Foreign language anxiety and filled pauses in spontaneous L2 speech

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Abstract

The purpose of this study was to examine whether there is a connection between foreign language anxiety (FLA) and characteristics of spontaneous speech of Hungarian-speaking Spanish language learners. Speech rate, frequency of occurrence and duration of elements that are used as hesitation disfluencies were analyzed with special attention paid to filled pauses (FP). The results showed that the characteristics of spontaneous speech of Spanish learners showing FLA were typically different from those not showing FLA. The difference was manifested in the occurrence frequency of FPs: FPs were more frequent in the speech of speakers showing FLA, especially the type similar to the neutral vowel [ə] which is the most common in the speech of adult native Hungarians in their mother tongue [1], but differs from typical Spanish FP, which is [eː]. According to a recently published study, the usage of this schwa-like FP in Spanish speech may lead to discrimination of Hungarian learners of Spanish in the labor market [2]. Therefore, we can conclude that FLA could lead to linguistic disadvantage.

Keywords: Foreign language anxiety, spontaneous speech, filled pauses, language transfer, linguistic disadvantage.

1. Introduction

The definition of anxiety is very variable as each discipline views it differently. However, what is common in different approaches is that anxiety refers to a state of negative emotions related to the perception of danger [3]. Anxiety is the key to survival from an evolutionary point of view as it helps the individual to recognize and prepare for an emergency. However, if the level of anxiety is suboptimal, i.e., the threshold for perception of danger is abnormally low, non-real emergencies are also perceived as dangerous and the individual wastes unnecessary energy to deal with harmless situations. This debilitating anxiety impairs an individual's performance and distracts them from their tasks [4].

Foreign language anxiety (FLA) is a special form of anxiety: it is situation-specific, so that it is triggered by foreign language situations and tasks, including speaking, listening, and learning [5][6]. FLA can help but also prevent an individual from performing his or her tasks. The debilitating anxiety of a language learner can manifest itself in different ways: the individual may be afraid of a) being ridiculed or misunderstood, b) speaking, and c) misunderstanding, emotions which may then lead to further negative feelings such as confusion [7].

A frequently studied field of foreign or second language (L2) acquisition is speech fluency. This is most commonly gauged by some quantitative indicators that measure temporal variables [8], for instance, speech rate (syllable/second, where duration includes pauses and elements of hesitation disfluencies), articulation rate (syllable number/seconds, where duration does not include pauses and elements of hesitation disfluencies), the average length of the segments of the conversation (syllable count), and the average length of pauses (above a given threshold level, e.g., 0.2 s). The above values are influenced by several factors: the situation, the fact that the speaker is reading or speaking spontaneously [9], the age [10] and gender [11] of the speaker, and their state of mind [9]. Anger, fear, and happiness are usually characterized by an accelerated speech rate, while boredom, sadness, grief, and disgust are characterized by a slower rate [9].

Former studies have shown that emotional state of speakers and speech rate of spontaneous speech may be linked. Regarding anxiety, empirical data is very limited. Most studies mention only anecdotally that anxiety may reduce speech rate through influencing the planning and production processes of spontaneous speech, and causing hesitation disfluencies [12].

The purpose of the present study was to examine whether there is a correlation between a special form of anxiety, FLA, and characteristics of spontaneous speech of Hungarian-speaking learners of Spanish. Therefore, speech rate, and frequency of occurrence and duration of speech elements that are used as hesitation disfluencies were analyzed, with special attention paid to filled pauses (FP). The following hypotheses were established: i) Spanish spontaneous speech of Hungarian-speaking learners of Spanish showing FLA is characterized by a slower speech rate than speakers not showing FLA; ii) Hungarian-speaking learners of Spanish showing FLA use schwa-like FPs (a vocalization common in Hungarian FPs) as a form of hesitation in their Spanish spontaneous speech more often than speakers not showing FLA.

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2. Methodology

Informants were selected and grouped using an online questionnaire about their age, sex, level of language proficiency in Spanish, their possession of exam certificate and its level according to the Common European Framework of Reference (CEFR). In the questionnaire their level of FLA was also estimated through a test adapted from [13].

