

Requirement Solicitation for Computer Assisted/Aided Language Learning Systems

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Abstract: This paper is a report on the findings of a study conducted concerning the features offered by web-based Computer Aided Language Learning (CALL) courses. A comparison of the currently available features of websites offering online European Language courses was carried out and analyzed. Following this, an online questionnaire was used to solicit information that current and potential users of such online courses find to be useful and important for them. Our findings indicate that current CALL systems make limited use of several important features like the use of chatrooms and spell-checkers that can enhance and speed-up the learning process.

Introduction

Online education has been gaining public interest very quickly as universities, education centers and businesses see it as an opportunity for cost savings and higher productivity. With the continuously growing community on the internet, a new medium for Computer Aided Language Learning (CALL) systems has evolved. This medium provides new opportunities as well as gaps for learning foreign languages.

Computer Aided Language Learning (also referred to as Computer *Assisted* Language Learning) can be thought of simply as the use of computers to help learn languages. Gamper and Knapp (2002), define CALL as “a research field which explores the use of computational methods and techniques as well as new media for language learning and teaching”.

The earliest applications of CALL date back to the 60's. Warschauer (1998) divides the history of CALL into three stages:

Behaviorist CALL – was implemented in the 60's and 70's and could be considered ‘a sub-component of the broader field of computer-assisted instruction’. Informed by the behaviorist learning model (Kern & Warschauer, 2000), this mode of CALL featured repetitive language drills, referred to as drill-and-practice.

Communicative CALL – emerged in the late 70's and early 80's. It was also during this time that behaviorist approaches to language teaching were being rejected at both the theoretical and pedagogical level, and new personal computers were creating greater possibilities for individual work. Warschauer (1998) mentions that “proponents of communicative CALL stressed that computer-based activities should focus more on using forms than on the forms themselves, teach grammar implicitly, allow and encourage students to generate original utterances rather than just manipulate prefabricated language, and use the target language predominately or even exclusively” (Jones & Fortescue, 1987; Phillips, 1987; Underwood, 1984).

Integrative CALL – emerged in the late 80's and early 90's while critics pointed out that the computer was still being used in an ‘ad hoc and disconnected fashion’. Warschauer (1996b), terms integrative CALL as ‘a perspective which seeks both to integrate various skills (e.g. listening, speaking, reading and writing) and also integrate technology more fully into the language learning process’.

Due to the increasing popularity of the Internet and the use of multimedia, there has been a recent move of CALL systems from CD-ROM to web-based ones, creating new innovative ways where people can learn and practice online.

In this study, our main research question is whether current online CALL systems are meeting the users' requirements in terms of the features and functionality that they provide. Our focus has been on the official languages of the EU, as well as the new languages that will be added by the ten new countries in May 2004. Considering that one of the principal pillars of EU doctrines is the free flow of people among all countries of the EU, one would expect to see a multitude of 'foreign language' speakers settling in countries where their mother language is different. It is also the EU policy to encourage and support maintaining national languages and culture as a most valuable characteristic of the emerging EU. One way to make this even more attractive to users is to offer free online courses where people can learn at their own pace and time, and have access to other users, students or native speakers.

Although there are a number of websites that claim to provide distance learning of foreign languages very few have performed proper evaluations (both in terms of pedagogical achievements but also usability) of their courses/websites. We have carried out an investigation to find out which features are provided by current online CALL systems, and compared them with the user requirements solicitation results, to see to what extent their expectations are met by these systems.

The paper continues with a description of how we conducted our study. Following this, we present and discuss the results and make suggestions for future research. The paper ends with a set of recommendations and conclusions.

The Study

As mentioned previously in the introduction, the purpose of this paper was to study websites that currently offer language courses for the languages of the EU. There are currently eleven official languages of the European Union – Danish, Dutch, English, Finnish, French, German, Greek, Italian, Portuguese, Spanish and Swedish. Following May 2004's enlargement with ten more European countries, it is likely that a further eight official languages will be added, namely: Estonian, Latvian, Lithuanian, Polish, Czech, Slovak, Hungarian and Slovene. The aim was to find and evaluate two free online CALL websites for each of the languages. Many resources were found for the languages that are used and spoken more widely across the globe like Spanish, English and German. However, languages that are not so popular around the world had only limited websites teaching the language. No free resources were found for Slovak and Slovene, so these languages had to be omitted from the report. Additionally, only one free reliable resource was found for each of Estonian and Hungarian and they were thus included in the study. For the languages where there were many results, the two sites were selected with regards to the providers, giving more weight to official websites that were hosted by important authorities or by the governments of the countries. Websites that were very basic or incomplete were not included, so this way we could have a more accurate reflection of the major websites offering EU language teaching. We ended up with a total of thirty-two websites to study.

