# Open Educational Resources: Education for the World?

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# Open Educational Resources: Education for the World?

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# Open Educational Resources: Education for the World?

Education is widely seen as an important means of addressing both national and international problems, such as political or religious extremism, poverty, and hunger (UNESCO, 1974, p.3). If developing countries are to turn into societies that can properly compete with the Western industrial countries, not only is a fundamental shift in thinking with regard to the value of and need for more/better education, but strong support from other (i. e. developed) countries (Worldbank, 2000, p.87f) is also required. This paper explores questions such as whether Western policy-makers can avoid a repetition of some of the failures of the past few decades in terms of providing foreign aid; how educators and providers of educational scenarios and learning contents can foster and manage the creation of a worldwide knowledge society; and in particular, if the provision of Open Educational Resources (OERs) can realistically overcome the educational gap and foster educational justice. Recommendations include using better initial design principles to enable realistic OER reuse in different contexts and environments.

Keywords: OER; knowledge society; educational gap; adaptability; foreign aid; developing countries; illiterates; educational justice

## Introduction

The primary 'Millennium Goal' set by the United Nations in 2010 was to "Eradicate Extreme Poverty and Hunger" by 2015, yet a poor education is often seen as an underlying reason for poverty in developing countries, as well as for a correspondingly low level of human capital (Easterly, 2005, p.8). Degesys claims that as '*educational systems can sustain conflict within schools, they can also liberate it*' (as cited in Ramsbotham, Woodhouse, & Miall 2008, p.240). Although the situation has improved over the last fifty years, this improvement has not been universal. Whilst "*enrolments have expanded rapidly, the quality of education is hampered by missing inputs like textbooks and other school materials [...]*" (Easterly, 2005, p.8). Therefore, providing developing countries with educational resources so they can transform into fully functioning and competitive economical/social communities could be seen as a key issue for realising the UN Millenium Goals.

Today, a number of high-level organizations and institutions actively promote high-quality Open Educational Resources (OERs), such as UNESCO OER wiki[1], ICDE[2] or OLnet[3]. Much of this is readily available and accessible via repositories such as Merlot[4] or MITOpenCoursware[5]. Furthermore some argue that OERs could resolve the lack of educational materials and D'Antoni (2008, p.8) suggests that they can play a central role in achieving educational justice in the world. However, we would like to posit that the mere provision of OER is an overly optimistic idea and will not serve to resolve educational deficits in developing countries.

In this paper, we begin our debate by explaining why we think that the sheer existence and availability of free OERs is unlikely to prove a definitive solution. We intend to show that, even if the information included is of the highest quality and applied didactic and pedagogical design follows the very best possible standards, OERs will only be of value for learners if these fit their own context, and are thus genuinely reusable or at least fully adaptable.

Next, we will explore some of the most serious barriers and what we believe, as a minimum, needs to be done so that OER can actually play its role of overcoming the educational gap. In this respect, we feel that a much more realistic stance needs to be adopted. It is neither our intention to diminish nor to generally criticise the achievement and potential of a faithful and valuable movement of sharing, which Moore (2002, p.46) characterizes as a '*his-*

[1] http://oerwiki.iiep.unesco.org/index.php/Main_Page
[2] http://www.icde.org/OER+Mandate.9UFRzG5a.ips
[3] http://www.scoop.it/t/olnet-oer-research
[4] http://www.merlot.org/merlot/index.htm
[5] http://ocw.mit.edu/index.htm

*toric tenet of academic culture*'. Nevertheless, we feel it is necessary to draw attention to some critical issues that may prevent us from fully achieving these goals. In particular, our position is that just because we (as educational professionals and policy makers within Western environments) may have found that sharing contextually biased OERs can often lead to a win-win situation[6] within Western environments, it does not necessarily follow that this strategy will work when transferring them to fundamentally different contexts (i. e. the developing world).

Thirdly, our stance is that if we want to achieve and/or foster educational justice in the world by producing and providing OERs, we will need to do more than merely making such learning materials available. Thus, we will discuss the necessity to turn contextually limited usable information into tangible and adaptable educational resources, designed in a way that is easy to implement, which in turn could raise the value of OERs enormously.

However, we would like to explicitly acknowledge some limitations of our deliberations in this paper. We would like to point out that we are not able to consider situations where there is a fundamentally deficient infrastructure, where existing political systems prevent the use of open educational resources (e. g. environments where information is censored), and nor will we attempt to offer OERs for resolving circumstances of extreme poverty (e. g. where buying a $100 laptop would deprive a whole family a month's worth of nutrition).

Consequently, this paper specifically addresses producers/providers/users of OER who are charged with fostering the upcoming culture of sharing (and reusing) educational resources, as well as educational policy-makers who are also responsible for defining quality criteria to ensure the value of such resources. To begin with then, in the following section, we discuss key issues that need to be taken into consideration when discussing the potential of and possible gaps to providing educational support with OERs.

## Educational support with OERs

Despite the fact that many resources are highly promoted, are of high quality, and are freely accessible, recent research by Andrade *et al*. (2010, p.11) shows that a critical threshold in OER usage has not yet been reached in Europe. One of the main barriers identified by professionals, policy makers, and learners for (re)using OERs, is the uncertainty as to whether higher and adult education resources are appropriate and match the learners' own educational contexts (Andrade *et al*., 2010, p.171). Similarly, responses to a school-level survey in Germany (Richter & Ehlers, 2011, p.4-6) indicated that teachers simply had no idea how to examine a given OER's appropriateness and what they needed to do to an OER to make it suitable for their particular situation. Given these findings in highly industrialised contexts, it can be expected to find even more uncertainty and mistrust in developing countries: The uncertainty regarding contextual appropriateness of OERs comes on top of the already existing suspicions regarding the Western industrial countries' motivation to provide developing aid (e. g. Wedel, 2001, p.167). Clearly, it is easy to see that determining appropriateness of learning resources in particular subject areas (e. g. religion) could be very difficult, but do other subject areas also raise the potential for conflict? When trying to find a context-free language for international communication, Davis (2005) found that '*…only within the most homogeneous community of speakers, with extremely specialized communication needs and zero tolerance to misunderstandings, such as international commercial airline pilots or military commanders, can we expect a thoroughly uniform interpretation of a limited English vocabulary*' (p.1). She concluded '*no single language can achieve this universal goal of establishing a mutually-meaningful communication link in today's widely diverse global population'* (p.8).

Although some argue that mathematics is mathematics, and will easily transfer between different cultures, this is not universally true. A UNESCO study by Benavot (2011) found that while a range of developing countries shared educational standards, these mainly revolved around routine and basic skills in mathematical problem solving and reasoning, but diverged when it came to more cognitively demanding mathematics skills. Moreover, it would seem that teaching methods in this subject are not necessarily common either. For instance, a German course in mathematics normally teaches a number of different methods; then asks learners to

[6] see https://joinup.ec.europa.eu/sites/default/files/studies/IDABC%20OSOR%20casestudy%20OpenUniversity.pdf

choose and adapt one of the learned methods to solve a given problem. In an Asian educational context, it is assumed that certain methods are explicitly related to certain problem classes; so as a task, the learners may be instructed to use a defined method to solve a certain problem. Asking a learner to modify a taught method could cause a serious conflict, because this would be tantamount to questioning the educator's authority, which is considered to be disrespectful in this region (Richter, 2011b).

Further, most educational courses implicitly require prerequisite knowledge from learners, which might or might not be equal in different contexts and in addition, they may demand too much or little from the targeted learners.

All those aspects indicate that OERs produced in Western industrialised countries may not necessarily fit learners' needs in developing countries' contexts without considerable thought to adaptation.

## Why the simple availability of OERs is unlikely to be a definitive solution

Having carried out an analysis of prominent foreign aid failures over the past few decades, we found that researchers like Moyo (2009, p.74) and Easterly (2006, p.40) assert that the simple provision of resources (e. g., money, construction material, or agricultural machines) to impoverished countries often leads to greater dependency, rather than leading to sustainable development. We argue that this insight can be extrapolated to educational contexts, and that without empowering the educators within the contexts to conduct the adaptation process themselves, purely offering resources for learning may prove less successful than desired or that any gains may prove too temporary.

