

A LONGITUDINAL STUDY ON THE ACQUISITION OF SIX ENGLISH VOWELS BY BRAZILIAN LEARNERS

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ABSTRACT

This study analyzed the production of English vowels [i ɪ e æ u ʊ] by Brazilian undergraduate students of English Language Teaching throughout the four first semesters of their studies. These vowels are challenging for Brazilians for they are not contrasted in Brazilian Portuguese. Ten participants were recorded reading target words in a carrier sentence every semester from semester 1 through 4. Euclidean distances between pairs of vowels were calculated using Lobanov-normalized F1-F2 values, and such distances were used to fit a mixed-effects model to the data. The results show that: most learners increased their contrasts of the target vowels; learners developed their vowels at different paces and in different moments; not all learners were able to create new phonetic categories for the target vowels.

Keywords: English as a foreign language, vowels, L2 acquisition, longitudinal

1. INTRODUCTION

The main goal of this study was to analyze the development of English vowels [i ɪ e æ u ʊ] by Brazilian college learners of English Language Teaching over the four first semesters of their studies. These six vowels are particularly challenging for Brazilians due to the natural difficulty to perceive and produce sounds of an L2 which are very similar yet not contrasted in the learner's L1, as already stated by Flege's Speech Learning Model [8, 9, 10].

When acquiring their L1, one needs to learn how to accommodate the variation inherent to the acoustic signal into prototypical phonological categories of their L1 so that communication can take place, and the brain does so by taking statistics of the input and assigning exemplars to the corresponding categories [3, 4, 11, 14, 19]. Therefore, it is a very challenging task to perceive and produce L2 contrasting sounds that are very close to a single sound of the L1 [8, 9, 10]. This is the case with English vowels [i ɪ e æ u ʊ], which tend to be assimilated by Brazilian

learners into the prototypical categories of Brazilian Portuguese [i e u], respectively [16, 2, 20, 18].

Assuming that the process of L2 acquisition is a complex dynamic system [7, 5, 12, 15], the prototypical categories created for communication in the L1 act as attractor states for the L2. Attractors are states of temporary accommodation of a complex dynamic system, where the system finds temporary stability amidst chaos. These states are temporary due to the dynamic nature of such systems, which may move, or even keep moving, from one attractor state to another. That is why Language Acquisition would be more accurately described as Language Development, due to its dynamic, never-ending change in time as the system moves through different attractor states.

Some attractor states require more energy for the system to move away from, and that is why some learners need more perturbation to have their systems exit an attractor state, but they can all potentially do so. These perturbations might be language lessons, exposure to the L2, interaction with L2 speakers, experiences abroad, etc., but since the relation between perturbation and movement of the system is non-linear, the effects of language lessons, for instance, might not be immediately seen.

In addition, dynamic systems are complex in the sense that the overall behavior of the system is more than the sum of the behavior of its elements, rather it emerges from the iterative interaction of the many elements that make up the system within themselves and with the environment. This makes the L2 learning experience extremely idiosyncratic, for each system (learner) will behave differently at different moments of their developmental route.

This dynamic and idiosyncratic nature of L2 phonological development is what makes dynamic systems better examined in a longitudinal study that, besides looking into group patterns, also analyzes individual routes of development [17, 13, 21, 6], which is the contribution this study attempts to make.

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