Interactive speaking practice, assessment and exercise sharing with Babelium plug-in

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Abstract

Video and audio recording in Moodle is not an easy task. There are some third party plug-ins that allow teachers to prepare assignments that students have to complete recording themselves either using audio or video devices, in a non-interactive way. This paper reviews current three open source Moodle plug-ins for speaking practice: NanoGong, PoodLL and Moodle Language Laboratory, analysing each one's advantages, limitations and some shortcomings that need to be addressed. In hopes of addressing the lack of those requirements' implementation, we present Babelium, a new plug-in that allows to record and share interactive video exercises that students can leverage to record their own answers, either using their microphone or their webcam. Simultaneously to the answer being recorded, students can get some help and tips, for their oral production, watching a parallel, exercise-synchronized video, that shows images, texts and words that could be useful for the oral communication effort. These video-exercises can be used not only for monologues but also for conversation, dialogue or dubbing simulations, which opens interesting new ways of practising speaking, especially for second language exam preparation. Finally, this paper shows our experience applying this plug-in for Basque speaking teaching and practice, a minority language from the Basque Country (Spain) and presents some examples of video-exercise types that can be reused in any other language learning environment using a Moodle instance.

Keywords

Speaking Practice, Plug-ins, Audio, Video, Recording, Second Language, RIA

Introduction

Every year millions of people take second language classes as part of their efforts to gain the ability to communicate for education, immigration or professional purposes. Language teaching and learning has become a priority for today's worldwide educational institutions. The demand for teaching languages using cost-effective yet innovative technology is on the rise. Many of these institutions have already set up their own learning management system (LMS) and want to integrate some features and plug-ins in it to assist them in their daily labour of language teaching. Nowadays, one of the most extended LMS in the world, and the most extended
open source LMS, is Moodle with more than 58 million registered users in 216 countries and more than 6 millions of courses (Moodle.org, 2011).

Moodle offers a good set of tools for reading and writing skills, however, there are few plug-ins for practicing oral skills, which are normally considered among students as the most difficult to practice and acquire.
Three of the plug-ins with a larger number of comments in Moodle Forums are NanoGong (The Gong Project, 2010), PoodLL (Hunt, 2012) and Moodle Language Laboratory (Thibaudeau & Ipperciel, 2011). Depending on the objective of the course activity, each one has his advantages and disadvantages, but, even so, there are some limitations that need to be addressed.

In order to properly justify this affirmation, the next section shows a technical and functional review of these three main Moodle plug-ins. Common factors and features are summarized, identifying some shortcomings that language teachers have spotted and explaining why those lacking features are important for a better oral speaking experience. In order to overcome these shortcomings, we present the Babelium plug-in for Moodle, showing technical and functional details and comparing it with the before mentioned plug-ins. Finally we comment the first impressions of some experiences carried out in four Basque Language Schools (called euskaltegis in Basque) with the Babelium plug-in for Moodle.

Moodle plug-ins for language speaking practice and assessment

PoodLL, NanoGong and Moodle Language Lab are three of the most popular plug-ins for recording students' vocal production available in Moodle, at least, since 2010.

PoodLL

From the PoodLL website (Hunt, 2012) we can learn that it is a kind of C.A.L.L (computer assisted language learning) system implemented by Justin Hunt and Thom Rawson. Using PoodLL, teachers can create various kinds of activities for their students. These activities include voice and video recording, pair-work and pronunciation practice. It is designed as a series of plug-ins for Moodle, both for 1.9 and 2.x versions. Its main advantage is that it allows to record the user's voice, using the microphone, and optionally also the user's face-image, using the webcam.

It requires the use of Flash plug-in in the client to access the multimedia devices and record the video-responses in an external Red5 server. This server is also responsible for streaming the recordings to the teacher so that he can assess them using Moodle's Gradebook. There is a source code repository in Google Code Project Hosting - GCPH - (Hunt, 2011) but it seems that it is just a work in progress since apparently last plug-in updates from PoodLL's main website are not based in GCPH's source code. On the other hand, the main developer of PoodLL was kind enough to provide the authors of this article a link to the server side's source code that is not published anywhere. Even though their main site states that "PoodLL is and always will be open source and free" no license is specified.

