

BUILD IT AND THEY WILL COME? – INHIBITING FACTORS FOR REUSE OF OPEN CONTENT IN DEVELOPING COUNTRIES

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ABSTRACT

Open content has the potential to change the playing field when it comes to every individual's right to education. Development of new course content is both expensive and time consuming and open content can help educational organizations to deal with these problems by offering free-to-use educational resources. Despite the benefits of open content the usage is very low in developing countries and understanding why content developers choose not to use open content is the first step towards finding a solution to the problem. Which inhibiting factors for reuse do content developers in developing countries experience with open content? To answer the question interviews, questionnaires and observations have been made with content developers from Bangladesh, Sri Lanka and from UNESCO Open Training Platform. Findings show that many of the inhibiting factors with reuse of open content do not necessarily relate to the actual content. Educational rules and regulations, lack of infrastructure, teaching practices and traditions etc. are major obstacles that need to be overcome if the usage of open content should increase.

Keywords

Open Content, Open Educational Resources, eLearning, Bangladesh, Sri Lanka, Open Training Platform

1. INTRODUCTION

Education is seen as a major key for development (WSIS 2008, Bada and Madon 2006) and UN has as a goal that everyone should be able to receive at least primary education by the year 2015 (UNESCO 2008, UN 2008). Education in developing countries does, however, pose a lot of challenges (Andersson 2008, Heeks 2002, Rajesh 2003) and if the goal should have any chance to be realized Open Educational Resources (OER) will play an important role (Johnstone 2005, D'Antoni 2006). Development of new course content is both expensive (Pagram and Pagram 2006) and time consuming (Boyle 2003, Vargo et al. 2003) and OERs have the potential to sidestep this downside by offering free-to-use educational resources.

OER initiatives are very commendable and needed but open content is not being used by educational organizations in developing countries (or rather the usage of the free resources is low). The phrase "Build it and they will come" (from the movie "Field of dreams") clearly does not relate to repositories for open content. Larson and Murray (2008) more appropriately rephrased it to "Build it and they will not come unless you design a system to promote and encourage access". Many of the problems with reuse of open content in developing countries can also be found in developed countries but the problems are much greater in developing countries. In Bangladesh, as an example, only 0.3% of the population have access to Internet (CIA 2008). The implication of this is that solutions adapted to settings in developed countries may not be suitable in countries with different preconditions. This means that different approaches have to be considered.

Even though there are some open content initiatives originating from developing countries (Wiley 2006, Johnstone 2005) the vast majority are produced by individuals, organizations or institutions from developed countries (Unwin 2005) and this is problematic.

Some suggest that if open content should reach its full potential a global balance needs to be found where developing countries are not confined to being consumers of learning material but also producers (Albright 2005, Unwin 2005). Open content from the developed world should rather work as a “*catalyst for the production of new, local OER*” (Albright 2005). Open content offers many educational opportunities and has the potential to change the playing field when it comes to every individuals’ right to education (Attwell and Pumilia 2007, Larson and Murray 2008). But if it should help and contribute to development the disadvantages with reuse of it needs to be dealt with. It is therefore important to understand the inhibiting factors content developers and teachers experience with reuse of open content. If we do not know and understand the underlying inhibiting factors we will not be able to find the solutions.

The aim of this paper is to identify and explain the inhibiting factors that prevent educational organizations in developing countries to take advantage of open content. This will help us to extend the knowledge about problems with reuse of open content (a topic often discussed in the literature but seldom empirically grounded). The paper will also create new knowledge about why content developers in developing countries experience the factors as inhibiting as an analysis is made on each factor to find the underlying reasons.

2. METHOD

This is an interpretative case study (Walsham 1995) where the reasons why content developers choose not to use open content are studied. The study is mainly qualitative and multiple cases are used to be able to discover global candidates for generalizable inhibiting factors of reuse. The research question for the paper is “*Which inhibiting factors for reuse do content developers in developing countries experience with open content?*”.

Three cases are used in the study to cover a wide area of users from different cultures, with different IT skills etc.

