

THE EFFECT OF PREVIOUS LANGUAGES ON PAUSING PATTERNS OF IRANIAN EFL LEARNERS

Zahra Banitalebi*

Department of Applied Linguistics
Yazd University

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ABSTRACT

This study aimed to investigate the effect of pausing patterns of previously learned languages on the pausing patterns of a foreign language. So, it compared the pausing patterns of monolingual (Persian speakers) and bilingual (Iranian Turkish speakers; L1: Turkish and L2: Persian) EFL learners. To this end, via an Oxford Placement test, a sample of 40 male and female advanced learners was selected. Three reading passages were used to measure students' fluency in terms of their pausing patterns in the prepared mode of speech. The speeches were recorded and analyzed by Praat Software. The results showed a lack of a strong relationship either with regard to pause frequency or pause duration across the three languages, suggesting important implications for Threshold and Linguistic Interdependence hypotheses.

Keywords: fluency; Threshold and Linguistic Interdependence hypotheses; pause; L2 acquisition; L3 acquisition

RESUMEN

El objetivo de este estudio ha sido investigar el efecto de los patrones de pausa de idiomas previamente aprendidos en los patrones de pausa de idiomas extranjeros. Con este fin, se han comparado los patrones de pausa en personas monolingües (hablantes persas) y bilingües (hablantes turcos de nacionalidad iraní, su primer idioma: turco y su segundo idioma: persa) que dominan el inglés como idioma extranjero. A través de una prueba de nivel de Oxford, se han seleccionado 40 hombres y mujeres con niveles avanzados (entre estudiantes de la Universidad de Yazd y estudiantes de varios institutos privados de inglés). Se utilizaron tres pasajes de lectura para medir la fluidez de los estudiantes en términos de sus patrones de pausa en el modo de habla preparado. Los discursos fueron grabados y analizados mediante la aplicación Praat y se examinó el número, la cantidad y la posición de las pausas. Los resultados muestran una falta de correlación fuerte, ya sea con respecto a la frecuencia de pausa o la duración de pausa en los tres idiomas, lo que sugiere implicaciones importantes para las hipótesis de umbral e interdependencia lingüística.

Palabras clave: fluidez; umbral e hipótesis de interdependencia lingüística; aprendizaje del segundo idioma; aprendizaje del tercer idioma.

*Author's email: zahra.banitalebi@gmail.com

Introduction

Fluency has been thought of as a key factor in oral proficiency and can be used to assess general oral proficiency (Fillmore, 1979). A bilingual speaker's mastery of a language can be judged based on how fluent their speech production sounds in their non-native language (Tavakoli, 2010). Despite the extensive amount of research carried out on fluency, pausing patterns as one of determining factors of fluency, and their implications for L2 and L3 pedagogy, to say the least, are far from clear. Measuring oral proficiency has been probably limited due to difficulties in collecting and analyzing speech samples either in prepared or spontaneous mode. Major trouble in achieving a well-fixed analysis is the incoherent application of temporal variables characterizing the fluency phenomenon. In recent years, there has been an increasing interest in comparing the use of pauses (both silent and filled pauses) as a measure of fluency in L1 versus L2, and in the fields of second language acquisition and second language production (Fehringer & Fry, 2007). Most L2 speakers fall short of native standards both in production and comprehension. For example, most of the studies concluded that pause phenomena are more prevalent in L2 (e.g., Poulisse, 1997; Wiese, Dechert, Möhle, & Raupach, 1984). However, if a speaker becomes more competent in their non-native language, their use of hesitation may also decrease (Fehringer & Fry, 2007); therefore, fluency and pausing patterns will become more alike regarding both languages.

Raupach (1983, 207–208) stated that “many factors that constitute a learner's fluency in his/her L1 are liable to occur, in one form or another, in the learner's L2 performance”, and that there is a general tendency for language learners to transfer their “planning dispositions” (Möhle & Raupach, 1989, p. 210) to the second language. If differences in the use of hesitation are found to be consistent across languages, then this acoustic cue can be used to identify speakers' level of fluency, because there is a close correlation between fluency and hesitation, particularly with pauses used in speech production (Armbrecht, 2015). So, studying fluency in foreign language acquisition cannot be independent of studying L1 fluency.

Cummins (1979b) proposed a theoretical framework for investigating the interaction of linguistic, cognitive, and academic developments of bilinguals based on “Threshold” (1976) and “Linguistic Interdependence” (1978) hypotheses. Cummins' (1976) Threshold hypothesis asserts that language transfer is possible only after a threshold level of L2 proficiency has been attained. The Linguistic Interdependence hypothesis (Cummins, 1979a, 1978) states that there is an underlying cognitive academic language proficiency (CALP) that facilitates the transfer of academic and literacy-related skills across languages. There are certain foundational literacy skills that children need in order to be ready to learn, for example, how to read. These skills include both print-related skills, such as knowing letter names, letter sounds, and sound-related skills, which come under the broad heading of phonological awareness. Early phonological awareness skills include, for example, being able to recognize words that rhyme or words that begin with the same sound. Research on the development of reading skills in bilingual students suggests that reading skills develop interdependently across languages.

The relationship between the mother tongue (L1) and the second language (L2) has been dealt with in numerous studies in the field of second language acquisition (SLA) research. Most of the investigations have focused on the transfer phenomena as defined by Ellis (1994) as “the incorporation of features of the L1 into the knowledge system of the L2 which the learner is trying to build” (p. 28). Many investigators have tried to shed light on the differences between L1 speakers and L2 learners in their pausing patterns, or have focused on the cross-language transfer of fluency aspects of reading skills or reading comprehension. For example, Geva and Clifton (1994) found positive relations between English and French reading accuracy, speed, and comprehension of readers in French immersion programs. In another study, Geva, Wade-Woolley, and Shany (1997)

examined the cross-language relations between reading speed and accuracy for letters, words in isolation and text in students learning how to read in English (their first language) and in Hebrew simultaneously, and found that reading speed and accuracy across the two languages were positively correlated.

