THE SLOOP IDEA: SHARING FREE/OPEN LEARNING OBJECTS

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"If you have an apple and I have an apple and we exchange apples then you and I will still each have one apple. But if you have an idea and I have an idea and we exchange these ideas, then each of us will have two ideas."

George Bernard Shaw

Abstract

The SLOOP project places itself within the in-progress movement promoting collaborative sharing and construction of knowledge and resources. Such resources, which represent the focus of the project, are Learning Objects, better defined as free/open LOs, that on one hand meet the SCORM and LOM IEEE standards on the other have been revised and re-defined in an "open" view.

While the SLOOP project is finishing, new suggestions have emerged and recommend a further development: in line with web 2.0 it is worth thinking of a SLOOP 2.0, addressing the new generation of students, the so-called digital natives that may become involved in the production and sharing of open LOs.

Sharing Knowledge

Two different tendencies lock horns: "to open" or "to close"? Shall we facilitate and encourage access to resources – to land, to water, to medicine, to information, to ideas, ... - or shall we limit it to protect legitimate interests, ownership rights, patents, the right to privacy, the ownership of an idea?
It is an old story that acquires new and different aspects in the digital and globalised world.

Let's think of the patent field: there are many famous cases such as the Indian government against the *RiceTec* company which patented, by the US Patents Office, Basmati rice and the one of the multinational pharmaceutical companies against the South African government for below cost selling of anti-AIDS medication. Recently, in order to denounce how the industrial and technological management of patents don't hold water, a young Australian lawyer, John Keogh, has announced that he has registered a patent for a *circular transportation facilitation device*: the wheel!
Let's think, on the contrary, of the possibility that anyone, who has a computer and internet access, can make gigabytes of music, texts, films and programmes available to everyone without geographical, time and economic constraints apart from connection costs. Just not to mention the possibility that everyone has to publish their own ideas, their own photographs, their own films and make them available to everyone.

In recent years the move to openness in the software industry has achieved a relevant success. The *free/opensource software* model – free use, distribution and modification thanks to the availability of the source code – has been spreading and has already got a significant slice of the market showing that an "open" strategy can produce economic results.
The fact that the software is free/open is not simply a matter of rights. Linux is different to Windows not only in freedom to use, distribute and change but also in how it was developed. Linux was not created, as a cathedral, on the basis of a centralised project but according to a model that looks like a large and bewildering bazaar with the motto: *"release early and often, delegate everything you can, be open to the point of promiscuity"*. [Raymond, 1998].

This open software is proved to be reliable, often more reliable than proprietary software. A proof of this is the opensource software Apache, that is the most popular with over 70% share in the field of web servers. The motivation for openness and collaboration – *people use it, people adapt it, people fix bugs* – has been shown to be correct.

However, combined with the motivation for efficiency it is worth remembering the main initial propelling force to develop free software is freedom: software is part of knowledge and knowledge is a right that cannot be limited.

The idea has rapidly crossed over the software industry. Let's mention two symbolic cases concerning Open Content.

In 2002 Massachussett Institute of Technology launched the **MIT OpenCourseWare** which would allow all their course materials available on the Web under a copyleft licence: Creative Commons *Attribution, No-commercial, Share alike* (you are free to use, distribute, change for non commercial use owing that the original author is credited and all derived material could be used under the same licence).

A year before **Wikipedia** was born: using *wiki* software, people collaborate to the creation of a free encyclopedia, adding, deleting and modifying the content. Differently from the MIT project that makes material which has already been produced available, Wikipedia adopts and transfers the "bazaar" model of Linux to the production of content, fostering quality content by everyone's "responsible" participation.

Another successful example! Just 6 years after it was created, Wikipedia exists in 100 languages and has 5,300,000 articles 1,833,620 of which are in English; 75,000 people contribute actively to improve and further develop it. In 2005 a survey carried out on the behalf of Nature magazine has compared the mistakes and inaccuracies present in Wikipedia with the ones in the prestigious Encyclopaedia Britannica and the conclusion was that both encyclopedias contain mistakes in the same way. [Nature 2005].