NanoGong

The second plug-in in this study, NanoGong, is a Java applet developed at the Department of Computer Science and Engineering at the Hong Kong University of Science and Technology that can be used by students to record, playback and save their voice inside Moodle. When the recording is played back the user can speed up or slow down the sound without changing it. The speeded up or slowed down version of the recorded sound can be
saved to the user's hard disk, if he wishes.

Last official version dated May 2011, and is only available for Moodle 1.9, although there is a fork in the Bitbucket public repository by Sebastian Berm (Berm, 2012) that allows users to try a beta version of NanoGong for Moodle 2.x. NanoGong does not need an external server to store the audio recordings.

Moodle Language Lab

Last well-established language learning related plug-in for Moodle is the so called "Moodle Language Lab" (MoodLL), developed by Patrick Thibaudeau and Donald Ippercie from Campus Saint-Jean and Oohoo.biz. It is a tool that replaces the traditional cassette tape language labs. With this tool, teachers can prepare oral exercises for students using both video and audio. This plug-in uses the Flash plug-in in order to record the student's input. Furthermore, developers of MoodLL recently released a new Master Track feature that allows teachers to prepare sample sounds with blank spaces. During the blank spaces, students simply record their answers. Afterwards, the teacher can listen to the student's answers while the Master Track is playing, making it easy to compare and grade.

MoodLL plug-in's source code is available at a Github repository and is actively maintained since a couple of years. Nevertheless, it is only available for Moodle 1.9. Authors have a test server for Moodle 2.x version, but it does not work properly yet.

Features and limitations

Table 1 summarizes the most important features of the above explained plug-ins: PoodLL, NanoGong and Moodle Language Lab. Features of all plug-ins are grouped into three common categories: Functionality, Moodle integration and Technical related details. What follows is a brief comparison between the 3 plug-ins, highlighting those points that might be interesting to improve or implement to improve the speaking practice experience of language practitioners. For convenience, we have added a last column that summarizes the same features of the Babelium plug-in that we present in this article.

NanoGong doesn't need a server to save the audio files that students record but it lacks many other features like the ability to simulate a conversation, a main competence that language students have to master. NanoGong's

lack of video-recording support (neither to set out an exercise nor to record an answer) means that students are not exposed to a real-life simulation environment where each of them has to confront face-to-face conversation situations. Moreover, the ability to record student's faces affords teachers to verify student's identity and assess also their gestures and facial movements while speaking.

Table 1: Features and differences between PoodLL, NanoGong, MoodLL and Babelium plug-ins

		PoodLL	NanoGong	LanguageLab (MoodLL)	Babelium
Functionality	Audio and video recording	v	audio only	v	v
	Subtitle editing support	-	-	- (1)	v
	Multiple language support (UI)	en_US	en_US	en_US, fr_FR	en_US, es_ES, eu_ES
	Exercise sharing	-	-	-	v
	Conversation simulation	-	-	v (Using new audio MasterTrack feature)	v
	Visual and auditive tips and help points while recording	-	-	-	v
Moodle Integration	Official plug-in in Moodle	v	v	v	X (waiting for approval)
	Version Compatibility (Moodle 1.9, 2.x)	1.9 & 2.x	Only 1.9	Only 2.x	1.9 & 2.x
	Integrated with Moodle repository	v	v (1.9)	-	-
Technical Details	License	GPLv3 (3)	Apache	Open Source (2)	GPLv3
	Public issues / bug management	-		v (github)	v (Google Project)
	Source code's language of the player/recorder	Laszlo	Java	ActionScript (.fla files) (4)	ActionScript (Flex files)
	Server-based / Standalone recording	Server (Red5)	Standalone	Server (Red5)	Server (Red5)
	Last release date	April 2012	May 2011 (5)	March 2012	April 2012

