Studies in English Language Teaching
ISSN 2372-9740 (Print) ISSN 2329-311X (Online)
Vol. 4, No. 1, 2016
www.scholink.org/ojs/index.php/selt

Repetitions as a Communication Strategy: A Case Study

Mirjana M. Kovac[1*]

[1] Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, University of Split, Split, Croatia

[*] Mirjana M. Kovac, E-mail: mirjana.kovac@fesb.hr

Abstract

This extensive study examines repetitions in English (L2) which are considered as indicators of speech disfluency as well as a communication strategy. The participants of this study were 101 first-year undergraduate students of technical studies who received nine years of formal instruction of English. The results revealed that the speakers tend to repeat shorter speech fragments, that is, the absolute majority of all repetitions comprised up to one syllable. Consequently, even shorter repetitions generally provide sufficient additional time for linguistic planning or retrieving a particular linguistic unit. The former conclusion refers to both L1 and L2 repetitions. However, the comparison with the results obtained for L1 in a previous study confirmed that the speakers in L2 employ considerably more repetitions compared to L1. This points to the conclusion that repetitions as a communication strategy in L2 are used in order to give the speaker the opportunity to hold the floor, namely, it prevents breakdowns in communication. Even though repetitions are considered as forms of speech disfluency, they are indeed a resource learners can use in order to engage in a conversation despite their limited language resources.

Keywords

repetitions, communication strategy, disfluency, monitoring theories, self-repair

1. Introduction

The speech production mechanisms are hierarchically organized processes in which the information changes while passing from one level to another. The speech production includes four main processes: a) the conceptualization or the planning of the content; b) the formulation, which includes the grammatical, lexical and phonological coding of messages; c) the articulation, which is the production of words; and d) the monitoring which involves the verification of the accuracy or appropriateness of the produced utterance. The processes follow one another in accordance with the above described order. Whereas the planning of the message in the production of the native language (L1) requires attention, the formulation and articulation of messages are automated processes, which can work in parallel without the speaker's conscious attention. However, despite the automated nature of the native language, the speakers do not produce perfect speech, on the contrary, they hesitate, restart and repeat some erroneous parts. Disfluencies are frequent in spontaneous human communication, and occur as a byproduct of speech planning and the attempt to harmonize the formulation of the utterance with other cognitive processes. “Disfluencies are phenomena that interrupt the flow of speech and do not add propositional content to an utterance” (Fox Tree, 1995, p. 709). They include interruptions within phrases or words, self-repetitions, restarts of unfinished utterances, sound lengthening and filled pauses such as *uh* and *um*. Furthermore, the problems can occur at any level of the speech production process, that is, during the planning process, lexical retrieval or articulation. According to Shriberg (1994), the cognitive effort causes disfluencies which appear before longer utterances, or in case of unfamiliar topics (Bortfeld et al., 2001). In their view, speech production is a time-consuming process in which the speakers allocate their time to periods of information planning, the formulation of the linguistic structure, and finally to the speech plan articulation. In this complex process some components of the speech mechanism can fail resulting in speech errors produced by the speaker. The speech production is a system that distinguishes two basic levels. The first level includes the knowledge about the world that is stored in the long-term memory, and accordingly, the speaker will organize the conceptual speech plan. Also, it contains the knowledge of language and speech mechanisms, which will allow the speaker to convert the information into a linguistic form, that is, into actual speech. The second level of processing involves the mechanisms by which the speaker retrieves, selects and activates components from the long-term memory and incorporates them into the current expression by creating overt speech. On the other hand, errors can occur on both levels because of imperfect speech production programs. Frequently, it can cause various forms of disfluencies or delays, interruptions which include the repetition of utterances, as well as overt repaired or unrepaired errors.

Nakatani and Hirschberg (1994) reported that 10% of all utterances in L1 include some sort of correction, and Fox Tree (1995) pointed out that speakers produce about six disfluencies per 100 words. Nooteboom (1980) concluded that 50% of errors in L1 remain uncorrected. Usually, the reason for not correcting errors may be twofold, firstly, the mechanism does not detect an error, and secondly, the speech is sufficiently redundant and there is no need for repair since the listener can interpret the utterance without correction. According to Dell (1986), speech errors are caused by the erroneous activation of certain nodes. Therefore, the realization of a particular unit depends on its activation degree, but also on the activation of other units that are organized in associative network nodes. Hence, the unit which is in the realization process at a given time must be deactivated to empty the place for another unit.

Repetitions are indicators of speech disfluencies that occur due to problems in the planning phase, or as a result of a prolonged activation of an element and an insufficient activation of the next one. Some authors recognized repetitions as covert repairs due to the absence of overt errors and assumed that errors are corrected before the articulation (Levelt, 1989; Postma & Kolk, 1992). Repetitions can also be defined as mechanisms for gaining time, or as mechanisms in the service of problem solving during the process of utterance planning, thus enabling the speaker to hold the floor in communication (Rieger, 2000). Fox Tree (1995) defined repetitions and false starts as forms of speech disfluencies. In her view, the violated syntax in the case of false starts may adversely affect the message-understanding process and result in increased cognitive effort while processing the new message. On the other hand, in case of repetitions there is no change in the message informative content, and there is no change in the original syntax or semantics.

The next section presents the psycholinguistic theories that try to explain the monitoring process and how the system detects incorrect or inappropriate speech. Although disfluencies such as repetitions, filled pauses or sound lengthening do not indicate an error in the true sense, their presence can still point to covert repairs which are not directly manifested on the surface (Levelt, 1989). Repetitions of shorter speech fragments may be explained by Dell's (1986) theory of spreading activation or the ability of the articulator to independently initiate a restart. The monitoring theories are followed by previous research conducted on repetitions. In the continuation of the paper the research methodology is explained, followed by the result analysis and the comparison of the results with L1 findings (Kovač & Horga, 2011). Finally, the corresponding conclusions are outlined.

