

LITERACY AND PROSODY: THE CASE OF LOW-LITERATE SENEGALESE LEARNERS OF L2 ITALIAN

Marta Maffia and Anna De Meo, University of Naples "L'Orientale"

Abstract

The influence of L1 literacy on the acquisition of L2 oracy has recently become one of the interests of SLA research. However, what is still missing is an exploration of the development of L2 prosodic competence by low-literate adults learners. To fill this gap, in the present study Senegalese learners of L2 Italian were involved. In Senegal, where literacy acquisition is usually absent in the L1 (mostly Wolof), it is possible to acquire it in French or Arabic, albeit the educational models of the French and Koranic schools are quite different. In French schools writing and reading practices are favored, whereas in Koranic schools speaking and listening abilities are mostly practiced by reciting the Koran. In order to understand the relationship between L1 literacy and L2 oracy in the case of low-literate Senegalese learners of L2 Italian and to verify if the different educational models proposed in Senegal influence L2 prosodic competence even of low-educated learners, perceptual and spectroacoustic analyses were conducted on a corpus of utterances produced by 20 Senegalese and collected through an Elicited Imitation task. Results show a higher level of textual accuracy in French school learners' productions while Koranic school learners show a more skillful reproduction of intonation and rhythm of different Italian speech acts.

Keywords: prosody, L2 Italian, Senegalese learners

1. Introduction

The positive impact of first language literacy on the development of literacy in the second language has been documented in numerous studies (Bialystok 1991; Cummins 1991; Collier 1989, 1995). It has been demonstrated that learners who are already literate in their L1 develop L2 literacy skills faster than non-literate learners. The academic abilities, the cognitive processes and the learning strategies developed in the first language can indeed be transferred to the second language, even in the case of low-literate learners (Mace-Matluck 1982; Lessow-Harley 1990).

The relationship between L1 literacy and L1 oracy has also been consistently investigated. The acquisition of the reading and writing abilities in the mother tongue seems to favor the emergence of the phonological awareness, that is the ability to identify, analyze and manipulate the segments of the phonological structure of words: phonemes, syllables and rhymes (Morais 1989; Adrian, Alegria & Morais 1995; Reis & Castro-Caldas 1997; Loureiro et al. 2004).

Only recently, the influence of the L1 literacy level on the development of L2 oral skills, especially in the case of adult and low-literate learners, has received some attention. A study conducted by Tarone, Bigelow & Hansen (2009) on oral productions of low-literate Somali learners of L2 English demonstrated that the literacy process has an impact on the cognitive and mnemonic mechanisms linked to oral processing in the L2.

Despite the growing interest aroused by the prosodic aspects of interlanguage in the last years, SLA research has neglected to investigate the development of prosodic competence, that is the ability to effectively use intonation and rhythm, in the L2 and by low-literate adult learners.

2. The case of Senegalese speakers

2.1. Literacy in Senegal

Senegal presents a peculiar linguistic situation. French, as legacy of the colonial period, is still the official language of the country although it is spoken only by about 10% of the population. Actually, the first language of Senegalese speakers is Wolof or one of the other national languages of Senegal which are Pulaar, Sérère, Diola, Mandingue and Soninké. All these languages have a high vitality in oral communication but have been officially equipped with a standardized Latin orthography only in the first years of independence, in the early Seventies. Moreover, they have been recently introduced in the Senegalese education system, but exclusively in the preschool level¹. Consequently, in the Senegalese community literacy is not acquired in the L1 but in an L2, either French or Arabic depending on the school. French schools and Koranic schools expose learners to very different models of education (Fall 2011). The French didactic approach mirrors the "European" model, which gives priority to the development of writing and reading abilities and abstract thinking skills leading to metalinguistic awareness. The Koranic schools, instead, adopt an educational approach which is mainly based on oral learning and memorization and which promotes speaking and listening abilities primarily through the reciting of the Koran (Gandolfi 2003). The cognitive style which is favored in this case is thus very different from that of traditional pedagogy since it is characterized by

formulaic, global, redundant and non-analytical expressions (Santerre 1973; Fortier 1997; 2003). It follows that in Koranic schools reading and writing abilities are indeed scarcely trained.

