# The use of Web 2.0 Innovations on Education and Training

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*Abstract:* - Nowadays, the web 2.0 is becoming the preferred environment of communication, collaborating and sharing specially among youth population. Web 2 tools are handy, simpler to deploy free or not expensive and ready to be used in different context. This pushes many actors in the world of education to study how to bring these technologies into education field. The learning management system as Moodle, is an example of facilitating the integration of these tools. The main aim of this is to enrich the learning environment, to facilitate learning's action, to remedy the student's isolation problem and especially to relieve the education platform by adopting an appropriate policy of use. However, our vision, first and foremost is to enable the teachers to focus on teaching instead of getting lost in technology and to delegate the management of a part of the learning platform to some web 2 tools.
*Key-Words:* -E-learning- Openmeetings -Social Networkings – Sharing - Collaborating

## 1 Introduction

The Web2.0 is a set of web user-centered design applications. These popular new services implement innovative services designed to facilitate the use and to save time, effort and energy. They allow smooth communication and enhance knowledge sharing on global scale. Many of these services could provide a favorable environment for relevant educational scenarios if some warnings and limitations of use are respected. A selection of these services is a necessity to avoid excesses and abuses of potential use by learners if they use them as a mean of entertainment, amusement or loss of time in classroom activities. Technically, the use of these services in a platform like Moodle shows such great interest, since its services are supported and managed by external service platform through Web 2 technology. This relieves the platform by hosting and managing multiple data existing in the platform through the web service server. The integration of Web 2 tools can also assist users of the platform and overcome the problems of isolation that can face learners in distance education. Thus, the main contribution of these tools is push learners to active participation, involve the social side in distance learning and motivate them who practice these tools extensively and prefer using their ergonomics, their ease of use and their ease of creating social bonds. This motivation leads to a better ownership of the platform and to promote collaboration and group work. The integration of these tools provides students the feeling of working in a relaxed and friendly environment, full of interest belonging to the era of ICT.

The integration of web 2 tools in the platform is an investment that allows teachers to be more attentive to their learners. Among the Web2 tools that suit to learning environment and help carry out learning activities there is, Google Wave, Vcasmos, Twitter, Blogs, Flickr, Tag (Delicious) and OpenMeetings. In this perspective, we will show the utility of integrating these tools by students and teachers through distance education.

In this article we will first identify the activities of a presence courses in order to show how the use of these Web 2 tools in a platform such as Moodle, can achieve adequate learning scenarios that satisfy the objectives of this integration. Before concluding in the fourth section we will show the main educational activities provided by the platform in a use's scenario.

## 2 Presential Course

To analyze the activity of presential courses activities, we adopted the approach of decomposing the project into several group of activities as shown below. The identification of these activities allows capitalizing the functionalities required to build and design our e-learning platform.

## 2.1 Project planning and construction of the course
A course project starts with planning, compliance with appropriate instructions and urbanization. The following shows the actions that cover this approach:
• Assigning the course objectives.
• Defining the parameters of the course.
• Developing lesson plan.
• Organizing the course activities and the learning path.
• Describing the evaluation method.

## 2.2 Logistics educational resources
The teacher's role is to prepare the course material and educational resources in order to be distributed to learners.
 Thus we find the following actions:
• Creating a document environment (course material).
• Distributing homework and exercises.
• Communicating documents.
• Reporting discussions.
• Arranging content.
• Building a history.
• Commenting content.
• Checking homework.

## 2.3 Course's session progress
The teacher is a conductor; he ensures the animation of the course while referring to the planned orders. Thus we find the following actions:
•Controlling access to the session.
•Presenting the course.
• Giving exercises.
• Correcting exercises.
• Monitoring participation.
• Scheduling the running of the course session.

## 2.4 Written assessment
The learning process is crowned by an evaluation. Written assessment activities are based on the following actions:
• Collecting homework.
• Releasing marks.
• Assessing tutorials.

## 2.5 Individual work
The teacher alternates between individual and collective activities. In the context of individual work we find the following actions:
• Consulting individual work.
• Sending individual comments.
• Disseminating the results confidentially.
## 2.6 Collective work

In a constructivist approach, teachers may opt for a collective work. In this context we have the following actions:
• Placing tables.
• Constituting groups.
• Attributing tasks among group members.
• Conducting a survey.
• Addressing comments.

## 2.7  Discussion
The teacher can encourage students to debate issues and moderate the discussion. These opportunities can be summarized through the following activities:
• Initiating discussions.
• Organizing interventions.
• Announcing information.

## 2.8  Visualization of behavior
The teacher needs to observe learners and interpret their behavior. He also uses non verbal communication. This is possible by following actions:
• Using a non-verbal communication.
• Getting feedback from the behavior of the audience.