Among the 36 respondents, 4 speakers showed FLA and 4 speakers did not, thus they were selected as participants of the final study. All of them were women, aged between 19 and 30 years. All speakers were native Hungarian-speaking university students, and all of them had learned Spanish before their university years. Although not all of them lived in Spanish-speaking territories, all of them reported to use Spanish daily.

Since the literature varies in how it defines hesitation disfluencies, it is necessary to clarify and systematize the related concepts. In the present paper, the term hesitation disfluency refers to silent pauses as well as FPs. Within the group of hesitations, the schwa-like, and the [m]-like FPs, that are very common in Hungarian [1] and the most common form of hesitation in Spanish, [eː] [14] were examined. The filler words that occur in spontaneous speech were also analyzed as well as repetitions and false starts.

The corpus of the study consisted of interviews conducted in Spanish with the 8 informants and a native Spanish interlocutor (who was the same person in all cases). The 46-minute corpus based on the interviews was processed acoustically and annotated at two levels in Praat [15]. Stretches of speech (between silent or filled pauses) were segmented and labeled for the number of syllables occurring in each stretch, on which basis speech rate and articulation rate of these segments were calculated. Silent pauses and different forms of FPs were also labeled in order to measure their frequency of occurrence and duration.

Statistical analysis was not run on the data because of the small number of data points (collected from 4 speakers in each group).

3. Results

The acoustic analysis revealed that, while the mean speech rate of speakers showing FLA was slower than that of speakers not showing FLA (speakers not showing FLA: 3.3 syll/s; speakers showing FLA: 2.8 syll/s), the mean articulation rates measured in the two groups were almost the same (speakers not showing FLA: 4.5 syll/s, speakers showing FLA: 4.7 syll/s) (Fig. 1). Both the fastest (6.3 syll/s) and the slowest (1.5 syll/s) speech rates occurred in the speech of a speaker showing FLA. In contrast, the fastest (11.4 syll/s) and the slowest (0.81 syll/s) articulation rate were measured in the speech of a speaker not showing FLA.

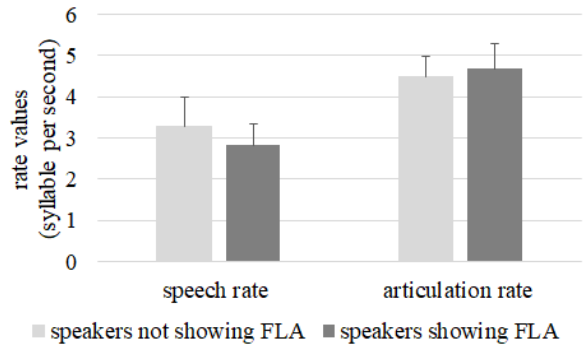

Figure 1: Mean speech rate and articulation rate (+1 SD) as a function of speaker groups

Since the difference between the two groups' mean articulation rates was less than the difference between the mean speech rates, we may assume that the difference in temporal characteristics between the two groups may be accounted for by the frequency of occurrence and the duration of elements used as hesitation disfluencies. Speech rate indicates the number of syllables divided by the total duration of the utterance that includes the duration of hesitation disfluencies, while the articulation rate indicates the number of syllables divided by the total duration of utterance that excludes the duration of hesitation disfluencies.

The distribution of the elements of the FPs in the duration of the utterances was evaluated. Between the two groups a difference was observed regarding hesitation as well as repetition and false starts. The greatest difference was found in hesitations, which represented 3.7% of the total duration of the conversation segment of the speakers not showing FLA and 11.3% of the segment of the speakers showing FLA. Groups also differed in their use of repetitions and false starts, which altogether took up 4% and 8.3% of the total duration of their segments, respectively. Regarding filler words, a minimal difference was found between speakers showing and not showing FLA: it was around 3.8% of the duration of conversation segments of both groups.