French and Arabic literacy development has not been extended to the entire Senegalese society, even if great improvements have been made in the last decades. Indeed, according to UNESCO data for 2013, only 52.1% of the Senegalese adult population possesses basic literacy skills².

2.2. Senegalese learners of L2 Italian

According to Istat (Italian National Institute of Statistics) surveys for the year 2014, there are 97.781 Senegalese immigrants in Italy who mainly live in the Northern regions³ of the country. The Senegalese community in Naples (Southern Italy), i.e. the city where the present research has been conducted, is not numerically conspicuous, counting only 709 presences. Nevertheless, the Senegalese immigrants represent a very visible minority group for two reasons. The first one is their common occupation as local street vendors and the second one concerns the community's strong tendency to create support structures that also organize public events for immigrants, often in collaboration with other ethnic groups (de Filippo 2003).

The Senegalese migration model observed in Naples, however, is characterized by a strong individualism and a high degree of instability, especially if compared to that of other more stable ethnic groups such as the Chinese or the Srilankan ones. The prototypical Senegalese immigrant is male, aged 35 and above, and usually not married (Maffia et al. 2013).

The present research project has benefited from the relationship established by the authors with the Senegalese community within the context of a voluntary association in Naples, *Scuola di Pace*, which provides Italian L2 courses for immigrants. At the *Scuola di Pace* in 2013-14 the Senegalese nationality is the third by size, with 41 Senegalese learners (only 7 women) on a total of 445 enrolled students from 47 different countries⁴.

The most common profile of the Senegalese learners at the beginning of the L2 Italian course is the following: they usually present a basic and spontaneously acquired oral proficiency in the L2; only a few of them are aware of the structure and function of written texts as they know that texts carry meanings, that letters correspond to sounds and that word boundaries exist. However, regardless of their school attendance in Senegal, their knowledge of the Latin alphabet is often very weak. Moreover, the information about the length of schooling in Senegal is often an unreliable measure of the actual literacy level developed in the language of instruction.

By way of example, a part of a Senegalese learner's placement test for the L2 Italian courses is proposed in Figure 1. Modou reported 13 years of schooling in the home country but even a superficial look at his written production reveals his difficulties in the copying activity. It is clear that not only did the learner spend a lot of time trying to reproduce the graphemes in the different fonts, but he also had problems with the disposition of the graphic signs in the space of the paper. In the second exercise, he confused the words *pane* (bread) and *cane* (dog) and he used very uncertain lines to connect the words. Finally, in the case of the oral exercise (number 3), Modou could easily perform the conversational task about his personal data. However, instead of simply answering the questions, he also thought it was necessary to copy the text of the exercise, using dots between the words and alternating different fonts.

Esercizio 1. Copia
 CASA telefono TELEFONO PANE euro CANE
 CA... CA PANE euro CANE

Esercizio 2. Collega
 1. CASA
 2. TELEFONO
 3. PANE
 4. EURO
 5. CANE

Esercizio 3. Parla di te
 Come ti chiami? Quanti anni hai? Che lavoro fai?...

COME.TI.CHIAMI.QUANTI.ANNI.HAI?CHE.LAVORO.FAI?

Figure 1: Part of Modou's placement test at the Scuola di Pace

Subsequent to a more in-depth analysis of Modou's educational background it was possible to discover that he attended a Koranic school in Senegal for 13 years, albeit in a very discontinuous way, and it was during these years that he was only partially introduced to reading and writing practices in the Arabic alphabet.

Since the years of schooling and the alphabetic literacy level do not often coincide for these learners, in order to gain a better understanding of their specific linguistic situation and to plan an appropriate didactic intervention for the teaching of Italian, other objective and reliable literacy assessment instruments such as interviews and questionnaires were used.

3. Research questions

The present study aims at answering the following research questions:

- Is there a relationship between L1 literacy and L2 oral skills in the case of low-literate Senegalese immigrant learners of L2 Italian?
- Is it possible that even low-literate learners exposed to a didactic model in which speaking/listening abilities are favored (Koranic school) have an advantage in the development of the L2 prosodic competence compared to low-literate learners from other educational context (French school)?

