

Social sharing of educational contents

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Considerations will be made of the relevance of social sharing for public schools, particularly for public schools in underdeveloped countries like Brazil. The production of small-grained pedagogical materials, like exercises and lesson plans, represents an integral part of the practice of teaching due to an intrinsic need to adequate educational resources to specific contexts of use. In general, teachers happily share those materials with colleagues at their workplaces. Limited possibilities of sharing can be amplified if proper publishing and disseminating facilities are provided and flexible conditions of use are granted. A technological infrastructure is presented that was designed to support collaborative production and maintenance of collections of open educational materials on the Web.

Keywords social sharing; collaborative knowledge building; citizenship responsibility

1. Introduction

One of the main challenges to construct knowledge societies is to guarantee a free flow of, and an equitable access to information. Knowledge societies should as well ensure the full realization of the right to education and provide the means for schools to become true “cultural commons”. A Web-based system called Yai (www.yainet.org) has been developed that supports the sharing of mainly “small-grained” contents of educational interest, like exercise lists, lesson plans, and worksheets, created individually by community members and liberated under more flexible conditions than the ones imposed under standard copyright law. The main target population of the services provided by the Yai system is that of teachers of public schools. They are free to select whatever contents kept in the system they find more adequate for their students and educational goals and they can as well adapt selected contents to specific contexts of use. A particular content is said to be open if it is published under conditions that do not impede its creative use. An acceptable balance between authorship protection and fair use has to be reached before content can be considered as being “open”.

The publication of contents “given away” by members of the community is moderated and, once considered proper, those contents are kept in a thematic directory where they can be “consumed” by any user of the Yai system. Published contents may be used as input for the creation of “meta-contents” (contents on contents) by adding glosses and annotated associations. Additions are made collectively, and in a more “anarchical” fashion, by volunteers with expertise in educational matters and topics usually tackled in educational settings. Any of the accredited volunteers may add, change and remove meta-contents. A quite satisfactory stability is achieved due to all watching eyes of the whole universe of accredited volunteers. The purpose of the additions of meta-contents is to assist searches and navigations as well as interpretations of contents by users of the system. The services provided by the Yai system intend to contribute to the capacity of schools to live up to the ideal of educational commons by granting them and to their teachers more freedom to use educational resources “given away” and maintained by the community.

Particularly in middle-income countries, like Brazil, teachers of public schools use to have a high load of teaching hours and thus less time to prepare their classes more thoroughly. It is as well not always easy to get hold of interesting multi-disciplinary problems that would be challenging for students and get them involved in effective learning experiences. Problems of this kind require much thought and time to be worked out and fully detailed. Shared interrelated educational materials produced by the community

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can be of great value to teachers who want to provide richer learning experiences for their students. The lack of time for class preparation and of an easy access to proposals of challenging class activities as well as the low incomes of teachers of developing countries, that reduce drastically the possibilities of those teachers building up their own libraries, contribute directly to the disappointing outcomes of underprivileged countries in student assessments on an international scale. The idea of content sharing is not only interesting from a practical standpoint but it has also relevant philosophical and ideological features. The sharing of contents published with less restrictive conditions of use is seen by some as a necessary condition for the ideal of “educational commons”. Contents with more flexible conditions of use that allow to freely reproduce and use them (commercially or not) as provided and possibly to creatively adapt and transform them without breaking any law are referred to as open contents and they are seen as crucial for schools and teachers to provide an optimal education to their students.

2. Sharing from a practical standpoint

In 2004, the Organisation of Economic Co-operation and Development (OECD) published preliminary results of its “Programme for International Student Assessment” (PISA) carried out the year before [9]. The assessment of 2003 focused on mathematical proficiency of 15-years-old students while a previous assessment, carried out in 2000, had as its focus the reading literacy of the same kind of students. PISA intends to monitor the outcomes of educational systems in terms of student achievements. Brazil was one of the participating countries and in the assessment of 2003 its students achieved the worst outcome.

According to the Ministry of Education of Brazil (www.inep.gov.br), only 22.9% of the primary public schools had a library in 2003. The number of public schools with computers for teaching activities grew steadily during the period from 1999 to 2003. In 1999, 3.5% of primary and 32.5% of secondary public schools had access to computers. Four years later the figures were 8.6% and 46.8%, respectively. The access to the Internet of public primary and secondary schools in the same period grew 7 times. Nonetheless only 13% of those schools had access to the Internet at the end of that period. According to the OECD [10], the annual salary of statutory teachers in public institutions in Brazil is about a third of the OECD country mean in primary education and about half in secondary education. The Ministry of Education of Brazil also informs that teachers of secondary public schools followed by teachers of primary public schools hold the last positions on a salary scale that considers as well judges, physicians, university teachers, lawyers, economists and policemen. Because of their low hourly wages, those teachers have to stretch their working hours as much as possible. Teacher salaries and working hours have a significant impact on the quality of instruction and on learning outcomes. For contexts like the one in Brazil, does it make sense to provide learning and teaching materials over the Web?

