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SECOND LANGUAGE PROFICIENCY AND PAUSING

A Study of Russian Speakers of English

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The present study examines the relationship between second language (L2) proficiency and pausing patterns (i.e., pause duration, frequency, and distribution) in the speech of 30 Russian speakers of English performing two oral tasks—a topic narrative and a cartoon description—in Russian and in English. The subjects were divided into two oral English proficiency groups, high and intermediate, on the basis of a standardized test of spoken English. Baseline data were collected from a control group of 20 native English speakers. Statistical analyses were performed to determine: (a) the native norms of pause duration, frequency, and distribution for Russian and English on the two experimental tasks; (b) the effect of the level of L2 proficiency (high and intermediate) on the pausing of Russian speakers in English; and (c) the differences or similarities in pausing exhibited by native English speakers and native Russian speakers (with two different levels of English proficiency) when speaking English. The results of this study indicate that English and Russian informal monologue speech can be characterized as having different pausing conventions, thus suggesting that crosslinguistic differences involve, among many other aspects, contrasts in pausing pat-

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terns. Additionally, L2 proficiency was found to affect the pause duration of advanced nonnative speakers in that they were able to adjust the duration of their pauses in English to produce a nativelike pausing norm. It was also found that even highly proficient L2 speakers pause more frequently in their L2 than in their first language (L1). The examination of pause distribution patterns suggests that persons of intermediate to high L2 speaking proficiency make the same number of within-constituent pauses as native speakers. Overall, the findings of this study support the view that adherence to the target language pausing norms may lead to the perception of nonnative speech as more fluent and nativelike. The findings also highlight the importance of exposing L2 students to a richer variety of situations that illustrate native patterns of verbal communication.

The teaching and evaluation of spoken language are two important areas of second language education research and practice. This is largely because L2 proficiency is ultimately manifested through the ability to speak the language. At the same time, speaking is considered to be one of the most complex human faculties as it involves motor, linguistic, and cognitive skills (Levelt, 1989). One's general proficiency in this intricate skill is normally referred to as fluency. The complexity of the fluency construct is to a certain extent reflected in that a verbally fluent person can be described as "articulate, eloquent, expressive, garrulous, loquacious, silver-tongued, verbose, voluble, witty" (Daneman, 1991), depending on the aspects of fluency that the speaker appears to possess. Fillmore (1979) laid out a rather detailed definition of this concept as related to speaking one's native language. According to this definition, fluency refers to "*How well* people speak their language" (p. 92, emphasis in the original). Fillmore also outlined four dimensions of fluency, which taken together create a rather comprehensive description of this construct.

First, fluency refers to "the ability to talk at length with few pauses, the ability to fill time with talk" (Fillmore, 1979, p. 93). This characteristic clearly refers to speaking with a minimum amount of hesitation and pausing, and thus reflects the temporal aspect of fluency. The second dimension of fluency, according to Fillmore, deals with "the ability to talk in coherent, reasoned, and semantically dense sentences." Clearly, the reference here is to the qualitative side of fluent speech, to "a mastery of the semantic and syntactic resources of the language" (Fillmore, p. 93). The third dimension of fluency refers to "the ability to have appropriate things to say in a wide range of contexts" (Fillmore, p. 93). Appropriateness is a key word here: A fluent speaker is at ease when speaking in familiar as well as unfamiliar situations. The fourth characteristic of fluency refers to "the ability some people have to be creative and imaginative in their language use" (Fillmore, p. 93). This feature seems to emphasize the creativity of fluent speakers who are able to manipulate with mas-

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tery all the language resources that they possess, including "to express their ideas in novel ways, to pun, to make up jokes, to attend to the sound independently of the sense, to vary styles, to create and build on metaphors" (Fillmore, p. 93). Although it may be argued that the last two dimensions—namely, appropriateness and creativity—are to a certain extent vertical rather than horizontal, in that they reflect a level of mastery that may or may not necessarily characterize a fluent speaker, the first two aspects of fluency, the temporal and the sequential, are among those traditionally used to define the term fluency (Dalton & Hardcastle, 1977).

Fluency—as the term is used in L2 pedagogy, assessment, and research—is an even more complex construct, given that it is often seen as " . . . the maximally effective operation of the language system . . . acquired by the student" (Brumfit, 1984, p. 57) and thus often equated with overall language proficiency. Consequently, a person referred to as fluent in an L2 is usually one who has a good, near-native command of that language. It is important to note that fluency in this sense encompasses the notion of accuracy or grammatical correctness in language use that manifests itself in adherence to the phonological, syntactic, semantic, prosodic, and pragmatic rules of the language. It also refers to the coherence of speech (quality), one of the defining aspects of native language fluency (Fillmore, 1979). Lennon (1990) suggested that, in this broad sense, fluency is used "as a cover term for oral proficiency. . . . In this sense fluent represents the highest point on a scale that measures spoken command of a second language" (p. 389).

On the other hand, fluency is also commonly used in the L2 research context in its narrow sense to refer exclusively to the temporal aspect of language proficiency. This aspect refers to the quantity or amount of language produced within a given time or to the rapidity and smoothness of speech output. In this narrow sense, fluency is used to mean "native-like rapidity" (Lennon, 1990) and to refer to such temporal variables as pauses and speech rate. As a result, the following aspects are generally included in a definition of L2 fluency: grammatical correctness in language use (accuracy), coherence of speech (quality) and, less commonly, the temporal aspects of speech output (quantity). Consequently, the development of L2 proficiency, or fluency, is traditionally viewed by L2 practitioners as the attainment of nativelike grammatical accuracy and pragmatic competence, and, rarely if at all, of nativelike hesitation-free performance.

It is important to note at this point that, whereas the grammatical aspects of speech are linguistic in nature, the quantitative or temporal aspects of speech are paralinguistic, and some of them belong to the domain of nonverbal communication. It is largely due to this fact that the development of grammatical accuracy, pragmatic quality, and coherence of speech has always been the focus of L2 classrooms. In contrast, the paralinguistic aspects of language such as the suprasegmentals (e.g., intonation, stress) and, particularly, its temporal characteristics (e.g., pausing, speech rate) have traditionally re-

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ceived less attention from language researchers and practitioners, perhaps because these aspects of language are very difficult perceptually and, consequently, not easy to study or teach.

It is also arguable that some nonverbal features do not constitute grammatical categories and, therefore, may not interfere with rendering nonnative speech understandable. At the same time, the paralinguistic aspects of speech, such as suprasegmentals and temporal variables, combine with the purely linguistic aspects of speech, such as vocabulary and grammar, to make up the overall profile of a particular language. Consequently, being fluent in a language undoubtedly involves mastery of not only the linguistic aspects of speech but also the paralinguistic features of that particular language. Not surprisingly, temporal characteristics of speech such as hesitation and pausing are among those that define a fluent speaker (Fillmore, 1979). It follows then that in order to become a fluent speaker of a second language and to be perceived as such, one should not only master the grammatical and pragmatic aspects of that language, but also develop competence in nonverbal communication (MacKay, 1987; Moerk, 1974).

The present study focuses on pausing, one of the features of nonverbal communication. Pauses belong to the temporal domain of speech and form part of an individual's overall oral language proficiency (Dalton & Hardcastle, 1977; Fillmore, 1979; Griffiths, 1991b; Lennon, 1990). Following Fillmore's definition of fluency and the tendency to regard pauses as "speech errors, disruptions, and disfluencies" (O'Connell & Kowal, 1980, p. 5), fluency in a native language would have to be characterized in temporal terms as being minimally hesitant or maximally pause-free. Consequently, long and frequent pauses would indicate a lack of fluency in speech. However, extensive psycholinguistic research on L1 acquisition has revealed that the relationship between pauses and fluency is more complex than it might appear.

