This study investigates the impact of prosodic-acoustic differences in speech production between English as a native language (L1) and Portuguese as a foreign language (L2) among native Irish speakers, with a focus on the proficiency level in the target language. It addresses a significant gap in the literature concerning the acquisition of prosody in L2 Portuguese, particularly among speakers whose L1 is English—a stress-timed language with distinct rhythmic, intonational, and intensity-related features. The central research question is: To what extent can proficient L2 Portuguese speakers manage prosodic-acoustic features such as duration, fundamental frequency (f0), and intensity when producing the target L2, and how do these realizations deviate from their native patterns?

The theoretical framework draws prior research into prosodic-acoustic parameters in L2 speech production and acquisition (Silva Jr. & Barbosa, 2023, 2024), as well on the revised Speech Learning Model (Flege & Bohn, 2021), which predicts differential acquisition trajectories for acoustic parameters based on cross-linguistic phonetic similarity and perceptual salience in the L1. Recent research demonstrates that the transition from stress-timed English to syllable-timed Brazilian Portuguese presents persistent challenges across proficiency levels (Gut, 2022; Passion & Ordin, 2021). L1 English speakers systematically transfer stress-timing strategies, producing over-reduced unstressed vowels and maintaining L1-based durational patterns even at advanced stages (Ulbrich & Ordin, 2020). Intonational challenges include tonal space mapping difficulties, as Brazilian Portuguese nuclear contours employ distinct pitch accent types that do not correspond to English inventory (Barbosa & Madureira, 2021; Gordon & Darcy, 2022).

As for the Methods, data were collected through semi-structured interviews with seven native English speakers from Northern Ireland, all of whom are C1–C2 proficient in L2 Portuguese. Acoustic analysis was conducted using Praat (Boersma & Weenink, 2024), and statistical procedures included a Kruskal-Wallis test to assess the effect of language level on prosodic-acoustic parameters. Preliminary results indicate that f0-based acoustic parameters—such as coefficient of variation, slope, median, maximum, minimum, skewness, and peak and valley rates—exhibited significant differences between L1 English and L2 Portuguese productions suggesting that advanced proficiency facilitates convergence toward target melodic-acoustic features consistent with recent findings on pitch range acquisition in L2 speech (Mennen et al., 2020; Leemann et al., 2023). Similar effects were not observed for durational and intensity-related features even at C1-C2 proficiency levels, aligning with research showing these parameters are particularly resistant to change in L2 acquisition (Kolly & Dellwo, 2021; Raiscot et al., 2022). The persistence of L1-like durational and intensity patterns suggests these parameters require specialized intervention, potentially through high-variability perceptual training and articulatory training methods that have shown effectiveness in recent research (Olson, 2023).

This study is ongoing, with current efforts focused on analyzing global and pairwise effects between L1 English–L2 Portuguese speakers (experimental group) and native Brazilian Portuguese speakers (control group).