

**AN ACOUSTIC STUDY OF ENGLISH VOWELS PRODUCED BY
PERSIAN EFL STUDENTS**

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ABSTRACT

English in Iran is formally taught as a foreign language in schools from Junior High School (12 years old and above). As a foreign language, the use of English language is restricted to the classroom and many Iranian students have problems using the language especially in the area of pronunciation. However, there is a dearth of research into aspects of pronunciation and thus it is difficult to ascertain the actual problems that learners face when producing English sounds. In an attempt to fill this gap, a research was conducted to examine the production of English vowels by Persian speakers through an acoustic analysis, and this study discusses the findings in relation to the characteristic of these vowels and compares them with British English (the prescribed teaching model in Iran). Data were collected from 13 Iranian students, six males and seven females, who speak Persian as their first language. The informants were recorded in two speaking contexts: a word list and a spontaneous speaking context. In the word list context, the informants read carrier sentences with the target vowels embedded in hVd words. A total of 494 tokens were transcribed, measured and annotated using Praat. To examine the vowel quality, the first (F1) and second formant (F2) frequencies of the vowels were measured, while the duration of the vowels was measured to investigate if length contrast was maintained between vowel pairs. The findings showed that the monophthong vowels produced by the Persian speakers occupied a less peripheral vowel space than British English vowels, and that some of the vowels were produced differently from British English, even though this is the teaching model in Iran. Some inter-gender differences were also found in this research. For diphthongs, rate of change (ROC) was measured to determine the extent of diphthongal movement, and it was found that the centring diphthongs, in particular, showed less diphthongal movement. The findings enhance our understanding of how Persian learners produce English

vowels, and also contribute to the growing body of research on the production of vowels in different varieties of English.

ABSTRAK

Bahasa Inggeris di Iran diajar secara rasmi sebagai bahasa asing dari peringkat sekolah menengah rendah (12 tahun ke atas). Sebagai bahasa asing, penggunaan bahasa Inggeris terhadap kepada penggunaan dalam kelas dan ramai pelajar Iran menghadapi masalah dengan penggunaan bahasa Inggeris khususnya dari segi penuturan bahasa Inggeris. Namun, kajian terhadap masalah sebutan dalam kalangan penutur Iran amat berkurangan. Sebagai usaha untuk mengisi jurang ini, kajian dijalankan untuk mengkaji produksi vokal bahasa Inggeris oleh penutur Parsi melalui analisis akustik, dan kajian ini membincangkan penemuan berkaitan dengan ciri-ciri vokal tersebut dan dibandingkan dengan Bahasa Inggeris variasi British (model pengajaran yang digunakan di Iran). Data dikumpulkan dari 13 pelajar Iran, enam lelaki dan tujuh perempuan, yang merupakan penutur Parsi sebagai bahasa pertama. Informan direkodkan dalam dua konteks penuturan: senarai kata dan konteks pertuturan secara spontan. Dalam konteks senarai kata, informan direkodkan membaca senarai perkataan yang mempunyai vokal yang dikaji dalam konteks perkataan hVd. Sebanyak 494 token ditranskrip, diukur dan dianotasi menggunakan Praat. Untuk menguji kualiti vokal, frekuensi formant pertama (F1) dan kedua (F2) vokal diukur, manakala tempoh vokal diukur untuk menyiasat samada perbezaan dari segi pemanjangan antara pasangan vokal dikekalkan. Penemuan menunjukkan bahawa monoftong yang dihasilkan oleh penutur Parsi menduduki ruang vokal yang lebih kecil berbanding vokal Inggeris Inggeris, dan terdapat monoftong yang berbeza kualitinya dari variasi tersebut, walaupun variasi ini merupakan model pengajaran di Iran. Perbezaan antara jantina juga ditemui. Untuk diftong, tahap perubahan atau *rate of change (ROC)* diukur untuk menentukan tahap pergerakan diftong movement, dan didapati terutamanya diftong menengah menunjukkan perubahan yang kecil. Penemuan kajian meningkatkan pemahaman mengenai bagaimana pelajar Parsi menghasilkan vokal bahasa Inggeris, dan juga

menyumbang kepada kajian dalam produksi vocal dalam variasi bahasa Inggeris yang berlainan.

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