Transformations promoted by information and communication technologies (ICT) have been “marked by extreme disparities with regard to access to this new culture, between the developed and the developing countries, as well as between the privileged and the underprivileged sections within societies themselves. The simple provision of mere infrastructure is necessary but not a sufficient condition in addressing inequity” [11]. The initiative described here is complementary to the provision of Internet access to public schools. Gradually more and more public schools in Brazil and/or their teachers and students outside of school settings will have access to computers connected to the Web due to digital inclusion programs already on the move. The sole access to interconnected computers, however, is not enough. The supply of ICT to educational settings can only be justified as an improvement of educational processes if those technologies are adequately integrated with teaching practices.

According to Unesco, the “main challenges posed by the construction of knowledge societies [are]: first, to narrow the digital divide that accentuates disparities in development, excluding entire groups and countries from benefits of information and knowledge; second, to guarantee the free flow of, and equitable access to data, information, best practices and knowledge in the information society; and third, to build international consensus on newly required norms and principles” [11]. The Yai project relates to the second challenge and contributes to the broadening of the access to open information and knowledge by providing high quality, diversified and reliable information.

Nowadays, information is shared and disseminated at a much faster rate than ever before by virtue to ICT. Those technologies have made it possible for information and knowledge to permeate all layers of society. “Acquiring and dissemination of knowledge is a fundamental requisite for human progress and is essential to empower the underprivileged sections of our society. ... Within every community, there is a wealth of indigenous knowledge and capacity of innovation” [11]. The Yai project taps the community for just that wealth by developing collaborative relationships between those who have such knowledge of local issues and those with the expertise and experience to help them. As a result, a performance improvement of teacher and schools is facilitated and a motivation is given for “students to learn better, [and for] teachers to teach more effectively” [9].

3. Educational commons

Inspired by the open-software movement [2], pressed by a shifting legal framework that imposes more and more restrictions on the fair use of intellectual property [3, 6], and worried by increasing commercial intrusions into educational settings [4], a heated debate has started over “educational commons” and ways to support schools and teachers to carry out their mission of providing the best possible education to their students. The open content movement (open in the sense that contents are “liberated” with less restrictive conditions of use) is a more recent phenomenon inspired by the free-software movement and as well a reaction to a shift of balance of fairness in content creation and public use. The original intent of copyright was to provide an incentive for innovation and to give artists sufficient protection of their intellectual property. Innovation builds on prior innovations. A fair use of contents must be granted since this is essential to creativity. Over the last decades copyright is becoming more and more restrictive. Instead of trying to strive towards a fair balance between protection and innovation, its legal framework (jurisprudence) is changing in favor of the preservation of business models of the mainstream media sector threaten by new practices sustained by the openness of the Internet [6]. The open-content movement is less militant than the free-software movement. It wants to show that the debate does not have to be simply piracy versus property or totally free versus proprietary. These extremes are not the only possibilities. Much room is left in the whole spectrum where better and fairer balances can be reached between authors’ rights and the interest of the general public.

Creative Commons (creativecommons.org) is a nonprofit organization that offers a flexible range of protections and freedoms for authors and artists to create under a voluntary “some rights reserved” copyright. The full copyright is given up under some combinations of conditions that intend to promote a fairer use and provide better incentives for creative work. Open contents received by Yai as gifts from the community are shared under licenses promoted by Creative Commons and chosen by their donors. The philosophical principle behind some of those licenses is that “the contents should be freely reusable so as to make knowledge available as a common knowledge for the common good” [5]. Gifting seems to be a special need of human beings [7] and the initiative described here draws from it as well as from voluntary work from members of the community engaged in collaborative constructions of “meta-contents”. A “meta-content” is a content built on top of contents given by “donors” of the community by interweaving them with annotated associations and the addition of clarifying comments. The results are thus new and more sophisticated contents (contents on contents).

The education field is amidst many ongoing discussions, since it is seen as one important birthplace of innovation and creativity as well as a particular case of cultural commons [4]. Education for all is pursued by all societies. Limitations, however, are imposed on schools making it hard for them to support optimal learning experiences for students due to copyright restrictions and market enclosures. Not everything that teachers find proper and interesting might be used in class due to insufficient funds to acquire the rights of use. A chronic underfunding may thus force schools to select and use educational resources that are not the most appropriate for their purposes or that are even out-of-date since they can not afford what they reckon to be the best for their students and, even if they could, they are subject to the conditions set by corporations or individuals that own the intellectual property of those resources. The conditions being imposed might reduce the pedagogical potential of educational resources. Fund shortage also exposes schools to commercial intrusions. In order to live up to the ideal of educational

commons, schools and teachers must have more freedom to use educational materials since knowledge is always built on other knowledge by adding value based on value created by others. A better understanding of this problem has induced new initiatives [1, 5, 8] like the one of the Yai project.

