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Teaching the pronunciation of sentence final and word boundary stops to French learners of English: distracted imitation versus audio-visual training.

Introduction

Aim of the study

The current study investigates the efficiency of two teaching methods, aimed at online learning. Namely, a distracted imitation task versus the visualization of a video with an instructor explaining the articulatory features of stops and stop unrelease, when not to unrelease and sociophonetic implications of stop unrelease. The latter method aims at reaching more “*learner types*” (Peter Skehan 1991). We test whether awareness raising with the help of hand gesture (fig. 2) was as efficient as imitation regarding L2 acquisition of this segmental phenomena and whether learners at specific stages of learning are advanced enough to learn stop unrelease or whether the task should be made more complex.

Plosive unrelease in L1 French and English: a difference in sentence final stops

Word final pre-pausal stops in English are known to be often unreleased (Davidson, 2011). Stops straddled between words are often realized with the first stop being unreleased (Ladefoged, 1974). Davidson revealed that manner of articulation had an impact on unrelease: before another stop /k/, /p/ and /t/ were unreleased 70%, 57% and 93% of the time. Other studies showed that bilabials tend to be more often unreleased than alveolars and velars respectively (Byrd 1993; Crystal and House 1988). Moreover, unrelease is generally higher in spontaneous speech than in read speech (Davidson 2011) and while formal speech is often expected amongst L2 speakers, the production and perception of spontaneous speech idiosyncrasies like stop unrelease should not be overlooked. Regarding French, very little has been published directly on stop unrelease (Haines, 2007), but similarly to Polish native pronunciation (Rojczyk *et al.* 2013) pre-pausal stops are mostly released in native French whereas stops straddled between words are more generally unreleased in spontaneous speech. In order to examine stop release in French we carried out another study with 18 French native speakers who were asked to read the same combinations of stops in the French language as the present study on French learners

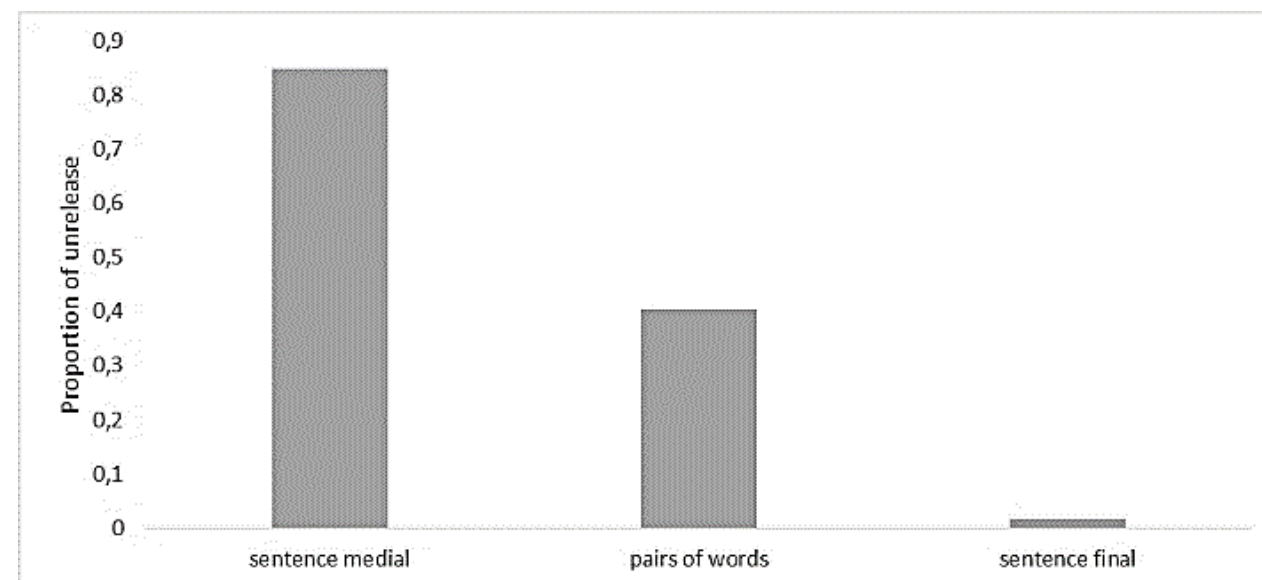


Figure 1 Proportion of stop unrelease in French: pairs of words, sentence medial and final.

