

# TECHNOLOGY REVIEW

## *Speechace*

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## INTRODUCTION

It is now well-established in the field of applied linguistics that technological affordances can greatly facilitate the acquisition of a second language, or L2 (Chapelle, 2001; 2003; Chapelle & Jamieson, 2008). For L2 pronunciation, there have been numerous attempts to create computer-assisted pronunciation training and learning resources for both classroom-based instruction and independent learning. This interest is partially attributable to the flexibility technology provides for developers to promote individualized and autonomous learning, which may not be tenable in traditional classrooms (Levis, 2007). Nevertheless, some of these resources do not align with current L2 acquisition theories and findings in L2 speech research. The present paper reviews the web-based version of *Speechace*, a learning tool that can be accessed through the link: <https://www.speechace.com/>.

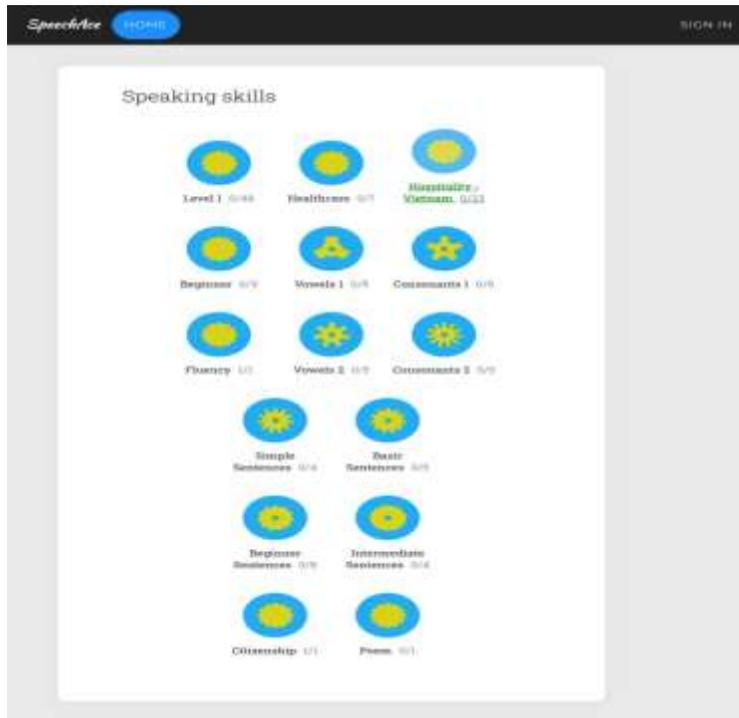
According to its website, *Speechace* is a sound recognition system developed for assessing L2 pronunciation and fluency, with learners of English being the ultimate intended users. The motivation behind this tool was to create a tool that does not require the intervention of instructors in the learning process. Although not explicitly stated, there seem to be three principles underlying the design of *Speechace*: opportunities for both perception and production practice, individualized and immediate feedback, and an emphasis on accuracy. Some features are accessible to any user, but complete access costs \$4.99 a month.

## DESCRIPTION OF THE TECHNOLOGY

The interface of the web version of *Speechace* is user-friendly and easy to navigate, and the home page contains 15 modules, as depicted in Figure 1. Four modules are dedicated to segmental features, two for vowels and two for consonants. These modules include word-based elicitation only. For suprasegmental features, there is one module dedicated to assessing fluency. In addition, four modules focus on sentence-based elicitation: simple sentences, basic sentences, beginner sentences, and intermediate sentences. The rest of the modules are varied themes with similar content to the segmental-based modules. Within each specialized module, there are varying numbers of lessons each targeting specific features. For instance, in the Consonants 1 module, there are six lessons on different consonantal features, as shown in Figure 2. However, the rationale behind the choice of lessons remains unclear as neither the website nor the documentation justifies these choices.

