ABSTRACT: This research paper aims at contributing to the investigation on L2 speech production phenomenon analyzing fluency in monologic and dialogic oral production. In this paper fluency is approached in terms of speech rate and is measured in two distinct events, namely monologue and dialogue. Six Brazilian learners of English as a foreign language attending the third semester of a language course in Florianópolis participated in the study. Data was analyzed quantitatively, that is, the number of words produced was divided by the number of seconds spent to produce such words. Since the purpose of this study was to analyze fluency in terms of speech rate, variables such as accuracy, lexical density, and complexity were disregarded. For this analysis partial words, repetitions, and non-target-language words were excluded from the calculation. Results indicate that nature of the task affects speech rate. Another finding corroborates previous studies (Riggenbach, 1989; Ejzenberg, 2000) revealing...
that speech rate is higher in dialogic events in comparison with monologic events.

RESUMO: O objetivo deste trabalho é contribuir para a investigação sobre o fenômeno da produção da fala em segunda língua (L2), analisando a fluência da produção oral monológica e dialógica. Neste trabalho fluência é abordada em termos de velocidade e é avaliada em dois eventos distintos: monológico e dialógico. Seis aprendizes brasileiros de inglês como língua estrangeira, que frequentavam o terceiro semestre de um curso de línguas em Florianópolis, participaram do estudo. Os dados foram analisados quantitativamente, isto é, o número de palavras produzidas foi dividido pelo número de segundos gastos para produzi-las. Considerando que o objetivo do estudo foi analisar a fluência, em termos da velocidade, variáveis como correção, densidade lexical e complexidade foram ignoradas. Para este análise, partes de palavra, repetições, e palavras que não pertenciam à língua alvo foram excluídas da análise estatística. Os resultados indicam que a natureza da tarefa afeta a velocidade. Outro achado confirma estudos anteriores (Riggenbach, 1989; Ejzenberg, 2000), mostrando que a velocidade é maior nos eventos dialógicos em comparação aos monológicos.

KEYWORDS: L2 speech production, fluency, speech rate; monologue; dialogue.

PALAVRAS-CHAVE: Produção da fala, fluência, monólogo, diálogo.
INTRODUCTION

“Speaking is a complex task that requires processing at many different levels more or less simultaneously” (Schmidt, 1992 p. 376). Because of its productive characteristics, speaking in a second language (L2) involves the development of a particular communicative skill which, in turn, differs from reading and writing skills (Bygate, 2001). Due to the many variables involved in studying talk, research on L2 speaking is still in its infancy. Bygate (2001), for instance, points out that “for nearly 20 years the TESOL convention has run annual colloquia on the teaching of reading and writing, but not on speaking or listening” (p.14). On the other hand, the development of technology has favored the emergence of studies on L2 speaking. Beginning from the 70’s, the use of tape-recorder in language classrooms has enabled the widespread study of talk (Bygate, 2001). Therefore, this research paper aims at contributing to the investigation on L2 speech production phenomenon analyzing fluency in monologic and dialogic oral production.

Regardless of the concept of fluency among researchers, the totality of them seems to agree with the fact that fluency refers to a temporal phenomenon. Some studies (Richards & Schmidt, 1983; Lennon, 1990; Riazantseva, 2001) have shown that fluency involves a set of patterns such as speech rate, sentence selection, pausing and hesitation and even position of pausing and hesitation. Due to these various facets of fluency and to the complexity involving the observation of each variable, this study focu-
sed on L2 fluency in terms of speech rate. Here, speech rate is analyzed in two distinct oral activities – monologue and dialogue – in order to investigate the effect of type of oral activity on speech rate. The purpose of this first section is to introduce the objective of this study and to outline the structure of this research paper. In section two I introduce the theoretical background to the study. First, I point out the aspects of second language speech production. Second, I display some definitions of fluency. Third, I present speech rate definition. Finally, I deal with some factors influencing L2 speech rate. In section three, I introduce the objective of the present research paper and the research questions I aimed at pursuing. The significance of the present research paper is discussed in section four. Section five points out the method that was applied in order to carry out my investigation, the results of the study, and the conclusion. Finally, the limitations of the study are outlined in section six.

