

## Oral vs. Visual Stimuli in the IAT: the case of Spanish and English in Miami

Salvatore Callesano, University of Texas at Austin  
Phillip M. Carter, Florida International University

Originally developed by Greenwald, McGhee, and Schwartz (1998), the Implicit Association Test (IAT) isolates participants' implicit biases by measuring the time it takes to associate a concept (e.g. a phonetic variant) with an evaluative attribute (e.g. 'good' or 'bad'). For researchers in language variation and change, the IAT is useful for showing how "indexical meanings" - ideologically related connotations attached to linguistic variables (Eckert 2008) – parallel "implicit associations" - social judgments about concepts that are automatically controlled below the level of consciousness awareness (Greenwald and Banaji 1995). Campbell-Kibler (2012), for example, found strong implicit links between [ɪn] and 'Southern states' and [ɪn̩] and 'Northern states.' Despite the profitability of this method for understanding non-conscious biases toward language varieties, only a few studies (e.g., Redinger 2010; Pantos & Perkins 2012) have used the IAT to compare different language varieties. In the current paper, we extend the IAT methodology to the study of implicit perceptions toward Spanish and English and provide a comparative analysis of two IAT experiments implementing different stimulus types.

The study works within the emerging literature examining language attitudes and perceptions in Miami (Alfaraz 2002, 2014; Carter & Lynch 2013; Callesano and Carter 2014a, b), which collectively shows that 1) different varieties of Spanish are perceived differently in terms of a range of social attributes, 2) these perceptions differ based on listener ethnicity, and 3) Spanish and English index different psycho-social attributes for Latino and non-Latino listeners. The current paper builds on this literature by considering the role of non-conscious biases in linguistic perception by way of a comparison of two IAT experiments. In the first experiment, 45 listener-judges in Miami responded to visual stimuli in the form of semantically neutral lexical items (e.g. furniture terms) presented in Spanish and English. In the second experiment, 30 listener-judges responded to oral stimuli, consisting of U.S. city names produced in Spanish and English phonology (e.g. [tuk.sõn] vs. [t<sup>h</sup>u.san]). The U.S. city names and furniture terms function as the perceptual concepts, to which the participants had to associate the attributes *good* and *bad* in both experiments. Each experiment was programmed using software designed for IAT research (Inquisit by Millisecond), which automatically calculates a quantitative score ("D-score") for each participant based on overall response latencies and accuracy.

D-scores range from -2 to 2, with higher scores reflecting strong associations between *English* and *good*. One-tailed T-tests and correlation analyses were conducted in R in order to test the relationship between the D-scores and multiple independent variables about the participants (e.g. ethnicity, language background, age, sex, length of residency in Miami, etc.). When the population samples are separated by ethnicity of participant, Latino and non-Latino participants demonstrate slightly different implicit associations of the two languages. The comparison analysis of the two experiments shows no effect of stimulus type, which suggests a robust effect of language. Both experiments have one common result, a complete lack of strong positive associations of *Spanish* and *good*, including among those who learned Spanish first.