4. Methodology

4.1. The speakers

To answer these questions, 20 Senegalese learners of L2 Italian were involved in this study. They were all male, mean age 31, living in Italy from 1 to 7 years (Table 1). The administration of a sociolinguistic questionnaire (with the help of a liaison contact in some cases) allowed the authors to collect information concerning their educational and linguistic backgrounds and their language(s) usage. They all indicated Wolof as their mother tongue and, as reported in Table 1, ten of them attended the French school and the other 10 the Koranic school (average of 7 years school attendance for both).

At the moment of the experiment, all the Senegalese learners were attending an L2 Italian course (A1/A2 level of the CEFR, Council of Europe 2001) at the *Scuola di Pace*. Their initial level of L2 Italian competence was assessed through a placement test, aiming to evaluate both oral proficiency and literacy skills. As in the case of Modou described above, all the Senegalese learners had developed basic oral abilities in the second language, but they had very poor literacy skills, independently of the kind of school attended in their home country.

Moreover, in order to obtain more objective data regarding the development of reading and writing abilities in their previous educational paths, a French literacy test was constructed and administered to all the Senegalese participants. The results of this test reported a low level of literacy in French for all the involved learners, corresponding to the 0-2 levels of OECD (Organization for Economic Co-operation and Development)⁵. As regards Arabic, the participants themselves declared their inability to use it in real communicative situations and in reading or writing texts other than the Koran. For this reason, a literacy test for Arabic was not administered.

A group of 5 native speakers of Italian, all men, mean age 32, was also involved in the research as a control group. At the time of the data collection, all the Italian and Senegalese participants lived in Naples.

Table 1: *Participants' profiles: personal data and educational background*

n.	Name	Age	Sex	Years in Italy	Years of schooling	Kind of school
1	Ass	32	M	4	6	French
2	Serigne	29	M	3	10	French
3	Mouhamadou	40	M	1	4	French
4	Elhaji	35	M	3	2	French
5	Mackiou	32	M	6	12	French
6	Matar	28	M	4	6	French
7	IbrahimaG	36	M	3	8	French
8	Cheikh Ibra	29	M	1	4	French
9	Amar	27	M	1	8	French
10	Boubacar	20	M	2	14	French
11	Ibrahima	39	M	5	6	Koranic
12	Babacar	29	M	5	7	Koranic
13	Khadim	31	M	1	5	Koranic
14	Papi	31	M	4	12	Koranic
15	Balla	33	M	6	10	Koranic
16	Cherk	34	M	1	3	Koranic
17	Modou	30	M	4	9	Koranic
18	Doudou	26	M	7	8	Koranic
19	Tamsir	35	M	4	6	Koranic
20	ModouN	34	M	2	10	Koranic

4.2. The task

In order to evaluate the L2 Italian oral skills of Senegalese low-literate learners, an Elicited Imitation task was constructed and administered to all the participants.⁶ They were asked to listen only once to 18 Italian stimuli (henceforth called model utterances) and to imitate them, regardless of the level of understanding of their meaning. It is important to underline that the model utterances were randomly administered and never proposed to the participants in written form.

The Italian model utterances were recorded by a male and a female native speaker. They were plausible sentences and presented different degrees of complexity on the basis of the following parameters:

- sentence length (in syllables);
- morpho-syntactic structures;
- lexical frequency;
- pitch contour (assertion, questions and orders).

In Table 2 examples of model utterances are reported, together with a brief description of their features. We will henceforth make a distinction between simple utterances (from six to ten syllables) and complex utterances (from eleven to twenty syllables). As we will see later, such a distinction will be of fundamental importance in the presentation of the results.