Numerous studies of native speech production have shown that many of the features believed to characterize nonfluent speech, such as pauses, apply to fluent native speech (Chafe, 1980a; Goldman-Eisler, 1968a, 1968b). In fact, normal speech has been found to be far from fluent in the sense of flowing smoothly and rapidly without pauses and hesitations. According to Goldman-Eisler (1968b), "spontaneous speech is a highly fragmented and discontinuous activity . . . when even at its most fluent, two-thirds of spoken language comes in chunks of less than six words . . . the attributes of flow and fluency in spontaneous speech must be judged an illusion" (p. 31).

Results of L1 studies on pausing have suggested that the apparent intermittent quality and smoothness of speech are not present in what the speaker actually says. Instead, periods of silence constitute an indispensable part of the speech production process, the stage of speaking activity at which planning of the speech occurs (Chafe, 1980b; Deese, 1980; Goldman-Eisler, 1968b). These findings put forward an important claim—namely, that pauses in native speech are not necessarily indicative of nonfluency. Rather, native speech is perceived as fluent despite all the pausing that normally comes with it. In-

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deed, native speakers may pause in ways that are perceived as appropriate by other speakers of that language and do not interfere with the judgment of their speech as fluent. As Sajavaara (1987) noted in this respect, "the 'good' speaker 'knows' how to hesitate, how to be silent, how to self-correct, how to interrupt, and how to complete expressions or leave them unfinished" (p. 62). Perhaps following these pausing conventions causes native speech to be realized and perceived as rapid and smooth despite all the incompleteness and imprecision that it apparently includes (Sajavaara & Lehtonen, 1978). If this were the case, the pausing patterns exhibited by nonnative speakers would add to the perception of their speech as either being fluent or otherwise lacking "native-like rapidity" (Lennon, 1990). Furthermore, L2 proficiency would then reflect the degree to which the nonnative speaker follows the pausing conventions of that language. A number of questions have to be addressed to test this claim. For example, do pausing patterns differ from language to language? What is the relationship between pausing in an L1 and an L2?

The temporal phenomena research in L1 acquisition has suggested that pause duration, frequency, and distribution could be the functions of such variables as (a) familiarity with the verbal material to be produced and the cognitive difficulty of the task (Goldman-Eisler, 1968b; Perfetti & Bertuccelli, 1985), (b) speech genre (Baars, 1980; Goldman-Eisler, 1961; Grosjean & Deschamps, 1993 [as cited in Duez, 1982]; Kowal, Wiese, & O'Connell, 1983; Levin, Silverman, & Ford, 1967; Siegman & Pope, 1965), and (c) the syntactic structure of the speech material (Boomer, 1965; Deschamps, 1980; Gee & Grosjean, 1984; Goldman-Eisler, 1972; Grosjean, Grosjean, & Lane, 1979; Hawkins, 1971). Pausal patterns also reflect such speaker characteristics as (a) age (Kenny, 1996; Kowal, O'Connell, & Sabin, 1975; O'Connell & Kowal, 1972; Olynyk, D'Anglejan, & Sankoff, 1987; Sabin, Clemmer, O'Connell, & Kowal, 1979), (b) social status and educational level (Bernstein, 1962; Brotherton, 1979; Kowal & O'Connell, 1980), (c) emotional state (Faure, 1980; Siegman & Pope, 1965), and (d) the speaker's communicative, stylistic, and rhetorical goals (Duez, 1982; Kowal, Bassett, & O'Connell, 1985; Kowal & O'Connell, 1980; Sahar, Brenninkmeyer, & O'Connell, 1997; Tedlock, 1983). Additionally, some of the studies seem to indicate that pausing patterns could constitute a relatively permanent feature of an individual's conversational behavior or a language-specific temporal pattern (Clark & Clark, 1977; Deese, 1980; Duez, 1982; Fillmore, 1979; Goldman-Eisler, 1968b).

Crosslinguistic studies comparing temporal patterns of native speakers of different languages have provided contradictory results, thus offering limited evidence as to whether or not pausal patterns may be considered universal or language specific. Kowal, Wiese, and O'Connell (1983), for example, analyzed the temporal data (including pause duration) in five different languages during storytelling elicited by pictorial materials and interviews. They found that pauses were much longer during story telling in all languages involved (English, Finnish, French, German, and Spanish). On the basis of these results, the researchers proposed that "whatever influence native language may have on

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the use of time, it is certainly negligible relative to the influence of speech type" advocating "a language universal for time use within specific speech types" (p. 389). This study, however, did not control for the subjects' different degrees of public speaking experience. As a result, it is unclear how the variable *speaker type* could have affected the differences in pause duration found between these two speech types.

Other studies have provided contrasting evidence suggesting that languages might differ on temporal variables such as pause duration and frequency. Grosjean and Deschamps (1975) found that speakers of French pause less often but for longer durations than speakers of English. Johnson, O'Connell, and Sabin (1979) found that Spanish speakers used more silent and vocal hesitations than Americans did. Similarly, Holmes (1995), who analyzed syntactic encoding by speakers of French and speakers of English, found that these two groups of subjects used different types of acoustic devices (e.g., silent pauses, filled pauses, false starts, repetitions) in their speech. In addition to the suggested similarities and differences across languages, many speech-production researchers have indicated that there are large individual differences in the fluency with which people speak their native language, that is, within one language group.

A group of experimental studies also has been conducted on pausing in nonnative speech. Unfortunately, this area of research stands in extremely sharp contrast to the status and rigor of specialized L1 pausing research (Griffiths, 1991a). One of the major problems with earlier studies was that pauses were identified perceptually by unaided listener judgment or were measured using a stopwatch. At the same time, studies on pause perception (Arlington, Brenninkmeyer, Arn, Grundhauser, & O'Connell, 1992; Duez, 1985; Griffiths, 1990; Stuckenberg & O'Connell, 1988) have provided extensive evidence that perceptual pause identification is an inaccurate and inefficient measure and should not be used in the analysis of temporal phenomena. Based on the results of the studies of pause perception, Arlington et al. suggest that "only online instrumental measurement . . . can yield the requisite level of accuracy and efficiency" (p. 163).

The limited evidence gathered from studies on the temporal aspects of nonnative speech supports the assumption that native language differences in the temporal aspects of speech are often, and perhaps rightly, assumed to play at least some role in the way a person performs in an L2. Kowal, O'Connell, and Sabin (1975) found that an increase in L2 proficiency corresponded to a decrease in both frequency and length of silent pauses in reading. It is not clear, however, to what extent the relationship between L2 proficiency and the temporal aspects of fluency, such as pauses, is linear and whether the intuitive assumption that speaking an L2 entails more and longer pauses is in fact true.

Raupach (1980), in an early study on L2 fluency, described the speech production of French speakers of German and German speakers of French. He analyzed these students' L1 and L2 performance and examined the pause pro-

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files of two individuals. Though the sample used in this study was too small to draw generalizations, some of the results of the study were in line with those obtained in experimental studies on native English speaker pausing. Specifically, Raupach suggested on the basis of his observations that "speakers have a strong inclination to transfer their pause profile from the first language to the second language performance" (p. 270). Similarly, Tedlock (1983), who studied the English of Zuni Indians, suggested that his subjects exhibited pausal patterns of their L1 when speaking English. If these observations are true, it appears plausible to hypothesize that pausal patterns could be transferred from one's L1 to one's L2. Consequently, as Raupach proposed, "a speaker can hardly be expected to be more fluent in second language than in first language" (p. 270).