Methods

16 participants were recorded with Praat [SF: 44000Hz) in a quiet room using a V7 J151648 headset microphone. Participants were split into four different groups: secondary school adolescents (A), adults with a high school level in English (B) and students in their second year of English studies (C). The last group involved French teachers of English (C2). In a pre-test session, students were requested to read sentences with stops in pre-pausal and pre-stop positions (e.g. “look at the rat”, “tap pan”). All combinations of voiceless plosives were examined. Then, one half of the participants re-read the same sentences with distracted imitation (they were asked to count to five in their L1 before repeating in English each sentence that the model speaker had uttered). The script was always shown to the participants. The other half had to visualize a video raising awareness on stop unrelease (who do it, in which context and how to do it) and provides gestures to help the learners coordinate their mouth movement with a simple hand movement.

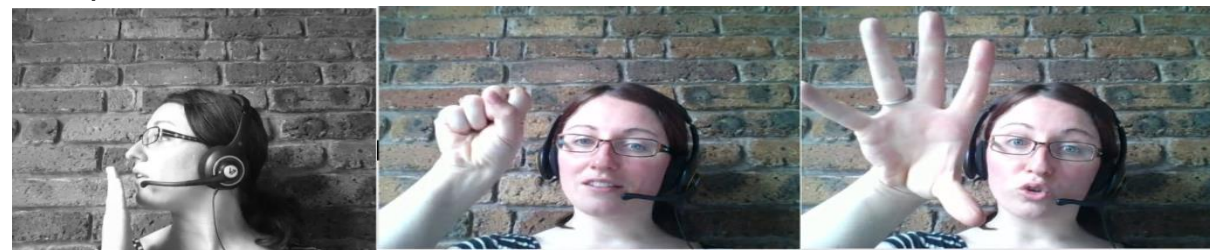


Figure 2 Video screenshot. gestures to help the learners coordinate their mouth movement with a simpler hand movement like closing fingers into a fist or by placing the finger tips close to the mouth thus feeling the presence and absence of a burst.

The learners then read the same list of words and sentences in full autonomy applying stop unrelease as much as they could. The aim was to test whether awareness raising with the help of hand gesture (fig. 2) was more efficient than imitation regarding L2 acquisition of this segmental phenomena and whether learners at specific stages of learning are advanced enough to learn stop unrelease or whether the task should be made more complex. Results were analyzed using spectrographic representations of the plosives in Praat (fig. 3 & 4). Although Henderson and Repp (1982) suggested a five-stage continuum ranging from unrelease to strongly released, we divided the output into two sets (release and unreleased). Stops which had an auditorily detectable burst and were visible on a spectrogram as a sudden rise of energy were classified as released.

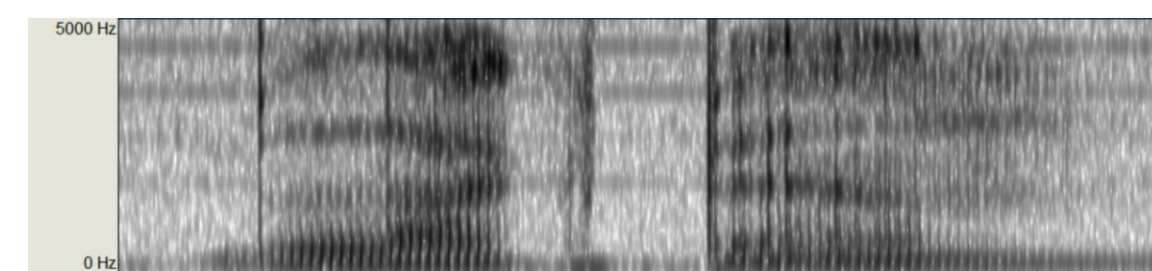


Figure 3: Production of “black pan” with a released /k/.

