



## CALL-SLT: a First Experiment in a Real FFL Training for Employees of French Companies

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### Abstract

*Using speech recognition to create virtual dialogues is now possible, although it is still difficult to build real conversation partners. In this context, the CALL-SLT system developed by the University of Geneva offers a platform to create virtual dialogues with an avatar on the Web (<http://callslt.unige.ch/>). In this type of game, the student participates in a virtual dialogue by translating and properly verbalizing a speech act (a conceptual proposal that is not syntactic) provided in their native language. In order to provide a more immersive learning situation, we proposed an adaptation of the CALL-SLT system which does not use the learner's native language. In this paper we describe how we used this tool in the context of a real French foreign language (FFL) training for employees of French companies.*

*For exploratory purposes, 10 adult learners of FFL through distance learning were given access to the tool. We collected audio and usage data, as well as reports of interviews with the participants and their trainer.*

*In the paper, we will summarize all the results. These are very encouraging but show, amongst other things, that the interaction and the relationship with a virtual conversation partner is not entirely straightforward for adult learners.*

### 1. Introduction

For several years speech recognition has increasingly been used for language learning to compensate for a lack of oral practice. However, despite educational objectives claimed by the various systems, there has been little study of the impact of this technology on foreign language learning [1].

In the context of dialogue systems using speech recognition, many parameters can influence the educational value of the tool. The usefulness and the usability of such a system can only be appreciated in real use situations. With this objective in mind, we suggest an exploratory study of the use of a virtual dialogue tool (CALL-SLT) for learners of French as a Foreign Language (FFL) in professional training. The article is structured as follows: Section 2 gives the context; section 3 presents the tool used for this study; section 4 describes the experiment; Section 5 concludes this article.

### 2. Speech Recognition and virtual dialogues

In foreign language learning, the opportunities to interact in the target language are often too rare to sustain and transfer to real situations the lessons learned during training. Based on this observation, many research projects seek to develop tools for virtual dialogues (e.g. [2][3]).

For technical reasons, most of these devices are limited and ask learners to select their responses from among a finite list of proposals provided by the system [4], which is of limited usefulness in terms of developing learners' interactional skills [5]. However, there are a few exceptions. For example, in 2012, Morton et al. [5] developed an educational game offering scenarios for interaction between learners and one or more virtual characters within a 3D environment. In these scenarios, the interactions initiated by the avatars and the clues provided by the virtual environment served as unique constraints on the dialogue. The learners (48 Chinese teenagers learning English) could respond using any sentence structure they wished. Reported results were very encouraging with regards to usability, commitment and the users' overall satisfaction, but its pedagogical usefulness was only briefly discussed.

Another proposal for an educational tool had already been made by Wang and Seneff in 2007 [6] through a translation game designed to allow English speaking learners of Chinese to practice speaking in the domain of flight reservations. The tool, available online, provides learners with a sentence in their mother tongue (L1) to translate into the target language.

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Responses could be formulated freely and were accepted if they had the same meaning as the original and were grammatically correct. Otherwise, the tool asked the learner to rephrase the response. Following a similar approach, the TIM/ISSCO department of the University of Geneva has, since 2009, been developing the CALL-SLT project which incorporates the principle of Wang & Seneff's translation game [6] in a multilingual modernised version.

### 3. CALL-SLT

CALL-SLT is a computer aided language learning (CALL) tool using grammar based speech recognition, available on the internet. It enables a wide variety of exercises, including translation games like Wang and Seneff's and dialogues [1]. In this last case, the user interacts with a 3D avatar. Response cues are provided in the learner's mother tongue in the form of glosses to be translated into the dialogue's target language.

To check if the learner's response is correct the system first runs speech recognition, and then compares the recognized sentence to a list of correct sentences provided in the course resources. Feedback given to the learner is an integral part of the dialogue.

Several studies on medium and large scales have already shown the tool's usefulness and usability in controlled environments with children [7] and students, with very encouraging results (e.g. [8][1]). However, the software has never been tested with adults. Furthermore, each of these studies used a pair of languages (e.g. English/French), forcing the learner to go through his mother tongue to conduct the dialogue. In this study we wanted to test a more immersive approach which does not require translation. To this end, we have created a monolingual version of CALL-SLT for FFL. Below we present this version of the software and the results of an experiment with adult learners in a real professional training situation.

### 4. Experiment

Ten volunteers (A2 level) were recruited among learners following a professional language training from the French company Intercountry. They received an email explaining the procedure and how to use the tool. They used CALL-SLT (from home or their workplace) as many times as they wanted and whenever they wanted during the 10 weeks the platform was at their disposal.

For this experiment, the learner interacted with the restaurant's waiter to order a meal and ask for payment. The system interface used for the experiment is presented in figure (1).