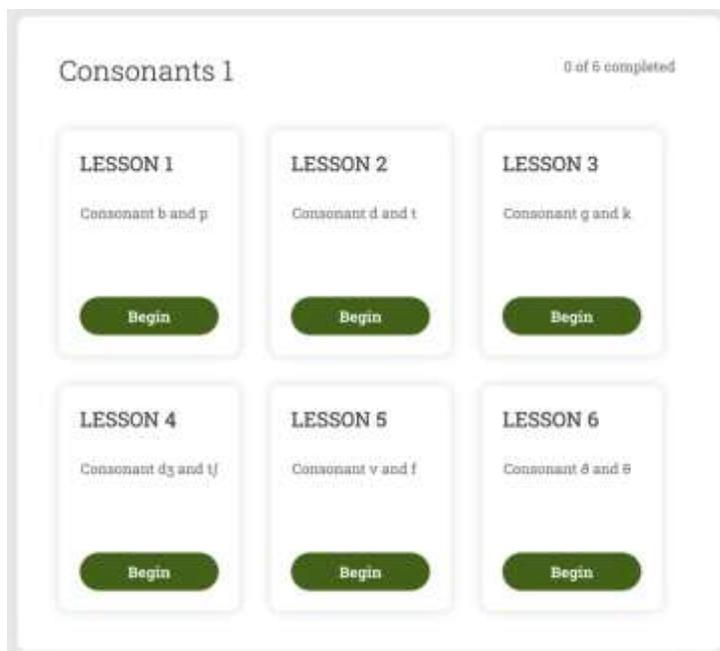
**Figure 1**

*The home page of Speechace and the modules*



**Figure 2**

*Lessons within the Consonants 1 module*



Except for the Fluency module, the layout of the lessons in each module is identical with remarkably easy-to-use features. The activities are controlled production tasks with either word-based or sentence-based elicitations. Figure 3 demonstrates an example of such tasks. A green play button immediately before the sentence is provided for the learner to listen to how the sentence is pronounced. Most modules use a synthesized voice, although two modules use a human voice. The blue microphone icon is used for recording the learner's pronunciation of the sentence, and immediate feedback on the input is provided after recording. Figure 4 shows an example of the immediate feedback, which includes a score representing the degree of correctness of pronunciation, word-level feedback on three areas (syllable, phone, and score), the learner's recording (blue play button) to compare their performance to the baseline, and a record of scores of the last three attempts. When clicking on the dotted line below each word, feedback on the word is provided as well as two word-level recordings (baseline and learner production).