(1) offers support for subtitle viewing but not for editing them
(2) files from the git repository don't specify the exact license
(3) the link to download the server's source code is missing. We asked for it without success
(4) Using .fla files. These files require proprietary Flash CS application in order to edit them and are not editable in Linux at all (there is no support for .fla editing in Linux)
(5) An unofficial fork of NanoGong for Moodle 2.x is currently being developed in BitBucket by (Berm, 2012)

Both PoodLL and MoodLL consider that in addition to audio it is very interesting to allow also video recordings for speaking practice in Moodle. This practical feature, as explained in (Bello, 1999), (Díaz Cintas & Fernández Cruz, 2008), allows learners to see facial expressions and body language at the same time as they hear the stress, intonation and rhythm of the language. The visual dimension puts conversations in context and makes it easier to understand the dialogue (Talaván, 2006).

Only MoodLL offers the possibility to simulate a dialogue or conversation (audio-only) with a teacher asking questions and the student answering them in a time-framed lapse. This feature is especially interesting according to some of the can-do statements (Jones, 2001) that the Common European Framework of Reference for Languages – CEFR - (Council of Europe, 2001) and the Association of Language Testers in Europe (ALTE) have developed for each language level. These statements describe what language users can typically do with the language at different levels and in different contexts.

For instance, for the language level B1, one of the can-do statements says that if a student has achieved this level, he CAN keep up a casual conversation for a reasonable period of time, provided that it is of a mainly familiar, predictable nature. Or, for level B2, he can keep up a conversation on a fairly wide range of topics. Thus, we consider that having a way to simulate conversations in a plug-in is a crucial feature.

Unlike PoodLL and NanoGong, MoodLL allow teachers to use subtitles in the video-exercises, but it lacks support for editing them. This feature could be also a good resource for students to rehearse and practice listening and comprehension skills. Even more, subtitles are a support for comprehension, for finding new words and for helping to correct misunderstandings (Díaz Cintas & Fernández Cruz, 2008), due to the fact that written and oral words help reinforce what is on screen and vice versa. So, contrary to what people may think, subtitles are not a distraction but a very good help for learning languages, but it is necessary to bear some parameters in mind such as students' level, mother tongue, target language or quantity of visualisations of the video (Winke, Gass, & Sydorenko, 2010).

Knowing the fact that many or most of European language learning institutions' syllabus is based on the CEFR framework, it should be apparent that there is a real need for sharing video-exercises between teachers of the same language level. In fact, many of them are used to the content sharing philosophy that pervades Moodle so it is not surprising that they are willing to apply an open license to their creations (one of the Creative Commons licenses) for sharing among their colleagues. This is in fact one of the objectives of Moodle's Repository feature that both PoodLL and NanoGong leverage but MoodLL lacks of. Apart from Moodle's repository that works properly for sharing inside a Moodle server, we suggest that it should be interesting to have a common global repository of video-exercises available to share between distinct Moodle servers.

Regarding licenses, all of the studied plug-ins use an open source one although MoodLL plug-in does not specify which one applies. Being a real open source project carries on a set of responsibilities that the owner should commit to. For example, despite PoodLL's license is GPLv3, the latest source code of the plug-in is not available in its public source code repository (Hunt, 2011) and the server-side part of the plug-in is missing at all. The bug or issues list in MoodLL and PoodLL is of no use, because the authors do not update it even to reflect the roadmap of the project. For example, MoodLL's repository has 0 issues listed while PoodLL's has only one (acting as a test for knowing if the bug list works or not). Even though it is true that users are not very collaborative with regard to source-code contributions, authors of truly open source plug-ins should inform their user base about what issues and bugs are they working on, which have been fixed, and which are planned for next releases.

Despite the internationalization support of Moodle and the target audience of the plug-ins, only MoodLL has localized its strings to another language apart from English. This limitation is especially significant in the case of English language illiterate users, because it might prevent them from using the application at all.