2. Repetitions and Monitoring Theories

Berg (1986, p. 134) defines the monitor as a "mental eye" which takes part in the course of planning and message processing. The fact that the monitor can only "observe" what is going on, implies the assumption that the monitor has no possibility of process interference. Contrary to monitors, the filters have the ability to "vetoing the material prepared for articulation" (Berg, 1986, p. 134). On the other hand, editors complement filters "by replacing the item vetoed by a more acceptable or appropriate ones" (Berg, 1986, p. 134). The main theoretical approaches to monitoring include the editor theories, the spreading activation theory of monitoring and the perceptual loop theory where special attention is given to explaining the phenomenon of error repairs.

The editor theories assume the existence of the editor which is in charge of noticing and replacing the erroneous output data of the speech production process. One possibility is that the editor has its own system of rules that checks the validity of the output data. Baars, Motley and MacKay (1975) and Motley, Camden and Baars (1982) have developed a model in which the prearticulatory editor verifies the expression immediately prior to articulation using the criteria of lexical, syntactic and semantic appropriateness, situational context and social appropriateness. However, if this mechanism worked perfectly, it would not allow the occurrence of errors, which in reality is not the case. The authors describe the possible reasons for failing to repair: a system of rules used by this mechanism is degenerate (Garnsey & Dell, 1984), or the rules change at a certain point (Motley, Camden, & Baars, 1982). In the second case, the application of certain rules depends, among other things, on the context and the available attention. Garnsey and Dell (1984) argue that the existence of the prearticulatory editor, which prevents the occurrence of erroneous and improper output data, can be confirmed in the studies of experimental errors, in the so-called *Tip of the tongue* phenomenon (Baars, Motley, & MacKay, 1975; and Motley, Camden, & Baars, 1982). The disadvantage of this model is that the editor can only check the final product of the process and is not able to detect an error at the intermediate levels. Furthermore, the knowledge the speaker needs in order to decide on the suitability of the prearticulatory output data must be reduplicated, which is extremely uneconomical (Berg, 1986; Levelt, 1989).

In order to eliminate some of the problems that the theory of prearticulatory editing fails to explain, several researchers (Nooteboom, 1980; Norman, 1981; Postma & Kolk, 1992) assumed the existence of a specialized monitor at every level in the processing system, which supervises the validity of the output data at a given level. This version of the editor theory is called production theory of monitoring, because the monitor has access to various stages of production. However, in this case the monitor should contain the same or about the same knowledge as the capital process component. If the monitor halted the process of speech production at every level, the process could be carried out only serially, which would greatly reduce the processing speed (Berg, 1986; Blackmer & Mitton, 1991; Levelt, 1989).

Finally, Stemberger (1985) and Dell (1986) developed the first detailed model of interactive spreading activation in speech production. The theory is based on an interactive unit network, such as words, morphemes, phonemes, and generative rules used to create slots for a particular unit. In this model, decisions are made based on the activation degree of certain nodes representing the units. Thus, units with the highest degree of activation will be selected for further processing. Dell (1986) argues that the activation can spread in two directions, from top to bottom and vice versa. Speech perception takes place during the activation from the bottom up, and this mechanism is effective when the speakers monitor their own speech. Therefore, it is assumed that the monitoring is an important trait for the understanding and the production of speech, as well as an integral part of the same process, thus consequently, the existence of a separate device for monitoring is not assumed. In a parallel and interactive framework of speech production monitoring is "an automatic by-product of bottom-up activation spreading" (Berg, 1986, p. 139).

However, there are some uncertainties related to monitoring. Firstly, if the errors were automatically detected, the monitor should register all errors and then issue the command for correction (Levelt, 1989). However, empirical research has shown that speakers do not correct every error in their speech. Secondly, monitoring includes not only the identification of an erroneous linguistic output, but also the recognition of pragmatically inappropriate utterances to be transferred, thus, models of activation do not explain this important aspect of monitoring (Levelt, 1992).

Based on the insights of the theories of prearticulatory monitoring and the spreading activation, Levelt (1989) developed a new model for detecting erroneous output. In Levelt's model the processing components are "specialists" in certain functions that must be performed, which means that they do not share the processing functions. The component or the module will begin processing only if it receives a certain input. Levelt assumes that the processing is incremental, that is, the following processor can start operating even before the completion of the output data from the previous processor.

The preverbal message is forwarded to the formulator and the conceptualizer can start working on the next part of the message, regardless of whether the previous part of the message is still being processed. As a consequence, the articulation of the utterance can begin much earlier than the speaker finished with the planning of the whole message. Furthermore, all processors can work in parallel, but not at the same time on the same part of the expression that is created, but on its other parts. This is possible because most of the mechanisms in the production of L1, particularly in the coding phase, are fully automated. The incremental, parallel and automated processing nature can explain the high speech rate.

The preverbal plan is the output data of the conceptualizer and simultaneously the input for the next processing module or the formulator, which is in charge of choosing the lexical units and the grammatical and phonological coding. The formulator "translates a conceptual structure into a linguistic structure" (Levelt, 1989, p. 11). Moreover, the formulator retrieves the information from the speaker's mental lexicon, which in Levelt's model consists of lexical entries, each consisting of

a) a lemma, which determines the meaning and the syntax of lexical entries;

b) a lexeme, which carries the information on the morphophonological form of lexical entries.

The basic process occurring in the formulator is the lemma activation. The speaker retrieves the lemma with a meaning that best corresponds to the semantic information of the preverbal plan. Then, the formulator accepts the preverbal message, encodes the grammatical and phonological structure, and produces a phonetic and articulatory plan. The grammatical processor accesses the lemmas in the lexicon, creates syntactic constituents (noun phrase, verb phrase, etc.) and produces a linear array of elements to be expressed. Finally, the phonological processor accesses the formal part of the lexicon and creates a morphological and phonological form of the utterance, including the prosodic features.