4. Yai Project

“Yai” is a term of the Guaraní language and means “wave”. The Guaraní people are amerinds leaving in southern and eastern regions of South America. The wave was chosen as an emblem of the here described initiative since the latter intends to be a propagator of shared contents in the same way as the water of a lake propagates, in the form of waves, the impact of a stones thrown in it.

The infrastructure developed by the Yai project consists of a Web-based environment with different mechanisms to support: (a) the sharing of open contents of educational interest given away by member of the community under specific licenses of use, and (b) the collaborative creation of “meta-contents” by volunteers intended to facilitate an oriented navigation through a mass of contents kept in an open directory. One of the main purposes of the service provided by the Yai infrastructure is to involve the community, and particularly teachers, in using, producing and transforming creatively collected and systematized contents. Electronic contents with more flexible conditions of use allow “readers” to make explicit, in terms of new contents, understandings they reach while handling already existing contents. As they produce new contents by transforming previously existing ones, “readers” become “authors” and are thus capable to contribute to the universe of sharable contents. An easy access to properly structured and interrelated contents can be of great benefit to class activities, get students more involved, and promote a qualitative leap in an educational process. Associations established between contents to be presented to students make as well more evident how particular topics of different disciplines relate to each other thus breaking strict segmentations of traditional “knowledge areas”.

Different people produce contents (like texts, exercises, proposals of pedagogical activities and comments on works of others) occasionally or during their daily routine which might be useful to a larger audience but used only once or a few times and then forgotten or lost due to the lack of mechanisms to share them on a larger scale. The sharing mechanisms of the provided service may turn out to be an incentive to those producers, from the most unpretending contributors to the most sophisticated ones. Although the “giving” of contents for a larger cause is now possible from the comfort of their offices and homes, the impact of even small contributions might turn out to be quite impressive and significant. In order to allow a less restrictive use of contents which may be adapted and transformed by teachers without violating intellectual property rights, the giving and sharing is ruled by variants of licenses of use promoted by Creative Commons and selected by the “donors” at the moment they submit their contents for sharing. But solely a collecting and sharing of contents in electronic format would not be of such a great value to teachers. A huge heap of contents stored in a poorly structured way that did not go through a categorizing process performed by qualified people demands much time from teachers that needs to be spent over and over again in explorations, evaluations and selections. Each donated content must and ought thus be evaluated, classified and related to other already organized contents by experienced people.

As well as providing mechanisms to collect contents created by members of the community who want to share their “creations” with others, the Yai infrastructure also supports volunteers knowledgeable in educational matters and topics usually taught in school settings, the so called “catalogers”, in systematizing newly received contents. If considered relevant and after some changes might have been negotiated with “donors”, contents are placed in a thematic open directory. Once placed in the open directory, they are immediately available to users. Volunteers referred to as “annotators” have a different role. By establishing associations and by adding “electronic” glosses (meta-data) to contents in the open directory in the form of comments, they create new “meta-contents”. Each comment consists of a complementary text and it may, among other things, elucidate a particular donated content, suggest forms of usage and/or indicate age groups that may benefit from it. An association relates two distinct contents and may as well be glossed. A gloss of an association normally describes the reason why the particular association was established in the first place like: “counter example of”, “supporting

argument”, “consequence of”, “historical origin of”, and so forth. Glosses are free text with a specific purpose of interpretation and clarification. Glosses are “colored”. The use of a same “color” for different glosses indicates that they were generated to sustain a same point of view. A given set of contents and associations with glosses of a particular “color” may then intercept with another set with a distinct “color” which sustains a different argument from the one of the former set. Annotators are in this way capable of producing new contents based on already existing contents stored in the open directory. While donated contents are produced mostly individually and outside of the provided infrastructure and their submission is moderated, the meta-contents based on donated ones are produced more “anarchically” by annotators.

5. Concluding remarks

One major goal of the Yai project and the services provided by its infrastructure is to get communities schools are inserted in to assume a joint responsibility in public education. A self-sustaining model of content organization based on voluntary work is being pursued which has teachers as its main target. The project relies entirely on volunteers to create contents and “meta-contents”. The Yai initiative is complementary to efforts of digital inclusion. Once teachers get access to computers and the Internet, they must be capable of integrating effectively information technologies in the information acquisition process and the dissemination of knowledge. A major contribution of the Yai system is the provision of effective means of content sharing that otherwise would simply get lost due to the lack of publishing opportunities. Users in the role of “donors”, “cataloguers” and “annotators” are not making only a difference in terms of a better education, but also play a vital role in producing knowledge that might spark off new knowledge in a more “frictionless” way just by not imposing to heavy restrictions on the reuse and transformation of the contents they created and generously gave away as “gifts” to be enjoyed and made good use of by all. This kind of attitude with its effects amplified by the Yai infrastructure helps to give back to public schools their capacity to live up to the ideal of true educational commons without having any longer to stretch the terms of fair use of contents of their interest.

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