REVIEW OF LITERATURE

The theoretical background to the present research project includes the aspects of L2 speech production, the characterization of fluency, the definition of speech rate, and the factors influencing speech production.

Second language speech production:

Very few researchers have tried to explain how language is produced in the human brain. One attempt to figure out this complex process was offered by Levelt in 1989. Basically, Levelt’s model divides the speech production
process into message generation, grammatical encoding, phonological encoding and articulation. According to Levelt, these processes take place in three processing components, namely, the conceptualizer, the formulator, and the articulator. The conceptualizer is responsible for generating the messages. The author divides this step into macroplanning and microplanning. During the macroplanning process the speaker elaborates the communicative goals and retrieves the information needed to express such goals. During the microplanning process the speaker selects “the information whose expression may realize the communicative goals” (Levelt, 1989 p.5). The next component of Levelt’s model of speech production is the formulator. This component is responsible for grammatical and phonological encoding. In other words, the formulator gathers syntactic, morphological, and phonological information about the lexical items – which are stored in the mental lexicon – in order to form the utterances that will be produced. The last component, the articulator, is responsible for the phonetic and articulatory plans for the utterance. That is to say that, the “execution of the phonetic plan by the musculature of the respiratory, the laryngeal, and the supralaryngeal systems” (Levelt, 1989 p.12) is activated in order for the speaker to actually produce the utterance. Levelt’s model is considered a very influential model of speech production (Poulisse, 1991; De Bot, 1992). However, it is a monolingual model; therefore, my next step is to present a bilingual model for speech production.

Drawing on Levelt’s (1989) model of language production, De Bot’s (1992) model attempts to describe how L2 speech production takes place. In other words, while Levelt’s model describes monolingual processing, De Bot’s model is an attempt to adapt Levelt’s model to
bilingual processing. In his model, De Bot assumes that many aspects of speaking are the same for monolingual and bilingual speakers; therefore, his intention was to change the former model as little as possible.

Basically, the modifications made by De Bot to adapt Levelt’s monolingual model to a bilingual model are the following. Concerning the conceptualizer, De Bot suggests that it is not language specific, as presented by Levelt. Rather, the conceptualizer is language specific only in the second phase of language oral production – the microplanning – whereas the first phase – the macroplanning – is not language specific. In other words, during the elaboration of communicative goals and the retrieval of the information needed to express such goals – that is, macroplanning – there is no choice for language. Only when the speaker elaborates the communicative intention by selecting the information whose expression may realize the communicative goals – that is, microplanning – language is selected.

Regarding the lexicon, De Bot assumes that there is one single lexicon where lexical elements in different languages are stored together. For him, however, there is a separate system for every language as far as the processing components in the formulator – lemmas and forms – are concerned. In sum, lexical items are selected from one single lexicon but the syntactic information about the utterance – lemma - and the morphological and phonological information about the utterance – form – are assumed to have different entries for each language.

Finally, De Bot suggests that the articulator is not language specific. The bilingual speaker has models for all sounds and syllables in the different languages. That is, there is only one articulator for bilingual speakers who
have an extensive set of sound and pitch patterns from both languages to work with.

To conclude, L2 speech production can be considered a complex process not yet entirely understood. However, models such as Levelt’s (1989) and De Bot’s (1992), presented above, give us a path to follow in order to better understand learners’ performance in L2 production. Since speech production involves Levelt’s three components and since “speaking rate encompasses the working of the whole model” (Towell et al., 1996 p.93), the comprehension about Levelt’s and De Bot’s models of speech production become relevant for this study.

Fluency

There are a number of variables underlying the concept of fluency (Lennon, 1990; Schmidt, 1992; Pawley & Syder, 1983). For instance, to Lennon (1990) there is a broader and a narrow sense for fluency. The former represents “the highest point on a scale that measures spoken command of a foreign language” (p.389). The latter refers to “isolatable components of fluency such as correctness, idiomaticness, relevance, appropriateness, pronunciation, lexical range, and so on” (p.389).