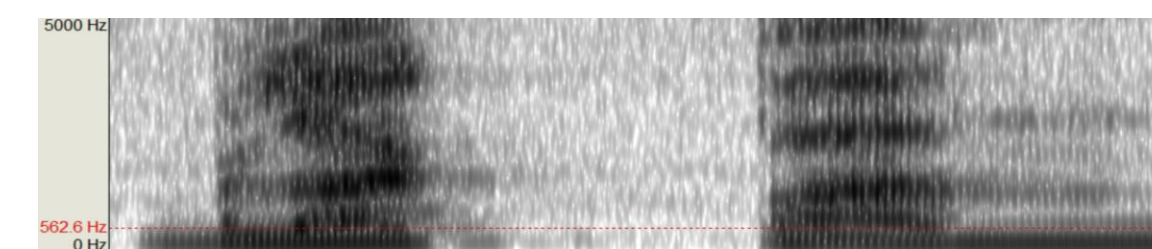


Figure 4: Production of “black pan” with an unreleased /k/.

Results

A logistic regression revealed that type and level are significant factors explaining stop release (we chose level B and heterorganic pairs as reference levels).

	Sentence final	Sentence medial	Pairs of words
Before	15.47%	70.24%	55%
After training	56.71%	80.67%	66.36%

Table 1 Proportion of voiceless burst unrelease by exercise before and after both training.

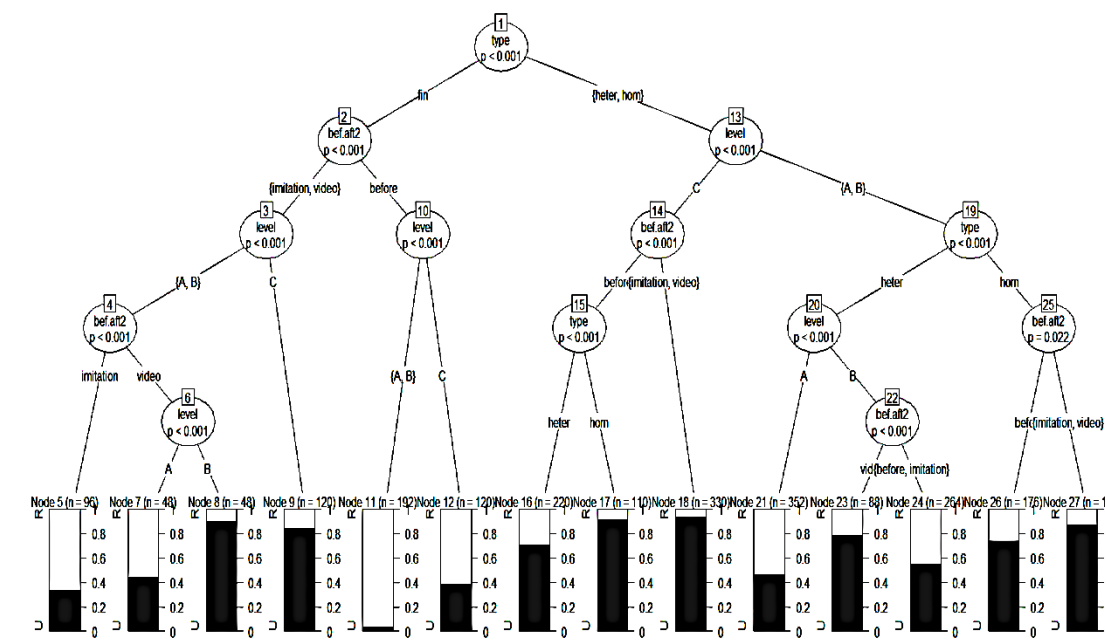


Figure 5: Conditional inference tree based on phonetic environment, level and teaching method. For each inner node, the Bonferroni adjusted P-values are given and the proportion of release/unrelease is displayed for each terminal node (cf. Hothorn *et al.* 2006).

