

## The confusing final stops in L2 acquisition

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### Abstract

There is often a relationship between perception and production in second language acquisition, depending on phonological transfer from the speaker's first language (L1). In a production study of Karen speakers learning Swedish as their second language (L2) it appears that they have difficulties learning the pronunciation of Swedish, especially final stops. In order to find out if Karen speakers perceive phonological contrasts in Swedish words produced by a Swedish native speaker, a perception test was constructed. The results indicate a phonological transfer from L1 to L2. Another observation is the role of age during second language acquisition.

### Introduction

The degree of success when learning a second language depends on different factors, external as well as internal, such as linguistic characteristics; cognition; the learner's social background; and language input (Abrahamsson & Bylund, 2012). Phonological rules in L1 are often transferred and have an impact on the acquisition of the phonology and the production in an L2 (Major, 2008). It is of importance that learners perceive phonological contrasts before further processing. Earlier research studies show a relationship between perception and production (e.g. Escudero, 2005; Ioup, 2008; McAllister, 1995). Second language learners often produce segments and prosody with a characteristic accent related to their L1. Do they have the same difficulties perceiving phonetic segments and phonological distinctions in their L2? For adult learners, but not for young children, it is sometimes confus-

ing to perceptually differentiate phonetic contrasts in L2 (Strange & Shafer, 2008).

The theory about a critical age for second language acquisition (SLA) by Lenneberg (1967) called *The critical period hypothesis (CPH)* has been discussed. However, children are often more successful in their SLA than adults and a native-like L2 phonology is only found in a very early age of onset (AO). Two remaining questions are why this seems to be a fact and if there is a certain critical age. For an overview of earlier research in this area, see Abrahamsson (2012) and Ioup (2008). A recent production study by Abrahamsson (2012) confirms the statement about the relationship between AO and L2 competence and shows that L2 participants with nativelikeness on both the GJT (Grammatical Judgment Test) and VOT (Voice Onset Time) had an AO between 1-6 years. It seems that early learners have developed both grammatical and phonetic aspects of L2, in contrast, this is not the case for late learners.

Earlier studies attempt to show that second language learners of Swedish have difficulties with pronunciation and the Swedish phonology (e.g. Bannert, 1990; Zetterholm, 2014a, 2014b). In this paper, a study of L2-speakers ability to identify Swedish words is presented. The aim is to try to find out if there is any correlation between perception and production for Karen people learning Swedish as their second language.

### Karen people in Sweden

Since 2004 Sweden has admitted Karen refugees. This is an ethnic group living in South East Asia, specifically in Bur-

ma (or Myanmar), southern China and the northern part of Thailand. There are approximately 1000 Karen people living in different cities all over Sweden today. Most of them have lived in refugee camps in Thailand before arriving to Sweden. The youngest are born in the camps and went to school in the camps. None of the participants in this study have any kind of higher education from Burma, some of them went to school only for a few years, and most of them lived in very small villages or in the forest before their escape to Thailand. There is no information about their lives and what impact that might have on their language acquisition. The adults speak Burmese as well as Karen, a few of them have some knowledge in English and the teenagers in this study learn English in school.

An earlier study (Zetterholm, 2014a) shows that many of them, chiefly those middle-aged or older, have great difficulties learning Swedish. Their children, teenagers or slightly older, seem to have less or no problem with their acquisition of L2. The adults have been studying Swedish at SFI and the younger at school. Still, after eight years the adults cannot speak Swedish with an intelligible pronunciation. One of the more specific problems is the lack of pronunciation of the last consonant in Swedish words. Without a clear context it is hard to know if the speakers mean *två* [tvo:] (two) or *tvål* [tvo:l] (soap), *tå* [to:] (toe) or *tåg* [to:g] (train) as well as *vi* [vi:] (we) or *vit* [vi:t] (white). The learners also have problems producing aspirated voiceless initial plosives.

#### *Karen languages*

The Karen languages are a Tibeto-Burman branch from the Sino-Tibetan phylum, consisting of many different dialects. They all have influences from Burmese and other nearby languages. There are probably 20-30 different Karen languages, but it is not known exactly (Manson, 2011). Some of the dialects, especially those spoken in the

mountains, are difficult to understand for other Karen speakers (Manson, 2011). The languages are classified into three main groups; Northern, Central and Southern languages (Bradley, 1997). The two major dialects are called Sgaw and Pwo Karen. These are mainly spoken in the southern part of Burma and there are more than 1 million speakers of each of the two dialects. The dialect Sgaw is a lingua franca among Karens (Naw, 2011). The alphabet derives from Burmese characters with some modifications. The word order is SVO, which is uncommon among Tibeto-Burman languages (mostly SOV) (Naw, 2011).

