

## TipTopTalk!: A game to improve the perception and production of L2 sounds

Andreia Rauber<sup>1</sup>, Cristian Tejedor-García<sup>2</sup>, Valentín Cardeñoso-Payo<sup>2</sup>,  
Enrique Cámara-Arenas<sup>3</sup>, César González-Ferreras<sup>2</sup>,  
David Escudero-Mancebo<sup>2</sup>, Anabela Rato<sup>4</sup>

<sup>1</sup>Department of Computational Linguistics, University of Tübingen, Germany

<sup>2</sup>Department of Computer Science, University of Valladolid, Spain

<sup>3</sup>Department of English Philology, University of Valladolid, Spain

<sup>4</sup>Center for Humanistic Studies, University of Minho, Portugal

Swain's (1985) Comprehensible Output Hypothesis considers that input alone may not be enough for second/foreign language (L2) learners to acquire new language forms. The Hypothesis claims that producing an L2 will facilitate L2 learning due to the mental processes related with language production. Thus, learners will more likely notice discrepancies and gaps between linguistic aspects of their native language (L1) and those of their L2 when *producing* language than when only *perceiving* language.

Taking Swain's Hypothesis into account, in this talk we will present a Computer Assisted Pronunciation Training designed for non-native speakers of Chinese, English, German, Portuguese (Brazilian and European) and Spanish. The game makes use of automatic speech recognition (ASR) and text-to-speech systems available in Android smartphones and tablets to (i) present learners with the target sounds by means of synthesized stimuli; (ii) test learner's discrimination of specific L2 sounds that are likely to cause intelligibility problems through exercises containing minimal pairs; and (iii) allow learners to record their speech and compare their production to that of the L2. The game provides users with immediate feedback in both perception and production exercises. In the latter exercises, when the recognizer is unable to identify an ideal or close-to-ideal response, the user can retry the answer up to five times. The main disadvantage of ASR pronunciation training is erroneous feedback, i.e., possibility of false alarms and false accepts (Neri et al., 2006).

In order to encourage users' engagement and desire to keep playing the game, each correct answer entitles users to collect points so as to reach a given game status. Moreover, different language-dependent leaderboards can be displayed at the end of each round. The advantages in using a gamification design strategy are (i) the increase of learners' engagement, and (ii) the possibility of individualized and comprehensive feedback while keeping users active and comfortable to progress at their own pace in an anxiety-free context.

### References

Neri, A., Cucchiari, C., & Strik, H. (2006). Selecting segmental errors in L2 Dutch for optimal pronunciation training. *International Review of Applied Linguistics in Language Teaching*, 44, 357-404.

Swain, M. (1985). Communicative competence: Some roles of comprehensible input and comprehensible output in its development. In Gass, S. & Madden, C. (Eds.), *Input in Second Language Acquisition* (pp. 235-256). New York: Newbury House.