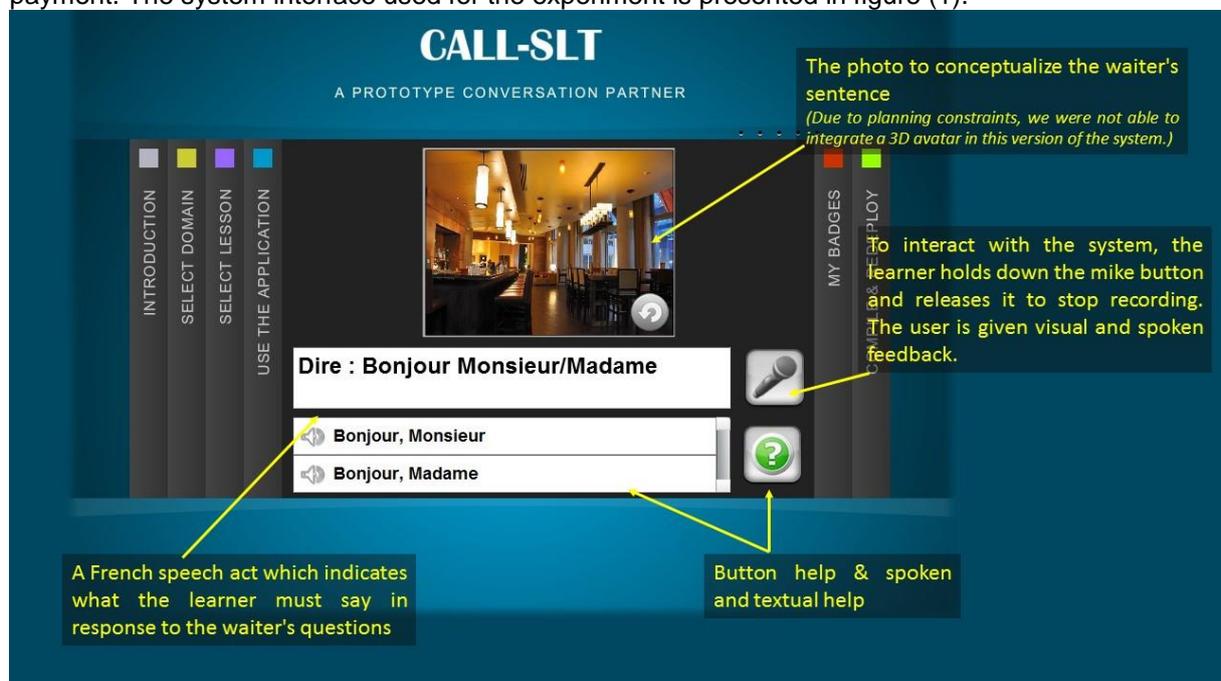


Figure 1: CALL-SLT interface

When they had finished, a trainer contacted them individually to interview them. All records were then assessed by a native speaker.



## 4.4 Results

As advocated by Tricot et al. [9], we evaluated our learning dedicated IT environment according to the three following aspects: usefulness, usability and acceptability.

### • Usefulness

It could be expected that CALL-SLT plays a positive role in pronunciation, syntactic and lexical skills and confidence to speak in French.

**Pronunciation:** The detailed analysis of the learner's records highlights that after a first unsuccessful attempt, learners try to modify their pronunciation to be understood by the system. For example, Anglophones tend to isosyllabic accentuation of words that they assume to be the origin of negative feedback. Although this effort does not always lead to recognition by the system, which does not analyse the suprasegmental characteristics, it seems to help in acquiring a prosody closest to that of native speakers.

There are also cases of auto correction of pronunciation of phonemes, leading to very clear improvements.

In the questionnaire, 86% of participants said that the tool contributed to improvement in their pronunciation.

**Syntactic and lexical skills:** Just as for pronunciation, learners modified their sentence structures following negative feedback by experimenting more complex formulations than those they used at first. In more than 50% of cases, using the help enabled users to move from a rejected sentence to a valid sentence by correcting structure and pronunciation.

86% of participants indicate that the system has enabled them to learn new sentence structures.

Several learners noted that it would be very useful to have qualitative feedback help to identify the cause of negative feedback.

**Confidence:** 43% of the learners spontaneously indicated that it was easier for them to talk to a computer than to a human and that CALL-SLT was a good training tool to increase confidence in their ability to communicate.

However some learners were very discouraged and questioned their abilities to communicate because of a large number of rejected sentences.

### • Usability

The test was carried out in a real training environment, the researchers were not present during the experiment. Despite this, none of the participants encountered any difficulties using the tool and all reported a great ease of use although the interface was entirely in French.

It should be noted however that the help was not used very often. Finally, for two learners bad sound quality was in part responsible for rejection and altered the user's overall experience.

### • Acceptability

All of the learners said that they were satisfied with the tool and that they wanted to use it again.

The trainers reported that CALL-SLT is an interesting tool for learners to use in addition to the training offered by Intercountry. In their opinion it can be very useful for learners who have little opportunity to practice speaking, are afraid of speaking in public and/or have difficulty practising their oral comprehension and expression alone.

Some trainers thought that CALL-SLT would be especially suitable for beginners, while others thought it more of interest for intermediate levels to improve pronunciation.

## 5. Discussion & Conclusion

The main hypothesis, hinging on the development of conversational interactive simulators, is that they would improve foreign language learning [2][5].

Our results seem to confirm this by specifically highlighting the usefulness of CALL-SLT in the context of learning FFL.

In addition, as in Morton et al. [5], the learning situation is meant to be action-oriented which gives us hope of enabling a good degree of learning transferability to real situations.

Nevertheless, as opposed to children and adolescents [1][7], the adults in our experiment strongly questioned their own capabilities rather than the system when their utterances were rejected. Even though they were aware of the experimental nature of the tool, some were particularly affected by their inability to participate properly in the dialogue. A few also suggested including qualitative feedback so that they could understand the origin of their difficulties.

Also, the adult participants seemed to give greater educational credit to this technological tool in the context of training than the children or adolescents did.

This parameter is likely to strongly influence the usefulness and acceptability of the tool, it should be considered for future developments and studies.



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