As pointed out earlier, one of the policies of the EU is to encourage and support the learning and maintenance of its languages. Providing this sort of education for free, is the greatest motivation for everyone. Even people who are not planning on learning another language, will be more likely to use a free online language website than any at all. This was the reason why we chose to evaluate the free websites instead of fee-based ones. As discussed later on in the findings, we will also see peoples' opinions on whether or not they believe these services should be free or not. However, by evaluating these free websites it did not mean that they should be non-profit organizations. They could contain ads or banners, or have internal or external funding. Also, it did not matter if end-users could attend the courses as guests, or have to register, as long as they did not have to pay to use them.

Our methodology consisted of three key activities:

Activity 1: Identification of existing features in online CALL courses

First, we visited and explored the 32 websites noting the features that they currently provide. Although we had initially prepared a list of features that we thought were relevant, during the exploration of the websites we came across several new features that we had not thought of. The following features were identified: Links to external resources, Audio, Dictionary-Translator, Discussion Board, Quiz-Tests, Games, Chatrooms, FAQ-Help, Website News, Horoscopes, Penfriend finders, Video, Spell-Checker and Thesaurus. Once the features were documented, we prepared a graph showing the relationship between each of the features and how many of the websites offered them (Figure 1).

Activity 2: User Requirements Solicitation

The second part of the project dealt with user requirements solicitation. This was carried out by preparing an online questionnaire where people could post their views and suggestions, and concurrently give us feedback about the importance of including specific features in CALL websites. There was a total of 40 responses to the questionnaire and the logs showed that the respondents were from several different countries. A section of the questionnaire had a list of the features that were found on the websites. The users here had to rate their importance for inclusion in the online course from 1 (least important) to 5 (most important). The results were grouped and organized, producing a table with each feature's mean score (Table 1). A graph was also created (Figure 2) whereby the results can be seen more clearly. The feedback from the rest of the questionnaire assisted us in collecting more information specific to what the users want from these websites, but also some statistical data about education over the internet in general.

Activity 3: Comparison of currently available features versus user expectations and needs

Finally, in the third part of the study the results of the questionnaire were compared to the results of the initial study of the features currently available in the 32 online CALL courses. This enabled us to see the limitations and strengths of these websites, and allowed us to make recommendations for future designs and updates so that users' expectations will be more accurately met.

In the following section the results for each activity are presented.

Findings

Results from Activity 1: Current features available in online CALL courses

Figure 1 shows a graph of the features found, versus the number of CALL websites that have them.

