

Vocal fry production and perception among female French learners of English: an electroglottographic study

Vocal fry, also known Creaky voice, refers to a quality of voice characterized by periodic bursts of air through a very small chink near the front end of the vocal folds. This generates a tapping sound (Catford, 1964). Creaky voice is used as both a tool for age, gender, and social distinction, and for phonological contrasts within some of the world's languages (Gick, Wilson, & Derrick, 2013, p. 109). In recent years, vocal fry has been considered to be a new feminine voice quality for “young, urban-oriented, and upwardly mobile American women” (Yuasa, 2010) and has sparked the interest of teachers of second language phonetics to the importance of including sociophonetic indicators in their teaching of English pronunciation to French learners at university level. Hitherto, very little research has been dedicated to this sociolinguistic phenomenon in Second Language Acquisition.

Therefore, the aim of this study is to investigate vocal fry usage among female French advanced learners of English (postgraduate students majoring in English studies) who wish to or have adopted an American accent. In the first part of the experimental study we check whether female French learners produce vocal fry in both English and French and which language presents a greater amount of fry. The corpus consists of 48 text readings of an excerpt from Antoine de Saint-Exupéry's *Le Petit Prince* (12 speakers \times 2 texts in English \times 2 texts in French). The data were collected using a two-channel EGG (EG2-PCX2 system) and a headband microphone. Our first hypothesis was that French learners would display more vocal fry phonation in English than they would in French and our results confirmed this hypothesis (fry occurrences: $p=3.29 \times 10^{-5}$, fry duration: $p=2.49 \times 10^{-5}$). The second hypothesis concerned the possibility for French learners of American English to significantly increase their production of creaky voice after listening to a female native speaker resorting to this vocal pattern extensively. L2 speakers were then required to do a second reading of both English and French versions of the same text trying to adopt a creaky voice as much as possible. Results show that all speakers displayed significantly more fry in English ($p = 2.49 \times 10^{-5}$) in the second reading ($p = 7.5 \times 10^{-4}$) after listening to the reading of a native American female speaker. This suggests that French learners of English are aware of a difference in phonation type between L1 and L2. The study also shows that French learners' awareness of – and ability to produce – vocal fry in American English can be fostered by simply listening to a short sample of speech containing creaky voice.

A preliminary perceptual study submitted to 30 American subjects indicated that the speakers resorting to vocal fry sounded more annoying. A main effect of phonation type was found ($F(1,22)=7.80$, $p < .01$). The mean arcsine-transformed score for the fry condition was 91% whereas the same value for the modal condition was 84%. In other words, the samples recorded in the creaky condition (that is, after the French learners had heard the American fry model) were found to be more “annoying” than those recorded before. However, vocal fry didn't affect the speakers' perceived competence. In the current study, the perception test was submitted both to American and British native speakers to evaluate the effect of vocal fry on the perception of self-confidence, competence, education, and gender assertion amongst L2 French speakers. Results will give us clear indications as to how this sociophonetic phenomenon i.e., vocal fry can help or hinder L2 speakers' social and professional insertion.

Key words: Vocal fry, L2 speech, perception, production, sociophonetics, accent.

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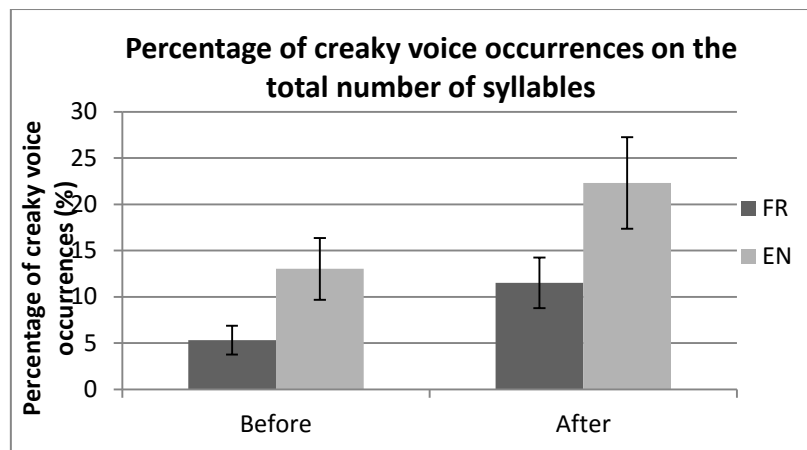


Figure 1. Percentage of creaky voice occurrences on the total number of syllables according to language and reading task (+/- 95% confidence interval).

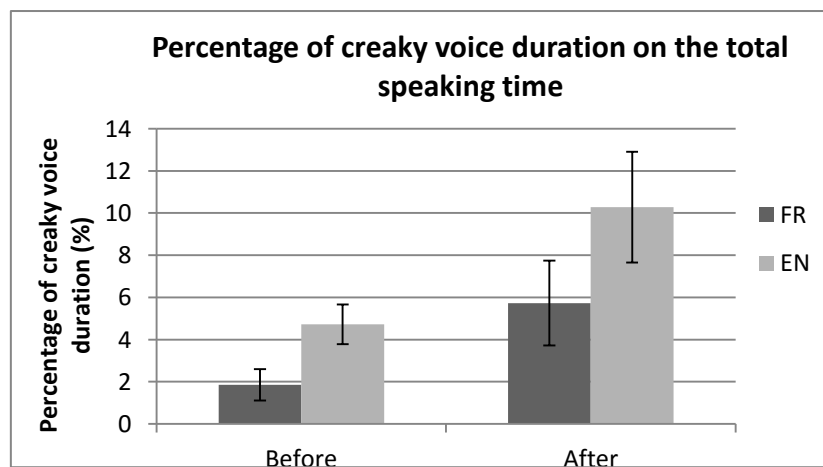


Figure 2. Percentage of creaky voice duration on total speaking time depending on language and reading task (+/- 95% confidence interval).