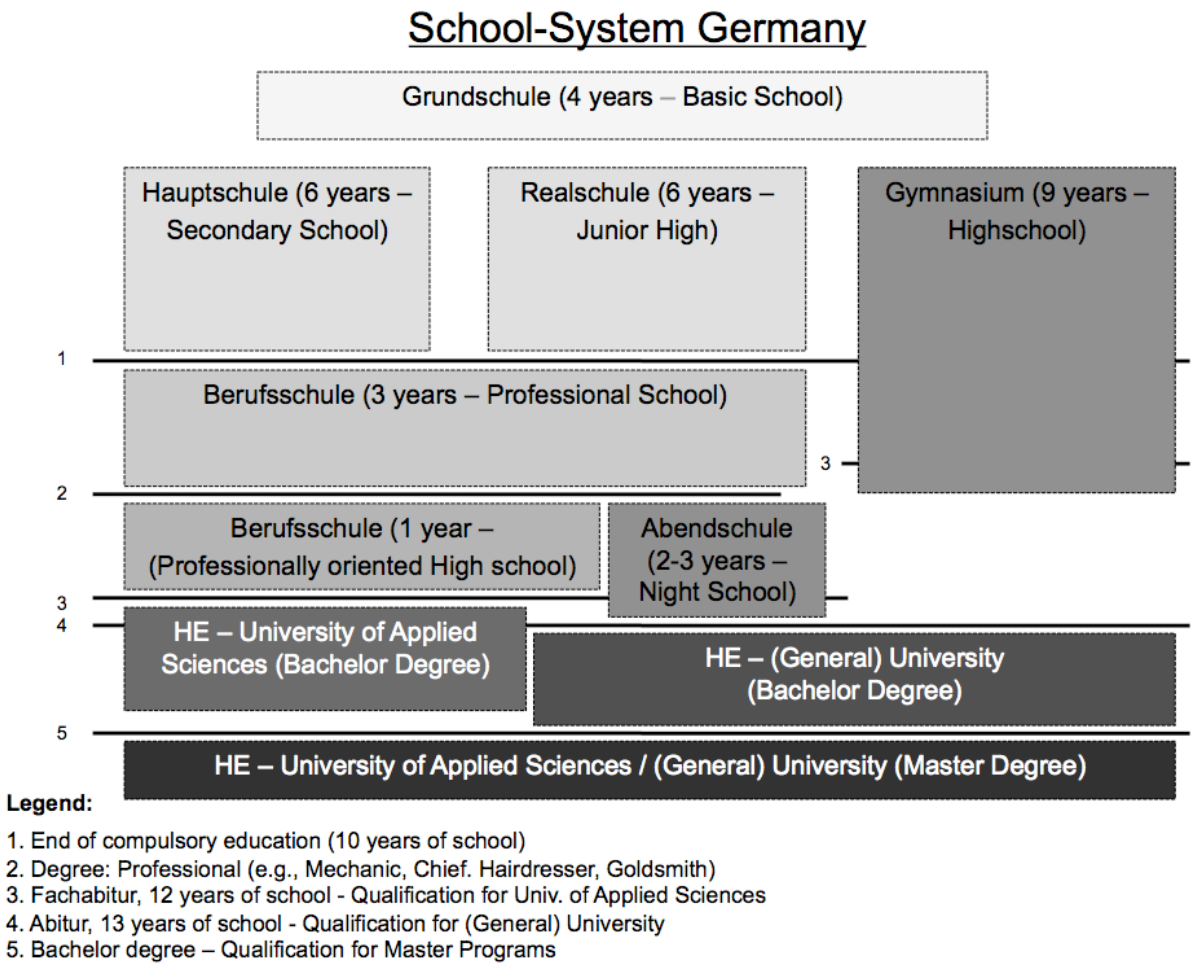

Figure 1: The German Educational System

At least one teacher of each group taught an IT related subject and / or was responsible for the IT infrastructure of his / her school. The other teachers taught various combinations of subjects (In Germany, one teacher usually at least teaches two different subjects), such as, history, religion, lan-guages, nature sciences, and economics.

The discussions took place within a private atmosphere in restaurants / cafes. The time frame for the group discussions was not predefined. Actually, the discussions lasted between 1,5 and 3,5 hours (depending on the available time and the interest of the participants).