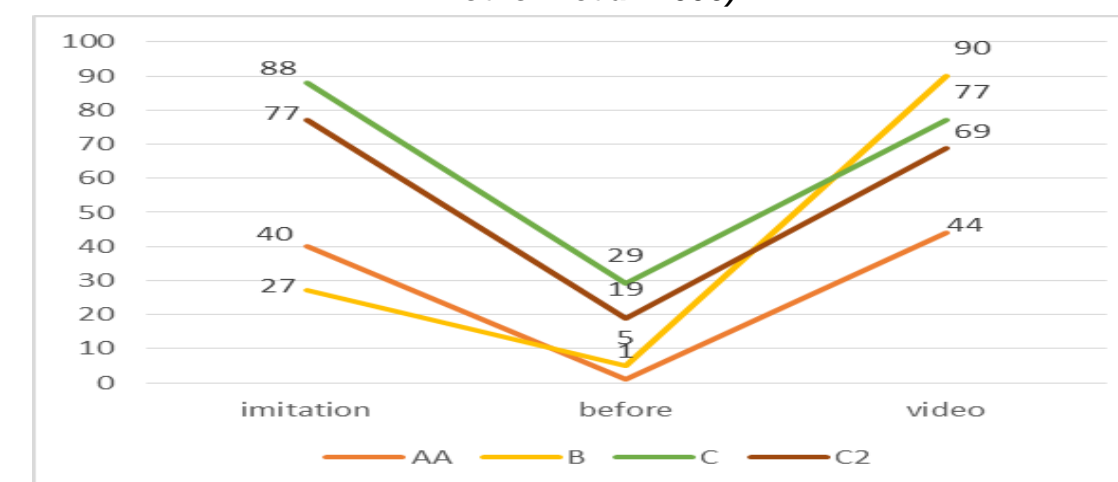


Figure 6: Proportion of unrelease in finals by level, pre and post-tests.

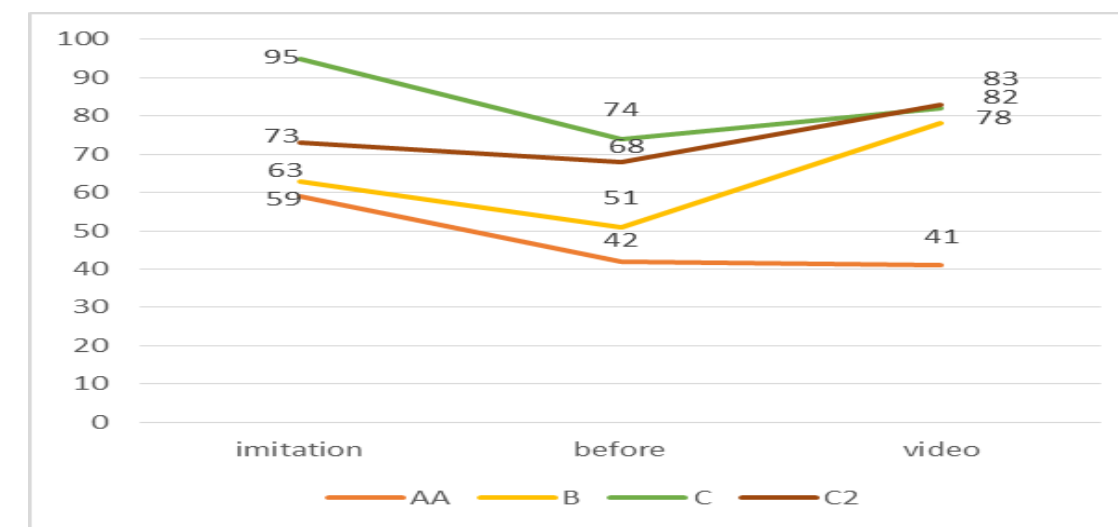


Figure 7: Proportion of unrelease in heterorganic pairs by level, pre and post-tests.