Deschamps (1980) found different pause distribution patterns in English and French spoken by the same subjects; more specifically, he reported that the number of pauses that occurred inside sentences in the subjects' L1 (French) was smaller than it was in their L2 (English). The results of this study also suggested that when speaking English, native French speakers reproduced some of the hesitation phenomena (e.g., pause durations) characteristic of their L1 while showing important increases in pause frequency. However, owing to the fact that the subjects of this study were asked to describe the same cartoon in both their L1 and L2, the effects of familiarity with the verbal material and that of translation make the results of this study difficult to interpret and compare. Lennon (1990) investigated the L2 fluency of four advanced German speakers of English by looking at the temporal variables of speech output with the intent of arriving at instrumental measures of fluency. The results from this multiple case study suggested that pause occurrence and length moderately decreased with the subjects' increased exposure to their L2, although due to the small sample size, any generalizations can only be considered tentative. Lennon noted that larger samples should be used in similar research and native-speaker norm ranges for various temporal features should be established in order to develop more reliable techniques for fluency assessment.

RATIONALE AND RESEARCH QUESTIONS

Over time, researchers in pausology have developed methodologically rigorous standards for examining temporal aspects of native speech. In contrast, L2 research on temporal variables has until very recently lacked any such standards. As a result, most of the early L2 studies in this area are of questionable value as they suffer "from lack of specialization which only becomes apparent when it is measured against the standards set in specialized studies" (Griffiths, 1991a). Additionally, most of the early L2 research involved case studies or studies that used noncomparable methodologies (Deschamps, 1980), which does not allow generalizations to be drawn across larger populations of students. As a result, despite the common assumption that pausing in

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a second or foreign language is related to the speaker's proficiency in that language, and limited experimental evidence to that effect, this relationship has not yet been defined.

The purpose of the present study is to better understand the relationship between L2 proficiency and pausing. To accomplish this objective, this study examines the three variables of pause duration, pause frequency, and pause distribution in the informal monologue speech of Russian speakers in their L1 (Russian) and in their L2 (English, at both intermediate and high proficiencies), in comparison to the same variables in L1 English. The following research questions guided the experiment:

1. Are there significant differences in the three pausing variables between English as L1 and Russian as L1?
2. Are there significant differences in the three pausing variables between Russian as L1 and English as L2?
3. Are there significant differences in the three pausing variables between English as L1 and English as L2?

This crosslinguistic comparison of pausing patterns in Russian and English exhibited by native and nonnative speakers was expected to indicate whether these patterns could be considered universal across languages, language specific, or individual specific and transferable across languages. This study also seeks to incorporate the strict methodological procedures of L1 pausological research into the study of temporal phenomena in the L2 by using similar measurement techniques, experimental procedures, and materials; controlling for various important subject variables; using a larger sample; and, most important, operationally defining the variable *English language proficiency*.

METHOD

Research Design

Descriptive data for pause duration, frequency, and distribution for each of the 30 native Russian speakers (experimental group) and for the 20 native English speakers (control group) were collected during their performance on the same two speech tasks (topic narrative and cartoon description) to obtain comparable results for the two languages. The English subjects' performance in English served as a baseline for L1 English performance on the two tasks used in this study: topic narrative and cartoon description. The Russian subjects' performance in Russian served as a baseline for L1 Russian performance on the same two tasks. The L1 pausing data of these two groups of subjects was analyzed to establish how the pausal patterns of the two languages compare for each of the two speech tasks.

The study also examines the relationship between the Russian subjects' pausal patterns in their L1 and L2. Pursuant to this, the Russian speakers were

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assigned to two English proficiency groups, high and intermediate, on the basis of their performance on the SPEAK Test, a standardized oral English proficiency test.[1] Russian subjects at two English proficiency levels were compared during their performance in English. This allowed for the analysis of cross-linguistic pausal patterns in the speech of the same group of subjects and analysis of the influence of L2 oral proficiency on pausing in the subjects' L2. Russian subjects at the two English proficiency levels are also compared to the native English speakers' performance on pausing in English in order to examine the differences between native performance and nonnative performance at the two proficiency levels.

Subjects

The subjects of this study were drawn from a pool of Russian and American graduate students enrolled at large North American universities in the Midwest. On the basis of informal interviews, 30 native Russian speakers (17 males and 13 females) and 20 native speakers of American English (9 males and 11 females) were selected to be participants. Informal telephone interviews were conducted with all potential subjects to select those who shared the characteristics enumerated below. When subjects were not available for the telephone interviews, their personal data were collected on the day of the scheduled recording session. Individuals who did not meet the desired criteria were not included in the sample.

Selected subjects shared the following characteristics: (a) they had no reported history of speech or hearing pathology; (b) they were nonsmokers or had a history of only occasional smoking;[2] (c) they had similar socioeconomic backgrounds (all resided in middle-class neighborhoods and came from middle-class households); and (d) they had attained nearly identical levels of education. An important selection criterion was the participants' language background. Native English speakers, who constitute the control group in this experiment, were all born and had received their formal schooling in the United States. All of the Russian subjects selected for this experiment had schooling in the Russian language up until or including their university years and had learned English in a foreign (as opposed to second) language context up until the time of their arrival in the United States. The subjects' ages ranged from 21 to 39 ($M = 27.83$) for the Russian subjects, and from 22 to 45 ($M = 28.4$) for the American subjects. The age group of the subjects was found to be homogeneous in terms of the temporal aspects of speech, which become stable once speakers reach adulthood (Kenny, 1996; Olynyk, D'Anglejan, & Sankoff, 1987) and seem to remain so until a very advanced age (Kenny).

It is important to note that the Russian subjects selected for this experiment constitute a rather homogeneous group in terms of the language environment in which they live in the United States. They use English, their foreign language, at school, at work, in their neighborhood, at most social gatherings,

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and they are exposed to the English-language media on a daily basis. At the same time, they have opportunities to communicate with other speakers of Russian (students, immigrants, spouses, and roommates). In Kenny's (1996) terms, this student community can be characterized as "deeply immersed" in their L2 environment. The Russian subjects' length of stay in the United States ranged from 3 months to 8 years ($M = 3.08$ years).

Additionally, the Russian subjects were classified into two categories on the basis of their level of speaking proficiency in English. Those Russian subjects who did not have recent SPEAK Test scores available[3] had to participate in an informal administration of the SPEAK Test, which was administered to them by the researcher, in order to determine their level of spoken proficiency in English at the time of the experiment. The score on this standardized test is reported on a scale of 20–60 in increments of five (i.e., 20, 25, 30, 35, 40, 45, 50, 55, 60). Russian subjects whose score was equal to 45 were assigned to the Intermediate English Proficiency (EI) group, subjects with scores from 50 to 60 were assigned to the High English Proficiency (EH) group.[4] Subjects with SPEAK Test scores lower than 45 were not identified. As a result, low-proficiency speakers could not be included in this experiment.

Overall, the selection procedures made it possible to hold constant the following subject variables: age, education, socioeconomic milieu, language learning background and use, current language environment, and level of L2 spoken proficiency.

Materials

Samples of speech were collected from the subjects on two tasks traditionally used in pausological research and commonly used in L2 assessment: a topic narrative and a cartoon description. For the Russian subjects only, the two tasks were given both in Russian and in English. Both tasks belong to the same speech genre—that is, informal monologue speech—but are different in nature. The topic narrative is a less structured task in that it allows the speaker to choose a linguistic means of expression, as well as the cognitive complexity and the content of their speech. The cartoon description is a highly structured task, as it offers minimal freedom of choice (grammatical, lexical, and semantic).[5] The cartoon description was expected to create cognitive demands comparable to those placed on the subjects by the topic description.

Topic narratives were elicited by presenting each subject with a prompt randomly selected from the four prompts listed in (1). For the experiment with Russian subjects, different prompts were used for the Russian and English conditions, in order to avoid translation. Prompts selected to elicit responses were on topics familiar to the subjects in both languages.

(1) Topic narrative prompts:
   a. Tell me what a typical day in your life is like.