Other research concurs that merely making OERs available will not necessarily serve the aim of achieving educational justice throughout the world because this provision does not lead to widespread uptake. As explained by Hunt (2007), HakiElimu (an advocacy-based organisation in Tanzania supporting every child's right to basic education) discontinued the distribution of electronic materials by email in 2005 because the recipients did not value (use) them. Albright's report (Albright 2005, p15) contends that OER could be improved by shifting from a 'provider-user' model to one that employs collaborative development, but acknowledges that creating a collaborative environment staffed by volunteers to adapt OERs for language, culture and relevance is a significant challenge. Research by Richter (2010) shows that failure to take the targeted learners' culture into consideration, when implementing education in foreign contexts, can lead to significant frustration and greater dropout rates. This phenomenon is particularly apparent in e-Learning where, to overcome difficulties that arise in self-regulated learning scenarios, motivation and confidence are to be understood to be significant success factors (Richter & Adelsberger, 2011). Thus, if reused without appropriate thought and without further modification, inequalities between rich and poor may expand (Reich, 2011), and the gap between industrialized countries and the developing world may rise even further.

In alignment with the UNESCO subsidiary principle, Bogardi and Hartvelt (2001, p.20) recommend that any educational '*action should be executed on the lowest possible level*' and that education, '*taking place within a national framework is likely to be more efficient than within an international one*'. Correspondingly assigning these recommendations to the context of OERs, sustainability may only be possible if the offered resources also support lower level education and can fully be integrated into the local context.

## OER adoption barriers and overcoming the educational gap

There are many barriers to OER adoption in developing countries. So, the key question here is: What are the most serious barriers to the adoption of OER and what needs to be done to help overcome the educational gap?

*Historical effects of colonialism*

According to Ziegler (2008, p.83), Western colonialism has not yet been fully abandoned; it is just that the methods have changed. Today, developed countries still control the African continent by speculatively manipulating the prices for food and other trade-goods (Ziegler,

2008, p.88-89). Furthermore, where developing countries had a negative colonial experience prior to independence, offers of Western help might not be fully accepted or even appreciated as such. In the context of modern African education, Thiong'o argues that '*the very mandate as African producers of knowledge is to connect with the continent*' (2005, p.157). Consequently, there is still potential for a good deal of underlying animosity towards the West, which may in turn lead to suspicion of OERs produced by industrialised countries.

Another historical issue that needs to be taken into consideration is that of language gaps. This applies particularly to Africa, where the Western colonialist countries artificially drew many country boundaries without taking tribes and/or different languages/cultures into consideration (Robbins, 2005, p.302).

*Language issues*

As long as educational materials continue to be based on a very few (Western European) languages, not only are the minorities' languages fading away, but access to higher education remains limited to people who have had the privilege to learn one of those elite (foreign) languages (Ouane, 2002, p.12). Kickbusch (2001, p.289) writes that "*Four out of five websites are in English, while only one in 10 people on this planet speaks this language*". DePalma *et al*. (2006, p.4) (International Survey of Global Consumer Buying Preferences) found that 32.6% of Internet-users either never or rarely visit English language websites. We presume that this would apply equally to e-Learning, where "consumers" would be candidates for adult and higher education. Chumbow (2002, p.173) claims for the African context that '*the use of national languages will be a greater stimulus to learning and this will lead to a greater and higher level of education.*'

In terms of a successful developing aid OER intervention, the language gap is a significant obstacle that needs to be dealt with. Yet, even if OERs were to be translated to the local language of the targeted learners, adaptation would still be needed, because if left as is, they would still not necessarily be suitable for the targeted regional context (Leonardi, 2002).

*Contextual gaps*

According to Deyrich and Matas-Runquist (2006), "language" means not only different words, but also offers a different way to express thoughts and build sentences, and such ideas could be regarded as context specific. Corresponding to this, multi-language websites are often drawn directly from the originator's view of the world, and simply use the words belonging to other languages, with some culturally related (verbal) pictures thrown in.

In view of this, it seems unlikely that contextual and language gaps could be easily managed and overcome by the (mostly voluntary) producers or providers of OERs as envisaged by Albright (2005, p.11-12). Addressing these concerns, Richter and Pawlowski (2007) argue that e-Learning content providers should at least support translations and improve adaptation by better design and description of learning materials. Andrews (2009, p.9) explains that "[…] *without a proper understanding* [and thus, provision for] *of the culture of the people aid seeks to help, no effective impacts should be expected*".

*Lack of cultural diversity*

Research by Woolman (2001, p.30-31) indicates that most educational material is not designed to foster the development of national identities and does not support cultural diversity. Thus, his stance is that OERs usually are produced for a certain context and whilst they can be reused in another one, they are not explicitly designed for reuse. Woolman (2001, p.28) goes on to state that for "*the most part, educational policy decisions and implementation remained highly centralised and reflected the will of ruling elites*".

*Educational privilege and literacy*

In many countries, education is seen as a privilege of the elite. Woolman (2001, p.28) points out that changing this view would be another significant step towards reaching a higher educational standard and social justice throughout the world. Nevertheless, the ability of reading and writing is still seen as an important individual skill (Wallendorf, 2001, p.505) and possession of such expertise is related to or leads to powerful positions in the society. Williamson

(2009) suggests that a key barrier for successful foreign aid is the lack of effort to explain (particularly to those who are part of the ruling elites) why changes in behaviour, social structures, and political systems are crucial for the further development and beneficial for all.

Sachs (2005) claims that greater literacy is one of the main reasons why developed countries have less corruption and "better" working political systems. He considers literacy as a skill that leads to more critically thinking societies and thus, to better control and more (direct) feedback by the people (p.378). The UNESCO Institute of Statistics (UIS, 2011) reports that adult literacy rates in eleven Sub-Saharan African and in South-West Asian countries were below 50% in 2011 (op.cit. p.2). In contrast, more than 50% of the whole world's illiterates live in South- and West-Asia, and 21.4 % of all illiterate adults live in Sub-Saharan Africa. However, it should be noted that the percentage of illiterate adults in Sub-Saharan Africa varies enormously between countries (e. g., 74% in Mali as opposed to 7% in Equatorial Guinea). Taking these statistics into account, it seems that one of the most pressing issues is to address the high levels of illiteracy.

*The need for basic education*

Such statistics indicate that in developing countries, basic literacy skills education for the general public is often very limited, if available at all. This view is confirmed by UNESCO's declaration[7]:

> "Education is a fundamental human right and essential for the exercise of all other human rights. It promotes individual freedom and empowerment and yields important development benefits. Yet millions of children and adults remain deprived of educational opportunities, many as a result of poverty."

Thus, it seems that the most urgent need is for OER producers to support basic reading, writing and numeracy skills, and not just to focus on higher and adult education, as they appear to do at the present time. In a context, where disadvantaged learners predominantly need to acquire very fundamental literacy skills, this then begs the question as to whether e-Learning in general, and not just OERs, can actually replace face-to-face education for such basic education? What special challenges are related to this scenario? With respect to foreign aid through educational support, literacy is a key issue that needs to be addressed prior to, or at least at the same time as discussing higher educational OER provision. Can existing OERs actually help in this regard, and are there approved approaches in place to support people in developing literacy skills?

Added to this, there are various further context-related impediments that could cause major conflicts during the learning process, or prevent it completely, that need to be overcome (Richter & Pawlowski, 2007).

In the following, we consider the context of learning as all factors influencing learning scenarios that can hardly be manipulated by the learning design.

Even though educators, authors, or distributors of OERs cannot directly influence the context of the learners, they could help avoiding related conflicts by improved design and appropriate allocation of the contents (e. g. by sufficiently describing the originators' context). In many cases of reusing educational materials in other contexts, contextual adaptation will be necessary. As we indicated before, a simple translation is not a solution to bridge cultural or contextual gaps. In terms of supporting the adaptation of learning resources, we will initially present a possible solution and then we will discuss simple design procedures that would be likely to support any adaptation process.

