Brazilian Portuguese Affricates and the Acquisition of English as a Foreign Language

Clerton Luiz Felix Barboza

Universidade do Estado do Rio Grande do Norte - UERN

clertonluiz@gmail.com

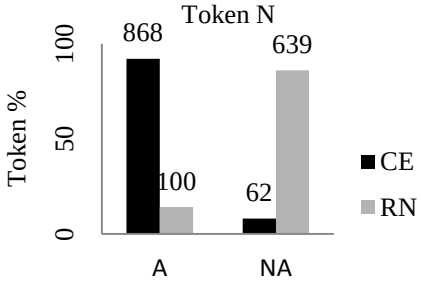
This study discusses the dynamic interrelation involving the emergence of postalveolar affricates in Brazilian Portuguese (BP) and the construction of the English as a Foreign Language (EFL) phonology. Grounded on the ideas proposed by Usage-Based Phonology (Bybee, 2001), Exemplar Models (Johnson, 2007), as well as on the view of language as a Complex Adaptive System (Beckner et al, 2009), we intend to show how different rates of affricate emergence on specific BP dialects contribute to the emergence of distinct pathways to the acquisition of EFL phonology. These results may be accommodated by a dynamic view of systems' interaction.

Most BP dialects allow the emergence of postalveolar affricates. They are traditionally considered a palatalization process in which high front vowels [i] trigger alveolar stops [t, d] to be realized as affricates [tʃ, dʒ] (Cagliari, 2002). BP thus allows realizations like [tia, tʃia] for 'aunt', and [dia, dʒia] for 'day'. Recent studies suggest BP non-palatalizing varieties allow the emergence of affricates through gradient, non-categorical lexical diffusion (Cristófaro-Silva et al, 2012). Literature involving the emergence of EFL spurious affrication by BP learners is scarce. Consistent data might only be found in word-final coda position, i.e. *dad* [dædʒ], *cat* [kætʃ]. No association between BP dialect and EFL spurious affricate was investigated as the variable was not controlled (Bettoni-Techio; Koerich, 2006). Data involving spurious affrication of English alveolars [t, d] followed by high vowels [iː, ɪ, uː], i.e. *tea* [tʃiː], *dinner* [dʒɪnəɾ], *two* [tʃuː], could not be found.

We conducted a hypothetical-deductive research with an experimental approach, following both cross-sectional and longitudinal designs. Our basic hypothesis states Brazilian EFL learners follow different construction pathways of the EFL phonology, depending on their regional dialect. Our field of study involved the cities of Fortaleza-CE (palatalizing) and Mossoró-RN (non-palatalizing), which differed on their realization of BP dialects. We selected 36 subjects controlled by sex and EFL proficiency level for the cross-sectional study. 4 beginner informants were selected for the longitudinal study, owing to time-consuming design. We selected EFL lexical items which were susceptible to palatalization in both BP and EFL, and had token frequency, phonotactics and syllable stress controlled. Data analysis was carried-out through acoustical analyses using Praat.

Cross-sectional BP dialect results indicated the emergence of affricates in both regions: palatalized tokens were observed in RN, whereas non-palatalized ones were found in CE. Data (Figure 1) thus emphasized the non-categorical, gradient character of the phenomenon, in line with the dynamical view.

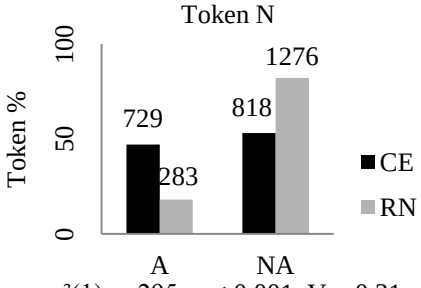
Figure 1: BP Affricate (A)/non-affricate (NA) tokens vs. BP dialect.



$\chi^2(1) = 909$; $p < 0{,}001$; V = 0,78

Cross-sectional EFL data analysis indicated significant effects of the following variables: a) dialect as an important factor of palatalization emergence, as CE learners consistently tended to higher palatalization levels (Fig. 2); b) voiceless alveolar stops tended to palatalize more frequently; c) the individual, as subjects from the same area and EFL proficiency level realized the phenomenon with different patterns; d) lexical items with the same phonotactic structure allowed different rates of palatalization emergence; e) phonotactic type, as a few words allowed similar palatalization emergence in both dialects. Some variables were not significant to the phenomenon, i.e. gender, EFL proficiency, syllable stress, and token frequency.

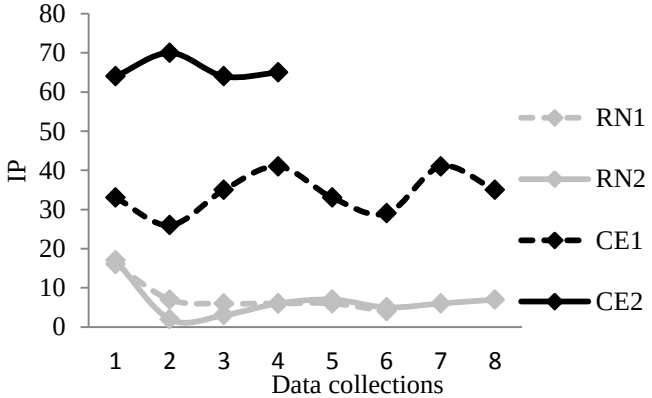
Figure 2: EFL Affricate (A)/non-affricate (NA) tokens vs. BP dialect.



$\chi^2(1) = 295$; $p < 0{,}001$; V = 0,31

As regards the longitudinal results, we observed that both RN subjects (RN1, RN2) tended to a low Palatalization Index (PI). CE subjects had distinct behavior. CE1 had a higher PI, with great variation. CE2 had a relatively stable realization, with the highest PI level (Figure 3). Longitudinal data reinforced the relevance of variables such as BP dialect, the individual and the word on the emergence of EFL spurious affricates.

Figure 3: PI levels through the longitudinal study.



ANOVA Kruskal-Wallis χ^2 (3)= 20,6; $p < 0{,}001$

We concluded that BP learners move through different construction pathways of the EFL phonology, depending on their regional dialect, thus confirming our hypothesis. Results support the claim that usage-based views of language fine phonetic detail have an impact on the construction of L1 phonological categories, and these in turn have a significant impact on L2 acquisition. Pedagogical

implications of this finding imply that EFL teachers should consider their pupils' L1 as well as their regional dialects, when dealing with pronunciation instruction.

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