- *Teachers from Dhaka, Bangladesh:* The Internet usage in Bangladesh is very low and the IT literacy among the informants varies (from close to no IT literacy to highly skilled). No distance education via Internet is provided in Bangladesh so content development are mainly for content used in classroom teaching or delivered in distance education mode in the form of televised lectures, radio lectures and/or printed material.
- *Content Developers at University of Colombo School of Computing (UCSC), Sri Lanka:* The content developers at UCSC are responsible for creating content to UCSCs external bachelor degree in IT (eBIT) and a preparatory course to eBIT students (FIT). All the content developers are skilled IT users with access to Internet.
- *UNESCO Open Training Platform (OTP) users:* UNESCO OTP (<http://opentraining.unesco-ci.org>) is a repository specifically targeting developing countries. This case only includes actual users of the repository so the informants can be expected to have at least moderate IT skills and access to Internet. The questionnaire used did not specifically ask about the respondent country of origin so there is no way of knowing if the respondents originate from a developed or a developing country. However, the informants that in the open questions mentioned their origin were all from countries listed as developing so we can assume that at least a majority of the respondents originate from developing countries.

Four field visits were made (two to Bangladesh and two to Sri Lanka) during 2007 and 2008 and each visit lasted between two and three weeks. The author’s role in the two cases was eLearning expert, educator and researcher. There was, however, a clear

demarcation between the research part and the author's involvement in various projects as the projects do not address the aim of this study.

2.1 Data Collection Methods

Several data collection methods were used in this study to be able to triangulate the problem (Yin 1994).

Interviews were made with content developers from three different Universities in Dhaka Bangladesh and with content developers from one University in Colombo Sri Lanka. The same interview guide was used in both Bangladesh and Sri Lanka and the questions concerned the informants' use of Internet material in content development as well as their general content development practices. The interviews took between 25 minutes and one hour each and were conducted by the author.

Questionnaires were distributed in Dhaka Bangladesh to content developers at five different Universities. The questionnaire consisted of open questions that aimed at finding out which inhibiting factors the informants experience with reuse of open content. The questionnaires were distributed both by the author and by a Bangladeshi colleague. A questionnaire was also distributed to users of UNESCO OTP, designed by UNESCO with guidance from the author. The questionnaire was much broader than the aim of this study so relevant questions were extracted from the questionnaire. The questionnaire was distributed to OTP users via a web questionnaire linked from the OTP website.

Observations were done in both Bangladesh and Sri Lanka. In Bangladesh the author was present at Bangladesh Open University (BOU) where content developers create content for interactive televised lectures. In Sri Lanka the author was present at UCSC where content developers create content for the eBIT and FIT program. As a guide for how to conduct observations, Patton's observation method with sensitizing concepts was used (Patton 1990).

Table 1: Summary of Data Collecting Points

| Method | Case | Data collecting points |
|----------------|-----------------------------|---|
| Interviews | Bangladesh | 9 (5 teachers, follow up interviews with 4 of the teachers) |
| | Sri Lanka | 9 |
| | <i>Total interviews</i> | <i>18</i> |
| Questionnaires | Bangladesh | 27 |
| | UNESCO OTP | 128 |
| | <i>Total questionnaires</i> | <i>155</i> |
| Observations | Bangladesh | 2 field visits to Bangladesh and BOU |
| | Sri Lanka | 2 field visits to UCSC |

A *literature review* on problems with open content was also conducted. The literature review works as the basis for the classification of the inhibiting factors. A very broad approach to the literature review was taken and the literature review includes both peer reviewed journal and conference papers as well as working papers from organizations working with OERs (e.g. UNESCO and OECD). A "snowball method" was used where an initial search for papers was done via the author's university's library database. Keywords searched for were open content, open educational resources and learning objects.

2.2 Analysis

A qualitative analysis was made on the data using a tool for qualitative analysis (atlas.ti). In the analysis no difference was made between the open answers in the questionnaires and answers from the interviews. The analysis was done in several steps:

- 1) Quotes related to inhibiting factors were extracted from the questionnaires and interviews (a total of 267 quotes were found). All quotes have been anonymized in the analysis of the factors.
- 2) The quotes were categorized into previously found categories from the literature review. An additional five categories, i.e. categories not identified in the literature review, were identified and added to the list (11 categories were identified).
- 3) The data were reanalysed and each category was divided into subcategories (30 subcategories were identified). The number of times an inhibiting factor was mentioned by the informants was also noted down. The numbers should not, however, be seen as an internal ranking on the importance of the factors, they only serves as an indication on how many times the factor was mentioned.
- 4) Each subcategory was further analysed to find the underlying reasons for the factor. This was done by both reanalysing the interviews and questionnaires and by analysing the field notes from the observations.