The results of the explorative study are neither representative for the investigated school forms, the schools themselves, the region, or for the country. However, some interesting hints particu-larly on existing problems in the exposure to OER have been revealed.

4. Discussion Topics and Outcomes

Beside general issues regarding OER and in analogy to the upper definition of Open Educational Practices (Conole et al, 2010), the discussion covered the topics 'administration', 'production', and 'usage' of OER. The topic 'administration' finally played an inferior role, because least of the teachers had been responsible for such a question. Instead, the specific support / encouragement through each school's administration became a topic of discussion.

4.1 General Questions / Definitions

What in your Mind are Open Educational Resources (OER)?

The term OER itself broadly was unknown to the teachers. Just the IT responsible teachers in each of the groups 'Professional School' and 'high school' knew about the term. However, the German term 'freie Bildungsressourcen' (free educational resources) was known. As the teachers explained, it de-scribes a similar concept, but the focus related to 'open' applied more to accessibility than to the more legal concept in OER. Free educational resources, in the view of the teachers, are learning resources that can be found in the Internet and (from a practical perspective of fitting) used for educational proc-esses. Most of the teachers already performed Internet-research for inspiring or reusable educational material. There in fact was awareness that proper citation might be needed for lawful acting. Nevertheless, before the Internet, teachers were used to distribute copied books (mostly single pages) in their educational practice, and so, most considered sparing the citation being a peccadillo. The High school group was of a different opinion, particularly because learning the correct way of citation explicitly is a matter of their educational content.

After all teachers briefly had been informed about the correct legal situation of intellectual property rights in Germany, for this discussions, we commonly decided to 'enhance' the definition of OER from those resources that are explicitly (by license) declared as 'open' to all available and usable Internet-based, learning resources.

Open Educational Practices – OEP (definition)

According to the definition of Conole et al (2010), for the discussions, as Open Educational Practices, we defined '*all the 'practices' around the creation, use and management of OER*'.

What is your educational scenario like? Which technology do you use within your classes?

Class sizes of 25 to 30 learners are common and therefore, the common teaching form is a frontal teaching scenario. Interactive education, in which learners directly participate in a dialogue with the teachers often is related to printed / copied materials, which as a discussion base previously have been distributed to the learners. Particularly in the high school, additionally group work and presenta-tion of the results also are used as learning methods.

In the frontal teaching situations, teachers mainly use the blackboard or if available, an over-head projector: Classes rarely are equipped with a local beamer, so that the direct use of digital learn-ing material comes along with having to reserve the needed technology and must be understood as exception. Therefore, teachers usually have to transform the found digital material into analogous overhead-projector-slides or distribute printed papers to the learners.

Within computer classes, digital learning materials are broadcasted to the learners' desktops. Besides one interactive high school project, where computer classes of two high schools also syn-chronously cooperate with each other by using messenger and forum discussions, the communication between teachers and learners is performed purely analogously. An Internet-based Learning platform (Moodle-based) only is available in the investigated 'Gymnasium'. The 'Berufsschule' and also the 'Grundschule' have not yet implemented a Moodle-based learning

platform, but it is in progress. The teachers from the Gymnasium reported that even though it is available, most teachers in their school yet do not use the LMS or e-Learning for their classes. Some teachers use the Moodle-platform for af-ter preparation and group (home-)works, but rarely for communication issues.

4.2 Usage and Adaptation of OER

Have you already used publicly available learning materials from the Internet within your own courses? In which way is material from the Internet useful for your preparation of classes? What kind of materials do you preferably use?

In the discussion groups, all but one teacher said already having used educational materials from the Internet to enrich (explicitly stated) their classes. Particularly, when recent incidents (such as 9/11, Iraq war, or the financial crisis) are to be explained or discussed in the school, Internet materials are considered being much more useful as e.g., print media: In unity, all teachers considered not only the variety of information to a certain topic as being much wider, but they also stated that research and access of related material became much easier. As a main benefit of Internet-based learning re-sources all teachers considered the topicality of information. Particularly because of the Internet-users' participation in quickly producing and spreading individual information via YouTube (User Generated Content), it today is possible to provide the learners with a broad variety of perspectives (or a tailor made one) considering a single topic. All teachers stated to mainly research for pictures and movies as examples to present to the learners. Just in case that a new topic (such as a recent political inci-dent) is to be included into the almost 'traditional' lessons, also text-based documents (e.g., to re-search for political backgrounds) from the Internet are used.