## e-Learning in the context of improving literacy skills and basic education

The virtual learning platform "About Time To Know"[8] is implemented in the context of schools with low socio-economic status (SES) in Israel. Analysing outcomes of this platform, Rosen and Wolf (2011) found that there is a high potential related to appropriately implemented educational technology programs among low-SES students. According to Poulová *et al.* (2010, p.157), the '*adequate ICT equipment and students' computer literacy are inevitable precondi-*

[7] http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/right-to-education/
[8] http://www.timetoknow.com

*tions of running the process of instruction*'. This suggests that for learners to make effective use of OERs, they need to first learn basic IT skills before being taught via e-Learning. On the other hand, Mitra *et al*. (2005) carried out minimally invasive educational experiments in India, and claim that even with no computer skills (i. e. just basing on their natural curiosity), children between the ages of six to fourteen have not only been able to learn dealing with the computers by teaching each other or by themselves (op cit. p.409), but also learned basic English language skills. In this 'Hole in the Wall' project, in several Indian cities, computers were installed and embedded into brick-walls close to slums and used by the slum children. However, although the development of IT skills is one of the basic issues to be solved in education (Mitra *et al*. 2005, p.410-411), this experiment was designed to monitor the development of self-taught computer-literacy and did not specifically focus on generating basic literacy skills. Moreover, the computers appeared already to be running, and the participating children (to some degree) seemed to be somewhat literate already.

Theoretically, once learners attain basic computer literacy skills, they can go onto learning higher order skills, such as more advanced reading and writing. There are some successful examples where children achieve basic education in all sectors (partly in scenarios of blended learning) via e-Learning, e. g., the "school of air"[9], designed for children in the rural areas of Australia with very low population density, the "school for circus kids in North-Rhine Westphalia"[10], supporting children of permanently travelling parents in Germany, and the "K-12 International Academy"[11] in the USA, which is designed as an online school to support learners from Kindergarten to the end of their school education in a complementary way.

Although there are existing examples of successful basic education via e-Learning, designed as pure online learning and/or blended learning, which also seem suitable to achieve literacy skills, the idea to transfer such scenarios one-on-one to developing countries needs to be put into question due to two reasons.

Firstly, learning, reading and writing is based on spoken sounds and corresponding letters (MfSuW NRW, 2011, p.26) and this assumes that we can only teach literacy skills to people where their verbal communication has some form of parallel written language. Thus, speakers of non-Semitic Languages, such as Mursi (south-west Ethiopia), may not be able to achieve written literacy skills without learning an alternative language that does support a written form. Furthermore, we need educational resources in related languages and designed for related scenarios. If a native language does not have a written form, or if educational resources are not available for a particular language, a suitable alternative language has to be learned and/or resources need to be adapted to the contexts of the learners (e. g. children in the Sahara-region and children from a middle-European context will know and use different words in their daily life). This is particularly relevant to literacy skill development where, for pedagogical reasons, real and concrete scenarios are being used as learning exemplars. Thus, if OERs are to serve those requirements, they either need to be produced using relevant scenarios and in understandable languages; or they need to fully be adapted to the new context.

The second problem is of a more technical nature. Basic education does not simply serve the purpose of accumulating information needed for developing literacy skills and going on to participate in further and higher education. According to the UNESCO report on the Expert's consultation on the operational definition of basic education (2009, p.2), the purpose of basic education '*is directed to the full development of the human personality. It develops the capability for comprehension and critical thinking, and it inculcates the respect for human rights and values, notably, human dignity, solidarity, tolerance, democratic citizenship and a sense of justice and equity'.* The claim for developing a human personality implies social interaction between people and the development of communication skills (also see op.cit. p.8-9). Thus, if basic education is to be conducted entirely online, as a minimum requirement, an Internet access with an appropriate steadiness and speed is essential so that a proper communication scenario can be ensured. This is not yet possible in all regions of the world.

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[9] *Alice Springs School of the Air* (w/o Y.): History: Overview. http://www.assoa.nt.edu.au/_HISTORY/history.html

[10] *Schule für Circuskinder in Nordrhein-Westfalen* (o. J. a): Sieben Jahre Schule für Circuskinder. http://www.ekir.de/circusschule/schulkonzept/index.htm

[11] *K^12* (w/o Y): Online Public Schools. http://www.k12.com/schools-programs/online-public-schools

## Adapting e-Learning resources to other contexts

In this section, we will discuss the processes that we have identified as being necessary to make an OER reusable in a different context to that for which it was originally intended. Han *et al*. (1998) suggest that adaptation is the 'process of selection, generation or modification of content (text, image, and animation, etc.) to suit to users' computing environment and usage context'. Considering learners' needs in the context of e-Learning, Rosmalen *et al*. (2004, p.59) define adaptation as '*creating a learner experience that purposely adjusts to various conditions […] over a period of time with the intention of increasing pre-defined success criteria […]*. This includes all necessary tasks, e. g., translation, visual/technological redesign, and changing teaching strategies and methods. These views concur with findings of a study with teachers from different school levels in Germany (Richter & Ehlers, 2011), which revealed that several gaps for reusing OERs could easily be overcome by a better design of the resources. First of all, (German) teachers seem to rarely use the OERs in a digital format because they do not have the necessary technology in their classrooms. Instead, they print the resources and provide them to the learners in paper form. As a barrier, the teachers said that OERs are often provided in formats, such as PDF or JPG that cannot be edited. For instance, if the teachers find a chart that contains text, they are unable to change/translate the text for their learners within the chart, so for this to be of any use, they have to recreate it and in most cases, this exceeds their abilities. Granted this study was conducted in the industrial West, but our own experience of working in the developing world leads us to believe that these problems can be extrapolated to those contexts.

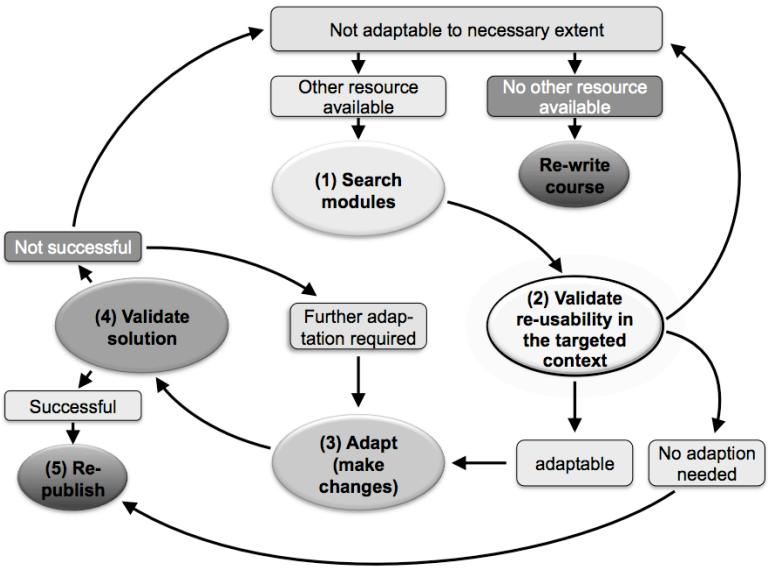


Figure 1: The learning resources adaptation process (Richter, 2011a)

To better explain the learning resources adaptation process model shown in Figure 1 above, we think it would now be helpful to introduce the adaptation circle, which was developed by Richter (2011a). This adaptation process model is the result of a conjunction and extension of the adaptation process models from Rosmalen *et al*., (2004, p.60) and Pawlowski and Zimmermann (2007, p.269). Both models, in our opinion, were not detailed and/or flexible enough for the purpose of international adaptation[12].

1. Each adaptation process starts with the search for a suitable resource (Step 1).
2. Once found, its re-usability of the OER in its new context needs to be validated (Step 2). The resources' original context then needs to be contrasted against the targeted context, resulting in a list of differences between the two contexts that must to be taken into consideration when wanting to adapt a resource. For the adaptation of educational material, the de-

[12] The model of Rosmalen *et al*. (2004), e. g., did not explicitly consider any search and/or re-write options and both models did not include any refinements to already passed steps (the model of Pawlowski and Zimmermann (2007) is a linear model).

termination of the usability of a resource is the most crucial step (Richter, 2011a), since here, not only the adaptability is to be decided but also the potential adaptation needs.