Table 2: *Features and examples of simple and complex model utterances*

	Features	Examples of utterances
Simple model	<ul style="list-style-type: none"> - 6-10 syllables - Fundamental vocabulary - Simple morphology - (S)VO order - Assertions, questions and orders 	<ul style="list-style-type: none"> - Parlo italiano - <i>I speak Italian</i> - Domani è sabato? - <i>Is tomorrow Saturday?</i> - Vieni subito qui! - <i>Come here, now!</i>
Complex model	<ul style="list-style-type: none"> - 11-20 syllables - Not basic vocabulary - Complex morphology - Subordination - Assertions, questions and orders 	<ul style="list-style-type: none"> - Fossi in te, non avrei la presunzione di essere impeccabile. - <i>If I were you, I would not presume to be impeccable.</i> - Il cortometraggio che hai visto aveva una trama accattivante? - <i>Did the short film you saw have a captivating plot?</i> - Te lo ripeto: non devi usare il pedale della frizione! - <i>I tell you once again: you must not use the clutch pedal!</i>

The Elicited Imitation task was initially tested with the control group of native Italian speakers, who, as expected, successfully performed it.

4.3. The corpus

The corpus obtained from the administration of the Elicited Imitation task to Senegalese learners and to the control group of Italians is composed of 450

imitations (18 utterances for each speaker). If we also include the models, the total number of collected utterances is 486.

5. Two kinds of analysis

The corpus of imitations was the object of two different kinds of analysis: a perceptual analysis and a spectroacoustic analysis.

5.1. The perceptual analysis

For the perceptual evaluation of the imitations provided by Senegalese learners, 10 Italian native speakers, all experienced teachers of L2 Italian without any specialized competence in phonetics, were involved in the study. They were chosen on account of their familiarity with foreign accented Italian and with the evaluation of non-native productions. Each involved teacher was asked to orthographically transcribe the imitations of two Senegalese learners and to rate them in terms of:

- accuracy;
- type of errors;
- effectiveness of the prosodic performance.

It should be noted that in the Italian context of second language teacher training courses, phonetics, from both a segmental and suprasegmental point of view, is often not considered a priority component of the syllabus. This neglect not only leads to a lack of awareness on the part of the L2 teacher as to the importance of phonetic and prosodic aspects, but this inattention is also reflected in L2 Italian textbooks as well as in L2 Italian classes⁷.

5.2. The spectroacoustic analysis

The spectroacoustic analysis was conducted with the use of Wavesurfer 1.8 (Sjölander & Beskov 2010) and Praat 5.3 software (Boersma & Weenink 2013). For every utterance the following parameters were measured:

- duration of segments (sec);
- duration of syllables (sec);
- durations of silent pauses (sec);
- F1 and F2 of vowels (Hz);
- F0 of vowels (Hz, then normalized in semitones).

A total amount of about 10 minutes of speech were analyzed and the measured syllables were about 3000.

6. Results

6.1. Simple utterances

In order to evaluate the degree of accuracy in the textual imitation of model utterances, the 10 Italian L2 teachers had to indicate for each imitation of Senegalese learners if it was unclear, partial or complete. When it was complete, they also had to specify if the imitation was correct in terms of morpho-syntactic structures and pronunciation.

As we can see in Figure 2, in the case of simple utterances all the subjects were always able to produce an imitation. However, some differences can be detected in the productions of the two groups of learners. The imitations provided by French school learners were more accurate (a higher % of complete imitation) if compared to the Koranic school learners' productions. In the first group, moreover, the amount of correct imitations (in the figure incorporated in the complete imitation percentage) corresponds to 32.1% on the total, while in the second group it corresponds to 24.7%. However, even when Koranic school learners were not able to easily imitate the utterances, they produced a partial imitation or a completely unclear utterance.

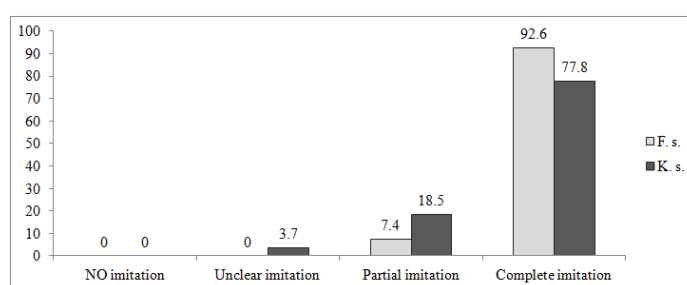


Figure 2: Accuracy evaluation of the textual imitation of simple model utterances. Percentage values on the total number of imitations (F.s. = French school; K.s. = Koranic school)

As regards the type of errors identified by the Italian L2 teachers in the Senegalese imitations (Fig. 3), there seems to be no great difference between the two groups of learners, with the exception related to the segmental pronunciation errors. The higher percentage of occurrence of these errors in the Koranic school learners productions may be due to a lower phonological awareness level in the context of Koranic school education (if compared to the French school).