How (concretely) do you search for, decide the use of, and adapt OER? What have been your suc-cesses? Where did you experience problems?

A minority of the teachers quoted exclusively focusing their research well known and recommended German repositories. Particularly the older teachers never visited computer classes, themselves and still feel unconfident using computers and the Internet. The majority of the teachers reported, first of all, looking in such German and recommended repositories for suitable contents by using keywords in German language. The adaptable results in German language were considered often being very poor. If the search in those repositories is not successful, the younger teachers who seemed being more proficient in using computers and the Internet, use search engines such as Google for an advanced research (in both languages, German and English). For those teachers being proficient enough to use the Internet, the accessibility of learning resources was not considered being a larger challenge.

The decision, if a resource is trustable in the meaning of correctness, particularly regarding to the contents and the political background, has been considered being much more challenging. All groups stated that there often are doubts on the sincerity / validity of the researched documents. Par-ticularly in cases of recent incidents, the user-generated content always could be fake information. The teachers quoted, often not using the found material because they are afraid giving wrong informa-tion or hidden political incorrect statements further to the learners. The teachers missed a seal of qual-ity that shows them, that they do not need to worry. They clearly described a dilemma situation: On the one hand, there is a need for recent information, but on the other hand, it cannot be confirmed within such short time frames. Anyways, not seeing a suitable compromise themselves, they explicitly wish someone might find a solution.

From a more technological perspective, it often is unclear, if the found educational material is secure to download because of 'digital vermin' that could harm the school's infrastructure.

Also as extremely tough the teachers assessed the adaptation process itself: Not only lacks of opportunities to technically realize an adaptation process (because of the documents' formats) often lead to a rewriting process, but also a lack of experience, what exactly should be changed in which scenario. Particularly, when learning resources originally have been produced for another cultural con-text, they often include, e.g., politically difficult statements or do not fit to the own didactical approach. Revealing such adaptation needs is a far too complicated task and so, the teachers always feel like sailing close to the wind. This is a main reason why they often reduce their use of OER to simple pic-tures and smallest learning objects.

In all schools but the high school, the teachers complained that contents often are just avail-able in English language. Particularly for the younger classes, contents must be translated to German. In some single cases, the language gap also led the (older) teachers to their limits of capability.

As more annoying than the language gap itself, the teachers considered pictures with informa-tional contents, such as dia-

grams when offered in non-changeable formats (bitmap, PDF, JPEG). Such pictures can only be used one-on-one or as patterns (templates). Therefore, the time saving ad-vantage of the Internet-resources is lost, particularly since such pictures anyways rarely completely cover the exact needs and therefore have to be adapted. Such experiences often lead to frustration, and the reaction in a lot of single cases is rather copying 'boring' print-media from books than looking for and using OER.

4.3 Management of OER, Policies

Do your school administrations or the federal government support the use of OER? Are there related policies within your institutions?

All teachers of all schools agreed that any kind of support or encouraging sides the school administra-tions or federal governments are very weak. In fact, they complained, that more and more actions ex-plicitly or indirectly are required sides the teachers, but they have to take the full responsibility and no help or incentives are provided in return.

Related to the contents, be it open or restricted educational resources, broader assistance has neither been provided by the schools' administrations, nor by the government. A major argument sides the government not to make recommendations was the autonomy of the schools and teachers that had to be preserved. As long as content decisions just extended (and didn't change) the curricula, teachers have been encouraged to be creative. In the curricula, in a lot of cases, certain schoolbooks and novels are 'recommended' for the classes, so that anyways, concrete contents often are pre-selected (in printed form). As help, the government later on offered an Internet-portal called 'Lehrer-Online' (Teachers-Online). 'Lehrer Online' provided recommendations and articles for teachers, a fo-rum and later on, also small repositories for suitable educational resources that freely could be used. Teachers, themselves, produced most of the resources in this repository (User Generated Content). After having used (and acknowledged) those in their own classes, they (can) share their contents with other teachers. The quality, therefore, is considered being suitable but the dissemination of the re-sources are limited to registered users. The variety of available resources still is low, even when fol-lowing the hints to further, external but recommended German repositories. As additional service, the portal 'Lehrer Online' offers online and offline (physical) seminars and workshops where the teacher's needs and possible solutions to problems are discussed.