3. If the identified resource *is* adaptable, the critical aspects determined in Step 2 needs to be checked to see whether they apply to the specific resource and context and then the changes have to be conducted (Step 3). [Please note that if the resource is *not* adaptable, Step 1 will need to be repeated]
4. Once the adaptation has been conducted, the contextual matching of the adapted resource needs to be validated. Depending on the resource-type, there are several levels of validation possible. Those vary from sight check to long-term studies. Pawlowski and Richter (2010) described such a possible design for an experimental long-term study.
5. If the validation was successful, the learning resource finally can be republished in the new context. If not, Step 4 will need to be repeated.

It should be noted that although the adaptation process may be quite different depending on the configuration of contexts, culture and type of resource that is to be adapted, the basic principle remains the same, and the finally (re-)produced OER should end up as being of an equivalent quality to the original course context.

## The learning context

Since 2007, we have conducted intensive research on contextual factors that influence learning scenarios. The first comprehensive list, published by Richter and Pawlowski (2007), was drawn from the literature and derived from an analysis of conflict situations occurring in learning scenarios but was not evaluated in terms of comparability or descriptiveness and did not further take cultural aspects into consideration. We then followed up this initial research by systematically collecting concrete data from several sources like national statistical offices, local publications, national websites, further data collections[13] and our standardized questionnaire on learning culture (Richter 2011b) in a variety of contexts, such as Germany, South Korea, Austria, Switzerland, Great Britain, Ireland, Bulgaria, and elsewhere. The purpose of this follow-up investigation was to verify the descriptiveness and comparability of these influence factors in various different contexts. To date, the datasets themselves have not yet been fully verified (apart from those from Germany and South Korea). However, during this second phase, the list significantly changed due to the fact that some factors proved to be extremely difficult to describe, just specific to a single context, or had missing aspects. Nonetheless, the list of aspects which have already been verified are shown in the Annex.

Turning to the learning context, we consider that there are entities in any educational systems that are responsible for the differences between settings, providing different frameworks for the context-specific learning scenarios. Those entities do not just influence the learning scenario itself, but also each other. In Fig. 2, we propose three main stakeholder groups (Author/Educator, Tutor/Advisor and Learner) and different types of scenarios that mainly are responsible for contextual influences on learning scenarios:

[13] in case of sources from outside the countries, we followed the journalistic principle that the same information had to be provided from two independent sources, like the CIA world Factbook (https://www.cia.gov/library/publications/the-world-factbook/) and the Fischer Weltalmanach (http://www.fischerverlage.de/buch/der_neue_fischer_weltalmanach_2012/9783596720125)

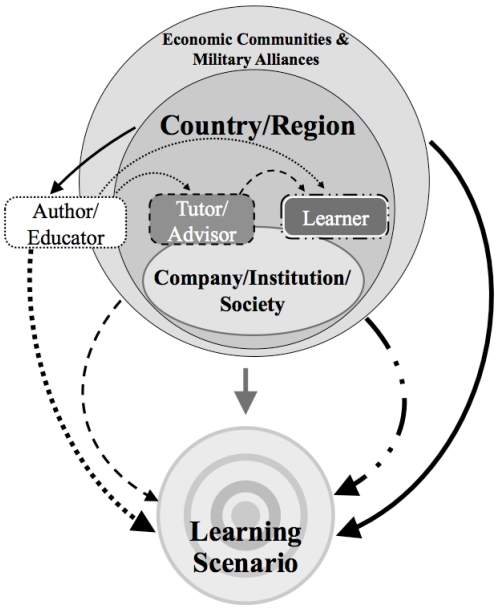


Figure 2: The learning context – entities

Our analysis of the stakeholders indicates that learners, tutors/advisors and authors/ educators are main contributors of contextual influence factors: All three groups of stakeholders are more or less influenced by environmental entities, such as, economic communities and military alliances, countries/regions, and companies/institutions. Furthermore, (as shown in Fig.2), the different levels of environmental entities influence each other from outside to inside, for example, an European law has a higher relevance for the member states of the EU than a national law on the same issue. While the tutors and learners usually belong to the context in which they interact, authors/educators may originally belong to another context. Thus, we arranged them a bit outside of the learners'/advisors' national context. For example, an author from Germany may also be writing learning contents for a school, university, or enterprise in Austria, and when checking a resource, may find that two basically different contexts have influence on the design of this particular OER; the original context of the author, and the authors' interpretation of the context, for which the resource has been designed. All displayed entities were revealed to be responsible for concrete influence factors, affecting the learning scenario. For learners, their particular cultural background plays a significant role and influences their expectations and behaviour. We particularly focused on the cultural context of e-Learning, because there appeared to be little insight as to which cultural aspects influence attitudes and expectations of learners (Richter 2011b). Finally, we have now identified and verified several culture-related influence factors. Those influence factors seem to have a considerable impact because they directly influence the satisfaction and thus, the motivation of the learners, which particularly is a critical success factor in e-Learning scenarios (Richter & Adelsberger, 2011).

In our analysis, we arranged the concrete influence factors in various groups called "influence factor classes". These informally were distinguished according to their roots/general topics, such as, rights, human actors, culture, state of development, politics, religion, companies, geographical issues, etc. During this process, we realized that there are interdependences between the different influence factors (and thus, also between the influence factor classes), as shown in Figure 3.

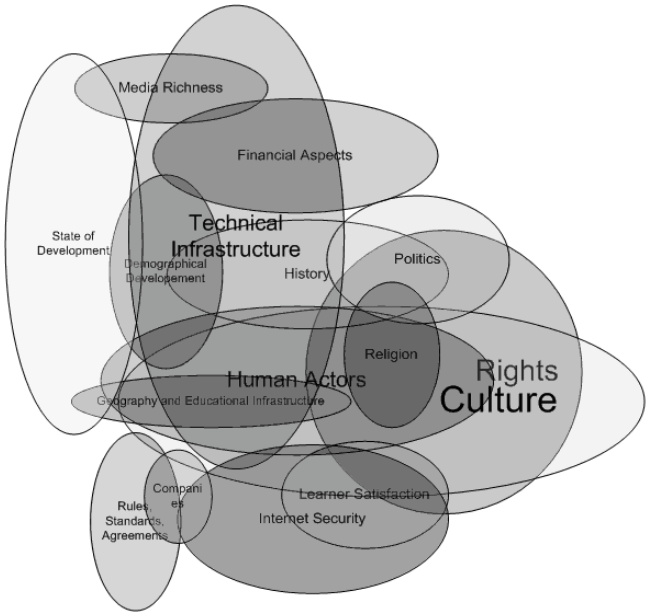

Figure 3: The learning context – influence factor classes

On the one hand, Fig. 3 displays the defined influence factor classes. On the other hand, it shows that the influence factor classes must not be understood as selective, as some influence factors obviously belong to more than one class. When for example, taking specific symbols with a positive or negative meaning within a certain society, those can have a cultural background but additionally a historical and/or legal one. One concrete example would be the use of the swastika as symbol. In Germany, the swastika has a clearly historical background related to the German fascism in the Second World War. Apart from educational purposes, the German law generally forbids displaying this symbol (StGB, §86[14]). In other countries, the swastika has a positive meaning, such as luck, sun, or life. For instance, when adapting a South Korean OER, it would be crucial to check whether a swastika is being used, e. g. as bullet points.

The overlaps, shown in Fig. 3, represent yet found interdependences between the influence-factor classes. The different sizes of the ellipses do not have a specific meaning but were needed to visualize the overlaps. It is conceivable that the intensity of some influence factors may change the impact or relevance of others by e. g., overloading the capability of people to accept differences. Consequently, it is not yet possible to make definitive statements like: 'a certain conflict may not appear if the deviation between both contexts is below 20%' (insofar as the influence factor can be quantitatively measured at all). The problem of identifying and evaluating cross-effects between the influence factors remains. To solve this problem (if solvable at all), more research on clashes between concrete educational scenarios in general, and in e-learning in particular, is needed.