3. OPEN EDUCATIONAL RESOURCES

The term OER is fairly new and was first used by UNESCO International Institute for Educational Planning (IIEP) in 2002. UNESCO defines OERs as:

“[...] technology-enabled, open provision of educational resources for consultation, use and adaptation by a community of users for non commercial purposes [...]” Wiley (2007).

Open means that the resource should be accessible and free-to-use by anyone. That a resource is free-to-use is not enough though, it also has to be widely accessible and users have to be able to alter and make adaptations to it. The concept of *educational* is problematic, when is a resource considered educational? Educational is, however, used very widely and does not exclude material that is not specifically designed for education (e.g. Wikipedia and YouTube). *Resources* refer to material used in education and most of the debates focus on the actual learning content but the definition of OER also includes tools and implementation resources (Hylén 2006). The focus of this study, however, is on the learning content.

Lately there has been a growing supply of OERs available on Internet, both in term of formal course material and informal material (i.e. material not specifically designed for education). Wiley (Wiley 2007) estimated in 2007 that there were over 2500 open access courses available and numerous non-course content (e.g. Wikipedia, YouTube etc.) available for educational organizations to use. The number has been constantly growing and can be expected to be much higher today; MIT Open Courseware alone has over 1800 courses available. A very broad categorization of the OER initiatives can be made by organizing them by provider and scale of operation:

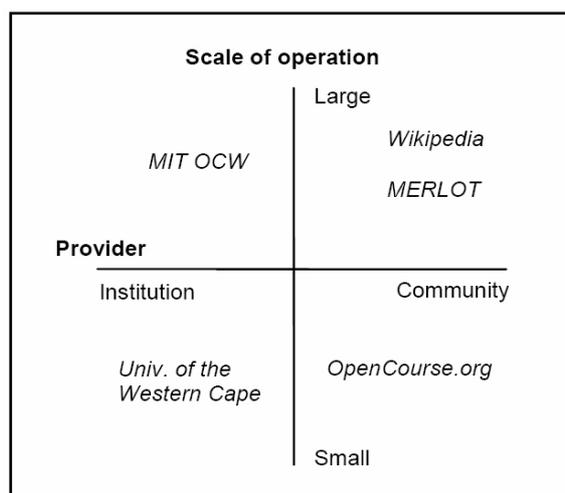


Figure 1: Categories of OER providers (Joyce 2007)

The provider side can either be repositories where institutions make their open content available (e.g. educational organizations) or community repositories that anyone can add content to (e.g. Web 2.0 sites). Scale of operation refers to the amount of content added to the repositories.

3.1 Problems with Open Content in the Literature

Problems with open content are often mentioned in the literature but seldom empirically grounded. Much of the work with open content is being done by different organizations which present their work in reports or working papers (e.g. Albright 2005, D'Antoni 2006). There are also more empirically grounded papers regarding problems with open content (e.g. Unwin 2005) but those studies usually target a specific aspect of open content. In the table below the different categories of inhibiting factors found in the literature is presented as well as an explanation of the nature of the problem.

Table 2: Categorization of inhibiting factors for reuse found in literature

| Category | Explanation |
|---------------------|---|
| Language | Language refers to the language used in the content or the style of the language. This is seen as one of the greatest barriers to open content use in developing countries (Larson and Murray 2008). |
| Relevance | Open content created for a specific context might be inappropriate or useless in another context. The relevance of the content concerns several layers, e.g. examples from developed countries may not be relevant for students originating from other cultures, the pedagogy used may not be appropriate, the level of the content may not be appropriate etc. (Mason 1999, Albright 2005, Unwin 2005, Selinger 2004). |
| Access | Access problems concern issues with the availability of open content. Problems with open content are not the lack of available resources on Internet the problem is in finding suitable resources (Albright 2005, Unwin 2005, Larson and Murray 2008). |
| Technical Resources | Technical resources relate to infrastructural problems as well as hardware and software problems. (Larson and Murray 2008, Unwin 2005, Albright 2005) |
| Quality | Quality can mean different things and the most obvious quality |

| | |
|-----------------------|--|
| | issue has to do with the quality of the information and knowledge distributed in the content. Just because content is “correct” does not, however, mean that it is appropriate to use in every context (Attwell and Pumilia 2007, Albright 2005). Quality is also a matter of trust, the users have to trust the information provided if they are to use it (D’Antoni 2006, Hylén 2006). |
| Intellectual Property | Intellectual properties and copyright issues are a jungle and there is a need to clarify intellectual property rights issues linked to open content initiatives (Larson and Murray 2008). |