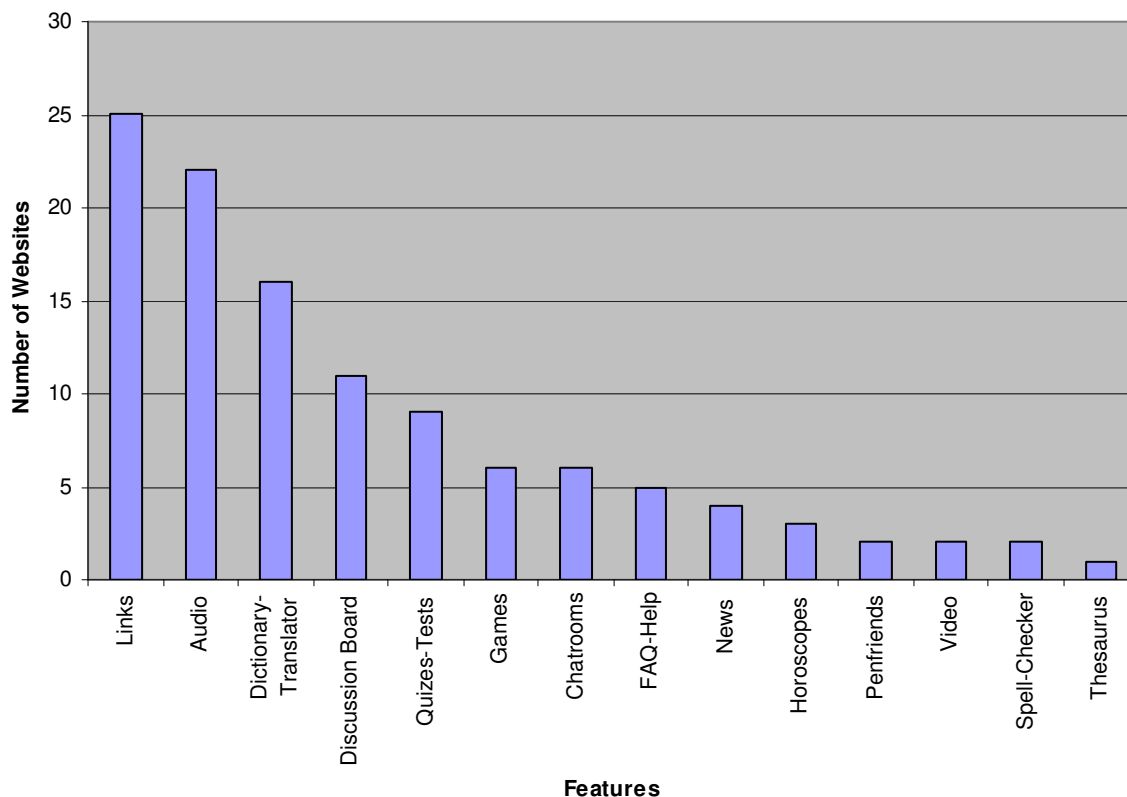


Figure 1: Mapping of the number of CALL websites that currently provide each of the features.

As we can see (Figure 1), most of these websites make use of external links. These links refer users to other websites and sources that they might find useful. Examples of these links included webpages providing historical and cultural information of the languages and their countries, as well as other tools and activities that could enrich the learning experience even more, like social events or even discounted visits and excursions to the countries where the target languages are spoken.

The second most popular feature was the use of audio. Twenty-two out of the thirty-two online language courses offered some sort of audio support to the users. Pronunciations of the letters of the alphabet was the most common use and this is in line with CALL pedagogical theories that suggest repetition and pronunciation modules in their teaching. This extended onto audio clips of words and phrases and in several of the sites included large clips of conversations where the users could listen, and at the same time read the transcripts of these audio files. However none of these websites supported audio recognition whereby the users could speak into their microphone and have their pronunciations and their accent tested giving them feedback about their progress.

Sixteen websites offered a dictionary and translator. By using this feature the users could get the meanings of words in the language they were learning at any time they wanted, rather than having to wait for the specific words to come up in one of the lessons. In the more advanced cases the dictionaries could translate entire documents or websites that the users wanted from the language that the users knew to the language that they were learning and vice-versa.

Discussion boards were utilized by eleven of these CALL courses. These provided an asynchronous mode of communication between the users. Topics could be started by any of the users on anything they wanted. Main topics included technical difficulties, language difficulties and general discussion about various aspects of the languages and the people.

Nine of the websites offered some sort of tests or quizzes where the users could check their progress and receive feedback on how well they were doing. A further six websites included simple interactive games like cross-word puzzles and hangman with the purpose of user self-testing again, but by the means of a more attractive and fun approach.

Synchronous communication was very limited since only six of the websites offered chatrooms where online users could chat with one another. FAQ/Help and website news features were also limited and were offered only by five and four websites respectively.

Three of the websites had included the feature of horoscopes trying to give the users more motivation to read something that was of more personal interest to them in the target language. Another feature that was only offered by only two websites was that of a pen-friend finder. This featured enabled the users to search and contact people who were native speakers of the language they were learning, and frequently send emails back and forth thus enhancing the learning progress whilst making new friends at the same time.

Lastly, video resources and spell-checkers were only utilized by two websites, and only one of the thirty-two courses offered a thesaurus.

Results from Activity 2: User feedback from the questionnaires

User feedback from the online questionnaire was organized and tabulated to show what their preferences and expectations of the features provided by the online CALL courses are. There was a total of forty responses to our questionnaire. A significant part of the questionnaire asked the users to rate each of the currently available features (collected in Activity 1) on a Likert scale from 1 (least important to them) to 5 (most important to them). To calculate the average rating, we multiplied each number of responses by the weight it carried (again from 1 to 5), and then we divided by the total number of responses to reach an overall rating for each of the features. The results are summarized in Table 1.