Returning to the OER adaptation process, our list of potential influence factors may be understood as an indicative tool to systematically determine differences between the genuine context that a learning resource originally has been designed for and its target context. In our upcoming research, which will be conducted from 2012 to 2015, we plan to define the specific data for the determined contextual aspects for as many countries as possible. In previous investigations, we discovered that it is difficult, if not almost impossible for a foreigner to collect the data in other countries, particularly where the researcher does not possess a profound knowledge of the national structures and the local languages. Thus, we consider that we still need partner institutions supporting the collection and verification of national/regional data, particularly when working beyond the European context.

The aim for our next research phase is provide an open access database that supports the display of national/regional contextual data. Additionally, we plan to implement a function that allows to contrast the specific attributes of the influence factors of each two countries/regions in

[14] http://dejure.org/gesetze/StGB/86.html

order to get an initial idea of potential adaptation needs. However, our contextual model is limited to such influence factors we found in the literature as having led to conflicts before and to what we can imagine as further potentially critical aspects. Although our model will never be complete, it can help avoiding already known conflict situations in educational processes. We consider it unlikely that an OER-author who allows others to reuse his/her learning materials, will be able or willed to additionally invest time for collecting or defining contextual data him-/herself. Instead of having to put effort into an own context-description, our database will offer a chance to each author to simply link his/her OER to the specific contextual datasets in the database. Future users of the OER then have access to both the information on the context of the OER and a description of the own context and can contrast both against each other.

As a future vision, we would like to change the open database to an open decision-support system. However, before we can do so and if this is possible at all, we need to collect enough information on occurred conflicts, their sources and negative consequences basing on differences between specific contexts. We think that with those insights we might be able to give reasonable recommendations for adaptation needs, at least for some influence factors regarding specific regional/national constellations of contexts that need special attendance during the adaptation process and thus, should be investigated with special care.

## Conclusions

In this paper, we have attempted to show that OERs can indeed play a fundamental role in supporting educational development throughout the world. The approach that we have taken in this research is an attempt to resolve an existing dilemma: i. e. that whilst a huge effort is being made to provide a great deal of high quality educational resources freely available, many potential beneficiaries are unable to make full use of these in the contexts where they are needed. In doing this study, we have identified a number of major OER obstacles that first need to be overcome, such as a failure to take foreign contexts into consideration, producing resources that cannot be altered (Schwertel, *et al.* 2011) and/or not providing sufficient information on contexts/contents.

*Recommendations on the design of e-Learning resources to support reuse/adaptation*

1. When producing OERs, a printable version of the learning resources should be provided.
2. Short abstracts should be provided for resources longer than a single page, particularly those that cannot be understood in a single view, and should if possible, be written in English.
3. Where resources include combinations of pictures and text, these should be provided in a changeable format or else their reusability will be very limited.
4. In addition, particularly with regard to repositories, republishing of adapted resources should be encouraged and easily manageable for educators. Most educators are not sufficiently proficient enough in using ICT to make alterations to OERs with more than just a few clicks.
5. When researching for suitable resources, educators need to be able to quickly decide if a resource could match their needs. Such an abstract should roughly describe the content of the resource, for which scenario it originally has been produced and what its purpose was.
6. In future a context description should also be linked to the resource. As for repositories, the opportunity to evaluate a resource regarding its usefulness in specific contents should be possible. Educators would be encouraged to write such reports, including successes and failures. Such reports would help others to decide if a resource might be reusable in their own context of education.

From these recommendations, it can be seen that with a little more sensitivity with regard to identifying contextual differences, a consequently changeable design, and by incorporating a description of resources, producers and providers of OERs could make a fundamental difference to the usability of their resources. However, we would like to end this paper on a positive note, and to announce that UNESCO is working on developing an OER platform[15] right

[15] http://www.unesco.org/new/en/communication-and-information/access-to-knowledge/open-educational-resources/

now that supports the documentation of adapted versions of learning resources. The project OPEN Scout[16] also supports the reporting of success- and failure stories. Other institutions providing repositories are recommended to follow this example. Nevertheless, despite these initiatives, it seems clear that if we really want to make a difference to those in greatest need, we need to try and follow the subsidiarity principle, and to seriously pursue the concept of implementing "aid for self-help" in a more viable fashion.

## References


Albright, P. (2005). *Final Forum Report: Open Educational Resources, Open Content for Higher Education*. International Institute for Educational Planning. Retrieved from http://www.unesco.org/iiep/virtualuniversity/media/forum/oer_forum_final_report.pdf

Andrade, A., Caine, A., Carneiro, R., Conole, G., Ehlers, U.D., Holmberg, C., Kairamo, A.-K., Koskinen, T., Kretschmer, T., Moe-Pryce, N., Mundin, P., Nozes, J., Reinhardt, R., Richter, T., & Silva, G. (2010). *Beyond OER – Shifting Focus to Open Educational Practices: OPAL Report 2011*. Due-Publico, Essen. Retrieved from http://nbn-resolving.de/urn/resolver.pl?urn=urn:nbn:de:hbz:464-20110208-115314-6

Andrews, N. (2009). Foreign aid and development in Africa: What the literature says and what the reality is. *Journal of African Studies and Development*, 1(1), pp. 8-15. Retrieved from http://www.academicjournals.org/jasd/PDF/Pdf2009/Nov/Andrews.pdf

Benavot, A. (2011) Cross-national Commonalities and Differences in the Intended Curriculum in Primary School Reading and Mathematics. *Report of the International Working Group on Assessing and Improving Quality Learning*, UNESCO Institute for Statistics, Montreal, Canada. Retrieved from http://cgsg.wiki.educ.msu.edu/file/view/Final+Curriculum+Report+(Feb+2011)+(1).pdf/216448702/Final+Curriculum+Report+(Feb+2011)+(1).pdf

Bogardi, J., & Hartvelt, F. (2001). Towards a strategy on human capacity building for integrated water resources management and service delivery. UNESCO publishing. Retrieved from http://unesdoc.unesco.org/images/0012/001262/126258eo.pdf

Chumbow, B.S. (2002). The language question and national development in Africa. In: Mkandawire, T. (Ed.), *African intellectuals: Rethinking politics, language, gender and development*. Zed books, London, New York, pp. 165-192.

D'Antoni, S. (2008). *Open Educational Resources – The Way Forward: Deliberation of an International Community of Interest*. UNESCO International Institute for Educational Planning. Retrieved from http://learn.creativecommons.org/wp-content/uploads/2008/03/oer-way-forward-final-version.pdf

Davis, M. (2005). Cultural Viability of Global English in Creating Universal Meaning in Technologically Mediated Communication. *Electronic Journal of Communication*, 15(1&2).

Degesys, A. (2008). Transformative pedagogy in conflict resolution as an alternative route to peacebuilding - roads less explored. In: Woodhouse, T. (Eds.), Peacebuilding and Security in the 21st century. Evanston, IL: Rotary Centers for International Studies.

DePalma, D., Sargent, B.B., & Beninatto, R.S. (2006). *Can't Read, Won't Buy: Why Language Matters on Global Websites. An International Survey for Global Consumer Buying Preferences*. Retrieved from http://de-de.lionbridge.com/kc/cant-read-wont-buy.htm

Deyrich, M.C., & Matas-Runquist, N. (2006). Cultural awareness, sub-genres and regional dimensions in CMC: The case of French University websites. In: Sudweeks, F., Hrachovec, H., Ess, C. (Eds.), *Proceedings of CATaC'06 (Tartu, Estonia): Cultural Attitudes towards Technology and Communication*, pp. 21-33.

Easterly, W. (2005). Can foreign aid save Africa? *Clemens Lecture Series Nr. 17*. Retrieved from http://www.csbsju.edu/Documents/Clemens%20Lecture/Clemens2005.pdf


[16] http://www.openscout.net/

Easterly, W. (2006). *The White Man's Burden: Why the West's Efforts to Aid the Rest Have Done so Much Ill and so Little Good*. Oxford University Press, New York.