According to Levelt's processing system, the speaker monitors the production of the utterance with the help of monitor loops associated with the monitor. These are direct feedback channels returning to the monitor in order to check the final product of the production process. The first loop compares the preverbal plan with the original intention of the speaker before the plan is forwarded to the formulator for further processing. Blackmer and Mitton (1991) and Levelt (1989) called it the conceptual loop. Its function is to watch over the expression's appropriateness, that is, to detect conceptual and semantic errors. Blackmer and Mitton (1991) and Van Hest (1996) concluded that conceptual errors are corrected significantly slower than lexical and phonological errors. The reason is the fact that it is difficult to reject an incorrectly selected concept, thus, more time is needed for the self-correction, because it requires the creation of a new communicative intention (Postma, 2000).

The second or the inner loop is responsible for the monitoring of the phonetic plan or the inner speech before articulation, which is called covert monitoring (Postma & Kolk, 1992, 1993; Postma, Kolk, & Povel, 1990; Wheeldon & Levelt, 1995). The inner loop allows the speaker to discover the error before it manifests itself on the surface level. Levelt (1989) argued that this parsing takes about *150-200* ms after the creation of the phonetic plan, and the error will be observed approximately *150* ms after its appearance. Moreover, the articulator will accomplish a speech plan after *200-250* ms, and in this way

100 ms are left for the detection and error correction. Even more time is available if the phonetic plan is temporarily buffered, while waiting for the articulatory realization (Postma, 2000). The key issue is the size of the buffer and the articulation rate. Blackmer and Mitton (1991) considered that a specific subprogram for restarting is located between the articulatory buffer and the articulation level. Postma and Kolk (1993) call this subprogram a buffer-articulation timing monitor that is sensitive to the timing of new material to be articulated. If the new input data is not available at the time when the articulator has ended with the creation of a particular speech program, and the sentence is not completed, surely an error must have occurred. In their view, the articulator has an autonomous ability of restarting, that is, the old program will be activated for the second time, in other words, a repetition will occur. This often happens at higher speech rates, which hinder temporary storage, thereby increasing the possibility of mistiming, which results in the repetitions of shorter speech segments. Error detection prior to its external manifestation depends on the availability and capacity of the articulation buffer. A higher speech rate reduces temporary storage (Blackmer & Mitton, 1991; Levelt, 1989; Van Hest, 1996). Oomen and Postma (2001) used a modified Levelt's model (1989) in tasks in which they manipulated the speech rate. The participants were asked to describe a faster or slower movement of the dots within the network. The authors observed a significantly increased cognitive effort at higher speech rates, and the disfluencies followed a certain pattern: the participants produced more repetitions at higher speech rates, but they did not frequently use the filler *uh*. The repetitions were explained with the ability of the articulator for autonomous initiation or restart (Blackmer & Mitton, 1991). If, due to the increased cognitive effort, the phonetic plan can not be synchronized with the articulation process, then the articulation of the existing phonetic plan will be restarted, resulting in the repetition of the already articulated speech segments.

The produced utterance will be checked after articulation, which constitutes the final or the external loop of monitoring, which includes the acoustic-phonetic processor. Once the speaker notices an error or inadequacy in any stage of speech processing, the monitor will issue an alarm signal, and the same mechanisms for the speech production will be triggered for the second time.

If an error has occurred in the process of speech coding, the same preverbal plan will be reissued and processed, in the hope that this time the output data will be error free. If there is a disagreement between the preverbal plan and the speaker's original communicative intention, or if the speaker notices that the message is inadequate or inaccurate, the conceptualizer will produce a new message, which will then be encoded by the formulator.

The researchers assume that covert self-repairs follow the same pattern as overt self-repairs (Levelt, 1983; Berg, 1986; Postma, Kolk, & Povel, 1990; Blackmer & Mitton, 1991, Postma & Kolk, 1992, 1993). Since the repair is not overtly articulated, the presence of indirect manifestations such as repetitions, hesitations, sound lengthening, and silent pauses indicates the existence of such a process (Postma & Kolk, 1992). "Covert repairs are problematic given that it is almost always impossible to determine what the speaker is monitoring for" (Levelt, 1983, p. 55). Levelt (1983) believes that any hesitation that includes the filler *uh* can be categorized as a covert repair. "Quite common are covert repairs where the same word is repeated without change" (Levelt, 1983, p. 44). Postma (2000) also stated that covert repairs are often very vague, and therefore difficult to classify.

"As such, certain classes of hesitations are sometimes considered as covert repairs, and sometimes they are not regarded as real repair phenomena, but more as the direct results of difficulties in word finding or conceptual selection" (Postma, 2000, p. 106).

Levelt (1983) assumes that the different forms of speech disfluencies such as filled pauses, sound lengthening and repetitions are indicators of covert repairs. Postma and Kolk (1993) are of the opinion that covert repairs play an important role in the theory of stuttering. These authors believe that the disfluencies in people who stutter are determined by the prearticulatory interruption of speech, and that those people exhibit a disorder in the phonological coding, which leads to a large number of errors in the speech plan. However, the researchers emphasize that hesitations or repetitions can be attributed to other factors besides covert repairs, primarily to the increased effort in processing, to the temporary unavailability of the required piece of information or to the planning of the units in advance (Garrett, 1982; Clark & Wąsow, 1998). Thus, Lennon (1990) believes that repetitions and filled pauses are interrelated and serve as means of solving problems in the phase of utterance planning, contrary to the self-repairs, which are not related to them, and which are in the service of different functions in the production of speech.

3. Research Conducted on Repetitions

Maclay and Osgood (1959), Lickley (1994), and Rieger (2003) analyzed the phenomenon of repetitions and concluded that functional words, such as prepositions and articles, are more often repeated than content words, such as nouns and verbs. Fox, Hayashi and Jasperson (1996) investigated the differences between self-repairs in English and Japanese as well as the differences in the production of repetitions. The results showed that the speakers of English used repetitions in speech in order to postpone the production of nouns, unlike the Japanese who did not use this strategy. The English repeated articles and prepositions in order to gain time while searching for the noun, unlike the Japanese who used a different strategy to gain time. The authors concluded that the phenomenon of repetition is determined by the specifics of a language.

