

# Psychophysiological Studies of Emotional Arousal to Bilingual Speakers' First and Second Languages

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## Introduction: Anecdotal Reports

Second language users have frequently reported that concepts expressed in their first language have greater emotional resonance than concepts expressed in their second language. Prior work used electrodermal recording to verify this psychophysiological. Late learners of English (Turkish-English bilinguals) rated words and phrases for unpleasantness while electrodermal responsiveness was recorded via finger-tip electrodes (Harris, Aycicegi, & Gleason, 2003). Taboo words and childhood reprimands (e.g., "Shame on you!") were compared to neutral words, positive words (bride, joy) and negative words (cancer, death). Skin conductance amplitudes were greater in the second language (L2) than in the first language (L1). While skin conductance responses were overall largest for taboo words, the difference between L1 and L2 was greatest for the reprimands, indicating that hearing "Go to your room" caused little arousal when such phrases were read or heard in L2.

Little research exists on the emotional accompaniments of language. These findings on Turkish late learners of English are a reminder that the knowledge of the cognitive aspects of language is only one aspect of speaking a language. It is well-known that ultimate proficiency in a second language is strongly related to the age of immersion in that language (Birdsong & Molis, 2001; Newport & Johnson, 1989). Does the capacity to have native-levels of emotional arousal depend similarly on age of acquisition? Or do levels of proficiency influence emotional response independently of age of acquisition?

## Method

Participants were 31 Spanish-English and 35 Mandarin-English bilingual speakers who acquired English at birth, middle childhood or the mid-teen years. Spanish and Mandarin are languages which are embedded in different cultures, and which differ in their similarity to English. To extend the range of range of emotional categories studied, insults ("You suck"), and endearments ("I love you") were added. Stimuli were presented in a mixed list, meaning that the emotional category and language of the next item could not be guessed. An extensive interview was conducted with each participant, covering language learning history and subjective impression of which language is more emotional, and which language is preferred for swearing, insulting, exchanging personal intimacies and confidences, and providing praise and endearments.

## Results

As expected, taboo words elicited the largest skin conductance responses (SCRs). Surprisingly, endearments (rather than insults or reprimands) were the category with the next-highest SCRs.

When respondents' earliest acquired language was also their most proficient, skin conductance amplitudes were higher in this language. However, the factors of age of acquisition and proficiency traded off against each other. Participants who acquired Mandarin or Spanish at birth, but who rated proficiency in it as less than their English proficiency, nevertheless showed similar skin conductance responses in their two language.

Reactivity to emotional phrases was most variable among Mandarin-English speakers, and responsiveness correlated with participants' report of the acceptability of expressing emotion words and using taboo words both in childhood and as adults.

In the interviews, Mandarin-English speakers and Spanish-English described having different emotional experiences when using their L1 or L2. Spanish native speakers universally reported that their first language, Spanish, felt more emotional. Mandarin speakers had a mixed report. Some Mandarin speakers experienced Mandarin as more emotional, some said both were equally emotional, depending on the situation and some said English was more emotional. Some of the respondents described experiencing English as the language of emotional freedom. This difference between the experiences of Spanish and Mandarin speakers suggests that the degree of emotionality which is acceptable sociopragmatically in Mandarin may be lower than in English or Spanish.

These reports only partially correlated with the psychophysiological measures. Some individuals were adamant that English was their more emotional language, yet their SCRs were similar in the two languages (or Mandarin was higher). Future work will explore what factors cause self-reported emotionality and psychophysiological measures to be congruent or to diverge.

## References

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- Birdsong, D., Molis, M. (2001). On the evidence for maturational constraints in second language acquisition. *Journal of Memory and Language*, 44, 235-249.