Besides, Riazantseva (2001) examined the relationship between L2 proficiency and pausing patterns in 30 Russian speakers of English performing two oral tasks and suggested that English and Russian monologue speech have different pausing conventions. He used the percentage of pauses within constituents and compared this measure for the same speakers in their L1 (Russian) and L2 (English). It was likely, however, that the speakers produced more complex and longer constituents in their L1 compared to their L2. Chuang, Joshi, and Dixon (2012) conducted an investigation in which the influence of cross-linguistic transfer of reading skills in Mandarin-speaking ninth graders was explored. Participants' native language (L1) was Mandarin Chinese and their second language (L2) was English. The results revealed that there was a positive relationship between Mandarin Chinese reading competence and English reading ability, that is, L2 reading ability was dependent on L1 reading competence. Therefore, the findings supported the Linguistic Interdependence Hypothesis.

Many researchers also tested for oral language ability in both languages. Regarding the production of hesitation phenomena, many studies have investigated the speech production in L1 versus the L2 of bilingual speakers to ascertain whether there is a correlation between the rates of hesitation in the two languages. Deschamps (1980, p. 255), as an example, reported that "pause patterns found in a learner's mother tongue are transferred to their foreign/second language". However, Kowal, Wiese, and O'Connell (1983) after examining the spontaneous speech in storytelling elicited by pictorial materials in five languages (English, Finnish, French, German, and Spanish) confirmed the hypothesis that they were characterized by commonalities in the use of time. The temporal measures were speech and articulation rates, pause duration, phrase length, and percentage of pause time/total time.

Möhle (1984) studied the differences between the first and second language performance of French and German second language learners. Learners were observed for the length and number of silent and filled pauses in cartoon descriptions and interviews. The results of the study indicated that there was a significant difference in the number of pauses, but no great difference was found regarding the length of pauses. Fehringer and Fry (2007) investigated the role of hesitation phenomena such as filled pauses and repetitions in competent bilingual English-German speakers. Results showed that even competent bilingual speakers generated more hesitation markers when talking in their L2 which was reportedly due to a higher cognitive load in L2 speech. However, the bilingual group was qualitatively the same as the monolingual ones. "It means that the type of hesitation markers was the same in both languages, providing support for the cross-linguistic effects of language skills" (p.37).

Armbrecht (2015) investigated the speech patterns of twenty Spanish-English bilinguals (19-31 years old). These individuals were recorded both while speaking extemporaneously and reading a standardized passage in both Spanish and English. Unfilled pause length and speech segment duration were examined from the samples recorded. The findings revealed significant differences in the use of unfilled pauses across speaking contexts in both languages. Both pauses to speaking ratios and pause duration were larger in spontaneous speech when compared to the read speech. Cross-language comparisons also indicated significant differences. There were longer speech segment durations in prepared speech and more filled pause use in spontaneous speech in English. Guz (2015) found high positive correlation values for speed and breakdown fluency measures in L1 and L2 indicating that the speakers who spoke fast in their mother tongue (Polish),

tended to speak fast in a foreign language (English) and that the speakers who paused more often and for longer periods of time in L1 were bound to do it in L2.

Taking account of the importance of fluency and pausing patterns in learning a foreign language, the related literature abounds with studies examining possible interactions between first language and second language influencing variables. However, despite the great amount of importance attached to fluency factors and the abundance of available research, one can still find some gaps and unresolved problems in the field which need to be filled or resolved. As suggested by Odlin (1989, p. 27), transfers can also result from “similarities and differences between the target language and any other language that has been previously (and perhaps imperfectly) acquired”. So, it is clear that transfer phenomena need not be restricted to the learners’ incorporation of L1 elements into their L2 production. In other words, transfer not only involves the influence of L1 on L2 and L3 but also the influence of L2 on L3. Learning a foreign language in a third position, that is after a second language has been acquired, has not received as much interest and remained a relatively under-investigated field. Hence it calls for an expansion in the domain of the study beyond L2 learning to consider L3 learning.

Many investigators have tried to discover the relationship between L1 and L2 fluencies, or shed light on the differences between L1 speakers and L2 learners in their pausing patterns (i.e., Banitalebi, Jabbari, Tilwani, Razmi, 2021), but almost none have investigated the effects of L1 and L2 pausing patterns on L3 fluency. There are still concerns regarding precisely how L1, or L1 and L2 fluencies may affect the pausing patterns of monolingual and bilingual learners in an EFL context.

To account for the lack of certainty and confidence regarding the aforementioned issues, the present study aimed to compare pausing patterns of monolingual (Persian speakers) and bilingual (Iranian Turkish speakers; L1: Persian, L2: Turkish) EFL learners to find about the possible relationship among Persian, Turkish, and English fluencies by examining the pausing patterns adopted by Turkish and Iranian EFL learners. The present study investigated the role of transferring the linguistic habit of Turkish and Persian to English. In line with the objectives of the present study, the following questions were addressed to test the Threshold and Linguistic Interdependence hypotheses:

1. Is there any effect of Persian pausing patterns on the L2 production of the monolingual group?
2. Is there any effect of Persian/Turkish pausing patterns on the L3 production of the bilingual group?

Accordingly, the following null hypotheses were formulated:

H01: There is not any effect of Persian pausing patterns on the L2 production of the monolingual group.

H02: There is not any effect of Persian/Turkish pausing patterns on the L3 production of the bilingual group.

Methodology

Participants

For the present study, the sample comprised 40 Iranian learners aged 22 to 40, both males and females. The participants were either M.A or Ph.D. students at Yazd University, Shokouh, and Enekas institutes in Tehran. The 40 learners were divided into two groups based on their language backgrounds. The first group (i.e., half of the participants) were monolingual EFL learners. This group had only one language as their background, namely Persian, with which they were totally familiar. They were considered L2 learners of English. The second group consisted of the other half of the participants was bilingual EFL learners whose L1 was Turkish and their L2 was Persian.

They were considered L3 learners of English. It is worth mentioning that Persian is taught at school from age 7 onwards. Moreover, English is added to the curriculum at age 13. However, Turkish is acquired naturally with no formal instruction. Since all the subjects of this group were M.A or Ph.D. students, they enjoyed a long exposure to both Persian and Turkish languages.