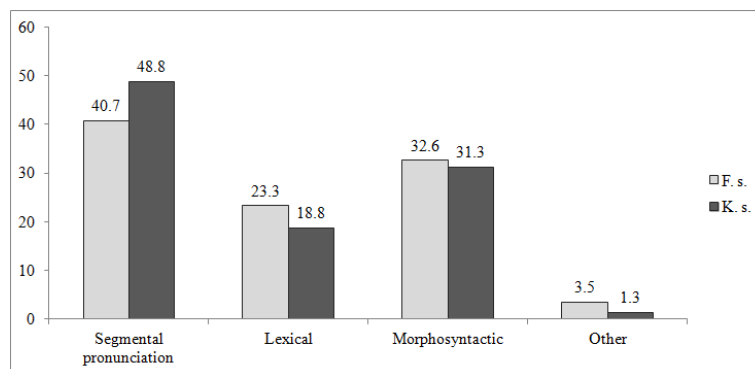


Figure 3: *Type of errors in the imitations of simple model utterances. Percentage values on the total number of imitations (F.s. = French school; K.s. = Koranic school).*

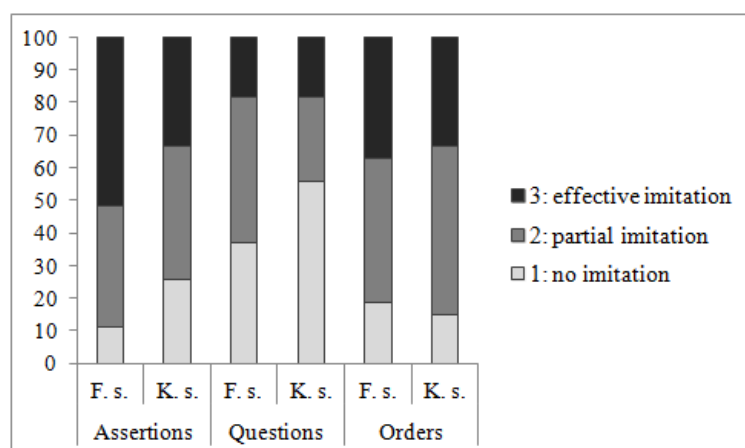


Figure 4: *Evaluation of the effectiveness of the prosodic performance in the imitation of simple model utterances. Percentage values on the total number of imitations (F.s. = French school; K.s. = Koranic school).*

In Figure 5, the intonational contours of models in two simple utterances (an assertion and a question) and the contours resulting from the mean F0 value for each vowel in the imitations of the two groups of learners and in the control group of native speakers of Italian (together with the respective standard deviations) are represented and compared.

It is possible to notice that both in the assertion and in the question, the most accurate imitations were, not surprisingly, those provided by the Italians of the control group, who share the intonational patterns of models.

Senegalese learners from the French school, on the contrary, represented the worst prosodic imitators. In the case of the assertion, they produced a quite flat melodic contour, while in the question, although there was a (late) attempt to reproduce the first intonational peak of the model, this peak is followed by an erroneous falling tone.

Learners from the Koranic school, on the other hand, demonstrated a greater ability to imitate the pitch contour of Italian models. In both utterances they tried to reproduce their intonational peaks, even if in the assertion the tonal range is considerably reduced and in the question the alignment of melodic peaks to the syllables of text seems to be quite problematic.⁸

In the case of orders, the difference between the prosodic performance of the two groups appears less pronounced, since all the learners, independently from their educational background, have more easily imitated the intonational contour of the model utterances.

Hence, if the results of the spectroacoustic analysis confirm the difficulties for both groups of learners in reproducing the Italian prosody of questions, they also show, in contrast to the L2 teachers' perception (Fig. 4), a quite marked difference between the prosodic competence developed by the French school learners and that of the Koranic school learners, especially as regards the imitation of assertions and questions.