Han, R., Bhagwat, P., LaMaire, R., Mummert, T., Perret, V., & Rubas, J. (1998). Dynamic adaptation in an image trans-coding proxy for mobile WWW Browsing. *IEEE Personal Communications*, 5(6), pp. 8-17. Retrieved from http://www.cs.colorado.edu/~rhan/CSCI_7143_Fall_2007/Papers/Han98_Transcoding.pdf

Hunt, F. (2007). *Communications in Education*. Report for the DFID-funded Information and Communications for Development (ICD) Knowledge Sharing and Learning Programme. Retrieved from http://ioe.academia.edu/FrancesHunt/Papers/165173/Communications_in_education

Kickbusch, I.S. (2001). Health literacy: addressing the health and education divide. *Health Promotion International*, 16(3), pp. 289-297. doi: 10.1093/heapro/16.3.289

Leonardi, P. (2002). Cultural variability and web interface design: Communicating US Hispanic cultural values on the Internet. In: Sudweeks, F.H., & Ess, C. (Eds.), *Proceedings of CATaC'02: Cultural Attitudes towards Technology and Communication*, Montréal, Canada. pp. 297-316.

MfSuW, Ministerium für Schule und Weiterbildung Nordrhein-Westfalen (2011). *Schulgesetz für das Land Nordrhein-Westfalen*. Retrieved from http://www.schulministerium.nrw.de/BP/Schulrecht/Gesetze/Schulgesetz.pdf

Mitra, S., Dangwal, R., Chatterjee, S., Jha, S., Bisht, R.S., & Kapur, P. (2005). Acquisition of computing literacy on shared public computers: Children and the "hole in the wall". *Australasian Journal of Educational Technology*, 21, pp. 407-426. Retrieved from http://www.hole-in-the-wall.com/docs/Paper08.pdf

Moore, A. (2002). Lens on the Future: Open source learning. *Educause Review*, 37(5), pp.43-51.

Moyo, D. (2009). *Dead Aid: Why Aid is not working and how there is another way for Africa*. Penguin Group, London.

Ouane, A. (2002). *Towards a multilingual culture of education*. UNESCO Institute for Education, Hamburg.

Pawlowski, J.M., & Zimmernann, V. (2007). Open Content: A Concept for the Future of E-Learning and Knowledge Management? In: Bentele, M., Hochreiter, R., Riempp, G., Schütt, P., & Weber, M. (Eds.), *Mehr Wissen - mehr Erfolg! Proceedings of the KnowTech 2007,* Berlin, pp. 265–274.

Pawlowski, J.-M., & Richter, T. (2010). A Methodology to Compare and Adapt E-Learning in the Global Context. In: Breitner, M.H. (Ed.), *E-Learning 2010 – Aspekte der Betriebswirtschaftslehre und Informatik*. Physica-Verlag HD, Berlin, pp. 3-14.

Poulová, P., Sokolová, M., & Šimonová, I. (2010). ICT Contribution to the Process of Elearning Implementation in the Field of Education. In: Proceedings of the *EDUTE10, 6th WSEAS/IASME International Conference on Educational Technologies*. Tunisia, pp. 157-161. Retrieved from http://www.wseas.us/e-library/conferences/2010/Tunisia/EDUTE/EDUTE-28.pdf

Reich, J. (2011). OER and the Digital Divide: Open Educational Resources Expand Educational Inequalities. *Educational Technology Debate (ETD)*. Retrieved from https://edutechdebate.org/oer-and-digital-divide/open-educational-resources-expand-educational-inequalities/

Richter, T., & Pawlowski, J.-M. (2007). The Need for Standardization of Context Metadata for e-Learning Environments. In: Lee, T. (Ed.), *Proceedings of the e-ASEM Conference*, Seoul, Korea, Oct. 2007, Open University Korea, pp. 41-72.

Richter, T. (2010). Open Educational Resources im kulturellen Kontext von e-Learning. *Zeitschrift für E-Learning (ZeL), Freie elektronische Bildungsressourcen*, 3/2010, pp. 30-42.

Richter, T. (2011a). Identifying E-Learning Resources for Reuse. In: Paulsen, M.F., Szücs, A. (Eds.), In: *Proceedings of the EDEN 2011 Annual Conference*, Dublin, Ireland (CD-Rom).

Richter, T. (2011b). Adaptability as a Special Demand on Open Eductional Resources: The Cultural Context of e-Learning [Special issue]. *European Journal of Open, Distance and E-Learning*. Retrieved from http://www.eurodl.org/index.php?article=460

Richter, T., & Adelsberger, H.H. (2011). E-Learning: Education for Everyone? Special Requirements on Learners in Internet-based Learning Environments. In: *Proceedings of the World Conference on Educational Multimedia, Hypermedia and Telecommunications 2011*, Chesapeake, VA: AACE, pp. 1598-1604.

Richter, T., & Ehlers, U.D. (2011). Barriers and Motivators for Using Open Educational Resources in Schools. *eLearning Papers*, No. 23, 03/2011. Retrieved from http://www.elearningeuropa.info/files/media/media25178.pdf

Robbins, R.H. (2005). Global Problems and the Culture of Capitalism. 3rd edition, Pearson, Boston.

Rosen, Y., & Wolf, I. (2011). Bridging the Social Gap Through Educational Technology: Using the Time To Know Digital Teaching Platform. *Educational Technology*, September-October 2011.

Rosmalen, P., Boticario, J.G., & Santos, O.C. (2004). The Full Life Cycle of Adaptation in aLFanet eLearning Environment. *Learning Technology*, IEEE Computer society technical commitee on learning technology (LTTC), 6(4), pp. 59-61.

Sachs, J.D. (2005). *Das Ende der Armut: Ein ökonomisches Programm für eine gerechtere Welt*. 2nd Edition, Pantheon, Munich.

Schwertel, U., Pawlowski, J.-M., Mikroyannidis, A., & Pirkkalainen, H. (2011). Sustainability of Open Educational Resources – Providing Tools and Services for Adaptation: The OpenScout Experience. In: Paulsen, M.F., Szücs, A. (Eds.), *Proceedings of the EDEN 2011 Annual Conference*, Dublin, Ireland (CD-Rom).

Thiong'o, N.W. (2002). Europhone or African memory: the challenge of the pan-Africanist intellectual in the era of globalization. In: Mkandawire, T. (Ed.), *African intellectuals: Rethinking politics, language, gender and development*. Zed books, London, New York, pp. 155-164.

UNESCO (1974). *Recommendation concerning education for international understanding, cooperation, peace, and education relating to human rights and fundamental freedoms*. Retrieved from http://www.unesco.org/education/nfsunesco/pdf/Peace_e.pdf

UNESCO (2009). Experts' Conclusions on the Operational Definition of Basic Education: Conclusions. Retrieved from http://unesdoc.unesco.org/images/0018/001802/180253e.pdf

UIS, UNESCO Institute for Statistics (2011). Adult and Youth Literacy. *UIS Fact Sheet No. 16*, September 2011. Retrieved from http://www.uis.unesco.org/FactSheets/Documents/FS16-2011-Literacy-EN.pdf

Wallendorf, M. (2001). Literally Literacy. *Journal of Consumer Research*, 27, pp. 505-511. doi: 10.1086/319625

Wedel, J.R. (2001). The strange case of Western aid to Eastern Europe. Palgrave, New York, NY.

Williamson, C.R. (2009). Exploring the failure of foreign aid: The role of incentives and information. *The Review of Australian Economics*, 23, pp. 17-33. doi: 10.1007/s11138-009-0091-7

Woolman, D.C. (2001). Educational reconstruction and post-colonial curriculum development: A comparative study of four African countries. *International Education Journal*, 2, pp. 27-46. Retrieved from http://ehlt.flinders.edu.au/education/iej/articles/v2n5/4Wool/paper.pdf

The Worldbank Task Force on Higher Education and Society (2000). *Higher Education in Developing Countries: Peril and Promise*. The International Bank for Reconstruction and Development, Washington, D.C. Retrieved from http://www.tfhe.net/report/downloads/report/whole.pdf

Ziegler, J. (2008). *Der Hass auf den Westen: Wie sich die armen Völker gegen den wirtschaftlichen Weltkrieg wehren*. Bertelsmann Verlag, Munich.