The syllable structure in Karen languages is CV or C1(C2)V<sup>T</sup>. C1 is any consonant, C2 is a voiced velar fricative [ɣ], a voiced bilabial approximant [w], a voiced alveolar approximant [l] or a voiced alveolar trill [r]. V is a vowel and <sup>T</sup> is a tone. A clear glottal stop always precede a single initial vowel since no words can be produced with an initial vowel (Naw, 2011). There are two varieties of Sgaw Karen, called Moulmein and Bassein Sgaw Karen (Jones, 1961). Both have 9 vowels and 27 or 23 consonants respectively. All consonants can occur in initial positions but there are no consonants in syllable final positions. There are three aspirated and non-aspirated voiceless plosives /p p<sup>h</sup> t t<sup>h</sup> k k<sup>h</sup>/ as well as two voiced plosives /b d/, but no velar voiced plosives /g/. One of the dialects has 6 tones, two high, two mid and two low. The other dialect has 5 tones. The tone system is based on voice quality, f0 and duration.

#### **The study**

A perception test was designed to get an idea about second language learners' ability to conceive different vowel and consonant contrasts in Swedish words. A pilot study, with only Karen participants, is presented here.

#### **Method and material**

The test consisted of words produced by a Swedish native speaker. The target

word was included in the sentence “Jag säger...igen” (I say...again). Two pictures, illustrating the target word and a word with a slight phonemic difference, were shown at the screen at the same time as participants heard the target word. This was made to facilitate if the listeners did not know the Swedish word, despite them being quite common Swedish words. The sentence with the target word was repeated twice. It was not possible to go back and listen again since the test ran automatically with a short pause between each new word.

The test was performed in front of a Mac computer using the built-in loudspeakers. On an answer sheet the participants saw the same two pictures, as on the computer screen, and they had to choose one of the words by making a cross in a square below that picture. They did not see the written words. There were 46 pairs of words in the test. Examples of the word pairs are *tå-tåg* (toe-train), *bur-burk* (cage-jar), *bo-bok* (nest-book), *två-tvål* (two-soap), *sol-stol* (sun-chair). The words were chosen following earlier research results about pronunciation difficulties among second language learners of Swedish regardless of their first language (e.g. Bannert, 1990). See Figure 1 for one example of the pictures of word pairs used in the test.

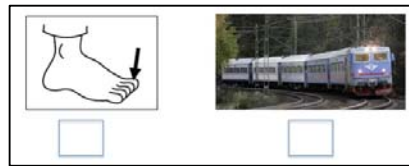


Figure 1. One pair of words used in the test, *tå-tåg* (toe-train).

### Participants

Thirteen people with Karen as their native language participated in this study, seven female and six male speakers, mean age of 32 years. All of them speak the Sgaw Karen dialect. They all live in different small towns in

the central part of Sweden and have been in Sweden for seven or eight years.

As a control group 16 native Swedish speakers ran the test, nine female and eight male with a mean age of 32 years. They speak different Swedish dialects, but they all live in the southern part of Sweden.

### Results

Every native speaker of Swedish answered correctly in all examples. This is an indication that all words in the recordings are pronounced clearly and understandably.

In general, the Karen participants performed quite well in the test. Only one 15 years old female had correct answers for all 46 words. The teenagers and the participants younger than 23 years old as well as the oldest male participant had more than 40, out of 46, correct answers. See Figure 2. This raises questions about the significance of age of onset in second language learning.

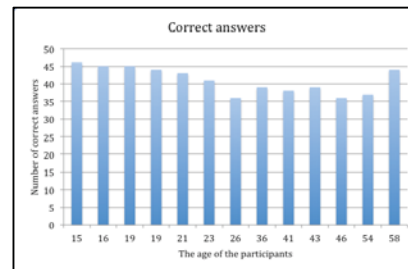


Figure 2. Number of correct answers in correlation to age of the participants.

The age of onset (AO) for the participants is shown in Table 1. There is a minor indication of correlation between AO and correct answers, except for one male participant. Those who had begun their acquisition of Swedish before the age of 15 years old performed best in test. However, there are only small differences.