Instruments

As mentioned earlier, the objective of the present study was to investigate the role of transfer of the linguistic habits of Turkish and Persian to English, as well as the possible relationship among L1, L2, and L3 pausing patterns. To this end, a number of instruments that enabled the researcher to collect the required data were used. These instruments included: the Oxford Quick Placement Test and three reading passage tests (Appendix A). The Oxford Quick Placement Test was used to select the participants for the study and the reading passage tests were used to measure students' fluency in terms of their pausing patterns. Three passages were chosen from TOEFL iBT tests to measure students' fluency. Passages are similar to those that would be found in a textbook at university, but test takers do not need any special background knowledge. All fields of study from chemistry to literature to psychology are possible topics of the reading passages. On average the length of the passage was about 700 words. In order to compare students' pausing patterns in their first, second, and third languages, two of the passages were translated into Persian and Turkish observing the number of words and sentence difficulty as far as possible. The passages were checked by four knowledgeable Persian and Turkish translators to make sure of their accuracy, clarity and content validity.

Procedure

In the first step, the Oxford Quick Placement Test was administered to the participants to homogenize them in terms of their level of proficiency. After selecting 40 advanced learners, reading passage tests were conducted to determine the participants' pausing patterns. As learners started to read the passages, their speeches were recorded. Then, the collected data were analyzed by Praat Software (Boersma & Weenink, 2014). The researcher transcribed all the pauses and incoherent sounds the respondents had produced. In this regard, the frequency, duration, and placement of the participants' pauses were taken into account. A script for the identification of speaking time and pauses was created using Praat Software. This script was used to identify segments of silent pauses lasting longer than 250 ms. Hesitations shorter than 250 ms were not relevant for this analysis, as they were not indicative of meaningful, planning pauses (Goldman-Eisler, 1972). The script produced markings on each participant's spectrogram indicating moments of speech and hesitation which were then manually measured for length. These intervals were measured on the spectrogram for each speech segment. The last step involved a comparison between pausing patterns of participants' first, second, and third languages.

Data analysis

Data analysis procedures for this study were comprised of quantitative data analyses using the Statistical Package for the Social Sciences (SPSS). The obtained data related to each research question were analyzed using descriptive statistical procedures including mean and standard deviation. As to the inferential analyses, the researcher used a bivariate correlation and multiple regression. To explore the relationship between L1 and L2 pausing patterns, a bivariate correlation was used. Multiple regression was used to investigate the relationship among L1, L2, and L3 pausing patterns.

Results

Analysis of the data on the first research question

The first research question targeted the effect of Persian pausing patterns on the L2 production of the monolingual group. It was intended to discover the relationship between English and Persian

pausing patterns through experimenting with the monolingual group. To find out the correspondence between pause frequency in English and in Persian as well as pause duration in English and Persian, a correlation analysis was conducted. To do so, the Pearson product-moment correlation coefficient was used twice. Table 1 shows the relationship between pause frequency per minute in English and Persian. The results indicated that there was a moderate positive correlation between the two variables, $r = .45$, $n = 20$, $p = .045$ with a small effect size of .20. The results show that the two variables, (i.e., pause frequency in English and pause frequency in Persian) do not necessarily correspond to each other.

Table 1

The correlation between pause frequency in English and Persian

		pause_freq_EN	pause_freq_PER
pause_freq_EN	Pearson Correlation	1	.452
	Sig. (2-tailed)		.045
	N	20	20
pause_freq_PER	Pearson Correlation	.452	1
	Sig. (2-tailed)	.045	
	N	20	20

Figure 1 depicts a general indication of the strength of the relationship between the two variables. In this figure, the relationship between pause frequency in English and pause frequency in Persian is not strong. So, it can be safely claimed that the normality and linearity assumptions have been violated to some extent.

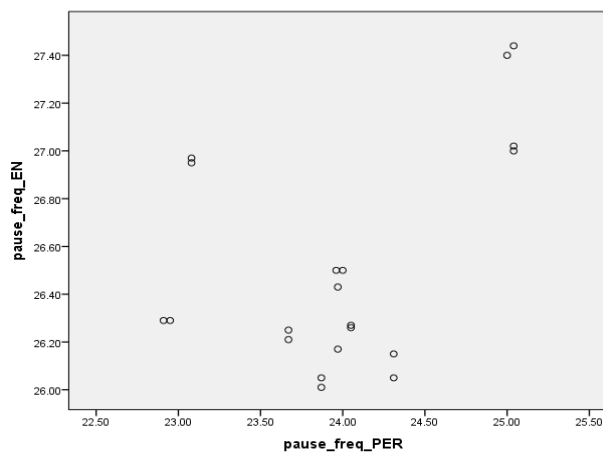


Figure 1. *Scatter plot of pause frequency in English and in Persian*

The next part of the results is related to the pause duration in English and Persian. To explore the relationship between the two variables, the correlation of pause duration produced in English and Persian per minute was calculated. Table 2 shows that there was a small positive correlation between pause duration per minute in English and Persian, $r = .21$, $n = 20$, $p = .36$ with a small effect size of .04.

Table 2

The correlation between pause duration in English and Persian

		pause_dur_EN	pause_dur_PER
pause_dur_EN	Pearson Correlation	1	.216
	Sig. (2-tailed)		.361
	N	20	20
pause_dur_PER	Pearson Correlation	.216	1
	Sig. (2-tailed)	.361	
	N	20	20

Figure 2 shows a lack of a strong correspondence between the two variables, pause duration in English and in Persian. Indeed, there is a low relationship between pause duration in English and in Persian. Looking at the scatter plot further reveals that the normality and linearity assumptions have been mostly violated in the study as the dots are rather scattered in the figure.