4. INHIBITING FACTORS TO REUSE OF OPEN CONTENT

The categorization from the literature review presented above was used as the basis for the analysis of the empirical data. Each quote from the data was mapped against the categories and when an inhibiting factor was mentioned that was not addressed in the literature a new category was added to the list. In table 3 the inhibiting factors for reuse of open content found in the empirical data is presented together with the subcategories for each factor.

Table 3 Category of inhibiting factors for reuse found in empirical data

| Category | Bangladesh | Sri Lanka | OTP |
|---|------------|-----------|-----|
| Educational rules and restrictions | | | |
| University regulations | 5 | 6 | |
| Education regulations | 3 | | |
| Language | | | |
| Language style | 2 | | |
| Translation | | | 4 |
| Relevance | | | |
| Difficulty level | 10 | 1 | 2 |
| Scope of the course | 5 | 2 | |
| Context of the students | 19 | 6 | 34 |
| Time consuming to modify the material | 2 | | |
| Content granularity | | 1 | 2 |
| Access | | | |
| Finding suitable material | 2 | 1 | 1 |
| Too much material | 1 | | |
| Material not available | | 1 | |
| Technical resources | | | |
| Computers | 2 | | 31 |
| Internet access | 3 | 1 | |
| Basic infrastructure | 2 | | |
| Bandwidth | 1 | 3 | 1 |
| Unreliable infrastructure | | 1 | |
| Quality | | | |
| Information quality | 4 | 2 | 19 |
| Assessing the quality | 1 | 1 | |
| Information not updated | 1 | 1 | 7 |
| Trust | | 6 | 10 |
| Intellectual property | | | |
| Copyright protection | 2 | 2 | |

| | | | |
|---|----|---|----|
| Awareness | | | |
| Knowledge of open content | 2 | | |
| Knowledge of learning object repositories | 3 | 4 | |
| Computer literacy | | | |
| Basic IT skills | 3 | | 13 |
| IT training in school | 2 | | |
| Teaching capacity | | | |
| Self-development | 9 | | |
| Dependent on other peoples material | 1 | | |
| Teaching practices and traditions | | | |
| Text book dependency | 7 | | |
| Teachers personal ideas and creativity | 11 | 1 | |

4.1 Analysis of the Factors

4.1.1 Educational Rules and Restrictions

Rules and regulations refer to inhibiting factors for reuse of open content within the countries educational system.

University regulations include rules and regulations in a University that make it harder for content developers to choose which material to use in courses. In the Bangladesh case the informants' said that very strict University rules regarding the curriculum and syllabus inhibit their choice of material.

“There are some rules and regulations from different committees out there. In every school there is a school committee which is a very powerful committee, and another one is curriculum committee, so which materials that should be used for the course is decided by the curriculum committee, what type of material that we will use, even who will be the examiner, who will be the writer of different books it is also decided by the curriculum committee.”

In the Sri Lanka case the same scenario is found but here it is subject matter experts (SME) that decide what to include in a course. They give the content developers guidelines and texts to include in the courses and based on that information content developers create the course. Content developers can use other material in a course but it has to be approved by SMEs who always take the final decision.

There are also rules and regulations at a national level (*education regulations*) that inhibit content developers from using open content. In Bangladesh, before being allowed to run a course the universities have to receive permission from a grant committee and to receive the permission the universities have to provide a list of which text books to be used in a course. There are also regulations regarding which languages universities are allowed to teach in which limits the number of resources that can be considered appropriate to use.

Even though rules and regulations at a national and University level do not prevent the informants from using open content in their course development it inhibits their use. In the Bangladesh case it is easier to just base the material on text books decided upon by a committee. In the Sri Lanka case content developers get material to use from SMEs and they have to get approval for using other material. This results in a hesitation from content developers to use other material (i.e. open content).