A new chart was made showing these features in order of importance from the users' perspective (Figure 2). From a quick glance at the graph we can see that the respondents rated almost all the features as being important to very important. Apart from horoscopes, which were rated as the least important with a score of 1.52 out of 5, all the other features scored over 2.50. The feature of audio clips in the online courses was the most popular one receiving an average user rating of 4.58 out of 5. This feature was followed closely by the spell-checker, the dictionary-translator, the FAQ/help and the quizzes-tests, which all scored over 4. With an

average user rating between 3 and 4, we find the video feature, along with the links to external resources, the discussion board, thesaurus and the chatrooms. Penfriend finders, website news and games received a score between 2.5 and 3 which shows that the respondents might not find these features as important as the audio feature for example, but they still find them important enough to be included in online CALL courses.

<i>Feature</i>	<i>Least Important</i> <i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>Very Important</i> <i>5</i>	<i>Mean Score</i>
Links	0	3	16	10	11	3.73
Audio	0	1	4	6	29	4.58
Dictionary-Translator	1	2	9	7	21	4.13
Discussion Board	2	3	14	7	14	3.70
Quizzes-Tests	0	0	11	15	13	4.05
Games	7	10	12	4	6	2.79
Chatrooms	6	7	14	5	8	3.05
FAQ-Help	1	1	9	11	18	4.10
News	8	5	18	5	4	2.80
Horoscopes	24	8	5	2	0	1.62
Penfriends	10	7	10	6	7	2.83
Video	3	2	7	9	19	3.98
Spell-Checker	2	4	4	6	24	4.15
Thesaurus	1	4	11	18	6	3.60

Table 1: User Responses to the importance of the current features available in the online language courses.

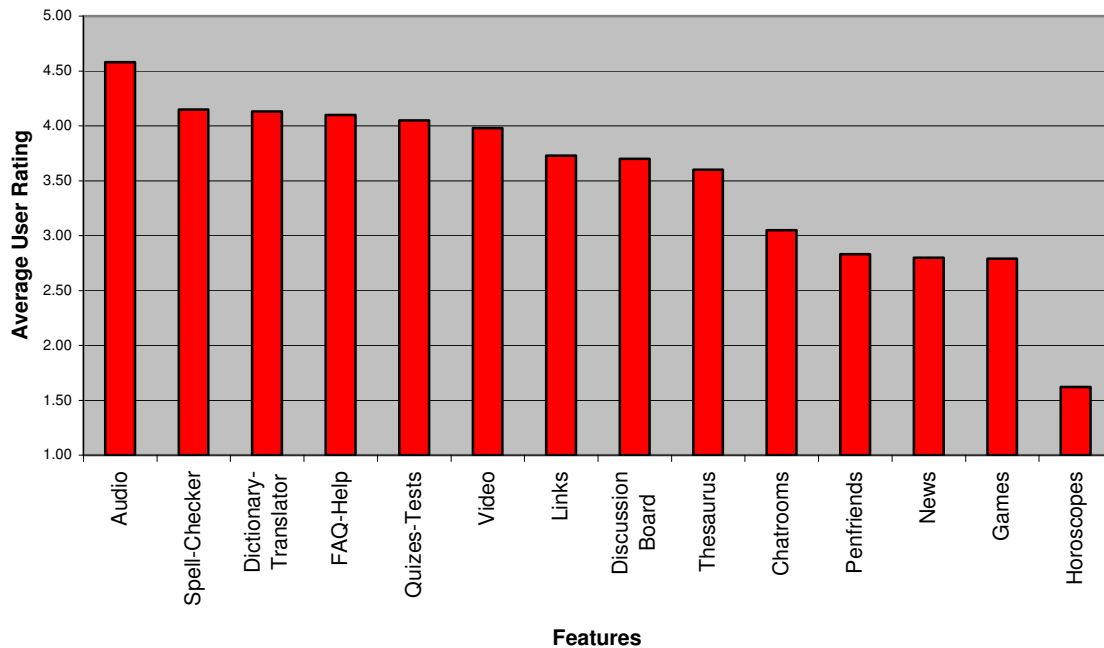


Figure 2: Importance of currently available features with regards to user ratings from the questionnaire.

The questionnaire was sent to:

- (a) Current students of an MSc HCI module
- (b) A mailing list of CALL professionals and users

The analysis of the questionnaire also revealed the following information about the respondents:

- 90% speak at least one more language other than their mother tongue
- 37.50% have taken part in an online course before
- 15% have taken part in an online 'language' course before
- 90% would consider learning a foreign language course from the internet
- 32.50% would be willing to pay for an online foreign language course
- 62.50% would prefer to follow an online language course at their own pace (37.50% prefer a pre-set schedule)

Finally, as shown in Figure 3, the respondents rate website "Content" to be the most important criterion when accessing websites, followed by the upload/download "Speed" of the website, whereas only one person found the "Appearance/Look" of the websites to be the most important.