The participants in Rieger's (2003) study were eight English and German bilinguals. The qualitative data analysis revealed that the basic functions of repetitions as self-repair devices in English and German were production delaying and/or preventing the interlocutor from taking the floor. The use of repetitions allowed the speakers to remain active in communication or it provided the time required for finding a specific word or construction. English-German bilingual speakers differently used repetitions as a self-repair strategy, depending on the language they were currently speaking. The participants more often repeated personal pronouns in English than in German, the pronoun-verb combinations and prepositions, and "recycled" more demonstrative pronouns in German than in English. Rieger explained this phenomenon by the differences in the morpho-syntactic structures of English and German.

Shriberg (1994) examined disfluencies such as “um”, repeated words, and different forms of self-repairs in the spontaneous speech of American English. She provided evidence that disfluencies display remarkably regular trends, that is, these regularities have consequences for the models of human language production, and also, they can be exploited to improve speech performance.

Wood’s study (2006) was performed to identify the functions of language formulae in the development of speech fluency in the narrative retelling in English as a second language. Wood concluded that the most common characteristics of story-telling in English are the use of fillers and repetitions.

Rabab’ah (2013) conducted a study on repair strategies which the participants use to overcome difficulties in communication. He concentrated on self-repairs and repetitions. The results of the study showed that both German and Jordanian non-native speakers of English resorted to strategies of repair in order to gain additional time for retrieving a particular linguistic unit and to maintain conversation. Also, repetitions were used more frequently than self-repairs. He concluded that both strategies are natural in everyday communication and that repetitions perform a wide range of functions.

Branigan, Lickley and McKelvie (1999) studied the role of non-linguistic factors in the production of repetitions. Speakers who could not see the interlocutor produced more repetitions than those who could see him/her. The task also included the description of the route on the map, as well as the repetition of the same task, whereby fewer repetitions were recorded than during the performance of the task for the first time. They concluded that eye contact and the task familiarity affected the occurrence of repetitions and self-corrections.

Horga (2008) analyzed spontaneous conversation in radio broadcasts and the characteristics of the interrupted speech within the model which he termed IIR model (interrupted part, interruption, repeated part). The author distinguished two types of IIR segments: the first with a shorter interrupted part and shorter interruption, and the other with a longer duration of these two parts of the IIR. Horga explained the repetition phenomenon with the spreading activation theory (Dell, 1986), when different levels of speech representation (distinctive features, phonemes, syllables, morphemes, words) become activated during speech production, whereby the inappropriate activation of certain nodes causes speech errors, as well as the interruptions of articulation programs. In order to serially incorporate an element into the expression, an element has to be sufficiently activated at the right moment, however, its activity must also be decreased at the right time in order to be replaced by the next element. Therefore, the repetition is a result of a prolonged activation of an element and an insufficient activation of the next which should replace the former one. This is especially the case when the interrupted part is very short and where the interruption period equals zero. Consequently, this points to problems arising at the lower or articulatory level. On the other hand, the second type of repetition refers to interruptions followed by some form of disfluency: filled pauses, sound lengthening, silent pauses or cases when during the break the interrupted part is repeated several times. This type of repetition explains the problems at the conceptual level, when the speaker during the interruption plans the following elements of his/her expression. Problems at the higher linguistic or conceptual level require the involvement of central mechanisms in order to eliminate the wrong program and to program the new one.

In most cases repetitions were analyzed within the broad framework of communication strategies. Dörnyei and Scott (1997) pointed out that L2 speakers use repetitions because they need more time to process and plan L2 speech compared to their native language. Stuart and Lynn (1995) investigated repetitions as communication strategies and found that the non-native speakers used them more frequently than the native speakers. Genc, Mavasoglu and Bada (2010) dealt with the types and functions of repetitions in the narrations of Turkish speakers of French and found that the main function of repetitions was to delay the production of the next lexical item and to repair. Moreover, that period gave the speaker the possibility to hold the floor and it gave him/her time to engage in linguistic and/or cognitive planning. Also, pronouns, determiners and verbs were the commonest repeated elements.

Again from a different perspective, Sawir (2004), in this respect, held that despite the old view which considered repetitions as indicators of speech disfluency, it is a resource that language learners can benefit from because it enables them to remain in the conversation despite their language limitations.

Kovač and Horga (2011) investigated repetitions in the Croatian language (L1) as one form of speech disfluency. In their research the absolute majority of all repetitions were of very short duration, comprising up to one completed syllable. In most cases repetitions were not followed by some kind of disfluency. The tendency of repeating shorter speech fragments, which were not preceded by some kind of disfluency, primarily pointed to problems arising at lower processing levels.

4. Methodology

The subject group consisted of 101 first-year undergraduate students of technical studies in Croatia who received nine years of formal instruction of English. It was presumed that the participants must have reached the B1 level according to the Common European Framework of Reference for Languages (CEFR). Every participant, was given five different speech tasks to perform and they were asked to talk as naturally as possible. In the first task the students watched the cartoon which was chosen for its clear and comprehensible language. Each participant had to retell the content of the story. In the second and third task the participants were asked to describe the picture of a room that had six pieces of furniture. In the fourth task the subjects had to form sentences based on different and semantically unrelated drawings. Finally, the fifth task was a story narration. The participant had to make up a story based on five unrelated drawings. The same tasks were performed in L1 (Croatian) in a previous study with the same participants (Kovač & Horga, 2011). The recorded data were carefully transcribed. All verbal components as well as all pauses and sound lengthening were included in the transcript. In addition, particular attention was given to repetitions which were of major importance to this study and thus were included accurately and meticulously into the transcript.

5. Study Results

The total number of repetitions in the transcribed corpus was *1468*. The reduction of the number of repetitions per *100* words resulted in the amount of *2.58* repetitions, which is over *77*% higher than the number of repetitions per *100* words obtained for L1 (Kovač & Horga, 2011). The total number of repetitions per hour was *147.28* and *2.46* per minute. The average number of repeated syllables was *1.52*, while the average number of repeated words amounted to *1.32*.