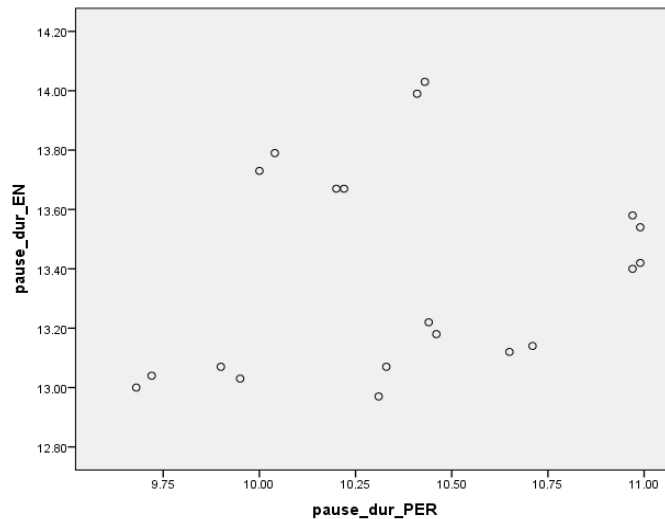


Figure 2. *Scatter plot of pause duration in English and in Persian*

In order to depict an overall comparison of the relationship between pause frequency in English and in Persian as well as pause duration in English and in Persian, Figure 3 is presented below.

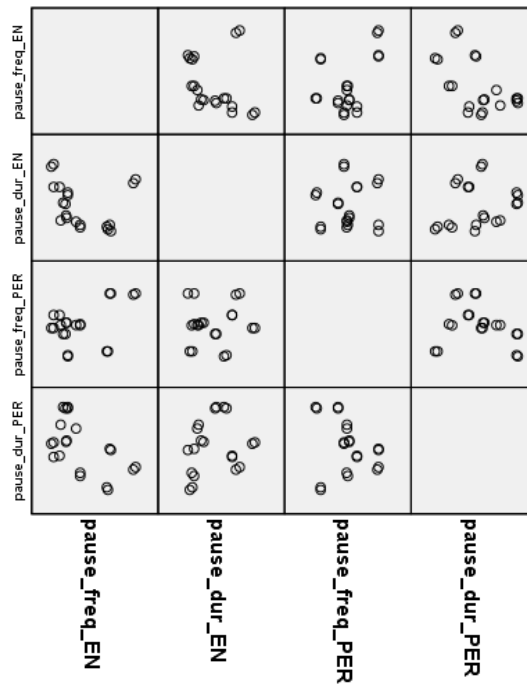


Figure 3. Scatter plot of pause frequency and duration in English and in Persian

Analysis of the data on the second research question

The second research question targeted the effect of Persian, and Turkish pausing patterns on the L3 production of the bilingual group. Table 3 indicates descriptive statistics of pause frequency depicting bilingual group mean performance on each reading passage. In this table, it can be seen that the mean frequency of the bilingual group across different languages was (M=23.49, SD=.34; M=22.72, SD=.35; M=22.23, SD=062) in English, Persian, and Turkish, respectively.

Table 3.

Descriptive statistics of pause frequency in English, Persian, and Turkish

	Mean	Std. Deviation	N
pause_freq_EN	23.4970	.34720	20
pause_freq_PER	22.72	.355	20
pause_freq_TUR	22.2340	.62229	20

What seems unclear is whether the mean differences of the participants' performance across each language are large enough to be considered statistically significant. Multiple regression was conducted to find out how the pause frequencies of the bilingual group across the three languages are related to one other. All the assumptions of normality, linearity, multicollinearity, and homoscedasticity were initially met. The results of the regression indicate that the two predictors pause frequency in Turkish and Persian cannot explain the results of pause frequency in English (Table 4). As Tables 5 and 6 (Appendix B) show, the total variance accounted was 19%, $F(2, 17) = 2.03, p = 1.62$. Table 7 (Appendix B) indicates that neither pause frequency in Persian can significantly predict pause frequency in English ($\beta = .38, p = .09$), nor can pause frequency in Turkish ($\beta = .15, p = .48$).

Table 4*Correlations among pause frequency in English, Persian, and Turkish*

		pause_freq_EN	pause_freq_PER	pause_freq_TUR
Pearson Correlation	pause_freq_EN	1.000	.411	.213
	pause_freq_PER	.411	1.000	.147
	pause_freq_TUR	.213	.147	1.000
Sig. (1-tailed)	pause_freq_EN	.	.036	.183
	pause_freq_PER	.036	.	.268
	pause_freq_TUR	.183	.268	.
N	pause_freq_EN	20	20	20
	pause_freq_PER	20	20	20
	pause_freq_TUR	20	20	20

The next part of the results refers back to the comparison of pause duration across the three languages. Table 8 indicates descriptive statistics of pause duration depicting bilingual group mean performance on each reading passage. In this table, the mean duration of pauses across different languages was (M=10.49, SD=.39; M=9.88, SD=.34; M=9.48, SD=.39) in English, Persian, and Turkish, respectively.

Table 8*Descriptive statistics of pause duration in English, Persian, and Turkish*

	Mean	Std. Deviation	N
pause_dur_EN	10.4930	.39409	20
pause_dur_PER	9.8820	.34952	20
pause_dur_TUR	9.4810	.39636	20

Furthermore, to explore the relationship among pause duration of the bilingual group across the three languages, another multiple regression was conducted. Preliminary analyses showed that all the assumptions of normality, linearity, multicollinearity, and homoscedasticity were initially met. The results of multiple regression, as shown in Table 9, show that neither of the two predictors pause duration in Turkish and pause duration in Persian could explain the results of pause duration in English. Tables 10 and 11 (Appendix B) indicate regression equation and R², respectively (R²= .06, F (2, 17) = .54, p= .59). Table 12 (Appendix B) indicates that neither pause duration in Persian can significantly predict pause duration in English (β =.03, p=.88), nor can pause duration in Turkish (β =.23, p=.36). Therefore, the results showed that there is no strong relationship among pause durations in any of the languages.

Table 9*Correlations among pause duration in English, Persian, and Turkish*

		pause_dur_EN	pause_dur_PER	pause_dur_TUR
Pearson Correlation	pause_dur_EN	1.000	.107	.243
	pause_dur_PER	.107	1.000	.303
	pause_dur_TUR	.243	.303	1.000

Sig. (1-tailed)	pause_dur_EN	.	.326	.151
	pause_dur_PER	.326	.	.097
	pause_dur_TUR	.151	.097	.
N	pause_dur_EN	20	20	20
	pause_dur_PER	20	20	20
	pause_dur_TUR	20	20	20

Discussion

The first objective of the present study was to investigate the correspondence between pause frequency in English and Persian as well as pause duration in English and Persian in the monolingual group. The results showed that neither pause frequency in English and Persian nor pause duration in English and Persian necessarily correspond to each other. The second purpose was to examine the relationship among Persian, Turkish, and English pausing patterns of the bilingual group. The results revealed that there was a lack of a strong relationship either with regard to pause frequency or pause duration across the three languages.