Figure 3: The users' responses to the single most important criterion for them in accessing websites.

Results from Activity 3: Comparison of currently available features versus user expectations and needs

By comparing the current features included in online language courses (Figure 1) with the ones that the respondents of the questionnaire would like (Figure 2), it is apparent that many of the websites make limited use of several important features. On the other hand, the use of audio in these websites is the most successful example, since the respondents who answered the questionnaire have rated audio as the most important feature in online foreign language courses. Other strengths of the websites were in the use of external links to other sources and the facility of a dictionary/translator.

However, there were also many weaknesses identified with the current state of these CALL websites. The most revealing example is that of a spell-checker on the websites. Although from the respondents answers spell-checkers were the second most important feature that they would have wanted, only two out of the thirty-two websites actually had a spell-checker in their online language course. This is a huge gap between user expectations and what is actually offered by the online CALL courses. Another problem was in the area of video support which the users rated high, but once again were only offered by only two language course websites. Similar problems, but to a lesser extent occur in the lack or minimal use of FAQ/Help, Quiz/Tests, chatrooms and games. The users also rated the thesaurus as in important feature, but only one website utilized a thesaurus out of the thirty-two websites in the study. Penfriend finders received high importance ratings, but again the lack of their use by the websites causes problems.

In their 2002 study on 'student involvement in designing an online foreign language course' Zaphiris and Zacharia state that the discussion board proved to be the most constructive tool for the students learning experience and the main source of feedback for the maintainers of the project. However the findings of our study indicate that even though the respondents themselves also rate discussion boards as important, still fewer

than half of the websites offered this feature to their users.

One can argue that the reason these sites lack these features and functionality is because they are free and may receive no or minimal income. However, the results of the online questionnaire indicate that 47.50% of the respondents would probably not want to pay for an online language course, 20% said definitely not, and only 32.50% said yes they would be willing to pay. This shows that the providers of these online language courses should take the users attitude into consideration, and find and use other methods to make revenue.

Additional to these features we asked the respondents to mention other features (not included in the previous websites) that they think are important to be included on these courses. Some of their suggestions are listed below:

- Integrated email features
- Personal journals/notes
- Optional books
- Contact with teachers
- Testimonies from 'graduates'
- Benefits of learning the language
- Cultural/Historical information about the people who speak the language
- Access to music and songs in the language they are learning

Finally, this study shows one more interesting outcome. Contrary to popular belief where one of the main advantages of e-learning is the self-paced progress of the courses, from the responses of the questionnaire a considerable 35% of the people would rather have a pre-set schedule to follow, rather than completely attend the online courses on their own pace (which was 65% of the replies). Since this is a substantial percentage, our recommendation would be to keep the courses as self-pace ones, but to provide a recommended schedule or calendar which the users may choose to follow if they like.

Suggestions to Researchers

Future research could deal with the content and types of material provided by such websites. This can include the levels of language education (beginner, intermediate, advanced), grammar, syntax, spelling, reading and writing exercises as well as tourist lingo. Future research should also focus on usability and accessibility evaluations of CALL websites. In addition, it would be interesting to study the effectiveness of each of these features in learning a language.

Suggestions to Practitioners

For practitioners we suggest that they incorporate feedback from various studies and evaluations to make their systems more usable and user-friendly. From our findings in this study we can suggest the inclusion of certain features in online CALL systems, like the facilities of chatrooms and discussion boards as these promote the synchronous and asynchronous communication between the users. We can also recommend providing a pre-set recommended schedule to assist the students in their progress and time-planning.

Conclusions

This paper dealt with the evaluation of features supported by CALL websites. Our findings indicate that there is a gap between user expectations and requirements in relation to what is actually offered by these websites. Results show that major weaknesses lie in the facilities currently provided by these websites. Feedback from the questionnaire helped to identify where these drawbacks lie, and enable us to make suggestions for future re-designs. For instance, the questionnaire respondents found spell-checkers to be very important, but very few of the websites evaluated actually offered this facility to the users.

Through our research we also collected other interesting information about the current and prospective users of such systems, which allowed us to produce some statistical data. Finally, after the analysis our findings, we ended the paper with recommendations and ideas for future research.

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