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The Contribution of Lexicon to the Language Attrition of Iranian Immigrants to Canada

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Abstract

The present research, investigated whether the domain of lexicon could undergo first language attrition after the first language has been fully acquired, when learning of second language takes place in adulthood in a migrant context. This study mainly aimed to focus on the attrition of the first language (Persian) among adults in an L2 environment. The study focused on a diverse population of Iranian immigrants of Canada. Altogether, 51 participants participated in this study. The instruments adopted involved a Picture Naming Task, and the AMTB questionnaire modified by (Gardner, 1985). The initial results indicate that bilinguals had no difficulty in managing lexical naming tasks.

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1. Introduction

The notion of language attrition has attracted the attention of researchers for more than three decades. Attrition is generally thought of as a change within a language spoken by an individual due to the effect of another language spoken by the same individual. As one moves to another country, one is often exposed to a new language. As a result, one contacts a new language community more than one's own community. In this case, first language

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attrition, which in some researchers' point of view has been defined as a reduction of language ability, takes place due to either non-use or lack of contact with primary language (Anderson, 1999; Kaufman & Aronoff, 1991; Turian & Altenberg, 1991; cited in Jamshidiha & Marefat, 2006).

The beginning of language attrition studies from a non-pathological perspective goes back to 1980, when a conference titled "Loss of Language Skills" was held at the University of Pennsylvania (Lambert & Freed, 1982). The aim of that conference was to consider the area of second language attrition and also possible other areas for further study in the domain of first language attrition. Before the conference, "language loss" or "language attrition" was attributed to pathological disorders such as aphasia, or language disorders caused by tumors, strokes, or traumas to the head (Yagumur, 2004; cited in Jamshidiha & Marefat, 2006, p. 17). However, the conference allowed researchers see language attrition from a non-pathological perspective. From a non-pathological perspective, a non-disordered individual who has lost his or her language abilities in a second language environment is considered as language attriter; so, the term "attrition" refers to such individuals (Altenberg & Vago, 2004; cited in Jamshidiha & Marefat, 2006, p. 18).

There are many potential reasons for such language loss, including contact with other languages and more dominant languages which possibly lead to the death of language, or reduced access to the linguistic information of peoples' native language. The latter usually is attributed to immigrants who have migrated to another country and have difficulty in retrieving their first language knowledge. In the case of language attrition, the information may not be lost and may still exist in the memory, but there may be a problem in accessing and retrieving information (Moorshedian, 2008).

Accordingly, certain components of language are more vulnerable to loss than others, such as word loss, which is probably the most vulnerable aspect of language system. It is believed that the lexical domain is more vulnerable to language attrition than morphology or syntax. The process of learning vocabulary is a lifelong process; therefore, L2 influences in the lexical domain are more perceptible in the form of code-switching (Kopke & Schmid, 2004).

The broad aim of this study is to look at lexical attrition in the Persian (L1) of Persian-English bilinguals. In other words, the focus of this paper is the attrition of an L1 in an L2 environment. One particular aspect of lexical attrition, which is the element of L1 lexicon including dichotomies of abstract vs. concrete words, is considered in this study. Additionally, personal background factors explored in this study include length of residence, language use, and attitudes.

1.1. Statement of purpose

According to the existing literature, the lexical domain is vulnerable to language attrition (Al-Hazemi, 2000; Weltens & Grendel, 1993). Therefore, this research investigates whether the domain of lexicon can undergo first language attrition when the first language is acquired fully and learning of second language takes place in adulthood in the migrant context. This study mainly aims to focus on the attrition of first language (Persian) adults in an L2 (English) language environment. The general purpose of this paper is to investigate the degree of retrieving concrete and abstract words among Iranian immigrants of Canada. The extent of retrieving Persian words is taken into account to find out if the lexical domain of Iranian immigrants to Canada undergoes language attrition. Additionally, the extent of retrieving concrete words is compared to the extent of retrieving abstract words. Moreover, the specific objective of this study is to identify the relationship between Iranian immigrants' extra-linguistic factors and L1 (Persian) attrition in an L2 (English) language environment. The extra-linguistic variables which are studied in this study are length of residence, using L1 when doing activities, attitude towards Iranian people in Canada, attitude towards foreign languages, attitude towards Canadians, and attitude towards Iranian people in general.

2. The study

2.1. Participants

The participants of this study included both Persian monolinguals and bilinguals whose first language was Persian and second language was English. The study focused on a diverse population of Iranian immigrants to Canada who had acquired their native language fully before moving to Canada. Therefore, all 51 participants were aged between 26 and 63 years old. The number of males and females in the study was 24 and 27 respectively.