Suggestions for feedback

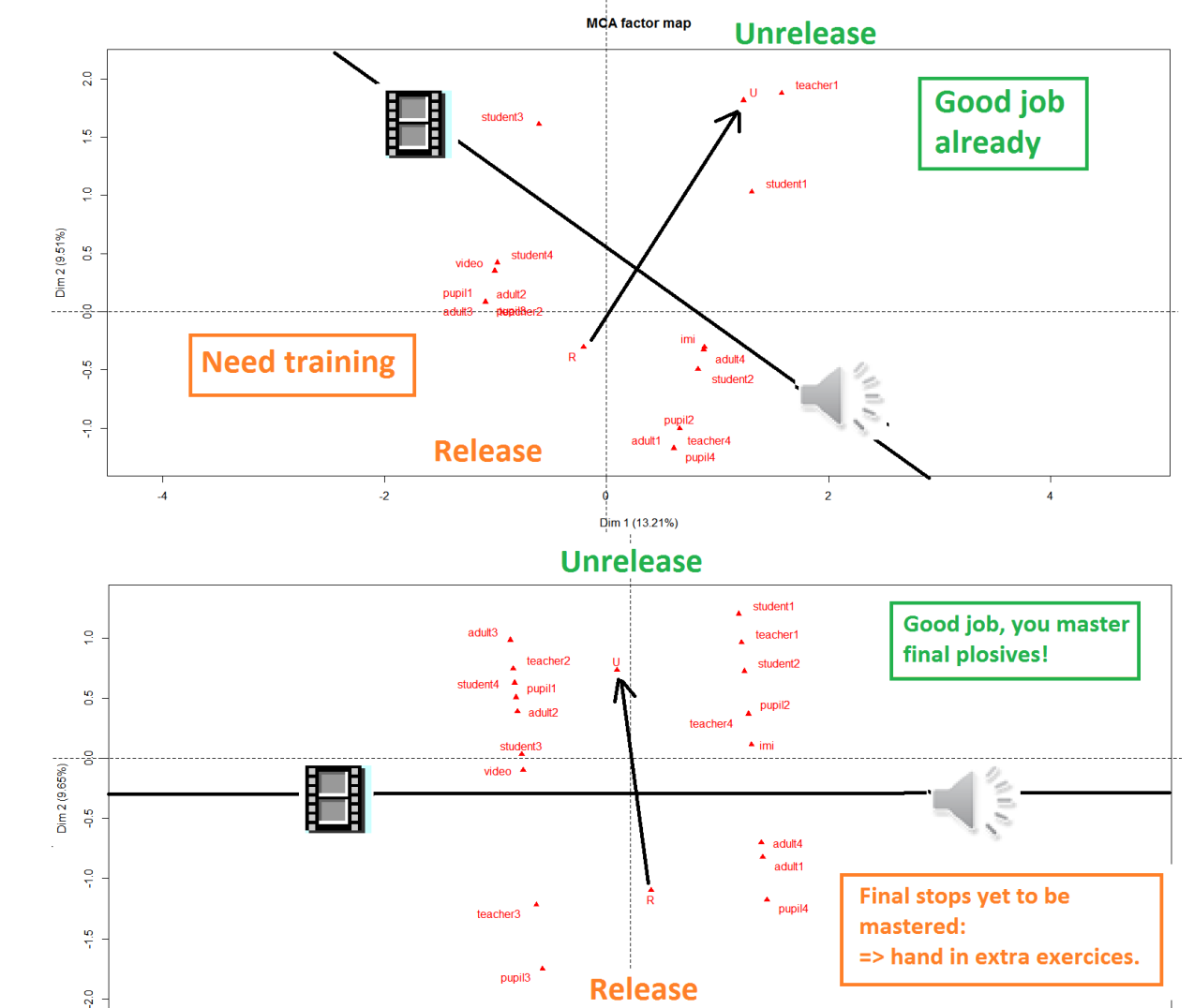


Figure 8: Suggestion for using MCA (FactoMineR) (Lê *et al.* 2008) to map the students’ progression before (left) and after training (right) by method (video on the left and imitation on the right hand-side of the axis).

Conclusion

- Results revealed the efficiency of both methods for levels A, B and C.
- The environment is shown to have significant impact on the learner’s stop unrelease strategy.
- Stop unrelease seems to be too challenging for secondary school students, despite interesting results in sentence final plosives.
- Level B responded much better to the video than to imitation. This suggests that awareness is best suited for intermediate learners who may not audibly perceive stop unrelease in the imitation task.
- With level C one should level up the task by asking to unrelease the first stop and aspirate the second one in pairs straddled between words.
- While we suggest the use of both imitation and awareness tasks in a class or an online course, we would prioritize the awareness method, which led students to produce stop unrelease in full autonomy,

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