Methodological Perspectives on Second Language Prosody

Papers from ML2P 2012

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edited by
Maria Grazia Busà, Antonio Stella

cleup

Prima edizione: novembre 2012

ISBN 978 88 6129 937 5

Coop. Libraria Editrice Università di Padova
Via Belzoni – 118/3 – Padova (Tel. 049/650261)
www.cleup.it

THE ROLE OF EXPOSURE TO SECOND LANGUAGE ON THE DEVELOPMENT OF PROSODIC COMPETENCE. THE CASE OF ENGLISH

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ABSTRACT

Preliminary studies on Italian-accented English have shown that Italian speakers fail to achieve successful communication in English because they do not modulate the L2 rhythmic and prosodic parameters in the same way as is done by English native speakers. Considering that the prosodic competence in a second language is the result of a complex set of variables, this study is aimed at investigating the role of learning context and exposure to L2 in achieving an English native-like prosodic proficiency. Through two different speech tasks, the acquisition of suprasegmental features of L2 English was analysed. Two groups of participants were involved: 2 Italian high-school students who learned English only in a classroom context and 2 subjects who studied the target language in Italy and in the USA. The results showed that the exposure to the L2 in a native context facilitates the identification of the informative prosodic boundaries and enhances the awareness that diverse question types correspond to different intonation patterns.

Keywords: L2 English, prosodic competence, speech analysis.

1. INTRODUCTION

Second Language Acquisition (SLA) is commonly defined as the way in which people learn a language other than their mother tongue inside or outside of a classroom [10]. It is a very complex process that differs from First Language Acquisition (FLA) in many respects. In the late Eighties, Bley-Vroman [2] discussed the areas in which adult second language learning is unlike child language acquisition. These include lack of success, general failure, variation in success, course and strategy, fossilization, indeterminate intuitions, importance of instruction, negative evidence and the role of affective factors. Of the ten areas listed above, the most striking characteristic of adult SLA is the lack of guaranteed success. Indeed, as asserted by Bley-Vroman, if all normal children inevitably achieve perfect mastery of the L1, adult foreign language learners generally do not.

The ultimate attainment of adult SLA does not only differ from the uniform success experienced by children, but it varies from learner to learner according to many crucial "internal" and "external" factors, such as mental disposition of learners, their learning style and strategies, their ability to handle communication process, time, frequency and quality of exposure to L2 [9, 23].

Additionally, the end state of SLA does not match the competence of a native speaker, if L2 learners have developed only the phonological, morpho-syntactic, and lexical competence of the target language. The proficiency in an L2 learner is attained completely only when learners have developed prosodic competence and have learnt to modulate rhythmic and prosodic parameters equivalent to those of the native speakers [20, 21, 22, 24, 27].

2. ITALIAN ACCENTED ENGLISH

Over the years, extensive research on the perception and production of L2 speech has focused on the nature of segmental features and their deviation from native speaker pronunciation. As a consequence, the contribution of the prosodic dimension in foreign accent detection was relegated to a subordinate position [3].

Several studies on Italian accented English have measured the way adult produce the Voice Onset Time of stop consonants [15, 16, 17]. Within this same domain, further research was conducted in the area of vowel quality and duration [4, 11, 13, 26]. Flege, MacKay and Meador [13], for example, determined that adult Italian learners of English produced English vowels that were more Italian-like, in that they had the formant movement characteristics of equivalent Italian vowels. Other

studies addressed the impact of the age of arrival in the L2 country and early-onset L2 speech on segments pronunciation. In the works by Flege and his colleagues on Italian immigrants in Canada [12, 14, 18], it was found that the accuracy of production and perception of English vowel pairs was inversely connected to the age of arrival in Canada and to the amount of native language use.

Although it is undeniable that pronunciation mistakes can affect intelligibility and determine discrimination and prejudice towards non-native speakers, deviations in L2 prosody may also significantly affect intelligibility between native and non-native speakers.

In the last decades, indeed, many studies have insisted on the importance of prosody in the perception of foreign accented speech and in the production of successful communication between native speakers and non native-speakers [1, 8 ,25].

As asserted by Busà [5, 6], it is with prosody that speakers disambiguate structurally ambiguous sentences, signal the information status and the speech function of an utterance and convey paralinguistic information with regard to speakers' emotional state.

Preliminary studies on the use of Italian prosody in English have underlined the factors affecting successful communication between L1-L2 English speakers. Busà [6, 7] shows that Italian speakers of English are not able to signal discourse information structure with the prosodic rules that the English speaker expects because they tend to transfer their first language prosody to the use of the second language. In comparing English and Italian intonation, since prominent vs. non-prominent elements are not easily distinguishable in Italian intonation, and the fact that it generally lacks of a marked variation, its use in English may be perceived as monotonic and could result in conveying extra-linguistic meanings, such as detachment, lack of participation, boredom, which may be unfamiliar to foreign speakers [5, 6, 27].

3. THE STUDY

This study investigates the role of learning context and L2 exposure in the achievement of an English native-like prosodic proficiency by native Italian speakers.