There are a number of previously conducted studies for which the results show a contrast to those of the present study. In this regard, Chuang et al. (2012) investigated the effect of the cross-linguistic transfer of reading skills in Mandarin Chinese learners of English as their second language. The results revealed that there was a positive correlation between Mandarin Chinese reading competence and English reading ability. Therefore, they came to the conclusion that L2 reading ability was dependent on L1 reading competence. A couple of justifications can be given for the inconsistency between the findings of the present study and the study done by Chuang et al. (2012). First, their instruments were vocabulary, grammar questions, and reading comprehension tests to determine participants' comprehension ability whereas the present study used reading passage tests to investigate learners' pausing patterns. Second, they defined reading competence in terms of the participants' responses to comprehension and grammar questions, while fluency aspects of reading skills such as frequency, duration, and distribution of pauses were taken into account in the current study. Thus, it can be noted that L1 and L2 reading abilities can be interdependent, focusing on comprehension aspects of this skill, but L1 and L2 (and even L3) fluencies measured by reading tests might not be that much correlated.

Moreover, Möhle (1984) studied the differences between the first and second language performance of French and German learners on the length and number of silent and filled pauses in cartoon descriptions and interviews. The results of the study indicated that there was a significant difference in the number of pauses, but no great difference was found regarding the length of pauses. The difference in the findings of the present study and the study done by Möhle (1984) could be related to differences in the design of these studies. While participants in the present study were tested on a kind of prepared speech mode, reading passages, those in the above study were examined on oral speech production. It seems that the type of tests used to this end could bring about differences. This deduction actually may become crystal clear in a study done by Armbrecht (2015), which investigated the speech patterns of twenty Spanish-English bilinguals while speaking extemporaneously and reading a standardized passage both in Spanish and English. The results showed significant differences in the use of unfilled pauses across speaking contexts in both languages. Both pauses to speaking ratios and pause duration were larger in spontaneous speech when compared to the prepared speech. Cross-language comparisons also indicated significant differences. There was longer speech segment duration in prepared speech and more filled pause use in spontaneous speech in English.

In addition, the results from the study by Geva and Clifton (1994), who found positive relations between English and French reading accuracy, speed, and comprehension, are in conflict. In another study, Geva et al. (1997) examined the cross-language relations between reading speed in English (participants' first language) and in Hebrew as a part of their study. They found that reading speed across the two languages was positively correlated. In addition, the results of the present study contrast with what was obtained by Guz's (2015) study, which found a high positive correlation between speed and breakdown fluency measures in L1 (Polish) and L2 (English).

One noteworthy account which can be offered for the observed differences can be attributed to the nature of the languages examined in the previous studies and the present one, as in this study the examined languages were English, Persian, and Turkish. In fact, some researchers believe that hesitation markers are language-specific (Clark & Fox Tree, 2002; Levelt, 1983; Maclay & Osgood, 1959). Therefore, these results can only be generalizable to specific language samples.

In line with the results of the present study, Riazantseva (2001) examined the relationship between L1 and L2 fluency and compared the pausing patterns of 30 Russian speakers of English on two oral tasks. The findings showed that English and Russian monologue speech have different pausing conventions. He used the percentage of pauses within constituents and compared this measure for the same speakers in their L1 (Russian) and L2 (English). The results showed that the speakers produced more complex and longer constituents in their L1 compared to their L2.

The findings of the current study imply that students' first and second language pausing patterns cannot predict the pausing patterns of their third language as there was no relationship among the English, Persian, and Turkish languages. Therefore, the findings of the present study do not support the Linguistic Interdependence and Threshold hypotheses.

Conclusion

This study examined Cummins' Linguistic Interdependence and Threshold hypotheses, which were unaccountable for the obtained results. Given the lack of any strong relationship among the pausing patterns of the languages, it can be stated that first and second language pausing patterns cannot be considered predictive factors of target language pausing patterns. The threshold hypothesis claims that if learners have already passed a threshold level of competence in their second language, those aspects of their first language which are likely to positively influence the learning process should come into effect. Considering the level of participants in this study, the Threshold hypothesis was unresponsive to the results, as participants of the study were proficient monolingual and bilingual learners. According to this hypothesis, those aspects of fluency that are probable to affect learners' speech production positively should improve learners' speech production in the following language they are learning. Therefore, this hypothesis necessitates a kind of relationship between pausing patterns of the languages. In other words, those who were fluent in their second (or first) language should show the same level of fluency in their subsequent (or previous) languages. Indeed, what was obtained from this study was in conflict with the predictions of the Threshold hypothesis.

Some theoretical and pedagogical implications can be extrapolated from the findings of this study. With regard to the theoretical perspectives, this study sheds more light on Linguistic Interdependence and Threshold Hypotheses. Since fluency research is a grey area, littered with definition problems galore (Chambers, 1997), its pedagogically relevant findings should be treated cautiously. Likewise, the findings of this empirical study are no exception. Given the importance of fluency aspects and especially pausing patterns, teachers can clarify and explicate the components of fluency to language learners and design some drills to improve their fluency in speech production. L2 teachers are strongly advised to put much more emphasis on speech fluency, specifically pausing patterns. As a suggestion, they might make use of aural authentic materials. Another implication is taking into account that learners' fluency in the first or second language may not be relevant to their fluency in the additional languages they are going to learn. In other words,

if a learner is not fluent in his/her background languages, it does not have any influence on fluency in a new language the learner is going to learn about. Therefore, reading materials and pausing exercises should match the learners' level of proficiency in the target language independently.