Pawley and Syder (1983) analyzed fluency under a different perspective. They investigated nativelike lexical and grammatical selection in utterances, and nativelike fluency. According to them, native speakers select natural forms of expressions that are judged nativelike even if they are not grammatical. They suggest that if a language learner is to achieve nativelike control, then, s/he must learn not only the set of rules underlying the target language but
s/he must also learn a means for knowing which of the well-formed sentences are nativelike.

Another contribution for the definition of fluency comes from Fillmore (1979). According to the author, there are four categories of fluent speakers. The first one is the speaker who speaks fast, that is, who fills time with talk such as a disk jockey. The second is the one whose speech is coherent, complex and dense. Fillmore describes the third type of fluent speaker as being the one who knows how to use language appropriately, and in a variety of contexts. Speakers who control aesthetic functions of language, being creative and imaginative, would compose the last type of fluent speakers.

Finally, Riazantseva (2001) suggests that fluency is also related to controlling pausing and hesitation phenomena. The author investigated the relationship between L2 proficiency and pausing patterns. According to her findings, nativelike fluency presents norms of pause duration, frequency, and distribution of these pausing phenomena throughout language production. Riazantseva concludes her study suggesting that knowing how to pause and hesitate in an L2 is part of fluency characteristics to be achieved by L2 learners.

To sum up, the concept of fluency may be considered distinct for native and non-native speakers (Richards & Schmidt, 1983). It may also be related to other features such as correctness, pronunciation, and lexical choice (Lennon, 1990). Fluency may have a varied number of concepts and definitions but one feature seems to be common to any view of fluency, that is, its temporal feature. Therefore, the present research paper analyzed fluency as a temporal phenomenon, that is, it analyzed fluency in terms
of speech rate. The features of speech rate – as used in this study – are presented in subsection 2.3.

**Speech rate**

As we could see in subsection 2.2, there are different definitions for fluency. Rather, there are different viewpoints to approach fluency. But, apart from these viewpoints, there are also the variables within fluency itself. In other words, fluency presents variables – such as pausing, hesitations, reformulations, replacements, false starts, and repetitions – that also have to be considered in speech production.

Due to the fact that “measurement of pausing covers many factors” (Towell et al., 1996 p.92) and that knowing why speakers pause is hard to assess, the present research project did not analyze pausing and hesitation phenomena. It concentrated on the measurement of speech rate purely in terms of number of words produced per second in each activity. In other words, the measurement of speech rate excluded repetitions, non-target-language words and partial words, and was calculated by dividing the number of complete words in a given speech sample by the time taken to produce them (measured in seconds).

**Factors influencing speech production**

Doughty and Long (2000) state that the type of task and the conditions under which the task is performed may influence some L2 speakers’ output. That is, factors such as time pressure, nature of the task, planning, and time for planning may affect learners’ performance. As an example for the influence of time pressure in speech production,
Doughty and Long (2000) describe some situations in which learners know and can access and apply grammar rules but, due to time pressure, they “alter the message itself to avoid the linguistic problems, resulting in occasions when the absence of items in the data really may reflect ignorance” (p.155).

Concerning the nature of the task, some researchers have contributed to the elicitation of the factors influencing speech production (Riggenbach, 1989; Ejzenberg, 2000). For instance, in her doctoral dissertation, Riggenbach (1989) focused on two speech genres, namely dialogue and monologue. She approached fluency in these two oral language production activities in order to study what features of the speech of highly fluent speakers differed from those found in highly non-fluent speech. Her second goal was to investigate whether fluency differed across the two aforementioned speech genres. Here I will focus only on her second part of the investigation.

In order to answer the second research question, six subjects were selected. They performed dialogic and monologic tasks and their performances were audiotaped and transcribed for the analysis of fluency characteristics such as pausing, unfilled pauses, repair, and speech rate across the two speech genres. The results indicated that, in terms of pausing, subjects performed less fluently in the monologue as compared to the dialogue activity. Another aspect of fluency – unfilled pauses – was found to be more frequent and longer in the monologue than in the dialogue. Concerning repair, her findings revealed that there was an increase in the occurrence of repair in the monologue. Where speech rate is concerned, subjects spoke more slowly in the monologue than they did in the dialogue. This study confirms the assumption that not only the nature of
the activity does affect oral production but also that in monologic events learners’ speech rate lowers due to “the absence of an interlocutor or interviewer [which] forces the subject to be responsible for filling (or not filling) the discursive space [by herself/himself]” (Riggenbach, 1989 p.139).