4.1.2 Language

Language style relates to problems with e.g. slang, choice of words etc. The inhibiting factor for reuse here is not that the content is in a language not used in the education but rather that the style of language used makes the content hard to understand for the learner.

“Besides, diction use of words, figurative speeches, I mean cultural expressions as a whole may pose a hindrance to understanding”

In Bangladesh as an example they use three types of English, UK English, US English and Indian English and one informant said that the content should be in UK English for the students to easily understand it.

The factor *translation* means that the content is in a language not used in education and the content has to be translated before it can be used. Most of the open content is only available in English and the language problem is one of the greatest barriers to open content use in developing countries (Larson and Murray 2008).

In both the Bangladesh and the Sri Lanka case the language used for the educational content is English. We can therefore suspect that the problem with language is more apparent in other countries or when the content is used for informal education.

4.1.3 Relevance

The most mentioned inhibiting factor for reuse is relevance i.e. the content is not relevant to use in the different cases.

The *level of difficulty* of open content is seen as problematic. Some informants raised a concern that content found on Internet is too difficult for their students. This does not mean that no material suitable for their students is available; it is a matter of being able to find material of a suitable level. One informant had tried to use material from MIT Open Courseware but said that the material he found on MIT was far too advanced for his students. Instead of searching for material from other sources he found it more convenient to create his own material from scratch since he then could develop material suitable for the intellectual capacity of his students.

Another issue is that open content *do not fit the scope of the course*. This does not only relate to the actual information of the content but also to how universities deliver the courses in term of sequence of lectures, technical platform used, graphical layout of the material etc. This is seen as problematic when the informants try to use open content that consists of a full lecture in their course. Part of the lecture may fit within the scope of the course but it does not fit as a whole.

“MIT courseware has designed lectures sequentially and these sequences may not be fitted into your sequence so rather than depending on these sequences, i.e. the MIT sequence you depend on your own sequence and fit to procure information from other sources and fit them into your sequence”

So rather than using full lectures or courses in their content development they prefer to use smaller pieces of information that can be fitted into their content more easily. This means that the *granularity of the objects* is of importance and can be an inhibiting factor for reuse. Content clearly delimited to a specific piece of information can be used without modifications (even though they prefer to alter it due to other reasons) but if the content is to “huge” it is much harder to fit it into a course.

A topic often discussed in the literature is that content needs to be *related to the context of the students* (Mason 1999, Albright 2005). Open content created for a specific

context might be inappropriate or useless in another context, e.g. a course about agriculture in Sweden might be useless in Bangladesh because of the differences regarding technology, tools, weather, culture and so forth. The informants said that it is very important that the students get local examples and content that they can identify themselves with.

“We have always believed that what ever we are going to teach the learners, the learners must identify themselves with the locals and the familiar surroundings otherwise they wont be able to grab the situation.”

The informants therefore feel that it is preferred to create the material from their own experience and from the experience of the students. Educational content is not culture neutral, the creators of learning material comes from one culture and it is inevitable that the creators' culture will be reflected in the learning material. How important localization of content is seems to be dependent on the subjects though. More technology heavy subjects are not as context dependent as more “soft” courses (i.e. economy, sociology etc.).

“It depends on the courses you are teaching, say for instance if you have a technology based course there shouldn't be any difference, but if the course is based on socio-economics of course some of the chapters must be modified, some of the chapters should be fitted into the Bangladesh context. [...] So it depends on the courses what courses you are teaching”

Albright (2005) raises two concerns with inappropriate contexts in the content, 1) dysfunctional education, or rather inappropriate education for the context, and 2) reduced potential for developing countries to contribute to research, training, experience and understanding.

“OER are cultural as much as educational, in that they give users ‘an insight into culture-specific methods and approaches to teaching and learning’” (Albright 2005)

Users of open content need to adapt the style and content of the material to be culturally relevant or the mode of teaching needs to be adopted to fit the content (Selinger 2004). The importance of locally produced content is stressed as one possible solution to this problem (Unwin 2005, Selinger 2004) and open content can be used as a base for locally produced content. Modifying open content to the context of the students is however seen as *time consuming* and one informant said that creating own material is preferred since it takes less time compared to modifying open content to fit with the context of the country.