2.2. Materials

In order to examine the extent of retrieving concrete and abstract words as an indicator of first language attrition, a Picture Naming Task (PNT) was used to measure the extent of language attrition in the domain of lexicon. In order to explore the correlation between extra-linguistic factors and first language attrition, an adapted form of the Attitude and Motivation Test Battery (AMTB) (Gardner, 1985) were distributed in English to all bilingual participants to assess their background and attitudes toward the new language and their L1.

2.3. Procedure

150 words were chosen, based on Snodgrass and Vanderwart (1980). The chosen words were given to the monolinguals, who were asked to choose the most and least frequent words. Next, the monolinguals' responses were analyzed in order to choose only 60 words which were the most and least frequent words among the 150 word pool. Then, 60 pictures were given to bilinguals to name the pictures, and they were recorded by iPhone. Moreover, bilinguals were asked to take the PNT and the AMTB in one session.

2.4. Data analysis

After collection the data were analyzed through SPSS software. First of all, the recorded responses were transcribed. Next, the various responses were distinguished and the responses were scored through a scoring criterion presented by the researcher: the numbers 1 and 0 were given to valid and invalid responses respectively. Then, several formulas – such as Mann Whitney, Multiple Regression Analysis, and Spearman Correlation – were used to analyze the results of the PNT and the AMTB.

3. Results and Discussion

3.1. Determining the extent of retrieving lexical items

In order to determine the extent of retrieving both concrete and abstract words, the PNT was used. The extent of retrieving concrete and abstract words, and all 60 lexical items, was investigated separately.

In order to determine the extent of retrieving lexical items, the frequency retrieving all words was calculated. According to descriptive statistics for the extent of retrieving lexical items among the respondents, the mean of retrieving words was about 84%. The standard deviation and variance were 0.110 and 0.012 respectively.

3.2. Determining the extent of retrieving concrete words

For determining the extent of retrieving concrete words among the respondents, the ratio of retrieving concrete words was calculated. The frequency of the column which was attributed to the extent of retrieving concrete words was analyzed. Based on descriptive statistics for the extent of retrieving concrete words among the participants, the mean of retrieving concrete words was about 94%. The standard deviation and variance were 0.054 and 0.003 respectively.

3.3 Determining the extent of retrieving abstract words

First, the ratio of retrieving abstract words was calculated. Then, the frequency of retrieving abstract words was investigated. According to descriptive statistics for abstract words, the mean of retrieving abstract words among the participants was 73%. Standard deviation and variance were 0.182 and 0.033 respectively.

3.4 Comparing Concrete and Abstract Words

Table 3.1 below compares the extent of retrieving concrete and abstract words among the participants.

Table 3.1 The extent of retrieving concrete and abstract words

		Concrete words	Abstract words
N	Valid	51	51
	Missing	0	0
Mean		.9444	.7307
Std. Deviation		.05402	.18292
Variance		.003	.033
Minimum		.80	.10
Maximum		1.00	.97

The data related to retrieving concrete and abstract words were not normal and did not follow a normal distribution. In order to normalize the data, several conversion formulas were used. As the conversion formulas used for each group of words were different, the parametric t-test was not used to test the extent of retrieving concrete and abstract words. Indeed, the scale of the two groups was different. Thus, the Mann Whitney test was a good choice for comparing the mean value of the two groups which were not normal. The mean rank of the participants is presented in the following table.

Table 3.2 Mean rank of the participants on concrete and abstract words

		N	Mean Rank	Sum of Ranks
retrieving of words	Concrete words	51	73.94	3771.00
	Abstract words	51	29.06	1482.00
total		102		

Table 3.3 Mann Whitney results for comparing concrete and abstract words

	retrieving of words
Mann-Whitney U	156.000
Wilcoxon W	1482.000

Z	-7.720
Asymp. Sig. (2-tailed)	.000

The results of the Mann Whitney test are presented by the above table. Because the p-value is lower than 0.05, the null hypothesis is rejected. Consequently, the mean of retrieving concrete words is not equal to the mean of the abstract words. As the mean rank of the concrete words is more than the mean rank of the abstract words, it is concluded that the mean of the retrieving concrete words is more than the mean of the retrieving abstract words.

The rest of this paper presents the effect of several extra-linguistic variables such as length of residence, attitudes, and using L1 on the retrieving words will be investigated.

3.5. Correlational analysis

3.5.1. Relation between length of residence and retrieving lexical items

As the correlation coefficient is -0.30, there is a moderate correlation between length of residence and the extent of retrieving lexical items (See Table 3.4). The p-value is lower than 0.05 ($0.032 < 0.05$).