That was the background in 2005 when the SLOOP project was presented under the Leonardo da Vinci Programme. Models for a collaborative production of software and learning content had been coming out and the open/free model seemed to be the answer to the problem that many of the SLOOP partners had encountered in their e-learning experiences.

The critical point of eLearning: the learning material

The organisations promoting the SLOOP Project have been active for many years in the e-learning field starting from their own specific mission: face-to-face learning, distance learning and pedagogical research.

During their activities and in previous European projects these organisations had come to the following conclusions:

- When compared to traditional distance training, e-learning, in the sense of on-line training, does not only facilitate access to learning material and communication between learners and tutors, it also allows the creation of a work environment where the trainee can interact with the peer group and with the teacher/tutor eliminating the feeling of isolation and increasing the value of collaboration.

- E-learning can be successfully integrated into face-to-face training. It allows material to be supplied to students for home study/work and to increase the possibility of interaction with teachers and between learners outside the school timetable and outside the school walls thanks to the virtual environment.

- Producing good on-line didactic material requires both the capacity to transfer good teaching practises from face-to-face training to on-line training [Ó Súilleabháin 2003] and the ability to exploit IT potential in order to develop interactive material allowing learning "by discovery" and "by playing" [Berengo 2003].

Teaching material has been recognised as the critical point: producing different types of teaching material specifically designed for the Internet, for example interactive lessons using multi-media, simulations and tests are very time consuming and an onerous task. The required resources are more than those available at most schools and universities [Ravotto 2003].

Why not share learning objects that are already available on the teachers and students hard disks [Wiley 2000]?

Why not share the teaching material which have been produced in the last 10 years thanks to the efforts of one individual teacher or with resources made available from schools or from local, national or European Authorities?

From our experience and from the one of the open source/open content movement, we have deduced that the following 4 elements are necessary:

- a community which is interested in sharing resources,

- the will to guarantee freedom to use, distribute or modify material,

- the will to make the material interoperable - transportable from one environment to another - and changeable,

- an environment where to share such resources.

The first necessity was met: more and more people were getting interested in sharing resources. As for the second and the third points it was proved that the habit of using a copyright such as "all rights reserved" on materials prevents re-usability and that in the production of material little attention was drawn to interoperability and modifiability.

Furthermore, there was no environment which had the necessary characteristics to promote the sharing of learning objects and their production in a collaborative way.

Open/free Learning Object

One of the first choices we had to make at the beginning of the project was to choose a digital content model which would facilitate the sharing of teaching material produced as mentioned in the previous paragraph. By critically observing what was happening in the Web, we identified two possible ways to proceed with our project. The first was based on Wiki and the idea of producing "open" content which could be modified by any user in a collaborative way. The second was based on Learning Objects (LO) and on a more formal approach to creating teaching material.

There were several reasons to choose the first way, such as: the success of Wikipedia and the creation of several initiatives based on this model; the continuing debate on the pedagogical effectiveness of a model based on Learning Objects. Many of the participants in SLOOP had an inclination to Wiki and a research group from the Italian National Research Council - Institute for Educational Technologies, a partner in the SLOOP project, had already researched using Wiki to produce collaborative teaching material [Taibi et al., 2006].

Eventually the Learning Object model was chosen on the basis of the following reasons:

- the standards developed for Learning Objects guarantee accessibility, reusability and interoperability that are central concepts in the SLOOP project.

- an approach based on LOs does not limit the digital formats used to develop content, this is different to Wiki where there are some limitations; a solution which does not preclude the possibility to transform any digital content into didactic material fits better with the fundamental ideas of the SLOOP project, i.e. the sharing of digital content which exists already on thousands of computers all over the world. Let's think for example of the many changes needed to adapt a power-point presentation to the wiki environment, while a power point presentation can easily fit in to the LO model and maintain its main characteristics.

- the methods used to search for didactic resources based on the wiki model, up until recently, are usually based on search on free text. This places considerable limitations on the identification of didactic resources made up of more wiki pages with hyper textual links. The LO model overcomes this problem by an ad hoc standard which allows all the resources to be described in a formal way (for example IEEE LOM);

- finally compliance with the SCORM standard [ADL 2004], which is widespread in the LO world, has become the norm in Italy among organisations which supply distance learning at a university level.

