Babelium Project. Promoting the Use and Learning of Minority Languages

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Abstract: Babelium Project is a new collaborative e-learning system for practicing speaking second languages that helps people who want to learn minority languages. The multimedia method this system offers tries to break barriers like timetable and economic problems and also difficulties for finding people for practicing speaking. So, there is no matter where the language is spoken or how many people master it. Now language students can learn new languages from their home with free software, with their own PC, without additional software in a multimedia environment.
Keywords: language learning, speaking practice, minority languages, collaborative environment, free software, multimedia

1 Introduction

The need and interest for learning new languages is not a new issue. There are multiple reasons for that including travelling, career development or just interest in knowing new cultures. Millions of people around the world are studying other languages and this number is increasing continuously.

Generally, although there are still some problems we will comment later, it is quite easy to study popular or extended languages as English, French, German, Italian, Spanish and others. But, when it comes to minority languages, it is more difficult because of the lack of resources.

The number of people and researchers working in the field of minority language is increasing continuously. Thanks to them, there is possible to find some resources that allow people to learn these languages. Nevertheless, there is still a lot of problems to practice speaking due to the fact that these languages are spoken by a limited number of users and also because they use to be concentrated in very concrete geographical areas.

E-learning technologies can be a solution for bringing people closer. The existing e-learning systems for language learning usually offer resources about grammar, vocabulary, structures for improving writing and so on. But generally, when people are studying languages, their final aim is to communicate with other people. So, theoretical studying must be complemented with practice. Speaking is the key to communication and it is recognized as critical skill, both by teachers and by learners (Cunningham, 1999). Besides, speech has its own skills, structures, and conventions different from written language (Burns & Joyce, 1997; Carter & McCarthy, 1995; Cohen, 1996). Therefore, speaking practice is very necessary, but existing systems only offer to establish a meeting with a teacher or a native person for

carrying out these sessions. This aspect breaks the flexibility of e-learning systems about studying anywhere at anytime. In addition, in the case of minority languages, the number of people available for speaking comes down drastically.

This paper describes a new e-learning system to help people to practice speaking with flexibility (anywhere at any time), using their existing installed software, in a collaborative learning environment and talking about their favourite themes or the issues they need for developing their job or hobbies. Section 2 puts in context the current solutions for foreign language speaking practice and comments briefly our proposal. Section 3 explains in detail the functionality of the Babelium Project, showing the foundations of the project and the current development status. Finally, some conclusions and future work are given.

2 Context Situation and Proposal

Nowadays there are two main possibilities to practice language (speaking), both in language schools and with e-learning systems: (i) offline conversations, that is face to face discussions; and (ii) online conversations, like videoconferences, audio chats or similar.

Offline interpersonal conversations consist mainly in a meeting of two or more people, the one that wants to learn a language and the one that have that language as native (or advanced knowledge about it). Although it is possible to establish this type of meetings, either with an academy teacher or with a non-professional native person, there are still some problems: as economic difficulties for paying for that service (more serious if we think in an ideal situation of lifelong learning), timetable problems due to job, family or motivation aspects and difficulties like going to the country/zone where the language is spoken or the number of people available for practicing minority languages.

Online interpersonal conversations imply the use of a computer and Internet to hold a virtual meeting, either with video and audio (videoconference) or just voice. There are two possible methods: (1) conversation between students (for example a Basque student learning Irish talking to an Irish student learning Basque), in which case there must be an agreement between both students to practice in both languages, making corrections each other; and (2) student-teacher conversation, where students contract a professional teacher for practicing speaking with him. Once again, the second method presents similar problems as in the offline conversations. An additional limitation in the first case is that there is no script or methodology to establish a conversation.

So, the objective is to practice speaking in real-life situations but without some limitations that come from engaging in face to face conversations. The idea would be to practice speaking with someone with no time problems. What about using a computer as speaker? Is it possible? Nowadays, voice recognition and artificial intelligence are research areas that are not developed enough to have a real human-computer conversation. So, we propose an intermediate solution between this approach and face to face one: an e-learning system to practice speaking in real-life situations, but using a computer as speaker, using videos from different sources with the aim of having human-computer 'conversations'.

At present there are several technical, social and economic conditions that makes possible the development and exploitation of a free software system for live long language learning in a collaborative environment with interactive multimedia. The next sections explain in detail these conditions and the modules and functionality of the system.

3 Babelium Project

The main and simple idea is that minority languages are also mother tongues of some people. So, these people master those languages. Even more, each one has different knowledge due to they live in a particular place, works in a specific area and has their own hobbies. So, the amalgam that makes up one person language (mother tongue) knowledge skills is different for other person with the same mother tongue.

The other important concept for the Babelium Project development is the collaborative environment idea. We think there is a great potential from people all around the world to contribute and collaborate with their own language knowledge (mother tongue) for improving their knowledge in other languages. An essential idea is that collaborative learning should be carried out in the web with free software so as to allowe every developer to improve it collaboratively too. We want the

Babelium Project not as a commercial enterprise product but as a system for a user community that manages and improves it continuously.