It is also important to emphasize that plug-ins must be adapted to meet Moodle's evolution across different versions. Only PoodLL is running properly on 1.9 version and 2.x versions. NanoGong works only in 1.9 version and MoodLL apparently works properly in Moodle 1.9 but it only has a test server to check the 2.x version's development stage and we have been unable to use the new "master track" feature, neither in the plug-in's own test server nor in ours.

Nevertheless, in order to stimulate user's oral production, and simulating real life conditions, the plug-in should also offer a way for guiding the user while she is speaking, for example, showing her some difficult vocabulary or displaying images or situations related to the conversation's topic during the recording, so the user can rely on them. The possibility to display this kind of visual tips or guides alongside the recording is an exclusive feature offered by the Babelium plug-in and according to the number of helping video-exercises uploaded to Babelium's website and teachers' and students' opinion, a very valuable one.

Babelium Project

In order to better understand the Babelium Moodle plug-in that we present in this paper, we will first introduce the Babelium Rich Internet Application (RIA) developed by this paper authors (Sanz-Santamaría, Pereira, & Gutiérrez, 2010) at the University of the Basque Country (UPV/EHU). The Moodle plug-in is built around the Babelium RIA and relies on its architecture for delivering the multimedia experience.

Babelium Project RIA

BabeliumProject.com is a standalone web application that allows teachers to upload a wide range of video exercises and add synchronization points inside, so that students can use them for speaking practice. This practice could be with more or less interaction depending on the type of exercise.

When teachers upload a video to Babelium they have to add some metadata like title, description, language, difficulty level based on the CEFR and license, copyright or one of the most used Creative Commons licenses: cc-by, cc-by-sa, cc-by-nc, cc-by-nd, cc-by-nc-nd, cc-by-nc-sa. After tagging the video it will become available to subtitle in a collaborative way: teachers can restrict a video so the subtitling effort is only performed by teachers themselves or open the activity so any student can add subtitles to the video (there is a subtitle version log that allows teachers to easily change from one version to another). Babelium allows users to add captions or subtitles. According to (Markham and Peter, 2003) "subtitles refer to on-screen text in the native language of the viewers that accompany the second language soundtrack of the video material. Captions refer to on-screen text in a given language combined with a soundtrack in the same language". Subtitles have a text, a start and end point and an associated role. These data designates synchronization points in the video to mark when is the turn for the student to record or the teacher to explain a theme or ask a question inside the video. Once students record their answers they become available for others to assess in a collaborative way.

For example, the teacher can upload a short video asking the students to record their opinion about digital ebooks vs. traditional books for 3 minutes. So the original video-exercise can last for 4 minutes length: the first one for explaining the procedure and the last 3 minutes for helping the students with some images related to this topic (digital books high prices, spilled coffee over an ebook, a backpack full of books). The students will watch the video for the first minute and the application will start to record the user's voice and optionally his face starting at the 61 second up to the 4th minute. Simultaneously to the recording, the original video will help the student with some of the aforementioned pictures, some helpful vocabulary, or some grammar constructions that the teacher is interested in. Third figure of Table 2 shows this video-exercise example.

Babelium Moodle Plug-in

Recently we have developed a plug-in for integrating Babelium's video player and recorder widget inside Moodle. Any video available in the Babelium RIA under a Creative Commons license can be reused by any language teacher in her private Moodle server. This way, Babelium aims to become a well-categorized online resource of interactive video-exercises for speaking practice in Moodle.