To this purpose the following subjects were involved:

- four female skillful learners of English (mean age 17). Two of them studied the target language in an Italian classroom context (Group 1) and the other two also had a one-year experience in the USA, where they attended school and lived with an American family (Group 2).

- one female American native speaker from the state of New Jersey.

All the students attended the same Italian high school and had the same English teacher who was trained in the USA. Therefore, the expected prosodic model to be presented was the American variety.

Subjects were asked to perform two different tasks. In the first one, they were asked to read aloud an excerpt taken from an English novel, characterized by narrative parts and dialogues. The text was also characterized by the presence of different kinds of questions: one indirect question, four polar questions, two *wh*-questions and one declarative question. In the second activity the subjects were involved in a task of acted speech, based on the dialogues extracted from the input text. Since the assumption was that an "utterance which is perceived as a question in a given context, may no longer be perceived as a question when taken out of this context" [19], the expectancy was that the second task should prevent subjects from producing an unnatural interrogative pattern.

A spectro-acoustic analysis was carried out on the speech corpus using *Wavesurfer* 1.8.8. and *Praat* 5.3.23. For each speaker the following measures were made: the number of speech chains, the number of syllables for each speech chain, the duration of each speech chain, the duration of silent pauses (SP), non-silent pauses and disfluences, the maximum and the minimum f_0 value for each speech chain. Furthermore, some calculations were carried out in terms of articulation rate AR, i.e. the ratio between the number of syllables and the speech chain duration (syll/s), speech rate SR, i.e. the ratio between the number of syllables and the utterance time (syll/s), fluency F, i.e. the ratio between the number of syllables and the number of speech chains (syll/SC), the silence and disfluence duration percentages, the mean duration of silent pauses (s), the tonal range, i.e. the difference between the maximum and minimum f_0 value in an utterance, calculated in semitones (st).

4. THE RESULTS

The analysis of data concerning the read speech task (Tab. 1) showed that there is no significant correlation between the exposure to L2 and both the AR and the tonal range.

Table 1: Rhythmic-prosodic analysis values

	AR (syll/s)	SR (syll/s)	Fluency (syll/SC)	TR (st)	Mean SP duration (s)
Group 1	4.5	2.6	12.9	14	3.2
Group 2	4.2	3.5	9.6	11	0.4
NS	4.5	3.7	10	13	0.4

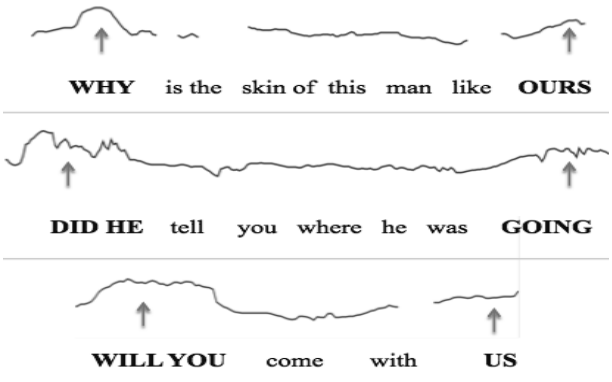
On the contrary, there seems to be a relationship between the exposure to L2 and the SR. The value of Group 1 diverges from the value of Group 2 and that of the native speaker. Group 2 subjects, conversely, speak with an SR that is more native-like.

The results related to silent pauses show that Group 1 speakers have a fluency value higher than that of the other speakers, as they produced fewer silences. This outcome is maybe due to the wrong idea that a faster reading is related to a higher level of proficiency.

However, due to the natural tendency that one has to think about what it is going to be read and how to pronounce it, Group 1 speakers produced silent pauses longer than those of the other participants. Moreover, it is worth noticing that the nature of the silences produced by the American speaker and by the Group 2 was mainly syntactic.

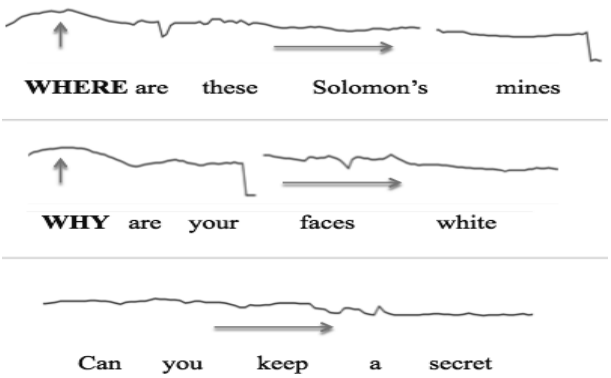
The use of a corpus composed by acted speech yielded a detailed comparison of the intonation productions of all the involved speakers. The pitch contour analysis showed the inability of Group1 to modulate and modify the pitch movement according to the kind of question to be asked. As a matter of fact, although some idiosyncratic variations can be observed between the two students of this first Group, both informants used a single intonation pattern, independently from the length and the syntactic structure of the uttered sentences. Student 1, for example, produced a pitch contour which was mostly flat, with an f_0 rising only in correspondence of the initial and final parts of the utterance (Fig. 1).

Figure 1: Student 1 – Group 1



Student 2, instead, used a totally flat pitch contour, emphasizing just the *wh-* element, if present, with a slightly raised intonation (Fig. 2).