Another factor influencing speech production is related to planning. Ortega (1999) reports that under conditions of planning, the subjects of her study were able to produce significantly more fluent and complex language. Results from her study indicate that opportunity to plan before an L2 speaking task enhances learners’ attention to form. Also, learners employ a wide variety of cognitive and metacognitive strategies in their oral production and monitor their output. The author suggests that planning may lessen the cognitive load of a given task and free up attentional resources needed to accomplish the task.

An analysis of speech production from a different perspective – time for planning – is presented by Mehnert (1998). In her study, she investigated different amounts of planning time on the speech performance of L2 speakers. She investigated four groups of learners. The first group had no planning time available and the other three groups had 1, 5, and 10 minutes of planning respectively. The results of her study showed that accuracy of speech improved with only 1 minute planning but did not increase with more planning time. Complexity of speech was significantly higher for the 10-minute planning condition only. To sum up, Mehnert’s findings reveal that planning time does affect L2 speech production.

Drawing from the above contributions, the present research study tried to lessen pressure over the learners by providing a friendly environment for the tasks. In other
words, learners were not told that their fluency would be measured in the tasks. They were told that the tasks were a rehearsal for an oral test they would have later on. Also, participants had 10 minutes for planning since, according to Mehnert (1998), “fluency and lexical density of speech increase as a function of planning time” (p.83). Finally, this researcher was aware that the nature of the task would influence participants’ performance.

OBJECTIVES OF THE STUDY AND RESEARCH QUESTIONS

The objective of this study was to investigate fluency in terms of speech rate in two distinct L2 oral activities, namely, monologue and dialogue. As stated previously, I did not analyze other variables of speech rate such as pausing and hesitation drawing on Towell et al’s (1996) assumption that measurement of pausing covers many factors and that knowing why speakers pause is hard to assess. The aim of this research project was to investigate the following questions:

- Does the nature of the oral activity affect fluency in terms of speech rate?
- In which of the oral activities – monologue and dialogue - does the speaker achieve higher speech rate?

SIGNIFICANCE OF THE RESEARCH:

In line with Bygate’s (2001) assumption that L2 speaking is an area of study that still needs a great amount of research, since focus has been, for a long time, on L2
reading, this study aims at contributing to the investigation of L2 speech production. The relevance of the study lies in three factors: 1) this study points out that the nature of the oral activity (monologue and dialogue) does affect L2 fluency in terms of speech rate; 2) besides, this study verifies that speakers’ speech rate is higher in dialogue than in monologue oral activities; and 3) the results of this study may contribute to better understanding of the factors influencing L2 fluency in terms of speech rate in the performance of monologue and dialogue activities.

The objective of the present study was to verify fluency, in terms of speech rate, in two distinct oral activities – monologue and dialogue. Two activities were applied in order to assess learners’ fluency. The participants, instruments and procedures used in this study are described below.

METHOD

Participants

Participants for this research were 6 learners of English as a foreign language attending the third semester of a language course in Florianópolis. Of the 6 subjects, 4 were woman and 2 were men, ages ranging from 18 to 22 with a mean of 20, thus predominantly young adult sample. All of the participants were attending undergraduate courses at the time of data collection, therefore, they are assumed to be culturally and cognitively able to perform the given tasks.
L2 SPEECH RATE

Instruments

In order to assess participants’ fluency in terms of speech rate in monologic and dialogic oral tasks, two materials were applied. For the monologic oral task a short story in written and visual forms was used (see appendix 1). For the dialogic oral task, maps of a city – drawn from the New Interchange course book (Ricahrds, 1997) – were used (see appendixes 2 and 3). Participants’ performances in the dialogic and monologic oral tasks were recorded at a language laboratory. With the help of a watch, I measured the time spent by learners in each task. Finally, I calculated the number of words produced per second in each task.