The frequency diagram of repetition lengths expressed by the number of repeated syllables, s_r, is shown in Figure 1. It is evident that the repetition of one unfinished (interrupted) syllable ($s_r = 0.5$) occurred in *188* cases (*12.81*%), while the repetition of an unfinished second ($s_r = 1.5$), third ($s_r = 2.5$) and subsequent syllable occurred in only *89* cases (*6.06*%). Exactly *900* out of *1468* repetitions last for up to one completed syllable (*61.308*%), which means that the absolute majority of all repetitions in L2 are short in length. The cumulative frequency diagram of repetition lengths can be seen in Figure 2. It may be noted that the length of over *86*% of all repetitions in L2 is up to two syllables.

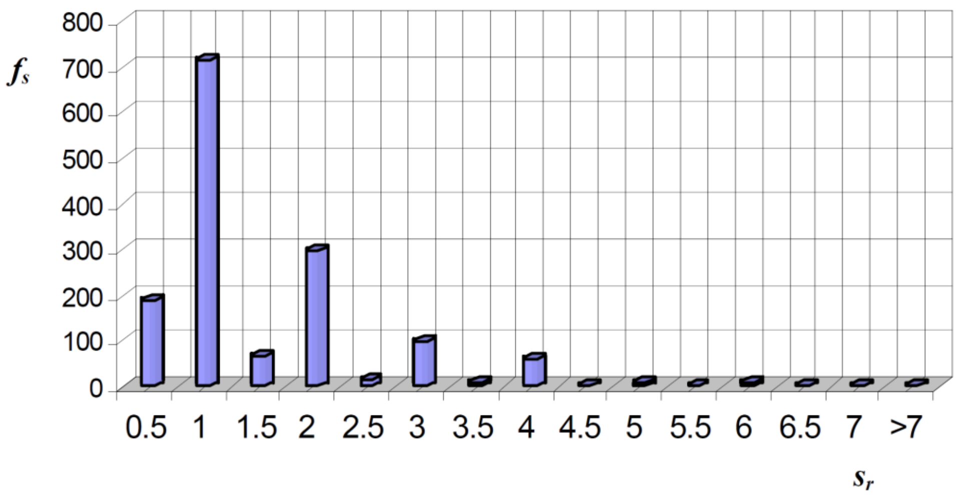

Figure 1. Frequency Diagram of Repetition Lengths Expressed by the Number of Repeated Syllables

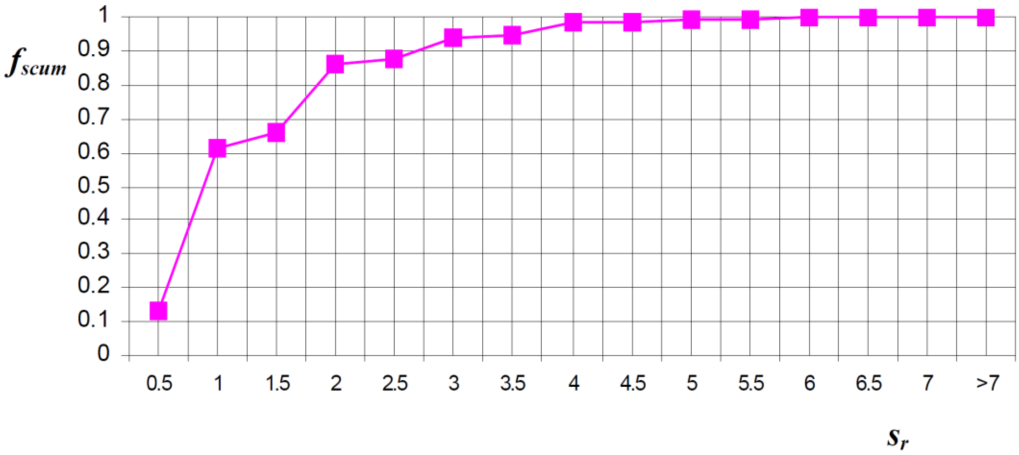

Figure 2. Cumulative Frequency Diagram of Repetition Lengths Expressed by the Number of Repeated Syllables

The frequency diagram of repetition lengths expressed by the number of repeated words, w_r, is shown in Figure 3. The repetition of one unfinished word occurred in *257* cases (*17.51*%), whereas the repetition of the unfinished second ($w_r = 1.5$), third ($w_r = 2.5$) or any subsequent one appeared in only *72* cases (*4.91*%). From the cumulative frequency diagram, Figure 4, it can be noted that almost *70*% of the repetitions included up to one word (interrupted or one completed word), and over *90*% included up to two words.

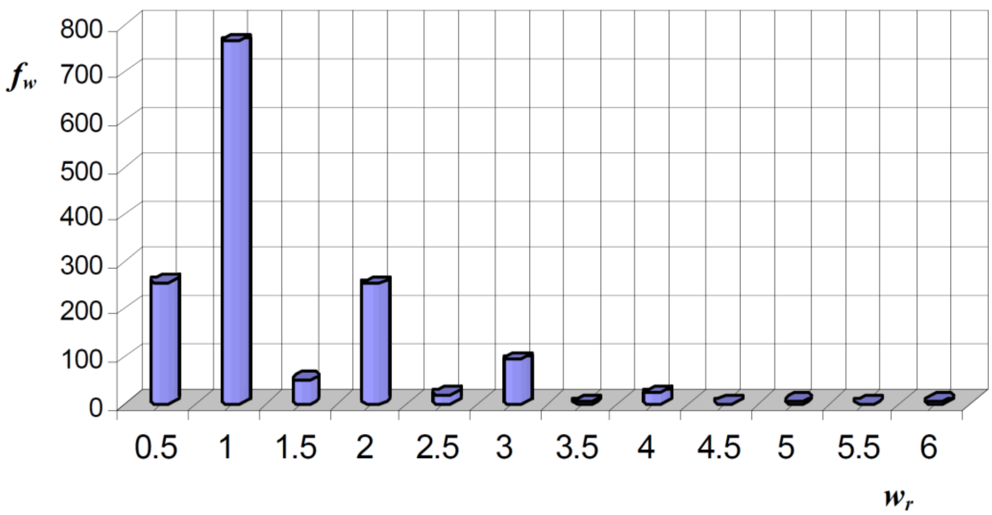

Figure 3. Frequency Diagram of Repetition Lengths Expressed by the Number of Repeated Words