Different to the others, the teachers of the 'Berufsschule' experience serious problems to find adequate learning resources in the Internet. The provided support is considered being poor or even not available at all as well through the chambers of crafts as also through the chambers of industry and commerce. Additionally, in some professions, the chambers of crafts have regionally typical re-quirements on certain processes and designs. Besides in the IT-related professions, the teachers of the group 'Berufsschule' rarely use open educational resources, e-Learning or even computers. Since the chambers started providing e-Learning material for Master students (The German Master Crafts-man) particularly the situation of lacking contents is slightly changing now. However, the necessary equipment also is missing.

4.4 Production of OER, User Generated Content

As already stated in section 4.3, some teachers produce contents by themselves and, as far as they are able doing so, share it with others. Such self-produced contents are e.g., published in the reposito-ries of 'Lehrer Online'. Often, in a lack of knowledge, the Creative Common License (or others) is not attached because the teachers purpose to upload their resources anyways is sharing contents and supporting their colleagues. Learner generated content rarely is made available for the public. If such contents are being uploaded to a server, it mostly happens just inside the school infrastructures, e.g., for further use within internal school projects. Also, some teachers and older learners have own web-sites where they upload their learning resources and / or essays, but this is the minority.

5 Summary of the Results and Recommendations

Almost all invited teachers from used the Internet as a source to gather available educational re-sources. Although there is no explicit demand or quota for using OER at schools, the lack of funds drives teachers to use free learning resources.

The available Learning Management Systems in the investigated schools are based on the open platform 'Moodle'. Benefits of digital learning resources, related to print media, particularly are seen in the fast availability of information on recent incidences.

The teachers mainly used pictures and movies from the Internet illustrating or spicing up their lectures. Pictures with informative character (containing text elements) should not be stored in an un-changeable format: From the perspective of the teachers, as soon as they are to be adapted such are almost worthless.

Regarding the adaptation processes, support is needed: Adapting learning resources from foreign contexts to the own one simply is too complicated for the teachers. This includes as well the decision process on adaptation needs as also the following changing and validation processes.

Regarding licensing, a clear lack of information and / or sensibility has been revealed: The teachers were not fully aware of the difference between open and available resources. They rarely use the CCL (or any other license) themselves, but consider their own provided resources already are open by publishing them in the Internet. Therefore, they do not take the legal situation too serious.

A broader support by the German government and school administrations urgently is needed not only for using OER, but also for using digital media in general. Particularly the necessary equip-ment is missing. The teachers basically are willed to contribute their self-produced learning resources to the community, but need a suitable supportive platform, which is simple to use even for beginners and automatically attaches the necessary license type.

It often is unclear if material, found in the Internet is trustable and if it maybe includes hidden threads that could bring the teachers into troubles. Also the suitability of certain resources for learners of different ages often is unclear. The teachers see problems in the use of OER without an ensured re-liability / quality of open contents. This issue would have to be solved as soon as possible.

Although e-Learning and IT now is used since more than a decade within German classes, the teachers in the discussion groups still feel like pioneers when using ICT for classes that are not di-rectly related to information technology. Particularly when situations are tough, they often feel aban-doned. A certain (commonly accepted) culture of practice could enormously help the teachers to reach the necessary level of confidence. Such a culture of practice is considered being needed in order to be successful in the use of ICT and particularly OER.

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Using expert group discussions as a method for an explorative study provided fruitful results. Particu-larly, because the experts themselves profited from the discussion outcomes in form of learning about the other expert's experiences, they showed themselves very involved.

For the study, it can be concluded that the OER movement is welcome and needed by school-teachers in Germany. Teachers already use and produce OER and would like to raise their level of contribution, but feel a strong need for assistance regarding the technological realization and for a cer-tain culture of practice in order to legitimate their efforts.

As reported by the teachers, the usage of OER often collapses because of missing change-ability of available documents, a lack of trust regarding the correctness of included information and missing support regarding adaptation processes. In contrast, the pure availability of learning re-sources, for most teachers has not been considered being a problem: Besides the professional school, all other groups considered the amount of available learning resources being rather over-whelming (because often unstructured or undefined) than too small.

The teachers showed a lack of understanding regarding the legal background of OER.

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