6.2. Complex utterances

In the case of long (11 to 20 syllables) and very complex model utterances, all the learners found the imitation task difficult to perform because of their basic competence in L2 Italian and for the reduced effect of short-term memory.

According to the perceptual analysis on accuracy (Fig. 6), the French school learners did not want to imitate those utterances that were difficult to understand or to remember. The Koranic school learners, on the contrary, instead of failing to provide any imitation at all, preferred to produce completely unclear imitations or partial ones.

As regards complex model utterances, although learners from the French school presented a higher percentage of complete imitations compared to those from the Koranic school, both groups did not produce correct imitations and most of the productions from the learners were labeled by the teachers as "partial imitations".

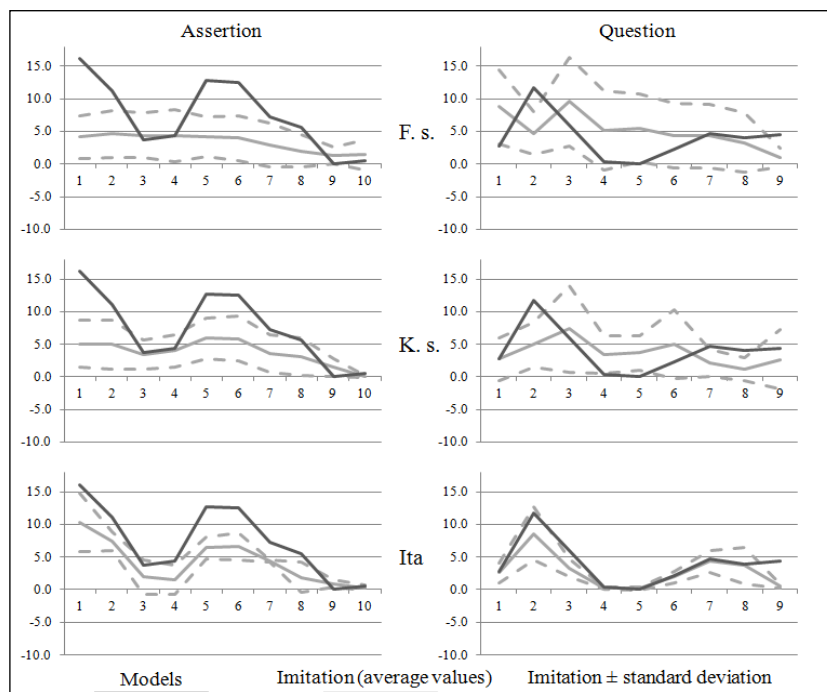


Figure 5: *Intonational contours in the model utterances and in the imitations provided by the two groups of learners and the control group (average values \pm standard deviation) in an assertion and a question (“Parlo italiano”, “Gli sposi sono già arrivati?”).*

An increase of lexical errors was observed by the Italian L2 teachers in both groups of learners (Fig. 7) with respect to the percentages identified in the imitations of simple utterances. This is probably due to the presence in the complex model utterances of a very difficult and unusual vocabulary. On the contrary, the percentage of perceived segmental pronunciation errors undergoes a decrease in the case of complex utterances (more attention being given by the raters to lexicon rather than to phonetics), while the values corresponding to the morpho-syntactic errors are quite stable in the two different sets of imitations.

The orthographic transcriptions provided by the Italian L2 teachers clarify that the label “partial” given to most of the imitations of complex utterances does not have the same meaning in relation to the two groups of learners.

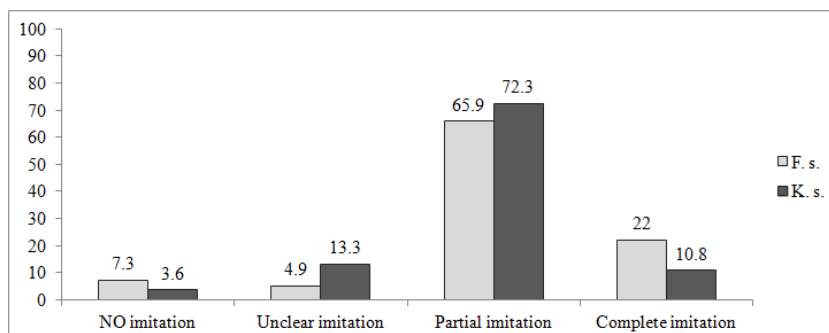


Figure 6: Accuracy evaluation of the textual imitation of complex model utterances. Percentage values on the total number of imitations (F.s. = French school; K.s. = Koranic school).