Bearing in mind all of this key aspects, the Babelium Project tries to offer minority language students the possibility to improve their speaking abilities in a comfortable way, without moving or setting up a meeting with any native person and with no need to be afraid of pronunciation and understanding problems. Even more, this system offers users the possibility of selecting their favourite topics and/or real-life situations they need to practice or improve.

The project is based in the use of multimedia videos with real-life conversations between two or more people. Users/students can watch videos in native language with subtitles (in various languages). The objective is to take the role of one of these people in the video and practice speaking when their turn comes. Users can record their conversations and publish them in order to be evaluated. The evaluation is carried out collaboratively by other users whose native language is the one spoken in the video. These referees must assess the performance of the student. Also it is possible to send feedback to the student adding commentaries about the assessment. This is the basic loop for learning to speak. Users collaborate not only in the evaluation phase but also uploading new videos and creating the subtitles for those videos, which in the case of non-native users is another way of learning that implies listening and writing.

3.1 How the Babelium Project Works

In order to explain more precisely all the functionality and roles of the system next paragraphs describes, step by step, how the Babelium Project works and how users collaborate for improving speaking in languages learning.

1. Using the Compiler Video component, users upload interesting videos with short real-life conversations between two or more people.
2. Native users (or those that master the language spoken in the video) add metadata and subtitles to the video using the Label component. Metadata consist on: difficulty level, keywords, roles, and so on. Subtitles are added for each role (people who talk in the conversation) and for each moment (from second X to second Y) that role talks. This work is published for helping the rest of the community to learn.
3. A user that wants to practice speaking a second language looks for videos using some keywords he is interested on. The system returns a list with those videos that fulfill his query. This step is carried on by the Video and Recording components.
4. This user can watch the selected video including metadata and subtitles created for it by other users. When various subtitles are available for the same conversation moment, the interfaces shows the most voted one. All this process is inside the Recording component.
5. The next step is to select a role (person) of the video conversation. This is the role that is going to be played by the user who wants to practice speaking.
6. Video starts reproducing. When the selected role turn comes (it is marked with a red arrow in the video timeline), audio channel stops and video (image) channel continues reproducing. This is the point where user must start talking as if he were that person. The system will record his speaking. This process is carried out every time that role takes part in the conversation. If user wants, he has the support of subtitles (like in a karaoke).
7. At this point, the user can watch the original video again, watch both the original video and his recording, watch only the recording video, record the same video again (with the same role or another one) or publish it for evaluation phase. The last 3 steps are carried on by the Recording component.
8. The evaluation phase is developed collaboratively by a number of referees, who are system users that are native or master in the language spoken in the video. The evaluation task consist on reviewing a speaking exercise (watching both the original and the recorder videos) and score it as good, regular or bad. Also, and may be more important, it is possible to send feedback to the speaker with comments about pronunciation, vocabulary or whatever helps a referee considers for speaker to improve or just for congratulating

him for the performance. This process is developed using the Evaluation component.

This is a collaborative environment where people work to help other users and also benefit from the work of these users. This project is being developed basing on the power of collaborative environments but also in the strength of motivation. Mainly this last idea is the reason for creating a credit system that we call Karma. The operation is simple: users who collaborate (in any way) with the system receive Karma and users that consume any resource of the system pay with Karma. This is an ordinary manner of supporting collaborative environments avoiding user abuses, both in virtual communities but also in real-life communities (time banking). In the Babelium Project, users receive Karma by uploading videos, labelling them, editing subtitles and evaluating other users, and consume Karma when they want to be evaluated. The Credit component manages all this process.

3.2 Why the Babelium Project can Work

Some years ago this project could be impossible to develop, but nowadays there is a mixture of conditions, including technical, social and economic possibilities that makes this moment perfect to develop it. The next paragraphs describe the key factors that support the project:

- Videos with real conversations. There are several web pages that store and distribute videos, and the very well-known and most important one is YouTube (http://www.youtube.com). Millions of users (non-professional) download and upload thousands of videos per day. Even, other similar web pages have emerged with the same objective and relatively great success: Blip.TV (http://blip.tv/), Metacafe (http://www.metacafe.com/), Hulu (http://www.hulu.com/), imeem (http://www.imeem.com/), revver (http://revver.com/) or archive.org (with permission licenses) (http://www.archive.org/index.php). There is also another huge category of videos useful for our purpose: advertisement videos and movie trailers.
- Open Licenses. Over the last years, there have being an increase in the amount of free and open digital resources licenses. From these ones, Creative Commons licenses (by sa) are the most important for this project due to it permissiveness in reproduction of videos without any royalties.
- Subtitles. Deaf people have fought hard to preserve their rights. And their efforts have being rewarded because a big amount of multimedia resources (like movies, TV programs or advertisements) include subtitles today.
- Technological issues. Some years ago it was impossible for an ordinary person to seat at home and to maintain a videoconference with webcam and microphone or simply watch a video through internet due to technical constraints: no broadband connections. But today the technological revolution makes these situations possible: broadband is available to a growing number of users and also users are able to have a complete multimedia experience through internet using only a navigator and free software.
- Collaborative environments. There have been various studies and researches that emphasize the goodness of the *social constructivism* (Vygotsky, 1978) learning method. Nowadays, with the expansion of Internet, collaborative philosophy is growing within web users around the world. There are different types of collaborative communities (like Facebook (http://www.facebook.com/), Wikipedia (http://www.wikipedia.org/) or more concretely sites for language learning like Palabea (http://www.palabea.net/), Livemocha (http://www.livemocha.com/)or yappr (http://es.yappr.com/)) that grow day by day.

3.3 Current Development State

At present, the Babelium Project is a prototype that let users to practice Basque, English and Spanish speaking. All the components that take part in the architecture explained above are being developed, except the Credit and Statistics components. Both are under development due to we are still thinking about Karma management and help statistics for users and also for administrations purpose.

The system is being developed using an architecture based on some known free software tools. Adobe Flex SDK for the presentation layer. It deals also with all the multimedia resources (mainly video displaying and recording, audio synchronization, and user provided data management). Using Flex SDK we can develop easily a Flash based multiplatform compatible video powered web site. Other major component is Red5 (an open-source Flash media server) that we use to store

the videos that users generate. When one user records his video-exercise, that video is saved in Red5. In the same way, when a referee-user wants to watch a video-exercise to assess its accuracy, the video is streamed through Red5. Finally, an Apache Web Server is responsible for storing and serving static HTML content and executing dynamic PHP scripts (used for access and manage MySQL database connections)

4 Conclusions and Future Work

As commented in the introduction section, speaking is a fundamental skill when learning a foreign language. It is the key for communication, but everybody has experienced a lack of fluency when trying to speak in a foreign language, moreover when these speaking moments take place once in a while. In the case of minority languages, the opportunities for practicing speaking can be reduced drastically, so the lack of fluency must be a very serious problem. There are several reasons for that, including economic problems, lack of time and specifically difficulties for finding people to practice. More over, there is another remarkable problem: people are afraid of speaking in a language in which they are not fluent in. This is a serious fact in the sense that if you are afraid of speaking you do not practice and if you do not practice you do not improve your abilities; so, the fear loop starts again.

The key concept is to mix two important aspects that are currently happening: a very important trend toward the use of social networks and a common necessity/wish to speak other languages. Collaborative environments like Wikipedia, in the general culture area, and also language learning systems like Livemocha or Palabea with more than 200.000 users have demonstrate that collaborative communities for exchanging knowledge works properly and that people are willing to enter and work into these environments. Adding the fact that each person has a deep knowledge about his mother tongue, there is a perfect combination to exchange language knowledge/language learning among people around the world.

The Babelium Project tries to cover the gap of minority language speaking practice taking advantage of the current technical and social development moment and offering speaking practice without difficulties for finding people to practice, time, money or fear limitations. It offers a new learning method based on well-known web environment, but using innovative video treatment techniques that improve the existing solutions for practicing speaking. The great amount of videos (with or without subtitles) uploaded in Internet (like in YouTube, Metacafe, arvhives.org, etc.), all the resources with Creative Commons licences and the simplicity for common people to access to broadband Internet, makes this project to be a reality. Moreover, the Babelium Project is a free software tool for people to practice foreign language speaking in a collaborative web environment, obtaining help from other people and helping those people to learn their mother tongue.

Among other advantages commented before, we consider video a very good media resource for practicing speaking due to the fact that speech is not always unpredictable. Patterns that tend to recur in certain discourse situations (e.g. asking for the time, paying something in a shop, requesting help to go to a specific address), can be identified and charted (Burns & Joyce, 1997). Speaking requires that learners not only know how to produce specific points of language such as grammar, pronunciation, or vocabulary *(linguistic competence)*, but also that they understand when, why, and in what ways to produce language *(sociolinguistic competence)* (Cunningham, 1999). Furthermore, videos of real-life situations allow learners to see facial expressions and body language at the same time as they hear the stress, intonation, and rhythm of the language (Bello, 1999).

Although the Babelium Project is still a prototype for Basque speaking practice we expect to be working on next July, we are working inside various projects to expand Babelium with new languages and functionalities. Another step ahead is to automate some process that currently must be done by users but their execution does not involve any learning; for example, recognition of conversations inside a video to upload it to the system, recognition of different roles in a conversation in order to separate them for subtitles edition help or voice recognition to support the subtitles creation. All of these are complex task of machine learning that require a deep research so we expect to work on in a later future.

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