# Annex

The following table is an excerpt (regarding the number of displayed attributes per factor) of our list of Influence Factors defining the Context of Learning. All are defined as Metadata, following and extending the requirements of the national German standard for quality assurance in e-Learning "DIN PAS 1032"[17]. However, the full table contains much more information on each influence factor, e. g., fields for the date when data have been collected and/or published, expected data-structures to represent an item, sources where related conflicts in learning scenarios are documented or which served as argument to define the influence factor, sources of information where a specific attribute has been collected, known interdependences to other influence factors, and the status as "comparable" or "descriptive". Also, further individualized aspects are included, related to educators, authors and companies/institutions that like to define their own specific context which they think is different to the common regional context. Most of the influence factors can be collected by Internet research, some commonly are understood being static, others underlie frequent changes. Of course, not all aspects are relevant in every situation and/or apply to every educational resource. A lot of the aspects have been designed with the perspective on the planning of new international programs and institutions. A selective list for users who need to adapt learning resources will be implemented as a special view in our database.

Some of the data resulted as outcome of our research on learning culture (LC) that has the purpose to better understand culture-related attitudes and expectations of learners and to collect related data in various national and regional settings (Richter, 2011b). Our so far collected data cannot be generalized to all learning scenarios within a certain context. In Germany (which is a language-homogenous context), we conducted the survey in the fields of Adult Education and Higher Education and found occasional disparities between different company-contexts (company culture seems to affect learning culture) but significant differences when comparing university- with company-results. We did not yet try to implement our survey on school level. Although in Germany, the results from all three investigated universities were similar to each other, we recommend against a generalization on national level, at least as soon as different languages are spoken in the country and/or societies/tribes have been merged.

For almost all aspects in this following table, we have been able to collect the full dataset in Germany, South-Korea, Austria, Switzerland, Great Britain, Ireland, and Bulgaria. Collections in Turkey, Belarus, and Cameroon are still running. Thus, it can be expected that the data might be available in most (at least "developed") countries in the world. Apart from Germany and South Korea, university students have completed the datasets in the context of their seminar works or thesis. Each of students came from the related contexts and were familiar with the specific national languages. However, those data still are to be verified. In Germany and South Korea, the data have already been verified and in both contexts, the number of students, participating in the LC-questionnaire was high enough. For further information or offers for supportive actions (data collection, translations), please feel free to contact us.

| GID | Context-Block (Type) | Name | Description (kind) |
|---|---|---|---|
| 01 | **1. Culture** | Teacher's Role | Assistant or unfaultable authority (survey LC)? |
| 02 | | Value of Errors | What do errors mean: a chance to learn or a disaster? (Survey LC) |
| 03 | | Context Type of Society | Halls' Low/High context |
| 04 | | Acceptance Level for New Technologies | Is new technology seen as good or as possibly evil? |
| 05 | | Masculinity Index | Hofstede's Value for Masculinity Index |
| 06 | | Index For Avoiding Insecurities | Hofstede's UAI value |
| 07 | | Power Distance Index | Hofstede's PDI |
| 08 | | Individualism Index | Hofstede's IDV |
| 09 | | Cultural Meaningful Symbols | a list of meaningful symbols |
| 10 | | Culture Related Heroes | Names of meaningful heroes within a society |

[17] The German standard DIN-PAS 1032 is right now discussed in the workgroup 5 of the ISO/IEC JTC1 SC36 to (partly) becoming an ISO standard.

| | | | |
|---|---|---|---|
| 11 | | Cultural Rituals | A list of meaningful rituals |
| 12 | | Language | Language name(s) |
| 13 | | Number of Different Societies | Dependent of # of languages |
| 14 | | Cultural Variable Concerning Language | if and how cultural related semantic is interpreted |
| 15 | | Communication Style | Direct or unsealed communication style |
| 16 | | Humor | Kind of humour, classification possible? |
| 17 | | Culture Specific Idioms | are there certain used idioms? |
| 18 | | Preferred Media Types | Are there preferences implied by the type of society? |
| 19 | | Gender Differences | Are learners with different genders equally treated? |
| 20 | | Gaps through Gender Differences | specific gaps through gender differences |
| 21 | | Social Capital | Key-value for social development |
| 22 | | Language Writing Styles | Special writing styles (formal, direct,...) |
| 23 | | Date & Time Formats | Special formats for date and time |
| 24 | | Grammar | Special grammar available (or dialects) |
| 25 | | Measures | Which kind of measures are common (i.e. metric, inch,..) |
| 26 | | Currency | The currency within the country (name) |
| 27 | | Icons | Are there known icons which are declined / preferred |
| 28 | | Interaction Protocols | How do people communicate |
| 29 | | Decoding Process | Previous cultural background, workplace, tool-related |
| 30 | | Meditation Model | How people deal with information and store it |
| 31 | | Common Scheme of Behavior | Is there a general opinion available |
| 32 | | General Opinion | Society related opinions concerning certain subjects |
| 33 | | Cultural National Taste | Does a national taste exist |
| 34 | | Indigenous Cultures | Special attributes, open |
| 35 | | Ability to Self-Motivate | Do learners need motivation help or can they motivate themselves (Survey LC) |
| 36 | | Emotional Stability | How (& fast) do learners react on unexpected influences (acceptance level) |
| 37 | | Culture Related Knowledge | Indigenous knowledge in special is meant |
| 38 | | Pedagogical Approach | Are there culture related special pedagogical approaches |
| 39 | | Regional Common Pedagogical Approach | Is a single approach preferred |
| 40 | **2. Demographic** | Birth Rate | Absolute, maybe regional differences |
| 41 | **Development** | Number of Inhabitants per Age-Group | Absolute value, maybe regional differences |
| 42 | | Time related Population Development | Population development over time |
| 43 | | Family Status | Role of the family and divide |
| 44 | | Education Achievement | National divide of education (absolute / percent) |
| 45 | | Ethnic Makeup | Ethnic groups, divide |
| 46 | | Economic Status | Divide of riches |
| 47 | | Technological State of the Art | Kind and divide |
| 48 | | Technological Development | Expectable development within households, trends |
| 49 | | Regional Population Density | Population density per region |
| 50 | | Population Density & Time Zones | Population density per time zones (if there are more than 1) |
| 51 | **3. Religion** | Main Religion | Name of religion and attribute |
| 52 | | Religious Conflicts | List of existing conflicts |
| 53 | | Common Religious Rules | If religion rules inflict all-days live |
| 54 | | Number of Significant Religions | Absolute value |
| 55 | **4. Technical** | Ownership of PC | Is it expectable? divide? |
| 56 | **Infrastructure** | Private Internet Accounts | Is it expectable? divide? |