4.1.4 Access

Some of the informants said that they find it *hard to find suitable material for the course* on Internet. One reason for this is the poor IT literacy among some of the informants, they do not know how to “best” search for information on Internet. Whether or not they find it hard also depends on the subject they need material for.

“It is sometimes very difficult to find material and sometimes I find it very easy. It depends on the subject matter”

In the Sri Lanka case it is apparent that content developers that need material for e.g. a HTML or Java course have a much easier task than teachers looking for material in e.g. business models.

Too much material to choose from was also expressed as an inhibiting factor by one informant. When asked how he searched for material the answer was that he just entered a keyword into Google which results in a large number of responses. The problem here is hence the information literacy among the informants; they need to learn how to search for information on Internet. Another inhibiting factor is that the *material is not available* due to e.g. broken links.

Problems with open content are not mainly the lack of available resources on Internet. As previously mentioned there are a vast number of content freely available (Wiley 2007). The problem is in finding the resources (Albright 2005, Unwin 2005, Larson and Murray 2008), and more correctly finding the “right” resources. Using a regular search engine like Google to find content is not always a viable option as it will generate too many answers (Albright 2005). There is, hence, a need to easily find relevant content and the most popular solution to this problem is the use of meta-data to define the content and make it more searchable. Describing the content with metadata has its own problems though and it is often hard to find adequate ways of describing the content so it suits everyone (Attwell and Pumilia 2007, Hatakka et al., 2007), and metadata standards are often too rigorous to offer help and are often more a hindrance for content developers (Attwell and Pumilia, 2007).

4.1.5 Technical Resources

Technical resources refers to infrastructural problems and lack of access to needed technology and is seen as a major hinder for reuse of open content (Larson and Murray 2008, Unwin 2005, Albright 2005).

“An inadequate Information and Communication Technology infrastructure, especially in less developed countries, is an obstacle to the dissemination and use of all OER, and especially those that offer more than just basic textual content.”
(Albright 2005)

A prerequisite to be able to use open content is of course to have *access to a computer*, this involves both the students and the teachers. Most of the teachers have access to a computer at work which makes it possible for them to create content at their workplace. Computer access among the students is however more sparse in many developing countries. This means that if teachers use open content they have to make printouts to the students since the students may not have access to a computer. One effect of this is that teachers find it easier to rely on text books than Internet material. Another prerequisite is *Internet access*. The problems here are much the same as for lack of computers. Teachers often have access to Internet at work but they can not rely on students having access to Internet which makes it safer to rely on text books.

Just having access to Internet is often not enough though if you have poor bandwidth. This factor has two dimensions. First it is a problem for content developers to download content, resulting in content developers disregarding some resources. Secondly it is a problem when they create content to be used by students.

“Lightweight content is very important, whatever the graphics or the media it doesn’t matter we have to be concerned about the weight of the bandwidth”

So even when they find material that is suitable to use based on pedagogy, quality, difficulty level etc. it still may not be possible for them to use it since they cannot presume that the students have Internet access. The risk with this, as mentioned in the literature, is that only low-end content (e.g. text, small images etc) is seen as appropriate to use. Creating content that is appropriate and that contains knowledge is hard, and creating “good” content that also has to work in areas with low bandwidth or outdated technology is a major challenge (Albright 2005).

Another reason mentioned by one informant for not wanting to rely on open content is *unreliable infrastructure*. In the Sri Lanka case the content developers often work against tough deadlines that they have to meet. Because of this one informant said that they do not want to rely on Internet material since they cannot be sure that they have access to Internet when they need the resource.

4.1.6 Quality

Quality can mean different things, the most obvious quality issue has to do with the actual content, is the information and knowledge distributed in the object correct? That content is “correct” does not necessarily mean that it is appropriate to use in every context.

Poor information quality means the actual quality of the information provided in the content. This can however mean many things, e.g. the information is incorrect, the information is not coherent etc.

The informants said that there is good quality content on Internet but the quality varies a lot. It is also apparent that if the content is considered to be of good quality or not is related to the context where it is to be used. Content that is considered of high quality in one context may be inappropriate to use in another and therefore of low quality (Attwell and Pumilia 2007, Albright 2005). The content in itself might be of high quality but if the content developers do not agree with the authors view, interpretation etc. they consider the content of low quality and will not use it. Two informants also said that they find it *hard to assess the quality* which can be related back to the different meaning of quality, even if the information provided in the content is correct it may not conform to the teachers’ opinion on the subject. The vast number of available resources also makes it hard to assess the quality since they have to go through and assess a lot of content before they find an appropriate one.