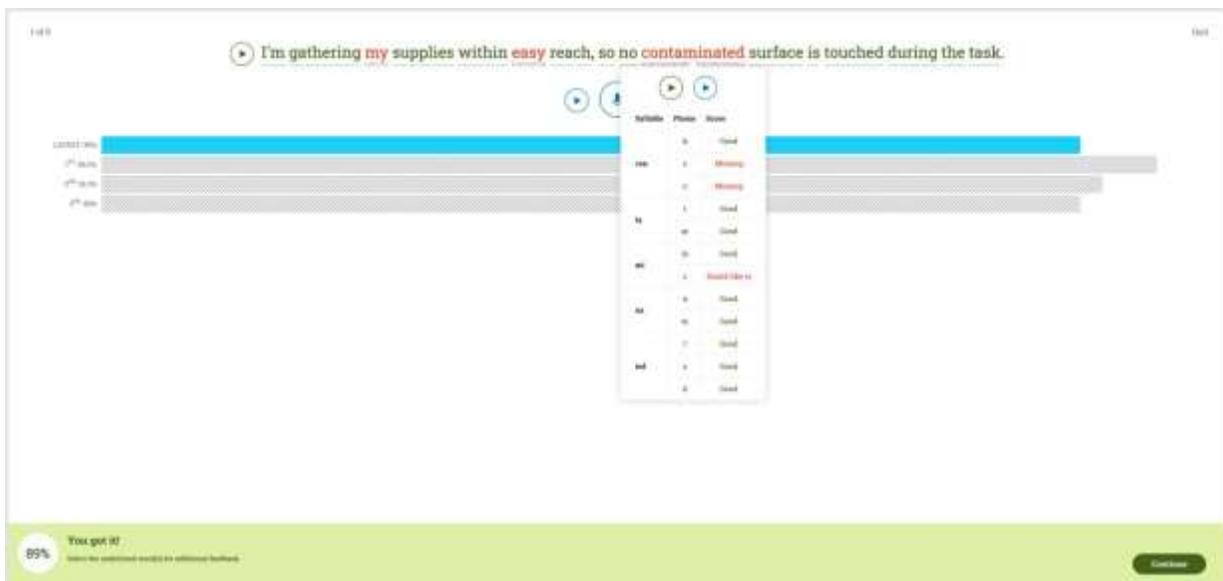
**Figure 3**

*An example of the controlled production task (sentence reading)*



**Figure 4**

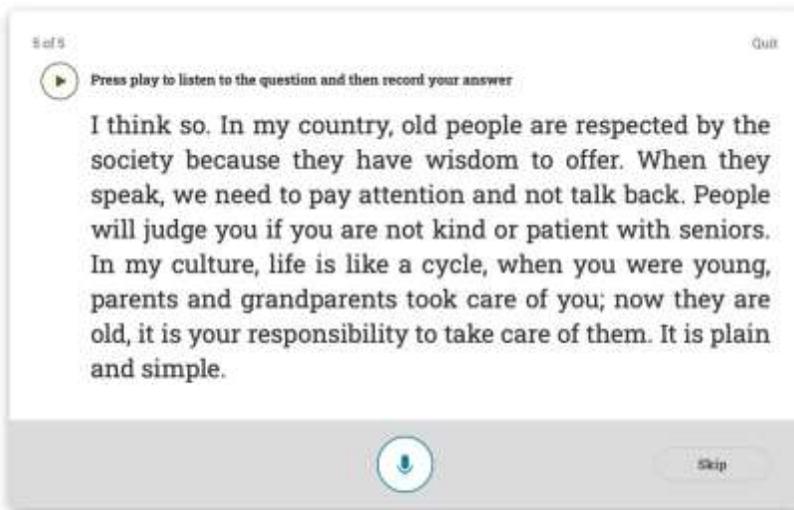
*An example of the immediate feedback feature*



In regard to the Fluency component, the task is also controlled as the learner listens to a question and reads a premade answer, as in Figure 5. However, the feedback does not include information about segmental features. Instead, the feedback includes four areas: speaking rate, inappropriate pauses, estimation of IELTS score, and a recording of the learner's input, as in Figure 6. Word count per minute is displayed for speaking rate, and the wrong pauses are shown within the text to draw the learner's attention to where to avoid pausing in the subsequent attempts. Of particular note is the positive feedback in speaking rate, which may be important for low-level learners.