Obviously, no study is perfect and each suffers from different drawbacks. This study, like most other studies, suffers from some limitations. The generalizability of the findings is one of the limitations of the present study. Consequently, the second limitation concerns the sample size. A rather limited number of monolingual and bilingual learners participated in this study. The specific focus of this study was on pausing patterns in a prepared speech. Future research on fluency can make use of the same methodology and design for the investigation of pausing patterns in a spontaneous mode of speech. As another suggestion, bilinguals with different language backgrounds could be the possible participants of other studies to test Linguistic Interdependence and Threshold hypotheses.

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Appendix A.

A.1. English passage

There is evidence of agriculture in Africa prior to 3000 B.C. It may have developed independently, but many scholars believe that the spread of agriculture and iron throughout Africa linked it to the major centers of the Near East and Mediterranean world. The drying up of what is now the Sahara desert had pushed many people to the south into sub-Saharan Africa. These people settled at first in scattered hunting and-gathering bands, although in some places near lakes and rivers, people who fished with a more secure food supply lived in larger population concentrations. Agriculture seems to have reached these people from the Near East since the first domesticated crops were millet and sorghum whose origins are not African but West Asian. Once the idea of planting diffused, Africans began to develop their own crops such as certain varieties of rice, and they demonstrated a continued receptiveness to new imports. The proposed areas of the domestication of African crops lie in a band that extends from Ethiopia across southern Sudan to West Africa. Subsequently, other crops such as bananas were introduced from Southeast Asia.

Livestock also came from outside Africa. Cattle were introduced from Asia as probably were domestic sheep and goats. Horses were apparently introduced by the Hyksos invaders of Egypt (1780-1560 B.C.) and then spread across the Sudan to West Africa. Rock paintings in the Sahara indicate that horses and chariots were used to traverse the desert and that by 300–200 B.C. there were trade routes across the Sahara. Horses were adopted by people of the West African Savannah and later their powerful cavalry

forces allowed them to carve out large empires. Finally, the camel was introduced around the first century A.D. This was an important innovation because the camel's ability to thrive in harsh desert conditions and to carry large loads cheaply made it an effective and efficient means of transportation. The camel transformed the desert from a barrier into a still difficult, but more accessible route of trade and communication.

Iron came from West Asia, although its routes of diffusion were somewhat different than those of agriculture. Most of Africa presents a curious case in which societies moved directly from a technology of stone to iron without passing through the intermediate stage of copper or bronze metallurgy, although some early copper-working sites have been found in West Africa. Knowledge of iron making penetrated into the forests and Savannah of West Africa at roughly the same time that iron making was reaching Europe. Evidence of iron making has been found in Nigeria, Ghana, and Mali.

This technological shift caused profound changes in the complexity of African societies. Iron represented power. In West Africa, the blacksmith who made tools and weapons had an important place in society, often with special religious powers and functions. Iron hoes which made the land more productive, and iron weapons which made the warrior more powerful had symbolic meaning in a number of West African societies. Those who knew the secrets of making iron gained ritual and sometimes political power.

Unlike in the America where metallurgy was a very late and limited development, Africans had iron from a relatively early date, developing ingenious furnaces to produce the high heat needed for production and to control the amount of air that reached the carbon and iron ore necessary for making iron. Much of Africa moved right into the Iron Age, taking the basic technology and adapting it to local conditions and resources.

The diffusion of agriculture and later of iron was accompanied by a great movement of people who may have carried these innovations. These people probably originated in eastern Nigeria. Their migration may have been set in motion by an increase in population caused by a movement of people fleeing the desiccation or drying up of the Sahara. They spoke a language, proto-Bantu ("bantu" means "the people"), which is the parent tongue of a large number of Bantu languages still spoken throughout sub-Saharan Africa. Why and how these people spread out into central and southern Africa remains a mystery, but archaeologists believe that their iron weapons allowed them to conquer their hunting-gathering opponents who still used stone implements. Still, the process is uncertain and peaceful migration—or simply rapid demographic growth—may have also caused the Bantu explosion.

A. 2. Persian passage

شواهد مبتنی بر عکس برداری گواهی می دهند که زمانی در سطح سیاره ی مریخ مقدار زیادی آب وجود داشته است. دو نوع از بخش های جریان های آب دیده شده عبارتند از مجراهای روان آب و برون ریز. مجراهای روان آب در مناطق کوهستانی جنوبی یافت می شوند. این بخش ها سلسله ی گسترده ای از مجراهای بهم پیوسته و در هم تنیده هستند که در هم ادغام می شوند و مجراهای بزرگتر و وسیع تری را می سازند. طول این سلسله ها در بعضی از مواقع به صدها کیلومتر هم می رسد. این بخش ها شباهت زیادی به سلسله های رودخانه ای در سطح زمین دارند و زمین شناسان معتقدند که حاصل خشک شدن بستر رودخانه هایی هستند که در زمان های قدیم حامل بارش جاری شده از کوه ها به سمت دره ها در مریخ بوده اند. مجراهای روان آب از چهار میلیون پیش سخن می گویند (عصر کوهستان های مریخی) زمانی که فشار جو غلیظتر، گرمای سطح بیشتر و آب مایع در همه جا گسترش یافته بود.

مجراهای برون ریز احتمالا باقیمانده ی سیلاب های مصیبت باری هستند که در زمان های گذشته در مریخ اتفاق می افتادند. این مجاری تنها در مناطق استوایی پدیدار می شوند و به طور کلی شبکه های بهم پیوسته و گسترده را تشکیل نمی دهند. در عوض آن ها مسیر هایی هستند که احتمالا توسط حجم عظیمی از آب طی می شدند که از کوهستان های جنوبی تخلیه و به مناطق مسطح شمالی وارد می شدند. آب در حال پیشروی که از این سیلاب های ناگهانی برمی خیزد همچنین می تواند منجر به تشکیل جزایر عجیب اشکی شکلی (مشابه با نسخه های مینیاتوری دیده شده در شن های مرطوب هنگام جذر و مد ضعیف در سواحل ما) شود که در سطوح مسطح انتهای مجراهای برون ریز یافت می شوند. با توجه به عرض و عمق مجراها، باید گفت سرعت جریان به طور حقیقی زیاد بوده شاید حتی صد مرتبه بیشتر از 105 تن بر ثانیه که توسط رودخانه ی بزرگ آمازون منتقل می شود. سیلاب ها در حدود 3 بیلیون سال پیش مجاری برون ریز را شکل دادند تقریبا زمانی که زمین های مسطح آتشفشانی شمال تشکیل شدند.

