

# The Interlanguage Speech Intelligibility Benefit for Turkish Listeners in English

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## I. INTRODUCTION

The question of whether having a shared L1 facilitates communication between nonnative talkers (NNT) and listeners (NNL) has been examined by various researchers. Also known interlanguage speech intelligibility benefit (ISIB), reference [1] defined such an advantage as “*the benefit afforded by a shared interlanguage between a non-native talker and listener*” (p.1600). Different experimental studies found contradictory results as some found evidence for different forms of ISIB (e.g. [2], [3]), and several others found either insufficient evidence, or no evidence at all (e.g. [4], [5]). This present study examined whether there was an ISIB for L1 Turkish listeners in English and what linguistic features Turkish listeners rely on in understanding other talkers with a Turkish L1 background.

## II. METHODOLOGY

### A. Talkers, Listeners, and Stimuli

In this study, English speech samples were collected from talkers with a Turkish L1 background (N=16) via read aloud and picture description tasks. These recordings were then presented to expert listeners (N=3) as part of Author 1’s (XXXX) dissertation research. Pronunciation errors detected and agreed by these expert listeners were labelled for the following intelligibility experiments. Words with agreed pronunciation errors were extracted from talkers’ longer responses to the tasks and made into word or utterance-length items to be presented to naive listeners. As a result, a 71-item instrument was created with accompanying recordings for each item. “Words” section contained 12 isolated words and “Longer Utterances” section had 59 items. Except for distractor items extracted from native English speakers’ responses to similar tasks (two items in the words section, and four in longer utterances), all items contained at least one target word with an agreed pronunciation error. Target words were left blank for listeners to transcribe on paper upon hearing.

Several items in longer utterances section contained multiple target words, therefore, the number of target words was 87 (excluding a total of six distractor words). This instrument was presented to native English listeners (N=33) and listeners with a Turkish L1 background (N=33) in two consecutive experiments and listeners’ transcriptions were labelled as ‘match’ or ‘no match’ based on comparisons with speakers’ intended words.

### B. Data Collection Procedure

The instrument was presented to native English listeners in the United States and Turkish listeners in Turkey in face-to-face sessions conducted under the supervision of the researchers.

### C. Data Analysis

Data were analyzed using descriptive and inferential statistics. Intelligibility scores for each target word were first calculated and compared between the two listener groups descriptively via percentages. Chi-square tests were then employed to investigate the statistical significance of the differences in the intelligibility scores of each target word between the listener groups. Sources of errors observed in target words that were significantly more intelligible to listeners with a Turkish L1 background were further analyzed to reach common patterns. A final analysis was into no-match target words and listeners’ tendencies in transcriptions. In this phase, alternative, no-match transcriptions proposed for each word by the two listener groups were examined and compared to explore potential sources of an intelligibility benefit for listeners with a Turkish L1 background.

## III. RESULTS AND CONCLUSION

Out of a total of 87 target words in question, listeners with a Turkish L1 background received higher intelligibility scores in 44 words while only 18 were more intelligible to native English listeners. 25 target words were equally intelligible to the two groups.

Chi-square test results indicated that 25 target words (out of the 44 words presented above) were more intelligible to Turkish listeners with statistically significant differences. Native English listeners received higher intelligibility scores with a significant difference in nine words. Overall, listeners with a Turkish L1 background performed better than native English listeners in the perception and understanding of Turkish talkers' erroneous words. The role of a shared L1 background in the intelligibility of nonnative speech became more evident with the further analyses of pronunciation errors detected in target words. Three main sources of L1 influence appeared to help listeners with a Turkish L1 background in this regard. These sources were orthographic interference, mispronunciations of English sounds that do not exist in Turkish, and loanwords used in similar forms in English and Turkish. Comparative analyses into no-match transcriptions of the two listener groups demonstrated that English listeners offered considerably higher numbers of alternatives which were generally higher-level lexical items. Listeners with a Turkish L1 background, however, offered fewer and simpler no-match alternatives while their transcriptions were more accurate, which implied that a shared L1 background guided these listeners in narrowing down the possibilities for target words intuitively.

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