Procedure:

1. For the investigation on monologic speech production participants received a short story. Previous to the task, they read the short story in class and I solved any doubt concerning pronunciation and vocabulary (either giving the translation or explaining the word in English).
2. Participants had 10 minutes to prepare an oral retelling of the short story. Then, they were given five minutes to retell the story. Each participant accomplished the monologue task without resorting to any written material. They resorted only to the visual part of the story.
3. Participants’ speeches were recorded individually at the language laboratory. They did not know what was going to be measured.
4. For the investigation on dialogic speech production participants received a map of a city where one parti-
participant asked for information to the other participant in order to find the place s/he was supposed to reach. The target places were pre-established in the task.

5. Participants had 10 minutes to recognize the places they should reach in the map. I reminded them of the vocabulary necessary to the task (for instance: turn left, on the corner of, etc.).

6. Participants had 5 minutes to perform the dialogic oral task.

7. Each pair of learners performed the dialogue without resorting to any other material but the map. Their dialogues were recorded in pairs at the language laboratory. Participants were instructed not to speak at the same time, that is, while one participant was giving directions the other was not allowed to speak. This instruction was given because, in interactive discourse, interruption and scaffolding are common and can present considerable problems for analysis (Foster et al, 2000).

Data analysis and Discussion:

Data was analyzed quantitatively, that is, the number of words produced was divided by the number of seconds spent to produce such words. Since the purpose of this study was to analyze fluency in terms of speech rate, variables such as accuracy, lexical density, and complexity were disregarded. For this analysis partial words, repetitions, and non-target-language words were excluded from the calculation.

I decided to measure number of words per second instead of syllables per second (Riggenbach, 1989; Mehnert, 1998; Foster & Skehan, 1996) based on Bap-
tista’s (2001) investigation on pronunciation errors of Brazilian learners of English. In her study, she reports that Brazilian learners’ pronunciation of some words is affected by their L1. For instance, foreign words ending in other consonants are incorporated into Portuguese with the addition of a final /i/ (e.g. clube from club). Besides, according to Baptista (2001), sometimes Brazilian learners of English omit the final /i/ of English words where it should be pronounced (e.g. sit/city). They also tend to add a vowel to initial clusters beginning with /s/ as in school, street, and snow. Therefore, in order to control for these variables, speech rate was measured in terms of number or words produced per second.

Table 1 summarizes the speech rate found in both dialogic and monologic tasks. As we can see, in the dialogic events the majority of learners performed better than in the monologic event.

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monologue</td>
<td>1,30</td>
<td>1,02</td>
<td>0,95</td>
<td>0,87</td>
<td>0,71</td>
<td>0,86</td>
</tr>
<tr>
<td>Dialogue</td>
<td>1,49</td>
<td>1,06</td>
<td>0,82</td>
<td>1,31</td>
<td>1,25</td>
<td>1,54</td>
</tr>
</tbody>
</table>

In general terms, learners produced 24% less words per second in the monologic task than they did in the dialogic task. However, contrary to all the other participants, results from participant C ran counter to what was expected since she produced more words per second in the monologic task than she did in the dialogic task.
Data reported by Mehnert (1998) indicate that control for what learners do during planning time is relevant for L2 oral performance. Mehnert’s findings may explain why participant C produced more words per second in the monologic task than in the dialogic task. Since I did not control for their 10-minute planning time, participant C showed to take longer to realize, in the map, where was located the place that she was supposed to instruct her mate to reach.

Another important aspect of L2 speech production that may account for differences in L2 language production is related to processing. According to Levelt’s (1989) and De Bot’s (1992) theories of L2 production, speech production occurs in different compartments of the brain simultaneously. That is, first the speaker generates the intended message in one compartment of the speech production mechanism. Then, this preverbal message is sent to another compartment, which builds grammatical and phonological features of the message. Finally, another part of the mechanism concludes the process and the speaker actually produces the message verbally. Since these processes occur simultaneously and demand cognitive effort from the speaker, in monologic events the speaker may not have time to process all the information that s/he wants to convey – thus requiring more cognitive effort from the speaker – while in dialogic events the interactor gives her/him support to conduct her/his speech.