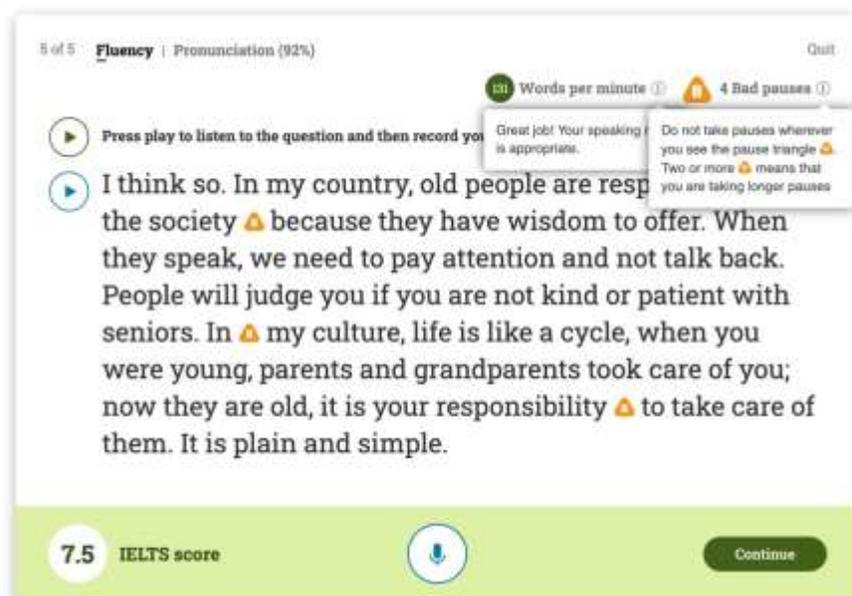
**Figure 5**

*Controlled speaking task in the Fluency module*



**Figure 6**

*Feedback in the Fluency module*



## EVALUATION

There are several technical and conceptual aspects of the design that represent the strengths of *Speechace*. For the technical aspects, first, the usability of *Speechace* is remarkable because the overall design is intuitive and easy to navigate. Moreover, the design is visually appealing, and the use of different colors, icons, and shapes facilitates easy navigation and task completion. Moving to conceptual aspects, *Speechace* provides chances for controlled production at three levels: word, sentence, and paragraph levels. This aspect makes it tenable for low-level students to scaffold themselves from minimal production (words) to longer stretches of speech (paragraphs). A second strength relates to the incorporation of the immediate feedback feature. While typical sound recognition systems may be limited to word identification, the system in *Speechace* moves beyond this limit and provides feedback on segmental features, speaking rate, and inappropriate pauses. This feature is particularly useful as evaluation frameworks of computer-mediated tools consider feedback a crucial element (Levis, 2007). Finally, offering a recording of the learner's production is an important strength. This aspect is especially useful because, in conjunction with the immediate feedback, students would find it beneficial to listen to their recordings and compare them to the feedback and baseline production.

Despite notable strengths, critical analysis of *Speechace* reveals some weaknesses. While *Speechace* was developed to improve the pronunciation and fluency of L2 learners, there is little attention to suprasegmental features. The role of suprasegmental features in improving L2 pronunciation is recognized in L2 speech research (Zhang & Yuan, 2020), and thus *Speechace* modules should include suprasegmentals. Another point is pertinent to the focus on accentedness rather than intelligibility. For example, the choice of segmental features in modules is not based on functional load (Brown, 1988) or relevance to a particular need of a foreign speech variety.

This is also evident in the feedback as it lacks guidance to learners on what to prioritize for improvement. Intelligibility-based approaches to L2 pronunciation (Levis, 2018; Derwing & Munro, 2015) recommend a focus on the nature of error rather than the number of errors in setting priorities for improvement, and *Speechace* should include this aspect as part of the coding scheme of learners' errors.

Further practice can also be achieved by avoiding the exclusive focus on production in controlled conditions. While controlled practice is an essential component of L2 pronunciation frameworks (Celce-Murcia et al., 2010; Saito and Plonsky, 2019), these frameworks also recommend using other types of practice such as listening discrimination and spontaneous/communicative practice. Since the purpose of *Speechace* is to improve pronunciation and fluency, other types of practice should be included to achieve this broad goal. Another point of weakness pertains to the use of synthesized voice in most recordings, which is not an optimal type of training, nor does it reflect authentic human production. Humans should have produced all recordings to yield better perceptual training and enhanced authenticity.

## CONCLUSION

*Speechace* is a web-based tool that aims to improve L2 learners' pronunciation and fluency without the need for professional instructors. This review has shown that to meet this broad and ambitious goal and purpose, the tool requires some improvement. However, the free version of *Speechace* can be used in local educational contexts with limited resources that cannot afford expensive technologies. Instructors in these contexts may compensate for the lack of sound description and feature discrimination by providing their own input and use *Speechace* for the controlled practice portion of the lesson. Another possible use would be in contexts where there is minimal emphasis on pronunciation instruction. *Speechace* may be a good tool for out-of-class practice, especially in EFL contexts where the interaction with English-speaking individuals is extremely limited.

## ABOUT THE AUTHOR

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