## 2.9  Visualization of behavior
Through the following actions, the student has an active presence:
• Attending courses and presentations.
• Exchanging courses and presentations.
• Question: Asking the teacher / presenter.
• Taking notes.
• Doing homework.
• Having exams.
The identification of learning activities in presential course shows the importance of the groups learning activities as proclaimed elsewhere by constructivist learning theories. This leads to try to integrate right social tools into our platform as we will see in the next section

## 3  E-learning Web 2.0 Platform
Relying on the recommendations of the previous section, we design our environment by keeping working with moodle that we are going to integrate web 2 tools in order to fill the gap found in social learning, but also in order to facilitate the ownership of the platform by learners who are accustomed to these tools. However it is imperative to be selective in choosing among these those who are best suited for learning activities. So we opted for Openmeetings, Google Wave, Vcasmos, Delicious and Twitter as we shall see after
Now we will present the technical configuration of the environment

## 3.1  Environment setup
Our system consists essentially of the combination between the learning environment Moodle, the videoconferencing solution Open Meetings and web2.0 tools.
Moodle is a free open source Course Management System (CMS), also known as a Learning Management System (LMS) [1] used by more than 30 000 educational organizations around the world [2]. Openmeetings, embedded into Red5 which is an Open Source Flash server [3], "allows to set up instantly a conference in the Web and to use microphone or webcam, share documents on a white board, share screen or record meetings" [4]. Moodle offers the possibility to add multiple html blocks in a given course. This feature is very important

since it allows incorporating different blocks of Web 2 tools using the widgets provided as shown in Fig. 2. To insert a block containing a widget, we follow the following steps in "Fig. 3"
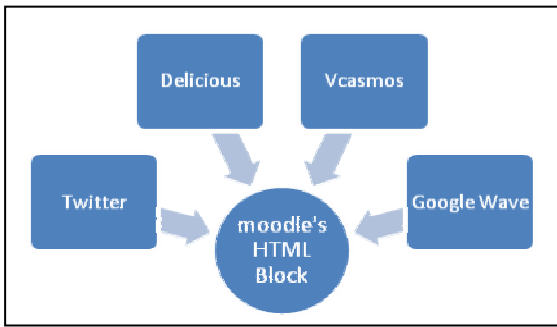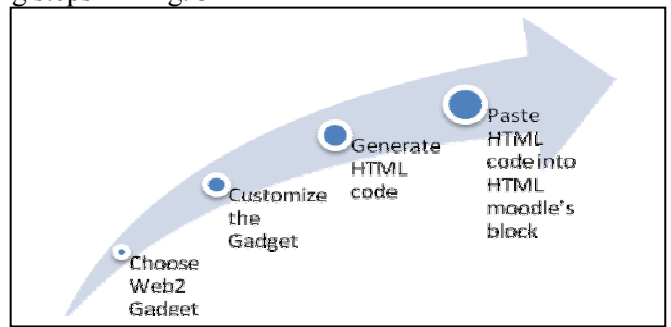


Fig. 2: Process of Web 2.0



Fig. 3: Process of Web 2.0 integration

We propose now the use cases of the Web 2 components of our platform. As mentioned before these Web 2 tools are carefully choose so as not to fall into the trap of turning the platform working environment into an entertainment area and a waste of time.

## 3.2 Using web 2.0 technologies
Now we will show the usefulness of web 2.0 technologies as a means of promoting social t learning.

### 3.2.1 Using Openmeetings
Openmeetings is an open source web conferencing solution. We will show here how to use Openmeetings in learning activities:

#### 3.2.1.1 In the class room
The aim of using this tool in the platform is to complement Moodle on the synchronous communications activities. Our system meets the features of the presential courses according to the analysis done in the first section. We will now provide use case diagrams and significant sequence of our environment (Fig. 6).
This diagram shows the process of class attendance that is accomplished by the connection of the actors (teachers, students). The diagram explains the mechanism of audiovisual communication between members of the class. The environment provided by the Open Meetings component consists essentially of an audio video stream manager, a whiteboard and a chat area. The teacher plays the role of moderator.
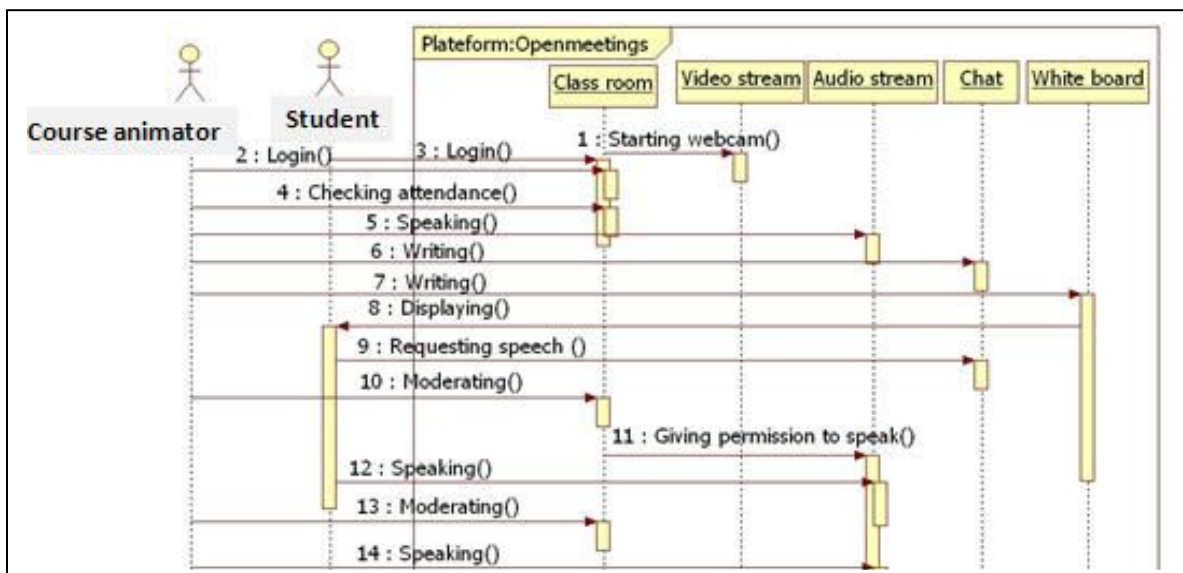


Fig. 6: Sequence diagram of the class activities

#### 3.2.1.2 On the white board

The presential learning is characterized by the ability to use the white board by a learner following the teacher's request. This is now possible thanks to the whiteboard managed by the moderator in Openmeetings as indicated by the following scheme (Fig.7). The course animator plays the role of moderator in Open- Meetings with the opportunity for the student to use the board by his initiative or at the request of the teacher.

### 3.2.1.3 Distant demonstration
To prevent an eventual problem of learner's dropout because of technical problems, the platform contains integrated consoles which enable the moderator to share the screen in order to assist the students. The following diagram (Fig. 8) describes this mechanism
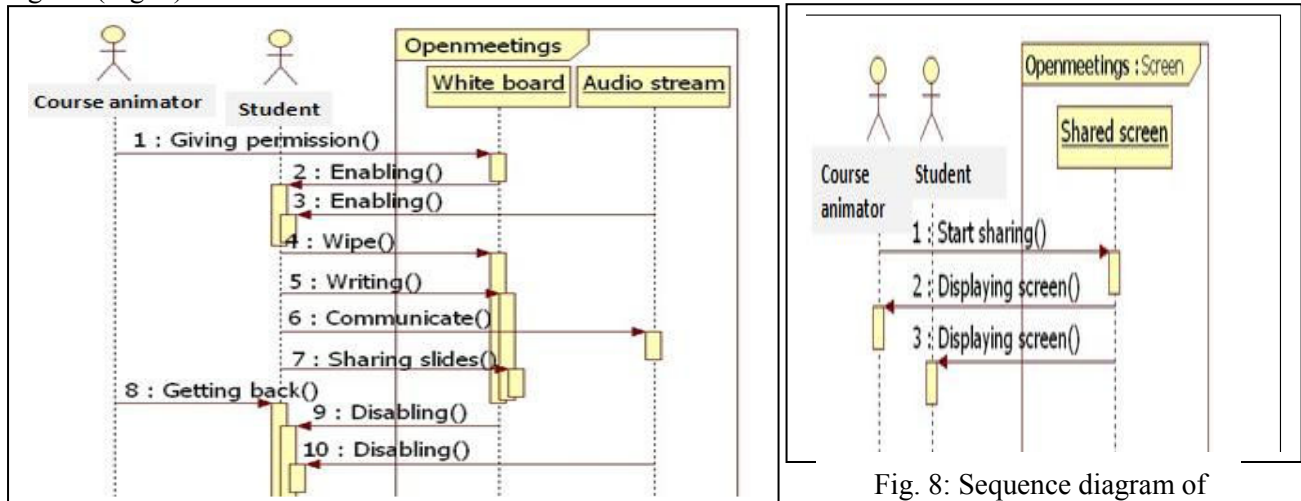