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b. Tell me what you like and dislike about the town in which you live.
c. Tell me what you do in your leisure time.
d. Tell me about your favorite city/town.

The cartoons used in the cartoon description task consisted of a series of 6–10 pictures arranged in logical order. Each subject described two cartoons, but only data from the second cartoon was used in the analysis. Warm-up cartoons were taken from *The New Yorker* magazine, as was one of the cartoons used in the analysis. The other cartoon used in the analysis was taken from a book of cartoons by a well-known North American cartoonist. Selection criteria for the cartoons included relative simplicity of the story and vocabulary necessary to describe it. The subjects were asked to "Tell the story illustrated by the cartoon in detail." For the experiment with the Russian subjects, two different cartoons were used for the Russian and English sessions, in order to eliminate translation interference.

Warm-up tasks were used for all subjects at the beginning of each task condition to avoid the effect of switching tasks and languages. For all subjects, the order of the tasks (topic narrative and cartoon description) and the questions and cartoons were counterbalanced to avoid a task order effect. For the Russian subjects, the order of the languages in which they had to perform (Russian and English) was counterbalanced.

Procedure

The subjects were scheduled for one-hour sessions on weekdays. A recording session with each subject included:

1. An informal conversation and an introduction to the experiment.
2. A task-matched warm-up task.
3. English task 1—topic narrative.
4. A task-matched warm-up task.
5. English task 2—cartoon description.

In addition to these five steps, the data-collection session with each Russian subject included a second part, conducted in Russian, which consisted of the following steps:

1. A task-matched warm-up task.
2. Russian task 1—topic narrative.
3. A task-matched warm-up task.
4. Russian task 2—cartoon description.

The purpose of the informal conversation was to get acquainted with the subject and lower their level of anxiety about the experimental setting. For those subjects who were not available for a screening telephone conversation, personal data were collected during the recording session, including: subject name, age, place of birth, place of residence, place of schooling, field of study, educational level attained, as well as information on the subject's smoking habits and history of speech and hearing pathology. For the Russian subjects,

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additional data were collected on: number of years spent studying English, the setting in which English was learned, duration of stay in the United States, and their home language environment in the United States.

The task-matched warm-up tasks were intended to familiarize the subjects with the type of tasks they would be asked to perform. The warm-up tasks were also language-matched for the Russian subjects, who had to complete the tasks in both English and Russian. Each warm-up task was similar in nature to the task following it. However, the topics and cartoons used in the warm-ups were different from those used in the actual experimental tasks.

Variables

In this study, silent pause is defined as "any interval of the oscillographic trace where the amplitude is indistinguishable from that of the background noise" (Duez, 1982, p. 13), as well as corresponding silent traces of tape determined perceptually by the researcher through listening to the tape. Silent pauses were identified by computer using a digitized waveform version of the speech that was obtained by playing the recorded speech samples on a receiver connected to a computer. Each silent pause between 100 milliseconds and 3 seconds in duration was detected and measured by the computer to the nearest millisecond. Samples of elicited speech were transcribed by a bilingual experimenter using standard English and Russian orthography. Each silent pause was located precisely on the speech transcript. To increase the level of reliability of the measurement, detailed analysis of waveform displays and spectrographic printouts were complemented by perceptual crosschecks of the corresponding recordings. Cut-off points were designated following the conventions established in first language pausological research (Goldman-Eisler, 1968b; Hieke, Kowal, & O'Connell, 1983; Griffiths, 1991a).

Three dependent variables—pause duration, pause frequency, and pause distribution—were examined in this study. They were defined and measured as follows:

1. Pause duration (PD) refers to the length of silent pauses and is measured in milliseconds and reported in seconds.
2. Pause frequency (PF) refers to the ratio of number of silent pauses that occur per hundred syllables. PF was measured for each speech sample by calculating the number of pauses that occurred per hundred syllables.
3. Pause distribution (PDist) refers to the percentage of silent pauses that occur within constituent boundaries. A syntactic analysis of transcribed speech samples was performed to determine the distribution of all silent pauses in each sample. The ratio of the silent pauses that occurred within constituent boundaries (as opposed to silent pauses located at constituent boundaries) to the total number of silent pauses was used as a measure of this dependent variable. Examples of within–constituent pauses are: *I haven't* [pause] *read*; *I'll* [pause] *cook*, *a* [pause] *cigar*; *the* [pause] *country*, *till* [pause] *eight*, *changes in* [pause] *favorites*, *as crazy* [pause] *as traffic*; *so* [pause] *scared*, *very* [pause] *heavy*; *recreational* [pause] *things*, etc.

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Table 1. Means and standard deviations of pause duration (seconds) for Native Language during topic narrative and cartoon description

Native Language	*n*	Topic narrative		Cartoon description	
		M	*SD*	*M*	*SD*
English	20	.637	.157	.615	.165
Russian	30	.797	.191	.822	.201

Four independent variables were controlled in this study. These were:

1. Native Language of the Subject: English (EN) and Russian (RN).
2. Language of Task (i.e., language in which the task is performed): English as a first language (EL1), English as a second language (EL2), Russian as a first language (RL1).
3. Type of Task: topic narrative (TN) and cartoon description (CD).
4. Oral English Proficiency: intermediate English proficiency (EI) and high English proficiency (EH).

RESULTS

Pause Duration

In the first analysis, pause duration in the speech of native speakers of Russian and native speakers of English was examined when performing two tasks in their respective L1s. The means and standard deviations are reported in Table 1. *T*-tests revealed that the pause duration in Russian as an L1 was significantly higher on both tasks, the topic narrative, $t(48) = -3.092$, $p < .05$, and the cartoon description, $t(48) = -3.828$, $p < .05$, than in English as an L1. These results suggest that the Russian language differs from the English language on the temporal variable pause duration in that pauses in Russian are longer than they are in English.[6]

The second analysis examined pause duration in the speech of Russian speakers with two different levels of English proficiency, high and intermediate, to explore the relationship between the L2 oral proficiency of these subjects and the pause duration in their speech. The descriptive statistics for this question are reported in Table 2. Two 2×2 Analyses of Variance (ANOVA) were conducted to examine the interaction between the level of English proficiency and pause duration in English, the subjects' L2, as opposed to L1 Russian. The results of the analysis showed significant interaction effects, $F(1, 56) = 4.152$, $p < .05$, for the independent variables Language of Task and Oral English Proficiency during the topic narrative. The interaction effects

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Table 2. Means and standard deviations of pause duration (seconds) for Language of Task and Oral English Proficiency during topic narrative and cartoon description

Language of task	Proficiency	*n*	Topic narrative		Cartoon description	
			M	*SD*	*M*	*SD*
English	High	16	.605	.162	.642	.152
	Intermediate	14	.803	.148	.821	.152
Russian	High	16	.791	.247	.849	.206
	Intermediate	14	.803	.105	.792	.197

suggest that Russian speakers with high English proficiency made significantly shorter pauses when they spoke their L2, English, than when they spoke their L1, Russian. This, however, was not the case with Russian speakers with intermediate English proficiency. In L1 Russian, the pause duration of the Russian speakers with intermediate English proficiency was the same as that of Russian speakers with high English proficiency, as was to be expected. In English, the subjects' L2, the pause duration of the Russian speakers with intermediate English proficiency was just as long as in Russian and significantly longer than that of the Russian speakers with high English proficiency.

The results of the 2×2 ANOVA for cartoon description showed a pattern of pause duration similar to that discovered during the topic narrative. The interaction between the independent variables Language of Task and Oral English Proficiency was found to be significant, $F(1, 56) = 4.996$, $p < .05$. These results suggest that although Russian speakers with different levels of English proficiency have different mean pause durations in English, their pause durations in Russian are the same. The ANOVA results also suggest that on average, during the cartoon description in English, pause duration was affected by the speaker's L2 proficiency: Russian speakers with high English proficiency made pauses of shorter duration than Russian speakers with intermediate English proficiency.