| | | | |
|---|---|---|---|
| 57 | | Television at Home | Is it expectable? divide? |
| 58 | | Cell Phone | Is it expectable? divide? technology? |
| 59 | | Common Computer Technology | Com. used Computer technology (MHz, graphic) |
| 60 | | Com. Graphics Accelerator Technology | Expectable graphics power |
| 61 | | Power Supply Infrastructure | Power supply given everywhere or only in congested areas |
| 62 | | Communication Technologies | Kind of useable and used communication technologies |
| 63 | | Mobile Technology Infrastructure | Quality of mobile access per region |
| 64 | | Implemented Mobile Standard | Which standards are used, i.e. GSM, UMTS; density |
| 65 | | Network Coverage Internet | Is Internet available everywhere or only in congested areas |
| 66 | | Network Coverage Mobile Technologies | Is mobile technology (widely) usable everywhere |
| 67 | **5. Rights** | Special Laws | Unique laws or rules (company, society), sources |
| 68 | | Base Set of Laws and Rules | Base set, containing education-relevant laws, sources |
| 69 | | Accreditation Needs (Government) | Are there certain accreditation requirements per program type? |
| 70 | | Intellectual Property Rights | Specials? list of sources |
| 71 | | Data Protection Rights | Specials? list of sources |
| 72 | | Specific Copyright | Specials? list of sources |
| 73 | | Usage of Internet | Is the usage of Internet anyhow limited for example because of censorship |
| 74 | | Accessibility Restrictions -Age Dependent | Are there age-related restrictions for content access? |
| 75 | | Access and Spreading of Content | Is there censorship and are there restricted information? |
| 76 | | Business Rights | Specials? list of sources |
| 77 | | Gender Specific Laws | Are there Gender specific laws |
| 78 | | Religious Motivated Laws | Are there Laws which belong to religion |
| 79 | | Duties which affect e-Learning | Are there duties for learning (i.e. duty to go to school) |
| 80 | | Controlled Historical Views | Restrictions concerning publishing historical views? |
| 81 | **6. History** | Point of Historical View | What's the society's point of view concerning history |
| 82 | | Religious motivated Views of History | Are there special roles or historical events with religious influences |
| 83 | | Special expected History-Related Views | Are certain history related views expected from certain societies |
| 84 | **7. Politics** | General Political System Type | What kind of political system reigns |
| 85 | | Political Implementation | How is the political system implemented |
| 86 | | Special Political Positions | Special positions different than expectable |
| 87 | | Foreign Affairs | Country's relationship to others |
| 88 | **8. State of De-** | Current Technologies | Current technologies |
| 89 | **velopment** | Expectable Development | Tendencies in technical development |
| 90 | | Duration Time | How long is state of the art active |
| 91 | **9. Media Rich-ness** | Commonly Used Media Types | Are there already used media types (if others aren't) |
| 92 | **10. Financ. As-pects** | Country Efforts Supporting Education | What invests a country in: programs, schools, kids education, adult education,… |
| 93 | | Financial Power in Private Households | Income vs. outcome |
| 94 | | Spending Capacity in Private Households (Education) | Acceptance to spend private money for education (common amount / year) |
| 95 | | Relation Internet Cost / Private Income | Percent internet access costs concerning private income |
| 96 | | Gross Natural Product | Value – shows the ability of a country to invest in education |

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| 97 | | Total Indebtedness | Value – shows the ability of a country to invest in education |
| 98 | | Discharge of the Dept | Value – shows the ability of a country to invest in education |
| 99 | | Yearly Budget for Education | (From government) in total |
| 100 | | Common Expectable Kids Education Cost | Amount of money a family has to commonly spend for kids education, i.e. in countries where basic education isn't free |
| 101 | **11. Human Actors** | Ability to stand Critics | Is critic comparable by learners? |
| 102 | | Relationship to Authorities | Are authorities being out into question or do people blindly obey, Who is authority |
| 103 | | Expectable Attendance for Volunteer Cooperation | is volunteer work expectable? In which level |
| 104 | | Expectable Training Level concerning Group Work | Are the learners used group work? In which way |
| 105 | | Expectable Group-Behavior | Are group members emancipated or is a single group member responsible (Survey LC) |
| 106 | | Expectable Teaching-Goal | Which are the targeted teaching goals? |
| 107 | | Need for Written Rules and Clear Duties/Goals | Do the learners prefer unchangeable rules / goals or want to have possibilities to self-control their effort |
| 108 | | Learning Preferences | Are certain learning styles preferred (Survey LC) |
| 109 | | Language Styles | Shown respect according recipients |
| 110 | | Expected Tutor Behavior | Which role does the tutor have, assistant or authority (Survey LC) |
| 111 | | Laud for Motivation Needed (How)? | What kind of motivation is expected (Survey LC) |
| 112 | | LMS Style | Shall every courses have the same appearance |
| 113 | | Level of Necessary Control | How much control is needed and expected |
| 114 | | Self-Determination | Do learners want to have influence on their course management system and content (Survey LC) |
| 115 | | Time Management | How do learners manage tasks (Survey LC) |
| 116 | | General Pedagogical Philosophies | Are there general cultivated pedagogical philosophies |
| 117 | | General Goal Orientation | Sharply focused, unfocussed (Survey LC) |
| 118 | | Experimental Value | Abstract or concrete information preferred at learners side (Survey LC) |
| 119 | | Program Flexibility | Learner need clear definitions or can change content (Survey LC) |
| 120 | | Personal Coaching | Is personal coaching known and expected |
| 121 | | Learner Control | Learners want to be guided or let free |
| 122 | | User Activity | Self creation of content expected or clearly defined program |
| 123 | | Cooperative Learning | Do learners work together to reach aims or do they rather work besides or alone (Survey LC) |
| 124 | | Cultural Sensitivity | Is additional help provided because of cultural differences or exists xenophobia |
| 125 | | Expectable Skills | Learner / tutor / Domain Expert |
| 126 | | Conflict Management | Define if tutor can help to avoid conflicts (Survey LC) |
| 127 | | Social Background | Region: learner, tutor |
| 128 | | Personal Background/Experiences | Learner (i.e. relationship to Nature, Water, Fire, …) |
| 129 | | Preferred Learning Styles | Learner related – how do learners learn |
| 130 | | Known Assessment Forms | Learner, tutor, Domain Expert |
| 131 | | Cultural Background | Learner, tutor |
| 132 | | Significant Life Experience | Wars, times of extreme fast development, catastrophes, ... |
| 133 | | Learner Educational Background | Quality / content of classical education career |
| 134 | | Type of Learning Pace | How fast can be learned |

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| 135 | | Type of (used) Interaction | Group work, relationship to others and teachers, … (Survey LC) |
| 136 | | Instructional Strategies & Methods | Familiar strategies and methods |
| 137 | | Computer Literacy | Expectable computer literacy sites learners |
| 138 | | Preferred Learning Environments | What is known, what is used |
| 139 | | Self Set Educational Goals | Learner – what aim do learners have (i.e. social position, marriage, job, fun, interest) |
| 140 | | Learner Types | Classification of learner types corresponding to |
| 141 | | Common Learning Styles | Not necessarily the same as preferred learning styles |
| 142 | | Learner History | Names of educating institutions (no quality statement) |
| 143 | | Common Knowledge | In special in indigenous cultures: what is the learner supposed to know |
| 144 | | Official Curricula | Governmental curricula if existent and available |
| 145 | | Way how to give Feedback | Direct feedback or Indirect critic (Survey LC) |
| 146 | | Level of Needed Assistance | Learners used to work solo? How much help are they used |
| 147 | | Presentation Form | Special presentation form expected (i.e. film, text, tables) |
| 148 | **12. Rules** | Standards, Specific Agreements | Regional, company, industrial standards –> region, company |
| 149 | **13. Companies** | Business Model | Company's business model |
| 150 | | Organization Structure | Company's organization structure |
| 151 | | Corporate Design | Company's corporate design |
| 152 | | Company Internal Policy | Company's policy (how, what and why to learn, how to deal with each other, etc.) |
| 153 | | Company Own Contents | Own technical language, own processes, … |
| 154 | | Learning History | Company internal learning program - duties |
| 155 | | Internal Restrictions | Company issue |
| 156 | | Demands concerning Encryption | Company issue |
| 157 | | Usable Transmission Protocols | Company issue |
| 158 | | Usable Telecommunication Protocols | Company issue |
| 159 | | Use of Personalized Data | Company issue |
| 160 | **14. Geography** | Number of Schools /Square meter/Inhabitant | Geographical divide |
| 161 | | Number of Learners / Region, Class, School | Geographical divide |
| 162 | | Level of Schools, Universities, Academies | In general and geographical divide |
| 163 | | Type of Schools, Universities, Academies | In general and geographical divide |
| 164 | | Available Subjects / Majors | In general and geographical divide |
| 165 | | Geographical Ground | Hilly, Forest, See, Lakes, Flat ground profile, … |
| 166 | | Regional Symbolisms | i. e. Landmarks, etc. |
| 167 | | Geographical Experiences | Raised in a desert may prevent understanding floods & related problems |
| 168 | | Multiple Time Zones | Are there multiple time zones? How many, which direction |
| 169 | **15. Learner Satisfaction** | Learner Satisfaction, Known Demands | Blank field for documented learner wishes and expectations |
| 170 | **16. Internet Security** | Expected Data Security | Is something used and expected? |
| 171 | | Encryption Restrictions | Government issue |
| 172 | | Transmission Protocol Restrictions | Government issue |
| 173 | | Services Restrictions | Government issue |
| 174 | | General State of the Art | Region / Country / Company |
| 175 | | User Needs For Security | Region / Country / Company |