Nevertheless, we have also taken into account criticisms that have put in doubt the pedagogical value of LOs often considered valid only for corporate education. The main criticisms are as follows:

- the difficulty to guarantee re-usability, one of the main advantages of this model,

- the technical difficulties connected to standards in the production of LOs .

These criticisms were taken on board and a concept of LO which would go beyond the limitations described was researched. The conclusion reached was that an efficient model needed a change to the Learning Object model itself. The definition of the concept of **Open Learning Object** (OpenLO) [Fulantelli et al., 2007] was eventually developed:

> Starting from Wiley's definition of learning object (Wiley 2000) we define *open* learning object as "any *open* digital resource that can be reused to support learning". In this definition the term *open* indicates open content, namely content developed in open format (e.g. Open Document) or content in closed format whose source files are also available (e.g. Adobe Flash). In addition it refers to open licenses (e.g. Creative Commons) thus allowing users to freely modify and reuse learning objects.

The implementation of this model needed specific instruments that could simplify the technical difficulties connected to the creation and sharing of *Open learning objects*. The solution has been the creation of **FreeLOms** - Free Learning Object Management System - an environment where to share and collaboratively manage *open learning objects*. Such an environment, developed by CNR, allows the implementation of the Open LO model.

SLOOP Version 2.0

As we write this article (June 2007) the SLOOP project is coming to an end.
The project site - www.sloopproject.eu - has become an important meeting point, especially for the partners' countries, but there are also people registered from all over the world, from Estonia to Singapore, from Mexico to Qatar.

If you are looking in freeLOms for teaching material you will find many, often high quality examples. There are many especially for teachers' training on matters connected to e-learning and LOs but there are also several subject-based material for students: from ECDL to mathematics, from chemistry to English as a foreign language. Many of these LOs have been developed during the project by the SLOOP partners, but now other people have begun to upload their LOs.
There are many LOs in Italian but also in English, Spanish, Romanian and Slovenian. There are simple assets – photographs, designs,... - and small LOs but also more complex ones. Most of them are SCORM-compliant learning objects which can be used on any SCORM-compliant LMS. You can find also entire courses ready to be imported to Moodle platforms.
As we expected since the very beginning, the conditions exist to continue the project and to develop it further once the period of European finance has ended.

What has been happening around us in the meantime? There has been a lot of talk about web 2.0 and folksonomy.
Two meaningful terms, the first launched by Tim O'Reilly and the second by Thomas Vandar Wal, both referring to the more and more active role the people have been playing on the web.

Folksonomy [Wander Wal 2007] is a collaborative classification system using key words, called *tags*, freely chosen by the users themselves. While a taxonomy – from the Greek *taxis* - organises resources

according to a pre-defined framework, the organisation of a folksonomy is made by *folk,* by the people who determine it on the basis of their interests, culture, vision of the world..

The origin of such a *social bookmarking* is **del.icio.us**. This site allows the users to save the addresses of favourite sites, to label them and share them with all the other users.
In **Flickr** it is the same: photographs can be shared and sorted and they can be researched using tags. This is similar to **YouTube** for videos.

These sites belong to web 2.0*: "they have embraced the power of the web to harness collective intelligence"* [O'Reilly 2005]. They live on people's collaboration: **Amazon** involves the users in book reviews, **Wikipedia** invites users to become authors, **eBay** asks for comments on the reliability of sellers and buyers and **SourceForge.net** promotes opensource projects.

SLOOP and freeLOms are part of this idea of the web as a space in which people interact, collaborate, exchange ideas building up new knowledge. This is exactly the original idea of SLOOP and it is what we are putting into practice.
But we intend to take a further step. In order to be able to harness the collective intelligence of all teachers we need more simplified or more user friendly instruments.

At the moment the SLOOP freeLOms is a tool mainly addressing teachers. A future development - SLOOP 2.0 and freeLOms 2.0 – could directly involve young people, the digital natives [Prensky, 2001].
Perhaps it is a dream: that a student instead of tagging only photos and videos and downloading music would tag didactic resources adding her/his personal tag to those of the teacher; that a student would access resources not because of the teacher's instructions but because other students has tagged them as useful.
Perhaps it is a dream. May be it is the future.

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