That the content is not always updated was also seen as inhibiting. UNESCO OTP users, as an example, expressed a concern that some of the material provided on the platform was outdated which is seen as problematic. The problem is to be able to find updated content and to be able to assess if the information in the content is updated or not.

Another issue related to quality is *trust*; the informants do not trust Internet material. “Open Resources are not much use if they cannot be found and trusted” (D’Antoni 2006). If the users do not trust the quality of the information they will not use it.

“Problem is in our case that SMEs can create and give reliable material, they can spend time to create acceptable material but when we go to the Internet [we have to] believe the material. Anyone can upload anything. So it’s a quality issue”

The trust of content depends on two things: 1) what type of content it is e.g. they do not have trust issues with scientific papers; 2) where they get the content from, i.e. if a well known organization provides the content the informants do not see any reliability problems. Several of the OTP users expressed as a reason for using UNESCO OTP that they feel that they can trust the information provided by UNESCO. Trust issues and the need to rate and review the quality of content is often mentioned in the literature and solutions range from academic

peer-reviews, to community based reviews (Hylén 2006, Attwell and Pumilia 2007) and hybrids between the two (Vargo et al. 2003, Li et al. 2006). Reviewing institution provided content is possible but it is much harder for informal community provided content.

4.1.7 Intellectual Properties

Some respondents expressed a concern about using Internet material because of *copyright issues*. Intellectual property and copyright is a jungle and there is a need to clarify intellectual property rights issues with open content (Larson and Murray 2008).

When content developers find material that is suitable to use they are reluctant to use it because of copyright laws. This results in that content developers only choose to create a link to the content, or feel that they have to modify the content before using it. The very knowledge that material can be copyrighted poses a problem as it inhibits content developers from using Internet material; it is time consuming to explore content in regards to what they can and cannot do with it.

4.1.8 Awareness

A prerequisite for using open content is of course to know that it exists. *The lack of knowledge of open content* is most apparent in Bangladesh as they are the informants with the lowest IT literacy and Internet usage among the three cases. One informant said that he rarely uses Internet in content development as the information he needs only is available in text books and cannot be found on Internet. The piece of knowledge he wanted to use is, however, easy to find on Internet so the problem is not that the resources are not available on Internet the problem is that the informants are not aware of it due to low IT- and information literacy.

The *lack of knowledge of learning object repositories* refers to institution or organization provided content (e.g. MIT open courseware and UNESCO OTP). Some content developers creating content for more technological topics have knowledge about MIT open courseware which can be explained by MIT's good reputation. The usage of content from MIT is, however, miniscule; even if they have visited and searched for information on MIT open courseware they do not use it.

4.1.9 Computer Literacy

There is a clear difference in computer literacy between the cases. Both the Sri Lanka and the OTP informants are considered to have moderate to high computer literacy whereas several of the Bangladesh informants have low computer literacy.

When asked how they find material on Internet to be used in their courses it became apparent that *lack of basic IT literacy* is a major concern. Answers like "*I click that, then I download, it just say download, the material that I need, then I can reuse*" are frequent in the data. Low computer skills does not only makes it harder for them to access and use material it also results in that content developer's get anxious when they need to use computers in their work (Intaganok et al. 2008). In the OTP case several of the respondents answered that IT literacy can be a problem when using the platform. The computer illiteracy can be ascribed the lack of *training in school*. Lack of IT training for teachers will result in that they do not know how to use Internet effectively and lack of IT training for student's means that material that requires computer skills can not be used.

4.1.10 Teaching Capacity

The category teaching capacity means that teachers see reuse of Internet material as inhibiting for their own ability to function as a teacher.

The inhibiting factor *reuse hinders self-development* means that teachers see the content development process as a method to learn new things and to develop deeper knowledge within a subject:

“It enriches me [to create own material instead of reusing] and I consult with many other books and many other people sometimes and yeah, it enriches me and at the same time enhances my teaching capacity”

The informants can see a benefit of using material created by someone else (to enrich their own capacity and to enhance the content) but they see a problem is reusing the material without adding their personal flavour to it. The risk is that their teaching capacity will be reduced.