Finally, the third analysis looked at pause duration during the topic narrative and the cartoon description in English of the three language groups: English native speakers, Russian speakers with high English proficiency, and Russian speakers with intermediate English proficiency. See Table 3 for the means and standard deviations. The ANOVA test results for the topic narrative were found to be significant, $F(2, 47) = 6.892$; $p < .05$. Scheffe multiple group comparisons revealed that the pause duration during the topic narrative of the Russian subjects with intermediate English proficiency was significantly longer than that of the Russian subjects with high English proficiency and that of the native English speakers. The pause duration of the native English speakers and of the native Russian speakers with high English proficiency were similar during the topic narrative. This suggests that the non-

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Table 3. Means and standard deviations of pause duration (seconds) for Language Group during topic narrative and cartoon description

		Topic narrative		Cartoon description	
Language group	*n*	*M*	*SD*	*M*	*SD*
English natives (EN)	20	.637	.157	.615	.165
Russian-EH	16	.605	.162	.642	.152
Russian-EI	14	.803	.148	.821	.253

Note. Russian-EH = Russian speakers with high English proficiency; Russian-EI = Russian speakers with intermediate English proficiency.

Table 4. Means and standard deviations of pause frequency (pauses per 100 syllables) for Native Language during topic narrative and cartoon description

		Topic narrative		Cartoon description	
Native Language	*n*	*M*	*SD*	*M*	*SD*
English	20	11.55	3.94	9.95	3.41
Russian	30	11.13	3.79	10.27	2.65

native speakers acquire L2-appropriate pause duration patterns as they reach high levels of proficiency in that L2.

The ANOVA test results showed significantly different pause durations during the cartoon description among the three groups tested, $F(2, 47) = 5.326$, $p < .05$. Further multiple comparisons among the groups were performed using the Scheffe test. These comparisons revealed that the pause durations during the cartoon description were similar to those during the topic narrative.

Pause Frequency

The first analysis examined the pause frequency in the speech of native speakers of Russian and native speakers of English when performing two experimental tasks in their respective L1s. The means and standard deviations are displayed in Table 4. The results of the *t*-tests showed that the pause frequency of L1 English and L1 Russian was not statistically different during the topic narrative, $t(48) = .375$, $p = .710$, or the cartoon description, $t(48) = .369$, $p = .714$.[7] The results of the analyses of the dependent variable pause frequency suggest that, on average, the number of pauses made by Russian native speak-

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Table 5. Means and standard deviations of pause frequency (pauses per 100 syllables) for Language of Task and Oral English Proficiency during topic narrative and cartoon description

Language of task	Proficiency	*n*	Topic narrative		Cartoon description	
			M	*SD*	*M*	*SD*
English	High	16	15.19	5.08	15.06	5.25
	Intermediate	14	17.29	5.24	17.71	3.58
Russian	High	16	10.75	4.42	10.56	3.24
	Intermediate	14	11.57	3.03	10.93	1.54

ers in Russian speech is equal to the number of pauses made by English native speakers in English speech when performing such tasks as the topic narrative and the cartoon description. These findings lead to a tentative conclusion that Russian and English languages do not differ on the temporal variable pause frequency.

The second analysis examined the relationship between L2 oral proficiency and the pause frequency in the speech of Russian speakers with two different levels of English proficiency, high and intermediate. The descriptive statistics for Language of Task by Oral English Proficiency are reported in Table 5. Results of the ANOVA test indicated that there were no interaction effects between the two dependent variables. However, the main effects for the variable Language of Task were found to be significant for topic narrative, $F(1, 56) = 18.643$, $p < .05$, and cartoon description, $F(1, 56) = 34.642$, $p < .05$. Inspection of the means suggested that, on average, across language proficiency groups and the two language tasks, Russian subjects pause more frequently when they speak their L2, English, than when they speak their L1, Russian.

The third analysis compared the pause frequency during topic narrative and cartoon description in English of the three language groups: English native speakers, Russian speakers with high English proficiency, and Russian speakers with intermediate English proficiency. Means and standard deviations are reported in Table 6. A one-way ANOVA yielded a significant *F*-statistic, $F(2, 47) = 6.409$, $p = < .05$, which indicates that some of the group differences were statistically significant. Scheffe multiple group comparisons revealed that the pause frequency during the topic narrative of the L1 English speakers was significantly lower than that of the Russian subjects with intermediate English proficiency. At the same time, the pause frequency of the L1 English speakers was not significantly different from that of the Russian speakers with high English proficiency. The pause frequency in the performance of the two Russian groups on this task was similar.

These results lead to the conclusion that on average, during the topic narrative in English, Russian speakers with high English proficiency make a simi-

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Table 6. Means and standard deviations of pause frequency (pauses per 100 syllables) for Language Group during topic narrative and cartoon description

		Topic narrative		Cartoon description	
Language group	*n*	*M*	*SD*	*M*	*SD*
English natives (EN)	20	11.60	3.94	9.95	3.41
Russian-EH	16	15.19	5.08	15.06	5.25
Russian-EI	14	17.29	5.24	17.71	3.58

Note. Russian-EH = Russian speakers with high English proficiency; Russian-EI = Russian speakers with intermediate English proficiency.

lar number of pauses as Russian speakers with intermediate English proficiency. However, whereas the pause frequency of the Russian speakers with high English proficiency is within the native norm as exhibited by the native speakers of English, the pause frequency of the Russian speakers with intermediate English proficiency is higher than that of the native speakers of English.

The results of the ANOVA for the cartoon description also revealed a significant *F*-statistic, $F(2, 47) = 15.741$, $p < .05$, which suggests that some of the differences among the three groups were significant. Further Scheffe comparisons revealed that the pause frequency during the cartoon description of the L1 English speakers was significantly lower than that of the Russian subjects, independent of their level of English proficiency. The pause frequency of the two Russian groups was similar on this task just as it was during the topic narrative.

Pause Distribution

The first analysis examined the pause distribution in the speech of native speakers of Russian and native speakers of English when performing two experimental tasks in their respective L1s. The means and standard deviations for each of these groups are shown in Table 7. No significant differences were found between the two groups on the mean pause distribution index on either task: topic narrative, $t(48) = 1.552$, $p = .127$, and cartoon description, $t(48) = 1.705$, $p = .095$. Results of these comparisons indicate that on average, the percentage of pauses that occurred within constituent boundaries in L1 Russian during the topic narrative and the cartoon description was similar to that in L1 English.

The second analysis examined the relationship between the L2 oral proficiency and the pause distribution in the speech of Russian speakers with two different levels of English proficiency, high and intermediate. The descriptive statistics for Language of Task by Oral English Proficiency are reported in Ta-

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Table 7. Means and standard deviations of pause distribution (percent of pauses within constituents) for Native Language during topic narrative and cartoon description

Native Language	*n*	Topic narrative		Cartoon description	
		M	*SD*	*M*	*SD*
English	20	10.45	6.30	7.65	5.74
Russian	30	7.93	5.13	5.30	4.02

Table 8. Means and standard deviations of pause distribution (percent of pauses within constituents) for Language of Task and Oral English Proficiency during topic narrative and cartoon description

Language of task	Proficiency	*n*	Topic narrative		Cartoon description	
			M	*SD*	*M*	*SD*
English	High	16	14.13	7.64	10.13	7.59
	Intermediate	14	12.79	7.29	12.71	4.63
Russian	High	16	6.63	5.32	4.38	4.84
	Intermediate	14	9.43	4.64	6.36	2.59

ble 8. The results of the ANOVA showed no significant interaction effects for either language task. The main effects for the independent variable Language of Task were found to be significant for topic narrative, $F(1, 56) = 10.860$, $p < .05$, and cartoon description, $F(1, 56) = 19.377$, $p < .05$. Together these results show that, on average, more within-constituent pauses occur in the speech of Russian speakers when they speak English than when they speak Russian, and that speakers with high proficiency make the same number of within-constituent pauses in English as speakers with intermediate proficiency.