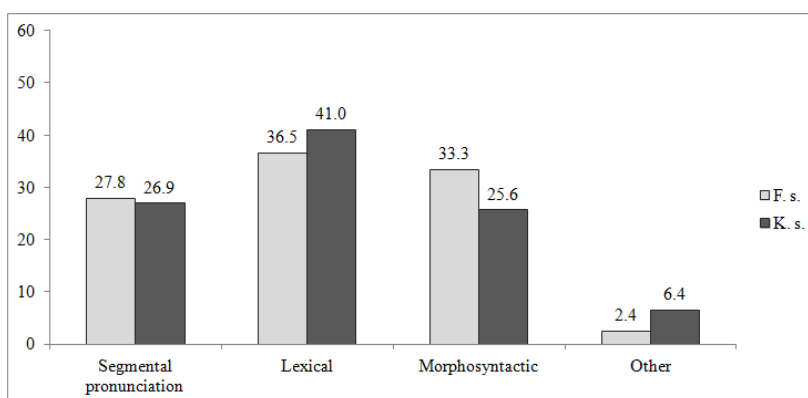


Figure 7: Type of errors in the imitations of complex model utterances. Percentage values on the total number of imitations (F.s. = French school; K.s. = Koranic school).

The French school learners used a range of strategies to cope with very long and complex utterances. In some cases they interrupted the imitation after the first 3-4 syllables, while in other cases they “filled” the sentences with very long silent pauses or repetitions. Finally, in other cases they also substituted the unknown words with more familiar ones.

Some examples of imitations provided by the French school learners are reported:⁹

Model utterance	<i>Te lo ripeto: non devi usare il pedale delle frizione!</i>
Imitation (speaker 4)	<i>Te lo ripeto non usare mai ... le pelale della ...</i>
Model utterance	<i>Somministri le compresse esclusivamente al dosaggio indicato</i>
Imitation (speaker 1)	<i>Siministri complimento ... clusivamente xxx disagio.</i>

The Koranic school learners, instead, had a completely different approach to the imitation task as they produced utterances with a peculiar structure as indicated below:

- at the beginning and at the end of the utterances they succeeded in imitating the model utterances from the textual point of view;
- in the central portion they interrupted the textual imitation, filling the gap with a sequence of not understandable sounds we will henceforth call *mumbling*.

Two examples of imitations by Koranic school learners are reported below:

Model utterance	<i>Fossi in te, non avrei la presunzione di essere impeccabile</i>
Imitation (speaker 15)	<i>Fossi in te xxx xxx xxx xxx xxx cabile</i>
Model utterance	<i>Perché usi ancora il cucchiaino di plastica?</i>
Imitation (speaker 18)	<i>Perché usare xxx di plastica?</i>

The spectroacoustic analysis carried out on the *mumbling* instances has shown that these central portions in the imitations produced by Koranic school learners do not correspond to filled pauses or to continuous sounds (such as vocalizations). They are rather sequences of simple syllables (with a CV structure), composed of a plosive or a nasal sound and a centralized vowel (Fig. 8).¹⁰

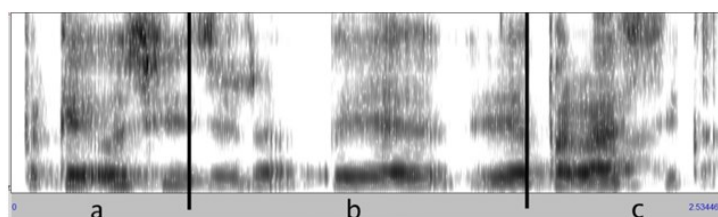


Figure 8: *Beginning, mumbling and end in the imitation of the question “Perché usi ancora il cucchiaino di plastica?” produced by a Koranic school learner.*

Throughout the particular syllabic structure of *mumbling* (which can be defined as hypo-articulated), learners were able to reproduce the rhythmical pattern of

the model utterance, independently from the textual imitation. It is necessary to add that the intonational analysis showed a very flat contour in the case of *mumbling* and in all the three considered speech acts.