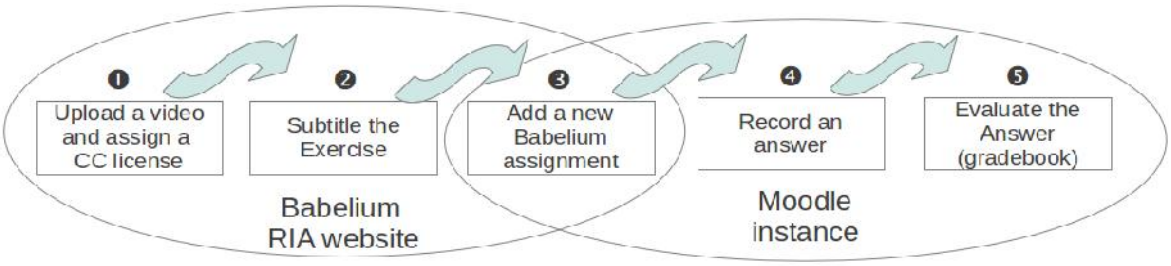

Figure 1: Workflow between Babelium RIA and its plug-in for Moodle.

In order to add a Babelium activity (assignment type) in a Moodle course, as seen in Figure 1, there are some steps to follow: the teacher must (1) upload a video-exercise in Babelium RIA, (2) subtitle it, (3) go to his Moodle course and add a new assignment - configuring its parameters and publishing it-. Later, (4) when the students record an answer for that assignment, the answer will automatically be available for (5) the teacher to assess. The evaluation process is fully integrated in Moodle so it can be done by the teacher using the Moodle Gradebook.

Babelium's plug-in is free software (GPLv3) and is available at https://code.google.com/p/babeliumproject. Like PoodLL, is quite a complex software - yet this complexity is transparent for final users - because parts of it are written in different languages: Moodle plug-ins are written in PHP, the server side is using a Red5 web application written in Java and the recording Flash widget is programmed in ActionScript (unlike PoodLL's counterpart, written in OpenLaszlo). Babelium can be installed in both Moodle 1.9 and 2.x server versions and its user interface is already available in Spanish, English and Basque.

Teaching Basque speaking with Babelium's plug-in

We have been working using the Babelium plug-in for the -minority language- Basque speaking practice in 3 online Moodle servers. Each server belonged to a specific Euskaltegis. Two of them use Moodle in a blended language learning environment while the third one uses Moodle for online learning courses exclusively.
The students' profile is similar in all of them, due to the fact that euskaltegis are oriented to adult language learning. Students taking the course were between 18-30 years of age, with a roughly equal mix of males and females. Each school teaches the full range of language mastering levels (from an introductory A1 to a proficiency C1 level) to a total number of nearly 200 students.

This was the first experience that both teachers and students of the Basque schools had had with recording student's faces and voices in an interactive way. One of the euskaltegis had tested before the NanoGong plug-in for recording students' monologues but taking into account that one of the objectives the CEFR proposes is to practice both monologues and dialogues, Nangogong's features were not sufficient.

Using the Babelium's exclusive feature, Basque teachers have been able to help and support their students' oral production displaying visual and written tips simultaneously while a video-exercise is recorded. With this help, students have felt less afraid to get stuck because they have always got continuous tips – images and text - alongside their recording, as shown in figures from Table 2. This was impossible to do before Babelium plug-in and it has being very positively received by the students, mainly due to the fact that this type of exercise can truthfully simulate one of the parts of the Basque oral official exam.

Table 2: Three video-exercise samples using the Babelium plug-in for language speaking practice

	Level: B1 Skill: Spoken interaction Language: Basque ALTE descriptor: "I can start, maintain and close simple face-to-face conversation on topics that are familiar or of personal interest". Exercise description: you have to call your friend and arrange a date and a place for meeting at the pub (specify where exactly)
	Level: B1 Skill: Spoken production Language: Basque ALTE Descriptor: "I can narrate a story" Exercise description: explain by voice your disagreement with one sculpture that the council has built in front of your house. Explain that the sculpture Is quite ugly, that the neighbourhood has not been asked for its opinion and some other explanations about your disagreement.
	Level: B1 Skill: Spoken production Language: Basque ALTE Descriptor: I can express my ideas and opinions clearly and precisely, and can present and respond to complex lines of reasoning convincingly. Exercise description: you will be presented some brief facts about digital versus traditional books. You have to develop that facts, explain them and give your personal opinion about this subject.