Finally, the third analysis compared the pause distribution during topic narrative and cartoon description in English of the three language groups: English native speakers, Russian speakers with high English proficiency, and Russian speakers with intermediate English proficiency. The means and standard deviations for each of these groups are reported in Table 9. The results of the one-way ANOVA for the topic narrative were found to be nonsignificant, $F(1, 56) = 1.267$, $p = .29$. These results suggest that, on average, the percentage of within-constituent pauses in the topic narrative was equal for English

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Table 9. Means and standard deviations of pause distribution (percent of pauses within constituents) for Language Group during topic narrative and cartoon description

		Topic narrative		Cartoon description	
Language group	*n*	*M*	*SD*	*M*	*SD*
English natives (EN)	20	10.45	6.30	7.65	5.74
Russian-EH	16	14.13	7.64	10.13	7.59
Russian-EI	14	12.79	7.29	12.71	4.63

Note. Russian-EH = Russian speakers with high English proficiency; Russian-EI = Russian speakers with intermediate English proficiency.

speakers and Russian speakers of both high and intermediate English proficiency. Despite a substantial mean difference between the English native speakers and the Russian speakers with intermediate English proficiency on the cartoon description, the *F*-statistic of this comparison was found to be nonsignificant, $F(1, 56) = 2.827$, $p = .069$. This result suggests that, on average, English native speakers, Russian speakers with high English proficiency, and Russian speakers with intermediate English proficiency make similar numbers of within-constituent pauses during the cartoon description in English.

DISCUSSION

The focus of this study was to explore the relationship between L2 proficiency and the three pausal variables of speech: pause duration, pause frequency, and pause distribution. Although L2 proficiency has always been considered one of the variables most likely to affect temporal aspects of speech (Kowal, Wiese, & O'Connell, 1983), this study is the first to operationally define this important variable. This study also attempted to validate two major claims proposed by earlier pausological research. The first of these claims, put forward by Kowal et al., posits that languages can be "characterized by commonalties in the use of time." The second claim submits that a speaker of a particular language possesses unique pausing patterns that distinguish him or her from other speakers of that language (Clark & Clark, 1977; Deese, 1980; Duez, 1982; Fillmore, 1979; Goldman-Eisler, 1968b). Consequently, an individual can be expected to transfer his or her pausal patterns to an L2 once a high level of proficiency has been attained (Raupach, 1980; Tedlock, 1983). The following discussion of the findings of the current study is grouped according to the dependent variables examined—pause duration, pause frequency, and pause distribution—and is followed by a discussion of the issues pertinent to these findings.

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Pause Duration

The tentative findings of this study suggest that native speakers of Russian, in informal monologue speech in Russian, use longer pauses than native speakers of English when engaged in informal monologue speech in English. In fact, after a lengthy stay in an English language environment and extensive communication in that language, native speakers of Russian seem to maintain the pause duration characteristic of their L1. Consequently, the difference between pause duration in Russian and pause duration in English in the speech of the native speakers of these two languages could not be explained by the loss of temporal fluency in the speech of Russian speakers in their L1. Therefore, pause durations found in the informal monologue speech of the English and Russian native speakers in their native languages could be thought of as reflecting the pausing patterns characteristic of these particular languages and speech genre. This finding is in line with that of Grosjean and Deschamps (1975), who ascertained that native speakers of French paused for longer durations when speaking their L1 than did native speakers of English. Similar results were reported for pause duration in Spanish (Johnson, O'Connell, & Sabin, 1979) and in French (Holmes, 1995).

Together these findings suggest that languages might be characterized by different pause-duration patterns. It follows then that pause duration should be regarded as a language-specific rather than universal feature as suggested by Kowal et al. (1983). This also suggests that pause length should be placed in the list of such paralinguistic features as, for example, tone and intonation (Odlin, 1989). This provides additional basis for the assumption that pausing is only minimally dependent on breathing (Tedlock, 1983) and that breathing pauses seem to satisfy both the physiological and linguistic needs of the speaker at the same time (Lieberman, 1968).

The differences in pause duration in Russian and English monologue speech found in this study are not easy to explain. According to Garman (1990), these differences could be related to "phonological characteristics such as rhythm, i.e., the characteristic interstress interval . . . [or] to grammatical characteristics such as degree of permitted stem-affix complexity" (p. 127), which could be a plausible explanation in the instance of Russian and its complex case system. Other possible explanations could be found in the sociolinguistic domain. Because languages and cultures are intimately intertwined, it could be that pause-length conventions of a language reflect some of the standards of the society in which it is spoken; for example, the cultural treatment of time. A comparison of Russian and American culture, and how these cultures relate to time, reveals a noticeable difference. In North American culture, time is viewed as an asset to be used sensibly and sparingly and can even have a monetary value attached to it. In Russian culture, time is treated differently in that it is not seen as having any measurable monetary value, and it is therefore used much less judiciously. Perhaps these cultural

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differences in the treatment of time could lead to different temporal patterns in the speech of the members of these cultures. A similar hypothesis was offered by Loveday (1982), who analyzed English–Japanese crosslinguistic patterns of speech and silence and suggested that Japanese norms of conversational behavior allow for much longer periods of silence than English ones. Graham (1980, as cited in Scarcella, 1994) also suggested that silence during conversation is more frequent and positively valued in Japanese society than in American society. Similarly, Ejzenberg (2000), who studied Brazilian speakers of English, concluded that some elements of oral fluency (such as repetition) "may be culture specific" (p. 310).

A closer look at the pause duration in the informal monologue speech of the Russian speakers illustrated how the level of oral English proficiency of these speakers affected this temporal variable. The analysis of interaction between these two variables revealed that the Russian subjects with high English proficiency produced pauses of the same duration in English as the native speakers of English, whereas the Russian subjects with intermediate English proficiency made considerably longer pauses in English. This difference in pause duration between the two groups of Russian speakers suggests that, whereas they maintained the pause duration characteristic of their L1 when speaking that language, the Russian speakers with high English proficiency made pauses of shorter duration (i.e., more nativelike pauses) when speaking English. It was perhaps partly due to this nativelike rapidity (Lennon, 1990) that these subjects were also perceived by raters as being more fluent in English and, consequently, obtained higher scores on the oral English proficiency test. If this were the case, L2 educators should be made aware of the fact that adherence to the pausing patterns of the target language may play a role in the perception of the L2 speaker as being more or less fluent.

These findings also suggest that Russian speakers with high English proficiency possess the ability to adjust their pause duration to fit the temporal conventions of the English language. The Russian speakers with intermediate English proficiency do not share the same characteristic; when speaking English they apply the pause duration conventions of their L1 instead. This result supports the finding of Deschamps (1980), whose French subjects with low English proficiency maintained the same pause length when speaking the two languages. This finding suggests that a person's ability to adjust his or her pause duration in an L2, or perhaps, to put it more generally, one's control over the temporal aspects of L2 speech, is part of one's overall proficiency in a language. Could the inability to exhibit nativelike pause duration patterns lead to the native speakers' perception of these individuals' fluency as being lower than that of nonnative speakers who manage to fit the native norm? Or, could it be possible that at least some of the Russian speakers with nonnative pause duration patterns scored lower on the SPEAK Test because their longer pauses led to the perception of their speech by native speakers as being less fluent? These issues remain to be investigated.

