

Final evaluation

Final evaluation by the steering committee: Wim van Dommelen, Helmer Strik and Björn Granström.

Introduction

During the years 2009-2012 a group of researchers and teachers of Norwegian as a second language at NTNU has developed a Computer-Assisted Listening and Speaking Tutor (CALST). The work was done in collaboration with the Centre for Speech Technology (CTT) at KTH (Stockholm), the Department of Linguistic and Scandinavian Studies (University of Oslo) and the Enhet for voksenopplæring (EVO, Trondheim).

The developers have succeeded in achieving the goals defined at the outset, viz. to build a system for teaching Norwegian. Therefore, to evaluate the CALST system, one can actually use the system itself.

The CALST system

The CALST system makes use of virtual animated language teachers that provide an audio-visual experience with both recorded natural utterances and visual animated articulation. The system can help beginning learners of Norwegian:

1. to acquire a basic vocabulary with the help of a virtual teacher,
2. to become familiar with the sounds of the Norwegian language, in particular sounds that are different or do not occur at all in the learner's native language,
3. to practice the pronunciation of the sounds guided by the virtual teacher.

On the first screen the learner can specify his/her L1 and the desired dialect to learn. Then the corresponding L1-L2 map is loaded (see point 2 below).

Ad (1)

The present system contains a basic vocabulary of 1000 frequent words and expressions. The vocabulary is divided into various thematic categories. In the exercises words are pronounced by the virtual teacher and presented visually as small pictures. The student has to choose the appropriate picture and will get feedback. It is of great advantage that CALST offers a choice of four different dialects, each of those dialects being represented by a male and a female speaker as role models.

Ad (2)

The second component offers listening exercises for Norwegian sounds that may be difficult to distinguish for the particular learners (like the vowels in 'by' vs. 'bu'). What sounds the learner will experience as difficult depends on his or her native tongue. To be able to offer individual students exercises tailored to their language-specific needs, the

tool L1-L2map was developed. This tool gives access to a database with information about speech sounds in 500 languages, making it a valuable asset for teachers and students.

Ad (3)

Using the system's third component, the learner can perform pronunciation exercises by imitating words spoken by the virtual teacher for the selected target dialect. This module offers the same four dialects as the vocabulary component. Apart from these 'listen-and-repeat' exercises, there are 'listen-and-write' exercises. Here, the student's task is to write down the word produced by the virtual teacher. The system gives the user feedback about the correctness of the written form.

To conclude, the goals mentioned in the proposal were achieved. In fact, even more than mentioned in the proposal has been achieved. Many learners have already used the system, and teachers also evaluated the system. Their useful feedback has been used to improve the system. In general, they were very positive about the system. The different components of the system work well, and the system is intuitive (not much instruction is needed to use it).

Future possibilities

Although the goals were met, and learners and teachers were positive, there are possibilities for further developments. Some of them are mentioned here.

Extra functionality could be added. For instance, something that was often mentioned by the users was automatic detection of, and feedback on pronunciation errors. This would make the system even more valuable for language learning. Furthermore, it might also be possible to integrate (parts of) the CALST system and the Norwegian on the Web (NoW) system.

The system might also be adapted for other target groups. The current CALST system already turned out to be useful for low- and non-literate learners. However, obviously, the system could be improved for this target group. This is interesting, since the number of low and non-literate learners is still quite substantial, they also generally lack sufficient opportunities for practising, esp. regarding pronunciation.

People with communicative disabilities (i.e. people with a language and/or speech handicap) also often need language training, such as pronunciation training. Again, also for this target group the system could be tuned, to make it better suited for them. Still, the current CALST system offers a good starting point for developing systems for these new groups.

Another possibility is to develop a CALL system for other target languages, other L2's. In that case the L1-L2map tool can still be used. Porting the system to another target language probably requires a substantially amount of work. However, such work can be carried out in cooperation with other partners, e.g. partners who already have expertise and resources for these languages.

The CALST system constitutes a nice starting point for a large amount of interesting, often interdisciplinary research. For developing such a system and for further developments, of which some possibilities were already described above, various kinds of expertise are needed, e.g. on linguistics, phonetics, (second, foreign) language acquisition, language learning, didactics, ICT, human-computer communication, ergonomics, etc. In some research projects, one could focus on one aspect, in another project on another aspect, making different kinds of grants, financing possible.

Finally, it is obvious that such language learning systems also have social and economic benefits, and that they are interesting from a commercial point of view. Every year, large amounts of people have to learn Norwegian, and other languages. In general, there are not enough opportunities to practise, esp. to practise oral communication. Such systems offer more possibilities for practise, since they are available 24/7, and learners can use to as much as they want. In many cases, using these systems can reduce the costs for learning languages.

All this opens up opportunities for cooperation with companies. Such cooperation with companies, valorisation, societal impact, etc., are becoming more and more important in research, and also for acquiring funding.