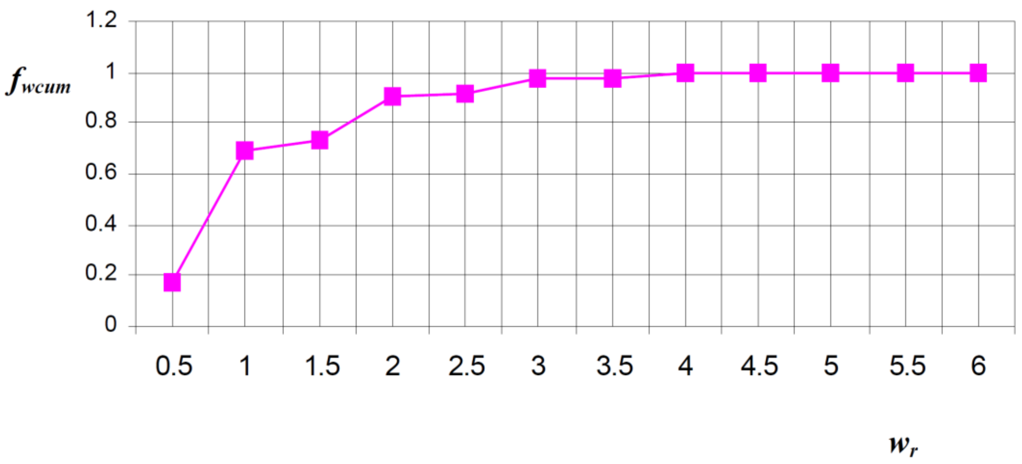

Figure 4. Cumulative Frequency Diagram of Repetition Lengths Expressed by the Number of Repeated Words

Single and multiple repetitions are presented in Table 1. It can be seen that the great majority of all repetitions were single repetitions (*94.21*%), but unlike L1, in L2 double and triple repetitions were also recorded.

Table 1. Single and Multiple Repetitions in L2

Repetitions	***Nr***	***pr (%)***
Single	***1383***	***94.21***
Double	73	4.97
Triple	12	0.82
Total	1468	100

Note: *N_r—total number of repetitions, p_r—percentage share of repetitions*.

Figure 5 presents the frequency diagram of the number of repetitions per minute, n_m. The ordinate axis presents the frequencies of the participants, f_p, whose repetitions per minute belong to a corresponding abscissa interval. It is evident that the highest frequency occurred for interval [*1.5, 2*], that is, *17* speakers produced from *1.5* to *2* repetitions per minute. However, a small number of speakers produced more than four repetitions per minute, whereas around *80* speakers, or around *80*% produced from *0.5* to *3.5* repetitions per minute. The cumulative frequency diagram of repetitions per minute, Figure 6, suggests that almost *70*% of the speakers produced up to three repetitions per minute. Less than *45*% of the speakers produced up to two repetitions per minute, unlike L1, where approximately *75*% of the speakers produced up to *2* repetitions per minute.