As in the case of simple utterances, also in the imitations of complex model utterances the prosodic evaluation provided by the Italian L2 teachers (Fig. 9) neither seem to mirror the very different behaviors of the two groups of learners nor the results obtained by means of the spectroacoustic analysis of *mumbling*.

What can be noticed, however, is that French school learners' imitations were more often rated as "partial prosodic imitations" while in the evaluation of the Koranic school learners' productions teachers opted either for a very positive judgment or (more often) for a very negative one.

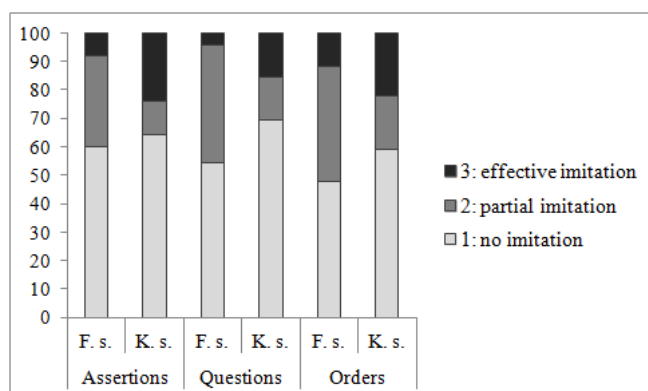


Figure 9: Evaluation of the effectiveness of the prosodic performance in the imitation of complex model utterances. Percentage values on the total number of imitations (F.s. = French school; K.s. = Koranic school).

7. Discussion and conclusions

In order to evaluate the oral skills and in particular the prosodic competence developed in L2 Italian by low-literate Senegalese learners with very different educational backgrounds in the home country, a corpus of imitations was collected and exposed to two different analytical approaches: a perceptual analysis and a spectroacoustic analysis.

Results seem to indicate that a relationship exists between the model of literacy in the L1 and the development of oral skills in the L2. The imitations provided by French school learners (both of simple and complex model utterances) were characterized by a higher level of accuracy from the textual point of view if compared to the productions of the Koranic school learners. This

is probably due to superior analytic skills that are developed in the context of French school education. A more detailed analysis of the orthographic transcriptions provided by the Italian L2 teachers could yield further information about the specific morpho-syntactic and lexical aspects of utterances produced by learners of the two groups.

Notes

- 1 For a detailed report on education, languages and society in Senegal see Cisse (2005).
- 2 It is possible to consult the UNESCO *eAtlas of Literacy* at the following address: <http://tellmaps.com/uis/literacy/>.
- 3 The reported data are available at the website www.istat.it.
- 4 Data from the *Scuola di Pace* archive.
- 5 For further information about the literacy policy and the evaluation criteria adopted by OECD, it is possible to visit the website <http://www.oecd.org/edu/innovation-education/adultliteracy.htm>.
- 6 The EI task has been considered one of the most effective methods to assess oral proficiency both in L1 and L2. For further in-depth analyses on the working principle and the methods of construction of this kind of task, see Bley-Vroman & Chaudron (1994), Christensen et al. (2010), Erlam (2006), Henning (1983).
- 7 These observations are based on the direct experience of the authors in the field of (second) language teacher training and in L2 Italian teaching. Moreover, it is worth mentioning that the prosodic aspects of L2 Italian have only recently aroused the interest of the academic community and the authors of this paper belong to one of the main research groups that are presently investigating this topic (see De Meo 2012; De Meo & Pettorino 2011; 2012; Pellegrino 2012).
- 8 Further observations on the possibility of prosodic transfer from Wolof can be found in Maffia, in press.
- 9 In the transcriptions, the three dots (...) indicate a silent pause and the *xxx* the presence of not understandable sounds. Different speakers are identified by the corresponding numbers in Table 1.
- 10 For a more detailed phonetic and prosodic analysis of the mumbling phenomena, see Maffia, Pettorino & De Meo, in press.

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