Fig. 7: Sequence diagram of the white board activities

Fig. 8: Sequence diagram of distant demonstration

### 3.2.1 Web 2.0 "Toolbox"
*'We don't hate the media, we become the media'*[5]. The web has become the most significant technology of the 21st century and has deeply impacted every sphere of our activity [6]. The Web 2.0 stands out from the Web 1.0 by the ease of publishing, collaborating, and sharing. Since Web2 features are gaining an immense interest by learners, it is useful to use this trend by feeding educational discussion through sharing, commenting and tagging [7]. Thus, e-Learning is playing an important role to life-long learning [8]. To achieve this mission, the platform integrates a component called "Web2 toolbox" which is a powerful tool for education. It allows users (teacher and students) to get pedagogical resources from popular services which facilitate hosting, downloading and sharing over the internet like YouTube, Socialgo, Flicker and Twitter. It involves them in content creation and enhances their education. It also improves communication among students and teachers through forums and blogs [9]. The Web2 toolbox aims to convey users' messages simply so that it respects rules and the code of practice. The content can be a forum, a blog, a wiki or microblogging . The teacher starts the discussion. Through the participation of different actors (learners and teachers) the content is enriched. They can use multimedia documents to tag and to comment.

### 3.2.2 Using Google Wave
Google wave (GW) is a community platform based on the fundamentals of HTML 5, which offers a variety of communication, shared contribution and creativity tools. It is designed to be integrated with websites. Although GW is still in its beginning we find that its components are much available as much accessible facilitating and stimulating collective learning's action. Indeed, Waves combine multiple channels of communication like email, video, forum, audio, wikis, graphic editors etc. The list goes on, Wave- mind mapping and Wave- brainstorming can be used in an educational approach to analyze and solve problems and case studies collectively. It should be remembered that all the work done in class is available at any time with the charts of the finalized document's evolution in order to be delivered later in the section assignments in Moodle. The wave-mind mapping enables to create concept maps to map a course in order to present it as a tree to facilitate the assimilation by learners. GW gives to learners the opportunity to take notes, ask questions and facilitates

the insertion of comments. Teachers can respond in real time and send private or public messages to learners. They can also insert many gadgets like Google map: this can be used in a course of language learning.

### 3.2.3  Using twitter

Learners have the opportunity to post their questions directly and accurately by using the possibilities of direct exchange with their teacher through the social tool Twitter. Twitter is more useful than the traditional chat by having automatic backup of communication even after the disconnection while keeping the history of communication. We should also add that twitter solves the problem of excess and abundance of interaction from the different actors who communicate by allowing each user to control people with whom he can share tweets.

### 3.2.4  Using Vcasmo

Vcasmo is a web based tool that enable to create a high multimedia presentations . It combines the recorded video stream from a webcam for example, and a Power Point file. The presentation is the result of mixing the two sources through an editing video timeline which adapts the video with the slides. The video can also contain sub titles. After completion of the synchronization, the production result is split into two parts side by side: one of them is the video and the other is the Power Point presentation. The video can be embedded in a content management system. This tool is beneficial to our platform and helpful. It enables achieving asynchronously some educational resources by teachers or by learners. Indeed, the tool will enable them getting a high quality presentation: they prepare their presentation in advance, analyze it and correct it before it publishing. Vcasmo seems very useful in practical exercises like in oral expression and communication. It generates html code in order to insert it later in a block Moodle. This kind of use will allow the platform to outsource the management of video presentations and so to save bandwidth and storage capacity. Moreover Vcasmo is handy and does not require more technical knowledge barrier. This facilitates the appropriation of the tool by users of the platform and makes them active and encourages them to be more productive.

### 3.2.5  Using Flickr

In the course of biology or medicine teaching materials is often based on the exploitation of images and photos. In this sense we have thought of the integrated tool Flickr to host and share photos.

## 4  Conclusion

In a learner-centered approach prioritizing the social dimension, we built this Web 2.0 based platform on the basis of open source components. It couples the technological facilities provided by the synchronous remote training with educational features of presential courses, aiming to ensure a multidirectional learning, which facilitates multi-actor interactions and actor-resources interaction.

*References:*
1.  www.moodle.org (visited on february 2011).
2.  Jason Cole and Helen Foster O REILLY, " Using Moodle" 2nd Edition 2008.
3.  http://www.osflash.org/red5 (visited on february 2011).
4.  http://code.google.com/p/openmeetings/ (visited on february 2011).
5.  Jello Biafra (Eric Boucher), 2001
6.  Web X.0:A Road Map San Murugesan Multimedia University, Malaysia & University of Western Sydney, Australia
7.  100 Inspiring Ways to Use Social Media In the Classroom http://www.onlineuniversities.com/blog/2010/05/100-inspiring-ways-to-use-social-media-in-the-classroom/ (visited on february 2011).
8.  The Design and Implement of Knowledge Building Classroom Based on Web2.0 Xinyu Zhang1 and Zhigang Wang2
9.  What is Blog? July 13th, 2009  http://www.whatisblog.net/ (visited on february 2011).