Further analyses revealed that speakers showing FLA spent 9.1% of the total duration of their speech segments in the conversation producing the neutral vowel [ə] as a FP, which is the most common in the speech of adult native Hungarians in their mother tongue [1]. By contrast, in the speech of speakers not showing FLA, this proportion was only 1.2%. This difference can be explained by the difference in frequency of occurrence of schwa-like hesitations, since speakers showing FLA used the neutral vowel

[ə] 10.8 times per minute, while the speakers not showing FLA used it only 1.3 times per minute (Fig. 2). The average duration of schwa-like hesitations was very similar in both groups (0.528 s and 0.588 s, respectively).

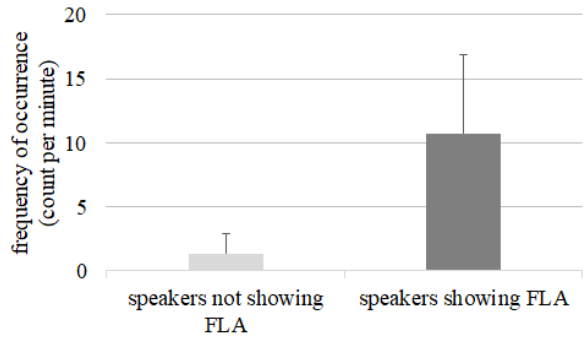

Figure 2: Mean frequency (+1 SD) of FPs similar to the neutral vowel schwa ([ə]) as a function of speaker groups

Furthermore, the results revealed that the most common form of hesitation in Spanish, [e:] [14], was completely absent from the spontaneous speech of the speakers showing FLA, while it represented 41% of the total duration of hesitations of the speakers not showing FLA (Fig. 3).

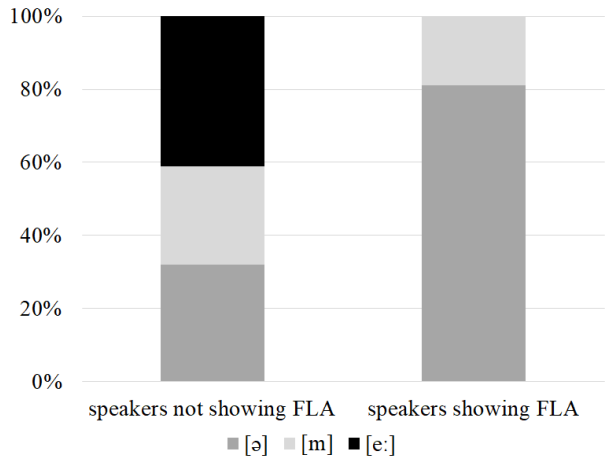

Figure 3. Distribution of hesitation forms as a function of speaker groups (%) (100% = total duration of hesitations)

4. Discussion

To conclude, on the one hand, the first hypothesis of the present study was partially supported by the results, since the mean speech rate of Hungarian-speaking learners of Spanish showing FLA was slower than that of Hungarian-speaking learners of Spanish not showing FLA, however, the mean articulation rates measured in the two groups were almost the same. On the other hand, the second hypothesis was supported by the results, the Hungarian-speaking learners of Spanish showing FLA used schwa-like FPs (a vocalization common in Hungarian FPs) as a form of hesitation in their Spanish spontaneous speech more often than speakers not showing FLA.

The results of the present study demonstrated that the characteristics of spontaneous speech of Hungarian-speaking learners of Spanish showing FLA were typically different from those not showing FLA. The difference was manifested in the frequency of occurrence of FPs: these hesitation forms were more frequent in the speech of speakers showing FLA, especially, the FP similar to the neutral vowel [ə]. Due to the more frequently used hesitation forms, the utterances of speakers showing FLA became fragmented.

According to a recently published study, the usage of the schwa-like FP in Spanish speech may lead to discrimination of Hungarian speaking learners of Spanish in the labor market [2]. As a conclusion, based on the results of the present study it is proposed that FLA could lead to linguistic disadvantage and discrimination of speakers.

The generalizability of the results of the present study is limited. In the future, it is planned to extend the present investigation by expanding the number of participants, and by focusing on advanced level learners of Spanish (C1-C2, according to the CEFR). Thereby the effect of restricted linguistic competence could be minimized and two factors that could possibly affect speech production in a second language, i.e., second language proficiency and foreign language anxiety, could be disentangled.

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