There also seems to be the case that individual differences may account for speech rate differences in distinct tasks since some participants did not vary significantly across dialogic and monologic events (for instance participant B) whereas other varied significantly (for instance participant F).
L2 SPEECH RATE

CONCLUSION

Due to the many variables involved in studying L2 speech production phenomenon, only in the last two decades has it begun to emerge as a branch of teaching, learning and testing in its own right. However, most of the focus in teaching oral skills has been limited to pronunciation (Bygate, 2001). In his review of L2 speech production, Bygate suggests that research on this area should “explore further how fluency, accuracy and complexity can be integrated, in particular through the use of different combinations and sequences of activity types” (p.19). Following Bygate’s suggestion, this research paper aimed at contributing to the investigation on L2 speech production phenomenon analyzing fluency in monologic and dialogic oral production.

The result of this study corroborates previous findings in relation to speech rate across tasks (Riggenbach, 1989; Ejzenberg, 2000). In other words, it indicates that in monologic tasks speech rate decreases in comparison with dialogic tasks. This may be due to the fact that “the absence of an interlocutor or interviewer forces the [subjects] to be responsible for filling (or not filling) the discursive space [themselves]” (Riggenbach, 1989 p. 139) thus implying in more cognitive demand for the speaker. Another factor for higher speech rate in dialogic events may be related to the fact that interaction requires negotiation for turns, thus serving as motivation for quicker rate of speech (Riggenbach, 1989). To sum up, it seems to be reasonable to state that 1) fluency, in terms of speech rate, is dependent on the nature of the task, and 2) speech rate is higher in dialogic events than in monologic events.
LIMITATIONS OF THE STUDY

Considering that this was a small-scale study and, consequently, faced time constraints, other important features of speech production, namely, complexity and accuracy were not considered as well as other variables of fluency such as pause and hesitation. Another important factor that should be considered for further research is controlling for planning time since this study indicated that controlling for what learners do during their planning time may influence oral performance.

REFERENCES


L2 SPEECH RATE


APPENDIX 1
A Sad Story

Some years ago, Mrs. Taylor was watering the plants in her garden, while her cat, Billy, was playing near her. Suddenly, Billy ran up a tree. Mrs. Taylor called Billy, but he couldn’t get down, so she called the Fire Brigade. While she was waiting for them to arrive, she tried to tempt him down with some fish. The Fire Brigade finally arrived, put up their ladder and rescued Billy. Mrs. Taylor was so pleased that she invited them for a tea. While they were having tea, they didn’t see Billy go outside again and, ten minutes later, as they were leaving, they ran him over and unfortunately they killed him.

(Unknown source)
APPENDIX 2

Pair work

1. Look at the map. You are on Third Avenue between Maple and Oak Streets. Ask your partner for directions to:
   a) a car wash
   b) a supermarket
   c) a flower shop
Mark the location on the map.
A: Excuse me. Is there a car wash near here?
B: Yes, there is. It's...

2. Now your partner asks you for directions to three places.
   Give your partner directions, using the expressions in the box.

Useful expressions
- Go right/left...
- Walk one block...
- Turn right/left...
- It's on the corner of...
- It's between...
- It's across from...
- It's next to...
- It's behind...
- It's in front of...

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APPENDIX 3

Interchange 13 Directions – STUDENT B

Pair work
1. Look at the map. You are on Third Avenue between Maple and Oak Streets. Your partner asks you for directions to three places.
   Give your partner directions using the expressions in the box.

Useful expressions
   Go right/left...
   Walk one block...
   Turn right/left...
   It’s on the corner of...
   It’s between...
   It’s across from...
   It’s next to...
   It’s behind...
   It’s in front of...

A: Excuse me. Is there a car wash near here?
B: Yes, there is. It’s...

2. Now ask your partner for directions to:
   a) a coffee shop  b) a shoe store  c) a bookstore
   Mark the location on the map.

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