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Pause Frequency

The findings from the analysis of the temporal variable pause frequency suggest that Russian native speakers make the same number of pauses in their L1 monologue speech as do native speakers of English in their L1. It is interesting to note in this respect the finding of Grosjean and Deschamps (1975) that French subjects paused more frequently than did native speakers of English. Their findings suggest that each language might have unique pausing patterns, not only in terms of pause duration but also in terms of pause frequency. If this finding were supported by methodologically comparable examinations of pausal variables in other languages, it would provide evidence to challenge the claims of Garman (1990) that less frequent pausing is compensated by greater length of pause. The findings of the present study provide evidence against this claim because the Russian and English languages were found to have similar pause frequency but different pause duration patterns. It seems more likely that each language possesses its own temporal conventions, which cannot necessarily be expressed in terms of the temporal patterns of other languages. Rather than trying to explain the relationship between pause duration and pause frequency in a certain language as compared to other languages, it might be more important to describe the native pausing norms of different languages under different speech conditions. This information can then be used to raise L2 learners' awareness of the rules of paralinguistic communication in that language.

The analysis of the relationship between L2 proficiency and pause frequency revealed that, when speaking in English as an L2, Russian subjects from two different English proficiency groups made pauses with the same frequency. Both Russian groups made significantly fewer pauses in Russian as an L1 than in English as an L2. At the same time, it was found that during the topic description in English, the Russian speakers with high English proficiency made the same number of pauses as the English native speakers, whereas the Russian speakers with intermediate English proficiency made considerably more pauses than the English native speakers. During the cartoon description in English, both Russian groups made significantly more pauses than native English speakers. These findings suggest that the level of L2 proficiency does affect pause frequency to a certain extent. Therefore, like pause duration, pause frequency is a temporal variable that distinguishes native from nonnative speech; thus pause frequency could play an important role in the perception of nonnative speech as being less fluent than native speech. These findings also suggest that nonnative speakers might not be able to adjust their L2 pause frequency like they could their pause duration. Or perhaps nativelike pause frequency is attained only when a near-native level of L2 proficiency is reached. It is also possible that nonnative speakers never attain nativelike pause frequency patterns no matter how high their L2 proficiency.

Also of interest are the differences in pause frequency found in the English

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performance of Russian speakers with high English proficiency during the topic narrative and the cartoon description. These speakers were found to pause as frequently as the native speakers of English during the topic narrative but significantly more often during the cartoon description. This difference could be explained by the fact that the topic narrative is a less structured task in that it allows more freedom of lexical and grammatical choice. On the other hand, the cartoon description is a highly structured task in that it requires the speaker to produce particular lexical and, to a certain degree, grammatical items. Therefore, during the topic narrative the speaker can purposefully avoid difficult grammatical structures and lexical items, opting for easier forms. Research on communication strategies used by L2 learners suggests that avoidance is one of the strategies commonly employed (Tarone, 1980). It seems plausible that, through avoidance of difficult forms during the topic narrative, the speakers of Russian paused less frequently. At the same time, during the cartoon description, where it was not as easy to avoid problematic structures and vocabulary, the pause frequency of these subjects was higher. Tarone and Parrish (1995) also found task-related differences in the use of articles, which they attributed to the communicative demands and discourse characteristics of the tasks. Future studies could address this claim by looking closely at the grammatical and lexical choices that accompany differences in pausing.

Pause Distribution

As expected, it was found that in both English and Russian as L1s, native speakers made a similar number of pauses within constituent boundaries, which suggests that the percentage of pauses made by native speakers within constituent boundaries is perhaps a language universal. It was also found in this study that when speaking English as an L2, Russian speakers made more within-constituent pauses, independently of their level of English proficiency, than when they spoke Russian. However, this number was still within the native norm for the English language. This finding is likely due to the fact that the English proficiency of the subjects in this study, whether high or intermediate, could have been higher than that of the subjects examined in earlier studies, which reported a difference in the number of pauses made within constituents between native and nonnative speakers (Raupach, 1980).

Pausing Patterns Across Languages

This study also set out to elicit pausing data from Russian as an L1 to test the claim offered by earlier research that languages might be characterized by common crosslinguistic temporal patterns (Kowal, Wiese, & O'Connell, 1983). If this claim were tenable, the pause duration, frequency, and distribution exhibited by Russian native speakers in Russian and by English native speakers

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in English would be statistically equal, provided the variables that could affect these temporal patterns were controlled for.

The findings of this study on Russian–English crosslinguistic pausing patterns provided evidence to tentatively reject the universality hypothesis. This study found that Russian and English languages are characterized by significantly different pause-duration patterns. Pauses made by the native speakers of English were significantly shorter than pauses made by the native speakers of Russian. The pause frequency in English and Russian as spoken by native speakers was found to be similar. Likewise, the pause distribution was found to be the same for Russian and English as L1s. These tentative findings suggest that pause frequency and pause distribution could in fact be paralinguistic language universals.

Individual Pausing Patterns

The claim about the existence of individual pausal patterns within languages and their transfer to the L2 of individuals with high proficiency was also tested in this study. If this claim were plausible, the pause duration, frequency, and distribution exhibited by Russian speakers with high English proficiency and by English native speakers in English would be the same, provided the appropriate control for the variables that could affect these temporal patterns.

On the basis of the tentative findings of the present study, the hypothesis about the existence of unique individual pausal profiles transferable across languages was rejected. It was found that the average pause duration in the speech of the highly proficient nonnative speakers of English was different across the languages; that is, these speakers made longer pauses in Russian than in English. Contrary to the claim about individual crosslinguistic temporal patterns, it was found that Russian speakers with high English proficiency exhibited pause duration patterns appropriate for the language that they spoke. If this finding were confirmed by examinations of other languages, it would indicate that pause duration patterns are not individual but language specific.

The average pause-frequency and pause-distribution patterns in the speech of these individuals were also found to differ across the two languages. All Russian speakers made more pauses in general, and more within-constituent pauses in particular, when they spoke English than when they spoke Russian, independent of whether their level of English speaking proficiency was high or intermediate. These results provide a basis for the suggestion that pause frequency and pause distribution are language-specific temporal patterns. This claim, however, requires further investigation.

Second Language Fluency

The findings of this study suggest that the temporal aspect of speech, such as pausing, could play a role in the perception of nonnative speech as being less

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fluent than native speech. It was found that the monologue speech of the nonnative speakers of English differed from the monologue speech of the native English speakers on two of the three temporal variables investigated here—namely, pause duration and pause frequency. More specifically, the differences between native and nonnative pausing in English consisted of nonnative speakers making longer and more frequent pauses. If one assumes that pausing patterns contrast crosslinguistically, as suggested by the present study and previous research (Grosjean & Deschamps, 1975; Holmes, 1995; Johnson, O'Connell, & Sabin, 1979; Tauroza & Allison, 1990; Towell, Hawkins, & Bazergui, 1996), then when nonnative speakers do not exhibit the L2 pausing patterns, their speech will be judged to be less fluent than native speech, regardless of how accurate and coherent it might be.

Crosslinguistic studies that have addressed differences in suprasegmental elements of language, such as stress, tone, intonation, and so forth, have suggested that when nonnative speakers do not exhibit patterns of stress or intonation appropriate for their L2, it not only affects their accent but can also lead to misperception by listeners (Odlin, 1989). Bansal (1976) suggested, on the basis of a study of Indian English, that the major cause for the unintelligibility of Indian speakers of English is their stress patterns that deviate from the norm of the British English dialect. Similarly, Van Els and De Bot (1987) found that intonation patterns distinguished native from nonnative speech at a suprasegmental level. Scarcella (1994) found that highly proficient Spanish speakers of English used English conversational features such as topic shifts, pause fillers, and back channel cues in the same way these features are employed in Spanish. She suggested that the conversational behaviors of the highly proficient nonnative speakers cause the so-called discourse accent. Towell, Hawkins, and Bazergui (1996), who analyzed the speaking rate of advanced English-speaking learners of French before and after a period of long residence in the target language environment, found that an increase in fluency was due to the augmented length and complexity of the linguistic units uttered between pauses. These researchers suggested that this developmental change in speech production of advanced L2 speakers could be explained by the proceduralization of their linguistic knowledge, resulting in nativelike oral performance. Odlin also indicated that aspects of speech such as rhythm and pitch were among the most obvious clues to what the native speakers perceive as a foreign accent.