On the other hand, Basque teachers already had a great number of video-tapes and digital video excerpts and wanted to leverage them in their online Moodle environment. With the Babelium plug-in they could easily upload them into Moodle. In fact this is one of the strongest abilities of Babelium: anyone can upload a video-exercise and adapt it for students, so they can use the video for real speaking practice.

The three euskaltegis' curriculums are guided by the same European Framework criteria, so they agreed to share their works, publishing all their video-exercises under a Creative Commons license (specifically a cc-by-sa license), and classifying the videos according to the descriptors recommended by the Framework. This possibility was also very good received because allow teachers to save time.

These are just some first impressions of the experience. We are immersed in the experiment that will finish on next July. Then, we will carry out an in-depth survey both with the students and the teachers in order to analyze both the usability of the plug-in and the effectiveness of this new approach for second language speaking practice.

In order to bring the experiment closer to the readers, table 2 shows three samples of the video-exercises created and shared by the three euskaltegis along with the Framework descriptors that those videos try to fulfil. The red arrows mark the turn to speak for the student. The first video shows that the student is supposed to answer to a telephone conversation. The second one asks the student to explain why she disagrees with one sculpture that the council has recently built in front of her house (a fictional situation, of course). The red arrow marks only one turn, but the continuous red strip below warns the student that she must speak for one minute without interruptions. In this second example, the user chose to record an audio only answer. Thus, there is no image from the webcam next to the exercise. In contrast, in the last example, the user chose to record his face alongside his voice. This video draws on an exercise asking the student to expose his opinion about digital versus traditional books. There is only one arrow with a big red stripe below, which indicates that the student is supposed to explain whatever the teacher has asked for without interruptions for nearly 4 minutes.

Conclusions and future work

Until recently, Moodle users studying a foreign language from all over the world could only record their voices simulating a monologue. Nowadays, however, it is possible to install some Moodle plug-ins (PoodLL and MoodLL) that take advantage of the widespread video usage between students' daily habits with the aim to record also the user's face. In this context, Babelium adds a new set of features to these two alternatives, including the ability to guide the language practitioner with some visual tips in the form of a video played alongside the user recording, the option of using closed captions and the feature that allows the teacher to signal speaking turns in a video-exercise. This way, Babelium can be used for practising dialogues, conversations and also guided monologues, following known language learning paths like those pointed by the Common European Framework of Reference for Language Learning. The same video-exercises can be shared and reused by many teachers, students and educational institutions using Creative Commons licenses and a common video-repository (in our case, located at the central Babelium server).

Today, the massive adoption of smartphones, tablets and mobile devices with the same capacities for audio and video recording and playing as desktop computers, connected everywhere and every time to the Internet, are obviously an interesting target to seek by the language learning community. There is a lot of research going on in the field of mobile learning, and Moodle is not an exception with studies like the technical and organizational implications of implementing Moodle on mobile devices (Cheung, Stewart, & McGreal, 2006) or reference implementations like the Moodbile project (Alier, M. & Casany, M., 2008) .

Going mobile is a special challenge in the case of Babelium and other audio and video plug-ins due to their dependence on multimedia recording features not available in current HTML5 implementations. Although there is a good support for audio and video playing in modern mobile browsers using only the HTML5standard, it is not possible to record neither video nor audio without resorting to the use of external plug-ins like Flash, Silverlight or JavaFX. This approach might also not work because either the user has not installed the needed plug-in or because it is not available at all – the case for Flash plug-in banned in iOS is the best known example. The HTML5 developer community is working hard in finishing and implementing a new specification known as Web Real Time Communication, WebRTC (W3C, 2011) that will allow to play, record and stream audio and video directly from the browser, without using any third-party plug-ins, but currently it is a fast-paced work in progress that will not be made generally available until next year. In the meantime, authors are working on an HTML5version of Babelium in order to be ready for the next challenge.

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