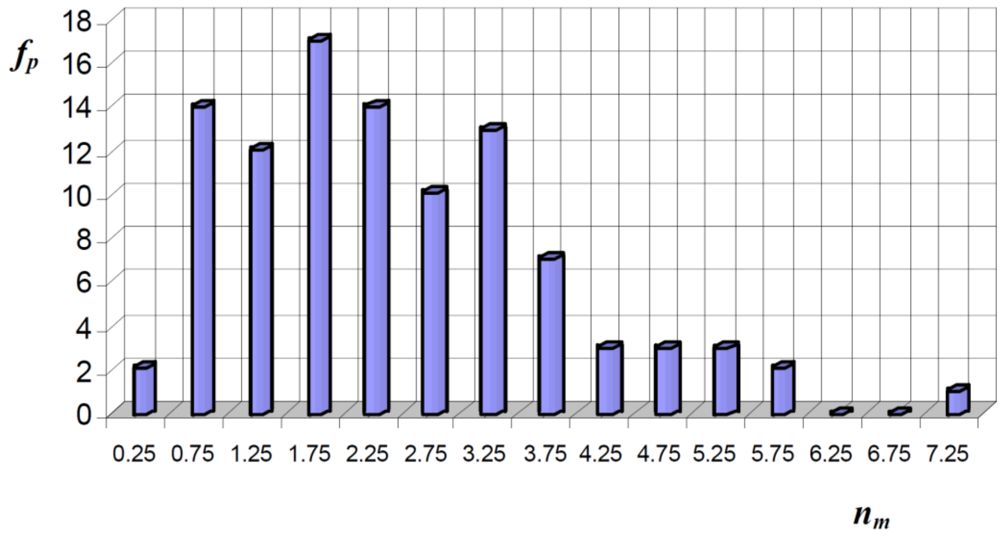

Figure 5. Frequency Diagram of the Number of Repetitions per Minute

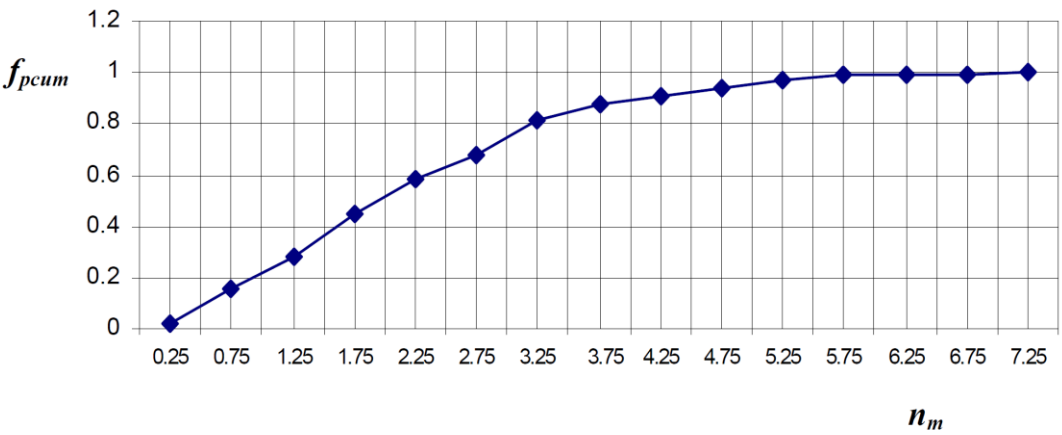

Figure 6. Cumulative Frequency Diagram of the Number of Repetitions per Minute

The frequency diagram of the number of repetitions per *100* words, n_{100}, is displayed in Figure 7, and the corresponding cumulative frequency diagram is presented in Figure 8. Contrary to L1, where the highest frequencies of speakers referred to the first two intervals, that is, to intervals from zero to one repetition per *100* words (Kovač & Horga, 2011), the highest frequency in L2 is noticed for interval [*2*, *2.5*]. The absolute majority of the speakers produced from *1* to *3* repetitions per *100* words, and *62* speakers (over *60*%) made more than two repetitions per *100* words.

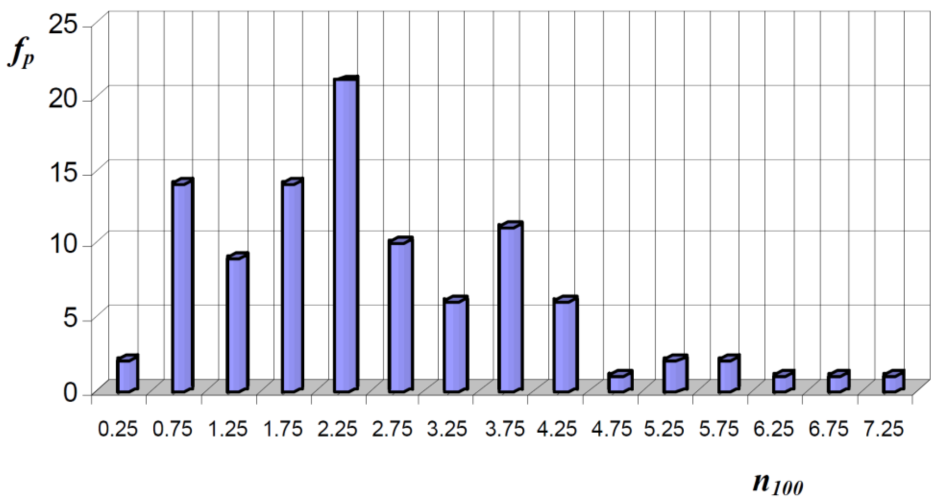

Figure 7. Frequency Diagram of the Number of Repetitions per 100 Words

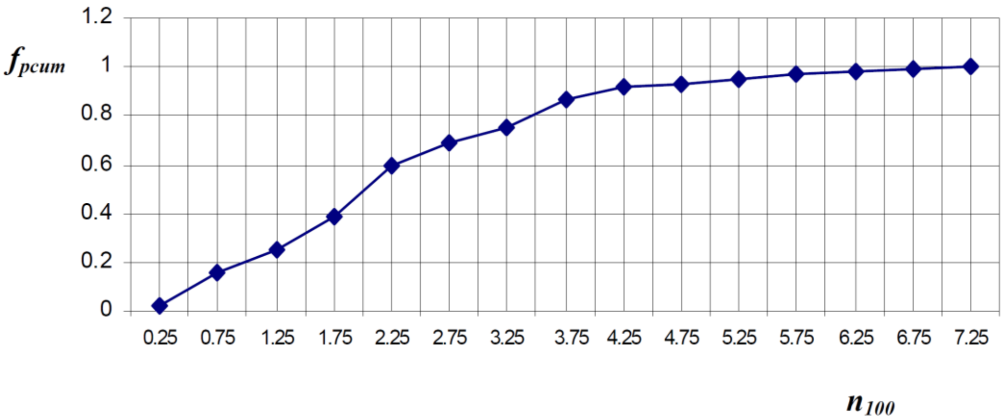

Figure 8. Cumulative Frequency Diagram of the Number of Repetitions per 100 Words

6. Conclusion

The speakers tend to repeat shorter speech fragments, namely, the absolute majority of all repetitions in L2 comprised up to one completed syllable. This points to the conclusion that even shorter repetitions provide sufficient time for planning linguistic units ahead and/or retrieving a particular word or phrase. However, the comparison with the results obtained for L1 in a previous study confirms that in L2 the speakers produce considerably more repetitions which can be explained by the different nature of speech processing in L1. The message planning in L1 requires conscious attention, but the formulation and articulation are highly automated processes which can run in parallel without the speaker's conscious effort. Even though repetitions can be considered as a form of disfluent speech, they are indeed a resource learners can use in order to engage in a conversation despite their language deficiencies. Therefore, repetitions perform the role of a communication strategy employed in order to gain additional time and to remain in the conversation despite the speakers' language limitations.

References

Baars, B. J., Motley, M. T., & MacKay, D. G. (1975). Output editing for lexical status in artificially elicited slips of the tongue. *Journal of Verbal Learning and Verbal Behaviour*, *14*, 382-391.

Berg, T. (1986). The problem of language control: Editing, monitoring and feedback. *Psychological Research*, *48*, 133-144.

Blackmer, E. R., & Mitton, J. L. (1991). Theories of monitoring and the timing of repairs in spontaneous speech. *Cognition*, *39*, 173-194.

Bortfeld, H., Leon, S. D., Bloom, J. E., Schober, M. F., & Brennan, S. E. (2001). Disfluency Rate in Conversation: Effects of Age, Relationship, Topic, Role, and Gender. *Language and Speech*, *44(2)*, 123-147.

Branigan, H., Lickley, R., & McKelvie, D. (1999). Non-linguistic influences on rates of disfluency in spontaneous speech (pp. 387-390). Proceedings of the ICPhS. ICPhS, San Francisco.

Bredart, S. (1991). Word interruption in self-repairing. *Journal of Psycholinguistic Research*, *20*, 123-137.

Clark, H. H., & Wasow, T. (1998). Repeating words in spontaneous speech. *Cognitive Psychology*, *37*, 201-242.