Table 1. Age of onset (AO) and actual age in relation to correct answers.

AO	Age	Correct answers
7	15	46
8	16	45
10	19	45
10	19	44
12	21	43
15	23	41
18	26	36
27	36	39
33	41	38
35	43	39
37	46	36
45	54	37
49	58	44

The most difficult words to discriminate seem to be *fyra-fira* [fy:ra/fi:ra] (four-celebrate) and *flyga-flyga* [flu:ga/fly:ga] (fly-fly) probably depending on the fronted rounded vowels. This is a known general problem for second language learners of Swedish, regardless of L1 (Bannert, 1990).

However, an interesting observation for the Karen speakers is that the word pairs *tå-tåg* [to:/to:g] (toe-train) and *två-tvål* [tvo:/tvo:l] (two-soap) are confusing for the listeners. When the target word is *tå* they seem to be more uncertain compared to when the target word is *tåg*. The same pattern is shown for *två* and *tvål*. Showing that when the last consonant is pronounced clearly there is almost no hesitation, but a word without a final consonant is confusing.

There is no velar voiced plosive /g/ in Karen languages, and the target word *tagg* [tag] (thorn) is confusing when presented as the target word in pair with the word *tack* [tak<sup>h</sup>] (thanks).

Identifying words with other vowel or consonant contrasts cause no problems for the listeners. For example, the vowel contrast /e ø/ in *lek-lök* [le:k<sup>h</sup>/lø:k<sup>h</sup>] (play-onion) or consonant contrasts /l n/ in *läsa-näsa* [le:sa/ne:sa] (read-nose) or /p<sup>h</sup> b/ in *puss-buss* [p<sup>h</sup>us/bus] (kiss-bus).

## Discussion

The preliminary results of this study raise questions about the importance of age of onset for perception in second language learning; the relation between perception and production; as well as phonological transfer from L1 to L2.

Earlier research indicates that an early age of onset, before the age of six, is better for acquiring a native-like L2 phonology (Abrahamsson, 2012, Ioup, 2008). Since there is a relationship between perception and production (e.g. Escudero, 2005; Ioup, 2008) one could suggest that younger learners, who have a good command of their L2, should perceive words in L2 better than older learners. The youngest participant in this test had an AO of seven years and performed best in the test. All participants with an AO of 15 years or less had 41 (out of 46) or more correct answers. This is in accordance with earlier research that AO is of importance. The exception is the male speaker with an AO of 49 years. He has some knowledge of English and that, together with a strong motivation to learn Swedish, might be one explanation for his results.

The results in this perception study confirm the hypothesis about the relation between perception and production as well as the transfer theory. The production data study by Zetterholm (2014a) shows great difficulties for adult Karen speakers producing final consonants. This perception study indicates that Karen speakers, especially middle-aged Karen speakers, have difficulties identifying and discriminating words with a final phonological contrast. When the target word is without a final consonant it seems to be confusing for the listeners. They do not see the written word, only the pictures while hearing the voice, so they are not sure if the word is spelled with a final consonant or not. They are not provided the spelling, which could have been a clue when identifying Swedish words. The final voiced plosive /g/ in contrast to

the voiceless plosive /k<sup>h</sup>/ also caused the listeners some identification problems. Sgaw Karen have both an aspirated and a non-aspirated velar voiceless plosive /k k<sup>h</sup>/, but no voiced velar plosive and the plosives will never occur in a final position. The /p<sup>h</sup> b/-contrast causes no problems. The two phonemes as well as a voiceless non-aspirated /p/ belong to the phoneme inventory in Sgaw Karen and the phonemic difference are familiar to them. The listeners' confusion about the final stops and the /g k<sup>h</sup>/-contrast might indicate that they are aware of the structure and the phonological contrast in Swedish words. However, they are not quite sure without clues when listening and therefore a phonological transfer of the structure in L1 is a possible explanation.

### Conclusions

This perception study corresponds with the hypothesis about transfer of the Karen speakers' L1 phonology to L2. It is obvious that many of the participants have problems identifying final stops in Swedish, which is in accordance with Karen speakers' production skills in Swedish. Another observation is that the younger learners are better in this identification test compared to the older learners, except for one of the male participants.

### Acknowledgements

The research was partly supported by Birgit and Gad Rausings stiftelse, Åke Wibergs stiftelse and Magnus Bergvalls stiftelse, Sweden. Special thanks to all the Karen speakers I have met so far.

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