

Dealing with language diversity in teaching foreigners Norwegian pronunciation

Norwegian not only has two written standards, Bokmål and Nynorsk, it also lacks an accepted pronunciation standard. The Norwegian language policy is that speakers use the pronunciation of their dialect irrespective of the situational context. With immigration into Norway steadily increasing over the last decades, this creates a growing challenge for communication between foreigners and native speakers in Norway: Since regional pronunciation variants differ strongly both in terms of their speech sound inventories and prosodically, it is important to enable learners to deal with Norwegian language diversity. Foreign learners of Norwegian must learn to *speak one* variant of Norwegian, but they must be able to *understand many* different variants to become communicatively effective language users.

The challenges which individual learners face also depend on their native language, or more precisely on the different phonologies of the native language and Norwegian. The combination of language diversity in Norway and the large variety of learners' native languages in Norway is difficult to deal with in classroom teaching. This has been an incentive for developing a technological solution which takes both variables into account. At NTNU, we have developed a Computer-Assisted Listening and Speaking Tutor ([CALST](#)) based on a contrastive analysis (comparison) of the speech sound inventory of the target dialect (the dialect a learner wants to master) and his/her native language. The speech sound inventories of four major Norwegian dialects as well as over 500 foreign languages are stored in a database. The database is based on UPSID and implemented as a wiki. It can easily be extended with new languages. Contrastive analysis results are visualized in our [L1-L2map](#) tool for comparing languages. Speech sounds are color-coded, with red sound symbols indicating Norwegian speech sounds which do not occur in the learner's native language and may therefore be challenging. L1-L2map can be used interactively or as a server-client system which returns information to a computer-assisted pronunciation training (CAPT) system. Unfamiliar Norwegian speech sounds (red in L1-L2map) are linked to sound contrast exercises in CALST. The system developed so far does not yet deal with prosodic variation.

We shall demonstrate how we deal with language diversity in Norway in different types of vocabulary exercises for training listening (Listen&Click), speaking (Listen&Speak) and writing skills (Listen&Write). So far, writing skills can only be trained for Bokmål, although the extension to Nynorsk is fairly straightforward to implement. The system also offers two different exercise types for training speech sound contrasts which are not familiar from the user's native language (ABX, Minimal pairs/sets). These exercises vary in difficulty, with ABX exercises training phonetic listening skills, while minimal pair/set exercises require greater familiarity and an internalized representation of the speech sounds of Norwegian.

The tool L1-L2map, which is used to compare the speech sound inventories of languages, can be easily integrated into pronunciation training systems for other languages. Although the pronunciation training system CALST was developed for Norwegian, it constitutes a platform that can be used for other languages.