برخی از محققان گمان می کنند که مریخ از دوره ی اولیه ی طولانی مدتی برخوردار بوده که در این مدت رودخانه ها، دریاچه ها و شاید حتی اقیانوس ها سطح آن را زینت داده بودند. عکس های گرفته شده در نقشه برداری سراسری از مریخ در سال 2003، آن چه محققان ناسا باور دارند که ممکن است یک دلتا باشد را نشان می دهند. شبکه ی پنکه ای مانند از مجاری و رسوبات ته نشین شده جایی که زمانی یک رودخانه به مقدار آب بیشتری جریان می یافت در این مورد می توان به دریاچه ای که دهانه ی آتشفشانی کوهستان های جنوبی را پر کرده است اشاره کرد. دیگر محققان بیشتر پیشروی کرده اند و اشاره می کنند که اطلاعات فراهم آمده شاهدهی بر وسعت گسترده ی آب ها بر سطح مریخ در اوایل هستند. نظریه ی مبتنی بر داده های کامپیوتری جمع شده از نواحی قطب شمال مریخ، وسعت آنچه را نشان می دهد که ممکن است اقیانوس قدیمی باشد که بیشتر زمین های پست شمالی را پوشانیده است. حوزه ی آبگیر یونان گزینه ی دیگری برای دریای قدیمی مریخ محسوب می شود که سرتاسر آن حدود 3000 کیلومتر اندازه گرفته شده و بستری دارد که نزدیک به 9 کیلومتر زیر لبه های حوزه واقع شده است.

این تصورات همچنان بحث برانگیز باقی مانده اند. طرفداران به ویژگی هایی همچون سواحل هم ردیف در یک تصویر نشان داده شده اشاره می کنند که بطور ممکن به عنوان دریاچه یا اقیانوس تبخیر شده و خطوط ساحلی پس رفته باقی گذارده شده اند. اما مخالفان عنوان می کنند این سواحل ممکن است بر اثر فعالیت های زمین شناسی ایجاد شده باشند و مربوط به نیروهای زمین شناسی وارد شده بر نیمکره ی شمالی باشند که خیلی بیشتر از سطح جنوبی فرونشسته اند، پس در این صورت مرتبط به آب های مریخ نیستند. داده های فراهم آمده از نقشه برداری های سراسری از مریخ در سال 2003 ظاهرا نشان می دهد که مقدار بسیار کمی لایه های کربناتی در صخره های سطح مریخ وجود دارد. لایه هایی که ترکیبی از اکسیژن و کربن هستند. که باید به وفور در اقیانوس های قدیمی تشکیل می شدند. نبود این لایه ها به تایید تصویری از مریخ می پردازد که سرد و خشک است و هیچگاه برای دراز مدت، دوره ای معتدل که ملزم ایجاد دریاچه ها و رودخانه ها است را تجربه نکرده. اما داده های جدیدتر به این مطلب اشاره می کنند که حداقل برخی از قسمت های سیاره ی مریخ چنین دوره هایی را در گذشته تجربه کرده اند که آب مایع بر سطح سیاره یافت می شده. گذشته از برخی راه آب های کوچک (مجراها) که تا سال 2000 یافت شدند و بی نتیجه مانده اند، امروزه ستاره شناسان هیچ سند بلاواسطه ای برای وجود آب مایع در سطح مریخ در دست ندارند و مقدار بخار آب موجود در جو مریخ بسیار اندک است.

حتی با کنار گذاشتن مدارک به اثبات نرسیده از اقیانوس های قدیمی، باز هم وسعت مجاری برون ریز به وجود حجم عظیمی از آب در زمان های گذشته دلالت دارد. اینهمه آب به کجا رفته است؟ پاسخ سوال می تواند این باشد که همه ی آب موجود در مریخ هم اکنون در لایه ی منجمده که زیر سطح قرار گرفته محبوس شده است که بیشتر آن را دو سر قطب های سیاره دربر دارند.

A.2. Turkish passage

قدیمز مانلار داندیر ینشناسلار دایناسور لار ینار ادانگنتمهسینعلتینهنکور هیحتالیبلر و بو نامعتقددیر لر کیبو مسئلهنیع لتیهو ایندییشیلمسینهو ابستهدیکیقار هلر ینودر یالار ینحر کتالماغیناگور هدیر .

کیاو اوز و دهیئر یندوز لدنصفهلر یننناشیوا لور ، و جو داگلییدی ، هر دنبیر دور هرک تاسهیندور هسینده (کیاخ یندور هاز ایکینجیدور هیز مینشناسیکهد ایناسور لار بودور هدهو جو داگلییلر) بو یوو عمقیاز اولاندر یالار ، قار هلر ینعمدهقسمتیناور تور دولر .

فر قلیاطلا عاتکهاو نلار دانبیر یشوا هدشیمیخاکدیکهدر یانبینتر کنیده هر سو بالیبلر ، گور سدیلر کیدور هیکر تاسهینیاخری نده ، هو ایندییهگور همایمتریمیش .

نهگونوز لر ویایلار چو خایستیوا لور مو شو نهگنجلر و قیشلار چو خسویو خاولور موشلار .

احتمالیوار کیعمقیاز اولاناقیانوسلار اطر افلار ینداکیهوا ایابیر مانعا لور موشلار و اونو ثابتساخیر مشیلار .

ز مینشناسیشو اهدیدور هیکر تاسهینیاخیر ینداگور سدیلر کیبودر یاییبو لار قور اخلیخدانگدیبلر اقیانو سو نمحدو دهسینه . هئجکسبونو نداییلینولمور .

یوز میناییبو ندانقباخ ، اوز امانکیدر یالار عقبشینیائلهدیلر ، دنیانیا بو هو اسیبیر دنوشدیدصور تدهنغییر تاپدی ، گونوزل ر ایستیشدی ، گنجلر سو یو خلاشدی ، قیشلار داسو یو خلاشدیو یایلار داغاولدو لار .