“It is true other material is necessary to work but that should not be the main basis, always reusing inhibits creativity.”

One informant also expressed a concern that it is problematic to be dependent on other people’s material, but at the same time the informant did not see a problem in being dependent on text books.

4.1.11 Teaching Practices and Traditions

Teaching practices and traditions refer to inhibiting factors concerning how content developers’ view teaching and learning.

Text book dependency means that there is a long tradition in the education culture to base the teaching on text books. This tradition seems hard to break and one informant almost romanticised the use of text books:

“And I like to read more and more, so what I do normally is to collect some books then I find full satisfaction. [...] The more we read the more we can learn, so I prefer reading, that’s why actually I don’t go for that [Internet].”

The text book dependency is also apparent since each course is based around a specific text book. The knowledge in the book is the knowledge the students need to learn and Internet material should only be used as a supplement for students. One informant said, when asked what type of Internet material he uses:

“[...] if you download the PDF you can easily get the printout which will look like a text book“

So even if Internet material is used it is preferred if the material can be made to look as much as possible as text books.

Another issue is that if they use material from Internet it will *lack the teachers’ personal ideas and creativity*. This relates to the “not invented here” notion (Agarwal et al. 2007, Husted and Michailova 2002) i.e. a hesitation to receiving knowledge someone else has created. The informants feel a need to create the content based on their own ideas, thoughts and creativity. The teacher knows what the student needs and hence is best suited to create material for the student:

“If I use my own material instead of re-using other people’s materials, then I can use my innovative idea, knowledge and can make the course material simple but

resourceful so that each student can easily understand and adopt the course without fear”

Teachers see it as their job to decide what information (interpreted by the teacher) the student get access to. The teachers want to transfer their perspective to the students:

“I won’t just copy or reuse what ever has been created by someone else; I want something with my own flavor. With my own intellectual, psychological and emotional flavor. It’s my perspective.”

5. CONCLUSION

I started this paper by claiming that education is a key for development and that open content has the potential to play a major role in providing education for all. The paper, however, shows that there are several inhibiting factors that prevent course designers from using them, and exposing the inhibiting factors is the first step to finding a solution. In this study eleven inhibiting factors were found, educational rules and restrictions, language, relevance, access, technical resources, quality, intellectual property, awareness, computer literacy, teaching capacity, and teaching practices and traditions.

Most of the literature deals with problems related to the actual content (e.g. language, relevance and quality) and even though these factors are important this study shows that the content is only part of the problem. The inhibiting factors related to the content needs to be addressed but if we only focus on those the usage will only increase marginally. Content developers see it as their job to create content for the students and they do not just want to copy what someone else has created. They see the content development process as self-development and they want to incorporate their own ideas, their innovations and their perspectives in the content. The often mentioned statement that open content can help save time in the development of content can also be questioned. Most of the time content developers find it easier and quicker to create their own material instead of finding and assessing content on Internet. They have too much material to choose from, it is hard to assess the quality and copyright restrictions and it is time consuming to modify the material. Educational practices and traditions that historically have shaped the educational system of the countries also pose a hinder. Content developers are used to basing their teaching material around text books and they want control over what information that is passed on to their students.

Even though the inhibiting factors make content developers reluctant to use open content they do see some benefits of using it. But only if the content is created in a certain way and that it is created by someone they can trust. They are more reluctant to use full courses or lectures then content that is delimited to a specific topic. It is easier to assess the quality of a limited piece of information (e.g. a small text or an image) and it is easier to modify it to fit with their way of presenting information and delivering the courses. Open content need to be designed so content developers easily can use them in their existing courses or they will not benefit from using them. Another issue is that they will not use content with information that is not related and easily understood by their students. It must, hence, also be easy to modify the material to fit the context and culture of the students. That they do not trust the information in open content is problematic and the risk is that only institution provided content will be used. Open content is based around the idea that everyone should be able to contribute but if users only trust content from well recognized institutions the whole community provided content side will be ignored.

If open content should work as a “*catalyst for the production of new, local OER*” (Albright 2005) solutions to the inhibiting factors need to be addressed. The term “build it

and they will come” does not fully relate to open content, development of more content and content of higher quality is needed but just “building it” will only address a small portion of the inhibiting factors that content developers experience with reuse of open content.

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