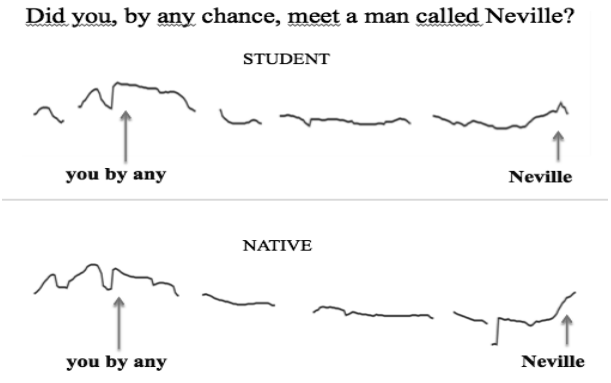
Figure 2: Student 2 - Group 1



In these two cases, no specific comment can be made on these inaccurate prosodic accomplishments: neither the model of the English language the students are exposed to in classroom, nor the fact that the same question can be variously performed can have influenced learners' productions. The two Group 1 subjects applied the same intonation pattern in a systematic way, demonstrating their total lack of awareness towards this specific suprasegmental aspect of language. Therefore, it is only by chance that sometimes their pitch contour partially corresponds to that of the American model.

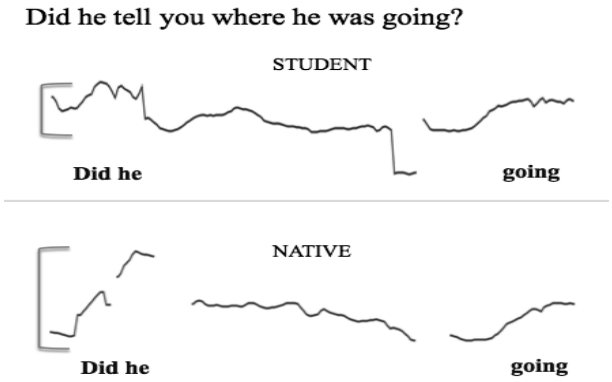
As for the second Group, in several cases, both students produced questions with a pitch contour very close to that of the native speaker (Fig. 3).

Figure 3: Group 2 matching the native speaker



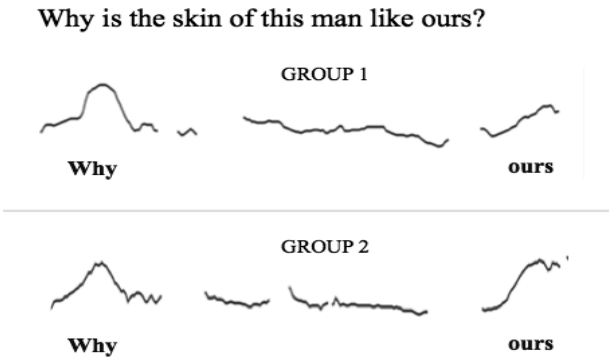
Nevertheless, they appear to be able to reproduce the pitch movements, correctly distributing the peak prominences, but without reaching the intonation extension of the native model (Fig. 4).

Figure 4: Group 2 *vs*. native speaker



In addition to this, it should be noted that in many cases where the speakers of the second Group match the native intonation, they, at the same time, also match Group 1 productions (Fig. 5).

Figure 5: Group 1 vs. Group 2



Therefore, bearing in mind that the pitch contours produced by the speakers of the first Group are not the result of a conscious modulation, it seems that the speakers of Group 2, despite the exposure to the L2 in the native context, still apply intonation structures typical of inexperienced subjects. They seem to be more aware of the importance of modulating intonation, since their speech is generally more varied, but they are still unable to correctly reproduce the different question patterns. For both Groups a transfer from L1 may be noticed, but confirmation requires further investigations.

Among all the considered kinds of questions, an overall major difficulty can be associated to the declarative one. In this case, the length of the utterance and the lack of visual question mark led all the non-native speakers to hardly process the utterance as a question and, consequently, to randomly distribute the f_0 peaks. Again, no specific remarks can be made about the appropriate intonation model to be applied. All the analysed students used one of the above-mentioned recurring intonation pattern or distributed the fundamental frequency peaks in correspondence to parts of the utterance which cannot be considered meaningful, neither in terms of lexical or syntactic structure, nor from a suprasegmental point of view.

5. CONCLUSIONS

The present study has pointed out that skillful speakers of English as a foreign language who have never spent a study period in an English-speaking country are characterized by a native-like articulation rate. As for the speech rate it is lower than that of both native subject and L2 speakers who, on the contrary, have spent a year in the USA. Group 1 speakers read with an average AR of 4.5 syll/s and produced very few silent pauses, most likely to appear more proficient in reading. However, these silences were very long. By contrast, the native speaker and the experienced students of Group 2 produced more syntactic pauses, trying to correctly follow the text punctuation.

As for intonation, the tonal range does not seem to correlate with the exposure to the second language, because no meaningful differences occurred among the two considered Groups. Additionally, a mixed learning context seems to have favoured students' awareness of the different existing intonation patterns, slightly improving their production.

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