The findings of the present study suggest that pausing patterns of nonnative speakers, even of some of the most proficient ones, could potentially intensify their foreign accent. In the case of pausing, it seems plausible that the native ear is attuned to particular patterns of pause length and the frequencies with which pauses should occur. Therefore, a nonnative speaker who does not adhere to these patterns will increase the chances of creating the impression of foreignness in speech. These nonnative pausing patterns could add a foreign element to the speech, even if the nonnative speaker otherwise speaks the language well. MacKay (1987) suggested that by learning the ap-

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propriate hesitation patterns, "second-language speakers can make enormous increases in the acceptability of their speech learning" (p. 168). This study provides an empirical basis for this suggestion by showing that the nonnative speakers who score high on the English oral proficiency test also exhibit pausal patterns similar to those of the native speakers of English. Appropriate pausing patterns could lead to the perception of the nonnative speaker as having attained "native-like rapidity" (Lennon, 1990) and "smoothness of performance" (Fillmore, 1979) and potentially improve the chances of the speaker being judged as fluent, exhibiting only a minimal foreign accent, or lacking one altogether.

Implications

The findings of the present study provide a basis for the following theoretical implications. First, the patterns of pause duration in informal monologue speech could be language specific. At the same time, pause frequency and distribution could potentially be considered universal, provided that studies of pausing in other languages and of larger samples of subjects confirm these findings. Second, language proficiency affects the way a person uses pauses when speaking an L2. In this sense, pausing, like intonation, could be a developmental phenomenon: Pausing becomes more nativelike as higher language proficiency is attained.

With regard to pedagogical implications, if the findings on pause duration, frequency, and distribution reported in this study are confirmed, teacher training should emphasize the importance of speaking with normal native rhythms when teaching advanced and intermediate students. Because teaching pausing per se is not a realistic task, L2 teachers should make certain that they provide their students with natural-sounding speech; that is, speech that would be considered a norm at both linguistic and paralinguistic levels. Furthermore, the finding of this study—that highly proficient nonnative speakers follow nativelike pausing norms—provides reasons to suggest that L2 teachers should make the students aware of the fact that languages differ even in a temporal aspect such as pausing, which can affect the perception of foreignness of their speech. Finally, in addressing the question of whether pausing could be used for testing purposes (O'Connell & Kowal, 1980; Raupach, 1980), the findings of this study suggest that this step should be taken with a great degree of caution.

CONCLUSION

Overall, the findings of this study provide grounds for suggesting that cross-linguistic differences involve, among many other elements, contrasts in pausing patterns in speech. Therefore, when nonnative speakers do not use a pausing pattern that is a norm in the target language, this can result in their speech being perceived as less fluent than it could be and as lacking nativelike

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rapidity and smoothness of performance. Consequently, it is important that L2 practitioners make their students aware of the fact that mastery of an L2 involves competence in both the linguistic and paralinguistic features of any given language; L2 practitioners should expose learners to a considerably richer variety of situations illustrating native patterns of communication.

Further studies may be conducted to examine, among many other things: monologue speech of nonnative speakers of languages other than Russian; nonnative speakers of various social and educational backgrounds; temporal variables, such as speech rate and articulation rate, and the relationship of these variables to the level of oral proficiency in an L2; performance on tasks that would require more elaborate cognitive reasoning; differences and similarities in the nature and function of pauses in native and nonnative speech; individual variability in pausing within language groups; linguistic and communicative choices associated with different pausing patterns; and pausing patterns of native speakers of Russian and other languages whose English proficiency is low.

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NOTES

1. The SPEAK Test is the property of the Educational Testing Service, Princeton, NJ.

2. By affecting lung volume, smoking might also influence respiratory functions during articulation and pausing (Russell, 1986).

3. Scores on a test taken within 1 year of the experiment were considered recent. However, subjects who took the test within the last 3 years of the experiment and scored high (50–60) were not required to take the test again, under the assumption that their spoken proficiency in English could not have deteriorated while living and studying in the United States.

4. The rationale for dividing subjects into two proficiency groups around score values of 45 and 50 is based on the fact that a score of 50 is used by many educational institutions in the United States as the cut-off point at which the examinee qualifies to be a university teaching assistant of lecture-format classes. A score of 45 indicates that the examinee is not qualified to teach a lecture format-class, although he or she might be allowed to teach a lab-format class, provided that he or she successfully passes an additional interview or teaching demonstration.

5. Following Ejzenberg's (2000) terminology, the topic narrative can be viewed as an "uncued" or less structured task in that subjects are not given explicit directions on how to structure and perform this task, whereas the cartoon description can be viewed as a "cued" task in that cartoon frames provide "explicit, step-by-step instructions on how to structure and perform the task" (p. 289).

6. Further analysis was conducted to explore the possibility that the longer pause duration in Russian found in this analysis could be explained by the Russian speakers' loss of fluency due to extensive stay in an L2 (English) environment. The phenomena of language loss and language attrition are well documented in the second and foreign language literature (Kenny, 1996; Weltens, 1987). Among the aspects of language that were found to be subject to loss or attrition are linguistic features, such as vocabulary and grammatical accuracy, as well as temporal variables, such as pauses and hesitations (Kenny). Although it was not likely that the subjects of this study experienced a loss of the temporal aspects of fluency in their L1, owing to their relatively short immersion in the L2 environment, it was considered appropriate to explore the plausibility of this explanation. To this end, Russian subjects were subdivided into two groups on the basis of the length of their stay in the United States. Group 1 consisted of Russian subjects whose length of stay was equal to or less than 2 years (nine out of 30 subjects met this requirement). Group 2 was made up of Russian subjects whose length of stay in the United States was equal to or more than 5 years (10 out of 30 subjects were included in this group). The remaining 11 subjects, whose lengths of stay ranged from 2 to 5 years, were excluded from this analysis. Group means were compared using a *t*-test procedure that

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revealed no significant differences between the two groups of subjects on the independent variable Length of Stay in the United States on the topic narrative, $t(17) = -.604$, $p = .554$, and the cartoon description, $t(17) = -1.201$, $p = .246$. These results suggest that the native Russian speakers did not lose temporal fluency in terms of pause duration in their L1 due to their stay outside of the L1 environment. Consequently, the differences in pause duration found between English and Russian informal native speech could be assumed to reflect language-specific and not subject-specific differences.

7. To explore the possible effect of the variable Length of Stay in the United States on the variable pause frequency, a *t*-test procedure was used to analyze the differences among the means of the two groups on two language tasks. Again, Group 1 contained Russian speakers whose Length of Stay in the United States was equal to or less than 2 years, and group 2 consisted of Russian subjects whose Length of Stay in the United States was equal to or greater than 5 years. The results of the *t*-tests showed no significant differences between the two groups on the variable Length of Stay in the United States during topic narrative, $t(17) = .950$, $p = .355$, and cartoon description, $t(17) = 1.544$, $p = .141$. This result allows for the conclusion that pause frequency in the informal speech of native Russian speakers in their L1 was not affected by the length of their stay outside the L1 environment. Instead, pause frequency found in the speech of Russian speakers in Russian reflected that characteristic of informal Russian monologue speech as it is defined in this study.

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