احتمالیوار دایناسور لار بو تغیر یابو هو ادانحمالینمدیلر و منقر ضاولوبلار .

اگر بو جور اولسا ، پسنجور اولو کیقانیسو یو خحیو انامثلا ایلان ، مار مولک ، توسباغا ، کر و کدیلبو سو یو خقیشلار دانوا یستیایلار دانسالماقیبلار و آر ادانگنتمیبلر ؟ بو حیوانا تابو هو اداناماندا قالیبلار تابدنلر یندماسینیاشاییشاحفظالسنیلر .

چو خچتیندیکیبیز الیهبو لابخو مسئلهنیعلتینتا پاخکینیهبو مو جو داتبو هو ادادو امگتیبلر اما دایناسور لار آر ادانگنیدیبلر م خصوصالگر و اقعواو جور کیدانشمندلر دیبلر ، دایناسور لار قانایستیوا لالار .

منتقلر همچیندیبلر ز مینشناسینیایکینجیدور هسینده (مزوزوییک)

در یاییبو لادار چو ختر قور اخلیخدانوز اخلاشیلار و اوناظر فقاباگاگدیبلر ، پسینه دایناسور لار ابو هو ایندییشلمهسیند نکهقاباخکینو سانلار یناثر یندیمیشنجاتاپیبلار اما ایندیکیدئییشیملر دنوخ ؟ سادها بو هو ایبتغییر لر کهقاباخکینو سانلار یننتیجهسیند . ایجاد اولوپلار ، دوز دیکیا ولد هجالبنظر هگیلر اما تماماطلا عاتینتو ضیحینهکافیدیبلر .

راضیوا لماما ختامتوضیحاتیکهد ایناسور لار یناقر اضینامر بو طو لار باعناو لوپکیعجیبینظر یهلر و جو داگلیسنر کهه ربیر یاوز نویسند هتزر هفر ضیهلر ایجادالیبلر .

اوز امانکیلیهها یسنگیدور هیکر تاسهینیاخر یندهو جو داگلیبلر و دور هسنوزوییک (مزوزوییکدنسور اکیدوره) نظر دهالییدیختو جهاولور و خکیچو خلیگیها لار و حیوانلار بیر دنبیر هصفحاتفسیلیدنناپدید اولوپلار .

دور هیکر تاسهینیاخیر دهکیداشلا یهلر ینوسنوز وییکینا ولد هگیداشلا یهسینیار اسیندا ، نازیکبیر ستور یاغینیلایهس یوار دیکهدانشمندلر معتقددیلر کیبوللر اوز مانکیلاز مدیتابیر سانتیمتر ستور یاغیو جو داگلیسنوز ماناقر اضوا اوز اما نکیتور پاخشکیلتاپییدینی ، عنصر ایریدیو مکتور یاخداو جو دیوار دی ، اوانالهگتیسنیلر .

ایریدیو مسیار هنیوا لطار یخچهسیننا یندیجاتعمو لایر یناوز و ندهتا پیلماز .

بو عنصر اوز امانکیبیر آر امو محکمدی ، یرینهستهسیننقاتیشار و بو علتهاطیر معمو لافلز یصور تدهو جو دیوار دی .

بعضیشهابسنگلر دهکیاصلیتر کیشیمیاییحفظاولویدی ، ایریدیو مقویغلظتدهو جو دیوار دی .

ایندیبلر ، میکروسکو پیشهابسنگلر مداو مصور تدهیر بیمبار انالیبلر و دریاو خشکیهتوکولولر .

دانشمندلر الیهبوللر تعدادشهابسنگلر یکهبیر مدتزماندیر هتوکولولر ، اولار یانداز هتوماغینانوز امانکهلاز مدیکها یریدیو مکیبیر ستور یاغینینمز یندهگور سنیری ، انداز هتوتالار .

بومحاسبهلر گور سدیلر کیبو مدتزمانحدودابیر میلیونایدی .

هر چندکیایر یشوا هگور سدیلر کیخاکر سینمز ینتشکیلتا پاسیالیتهبو لمز بیر میلیونایلو قتا پارا .

پسنظر هگیبیر کیایریدیو مینتشکیلتا پاسینبهور تیو خار یغلظتو نامتعار فصور تدهخاصبیر توضیحنیاز یوار دی .

10 بوسوز لركياو لار اشار هاو لوندی، بولار يننتيجه سينده، دانشمندلر بوفر ضيهيهالتا پيلار كيبيير سيار ككياندا زهسي كيلومتر يمشير يننتصافاليپيو اونون ريز شننتيجه سينده، رستور پاغينمرز يوجودا گليپدي. 15 تا محاسبه لركور سديلر كيبيور يزشگر دو غبار ياجادا اليپدي كينچها ياجانگونون نور ياونانردا و لمور موش، فتوسنتز ينقباغ ينالير ميشو باعثا و لوپكيقار هنينسطحيدما سينقطه ييز رانجمادا يتيشسينو افر اطياسيدييا غيشلار و جودا گلسينو اونان مهم تر كرهيز مينيندما سي، اثر گلخانها ييننتيجه سينر هچو خيو خار يحدده جاتسين.

Appendix B.

Table 5. Model summary of pause frequency in the languages

Model	R	R Square	Adjusted R Square
1	.439	.193	.098

Table 6. ANOVA for pause frequency in the languages

Model		df	Mean Square	F	Sig.
1	Regression	2	.221	2.031	.162 ^b
	Residual	17	.109		
	Total	19			

Table 7. Coefficients of pause frequency in the languages

	B	Beta		
1 (Constant)	12.926		2.463	.025
pause_freq_PER	.380	.388	1.761	.096
pause_freq_TUR	.087	.156	.710	.487

Table 10. Model summary of pause duration in the languages

Model	R	R Square	Adjusted R Square
1	.245	.060	-.050

Table 11. ANOVA of pause duration in the languages

Model		df	Mean Square	F	Sig.
1	Regression	2	.089	.544	.590 ^b
	Residual	17	.163		
	Total	19			

Table 12. *Coefficients of pause duration in the languages*

	B	Beta	
1 (Constant)	7.896		2.617
pause_dur_PER	.042	.037	.152
pause_dur_TUR	.230	.231	.937