Dell, G. S. (1986). A spreading activation theory of retrieval in sentence production. *Psychological Review*, *93*, 283-321.

Dő rnyei, Z., & Scott, M. L. (1997). Communication Strategies in a Second Language: Definitions and Taxonomies. *Language Learning*, *47*(1), 173-210.

Fox, T. J. E. (1995). The effects of false starts and repetitions on the processing of subsequent words in spontaneous speech. *Journal of Memory and Language*, *34*, 709-738.

Fox, B. A., Hayashi, M., & Jasperson, R. (1996). Resources and repair: A cross-linguistic study of syntax and repair. In E. Ochs, E. A. Schegloff, & S. A. Thompson (Eds.), *Interaction and Grammar* (pp. 185-237). Cambridge University Press.

Garnsey, S. M., & Dell, S. G. (1984). Some neurolinguistic implications of prearticulatory editing in production. *Brain and language*, *23*, 64-73.

Garrett, M. F. (1982). Production of speech: Observations from normal and pathological language use. In A. W. Ellis (Ed.), *Normality and pathology in cognitive functions*. London: Academic Press.

Genc, B., Mavasoglu, M., & Bada, E. (2010). Types and Functions of Repetitions in the narrations of Turkish speakers of French. In *Novitas-Royal (Research on Youth and Language)* (pp. 216-224).

Kovač, M. M., & Horga, D. (2011). Ponavljanja kao oblik govorne disfluentnosti. *Linguistica Copernicana*, *1*(5), 245-267.

Levelt, W. J. M. (1983). Monitoring and self-repair in speech. *Cognition*, *14*, 41-104.

Levelt, W. J. M. (1989). *Speaking: From intention to articulation* (A Bradford book). MIT Press, London.

Levelt, W. J. M. (1992). Accessing words in speech production: Stages, processes and representations.

Cognition, *42*, 1-22.

Levelt, W. J. M. (1993). Language use in normal speakers and its disorders. In G. Blanken, J. Dittmann, H. Grimm, J. C. Marshall, & C.-W. Wallesch (Eds.), *Linguistic disorders and pathologies* (pp. 1-15). Berlin: deGruyter.

Lickley, R. J. (1994). *Detecting Disfluency in Spontaneous Speech* (Doctoral dissertation, University of Edingburgh).

Maclay, H., & Osgood, C. E. (1959). Hesitation phenomena in spontaneous English speech. *Word*, *15*, 19-44.

Motley, M. T., Camden, C. T., & Baars, B. J. (1982). Covert formulation and editing of anomalies in speech production: Evidence from experimentally elicited slips of the tongue. *Journal of Verbal Learning and Verbal Behaviour*, *21*, 578-594.

Nakatani, C. H., & Hirschberg, J. (1994). A corpus-based study of repair cues in spontaneous speech. *The Journal of the Acoustical Society of America*, *95*(3), 1603-1616.

Nooteboom, S. (1980). Speaking and unspeaking: Detection and correction of phonological and lexical errors in spontaneous speech. In V. A. Fromkin (Ed.), *Errors in linguistic performance: Slips of the tongue, ear, pen and hand* (pp. 87-96). Academic Press: New York.

Norman, D. A. (1981). Categorization of action slips. *Psychological Review*, *88*, 1-15.

Oomen, C. C. E., & Postma, A. (2001). Effects of divided attention on the production of filled pauses and repetitions. *Journal of Speech, Language, and Hearing Research*, *44*, 997-1004.

Postma, A. (2000). Detection of errors during speech production: A review of speech monitoring models. *Cognition*, *77*, 97-131.

Postma, A., & Kolk, H. (1992). The effects of noise masking and required accuracy on speech errors disfluencies and slef-repairs. *Journal of Speech and Hearing Research*, *35*, 537-544.

Postma, A., & Kolk, H. (1993). The covert repair hypothesis: Prearticulatory repair processes in normal and stuttered disfluencies. *Journal of Speech and Hearing Research*, *36*, 472-487.

Postma, A., Kolk, H., & Povel, D. J. (1990). On the relation among speech errors, disfluencies and self repairs. *Language and Speech*, *33*, 19-29.

Rabab'ah, G. (2013). Strategies of Repair in EFL Learners' Oral Discourse. *English Language Teaching*, *6*(6), 123-131.

Rieger, C. L. (2000). *Self-repair Strategies of English-German Bilinguals in Informal Conversations: The Role of Language, Gender and Proficiency* (Doctoral dissertation, University of Alberta).

Rieger, C. L. (2003). Repetitions as self-repair strategies in English and German conversations. *Journal of Pragmatics*, *35*, 47-69.

Sawir, E. (2004). *Keeping up with the native speakers: The many and positive roles of repetitions in the conversation of EFL learners*. Retrieved June 20, 2015, from http://www.asian-efl-journal.com/journal-2004/

Schegloff, E. A. (1979). The relevance of repair to syntax-for-conversation. In T. Givon (Ed.), *Syntax* *and Semantics 12: Discourse and Syntax* (pp. 261-286). Academic Press, New York.

Shriberg, E. E. (1994). *Preliminaries to a Theory of Speech Disfluencies* (Doctoral dissertation. University of California). Berkley.

Stemberger, J. P. (1985). An interactive activation model of language production. In A. W. Ellis (Ed.), *Progress in the psychology of language* (Vol. 1, pp. 143-186). Hillsdale NJ: Lawrence Erlbaum Associates.

Stuart, S., & Lynn, P. (1995). Development of Communication Strategies and Foreign Language Learners. *Mountain Interstate Foreign Language Review*, *5*, 122-127.

Van Hest, G. W. C. M. (1996). *Self-repair in L1 and L2 production*. Tilburg University Press.

Wheeldon, L. R., & Levelt, W. J. M. (1995). Monitoring in the time course of phonological encoding. *Journal of Memory and Language*, *34*, 311-334.

Wood, D. (2006). Uses and functions of formulaic sequences in second-language speech. *The Canadian Modern language Review*, *63*(1), 13-33.