Table 3.4 Correlations between length of residence and retrieving lexical items

Spearman's rho			Length of residence	Retrieving lexical items
Length of residence	Correlation Coefficient		1.000	-.300*
	Sig. (2-tailed)		.	.032
	N		51	51
retrieving lexical items	Correlation Coefficient		-.300*	1.000
	Sig. (2-tailed)		.032	.
	N		51	51

*. Correlation is significant at the 0.05 level (2-tailed).

3.5.2. Relation between attitudes and retrieving lexical items

The relationship between retrieving lexical items and the participants' attitude towards Iranian people in Canada was investigated as follows:

Table 3.5 Correlations between attitude towards Iranian people in Canada and retrieving lexical items

Spearman's rho			retrieving lexical items	attitude towards Iranian people in Canada
retrieving lexical items	Correlation Coefficient		1.000	-.074
	Sig. (2-tailed)		.	.607
	N		51	51
attitude towards Iranian people in Canada	Correlation Coefficient		-.074	1.000
	Sig. (2-tailed)		.607	.
	N		51	51

Based on the correlation coefficient (-0.074) and p-value (0.607), there was a low correlation between retrieving lexical items and the participants' attitude toward Iranian people in Canada.

Table 3.6 Correlations between attitude towards foreign languages and retrieving lexical items

			retrieving lexical items	Attitude towards foreign languages
Spearman's rho	retrieving lexical items	Correlation Coefficient	1.000	.023
		Sig. (2-tailed)	.	.873
		N	51	51
	Attitude towards foreign languages	Correlation Coefficient	.023	1.000
		Sig. (2-tailed)	.873	.
		N	51	51

Table 3.6 shows that the correlation coefficient is 0.023 and p-value is 0.873. It is concluded that there is a very low relationship between retrieving lexical items and participants' attitude towards foreign languages.

Table 3.7 Correlations between attitudes toward Canadians and retrieving lexical items

			retrieving lexical items	Attitudes toward Canadians
Spearman's rho	retrieving lexical items	Correlation Coefficient	1.000	-.057
		Sig. (2-tailed)	.	.692
		N	51	51
	Attitude towards Canadians	Correlation Coefficient	-.057	1.000
		Sig. (2-tailed)	.692	.
		N	51	51

Table 3.7 shows that the correlation coefficient and p-value are -0.57 and 0.692 respectively, so there is a very low correlation between retrieving lexical items and participants' attitude towards Canadians.

Table 3.8 Correlations between attitude towards Iranian people and retrieving lexical items

			retrieving words	Attitude towards Iranian people
Spearman's rho	retrieving lexical items	Correlation Coefficient	1.000	-.133
		Sig. (2-tailed)	.	.353
		N	51	51
	Attitude towards Iranian people	Correlation Coefficient	-.133	1.000
		Sig. (2-tailed)	.353	.
		N	51	51

Based on table 3.8, the correlation coefficient is -0.13 and the p-value is 0.353, so, there is a low correlation between retrieving lexical items and participants’ attitude towards Iranian people in general.

Table 3.9 Correlations between L1 use and retrieving lexical items

			retrieving lexical items	L1 use
Spearman's rho	retrieving lexical items	Correlation Coefficient	1.000	.568(**)
		Sig. (2-tailed)	.	.000
		N	51	51
L1 use	L1 use	Correlation Coefficient	.568(**)	1.000
		Sig. (2-tailed)	.000	.
		N	51	51

** Correlation is significant at the 0.01 level (2-tailed).

According to table 3.9, the correlation coefficient and p-value are 0.56 and 0.000 respectively. It can be concluded that there is a high correlation between retrieving lexical items and L1 use.

3.6. Multiple Regression results

In this section, multiple regression is used in order to determining which variable has a better explanatory power with respect to lexical retrieval. Table 3.10 offers the predictor variables.

Table 3.10 Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	Length of residence, L1 use	.	Enter

a. All requested variables entered.

b. Dependent Variable: retrieving lexical items

The dependent variable, which is the extent of retrieving lexical items, is represented by y and explanatory variables including length of residence and L1 use in activities are denoted as X1 and X2 respectively. Only these two factors were included in the regression model as they had moderate or high correlations with the extent of retrieving lexical items.

Table 3.11 ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.546	2	.273	34.752	.000 ^a
	Residual	.503	64	.008		
	Total	1.048	66			

a. Predictors: (Constant), Length of residence, L1 use

b. Dependent Variable: retrieving lexical items

The above table, which presents the p-value and F, shows that the regression model is meaningful.

The null hypothesis is: $\beta_0 = \beta_1 = \beta_2 = 0$

As the P-value is 0.0 ($P < 0.05$), the regression model is meaningful.

Table 3.12 Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.396	.069		5.729	.000
1 L1 use	.124	.016	.674	7.781	.000
Length of residence	-.003	.001	-.222	-2.556	.013

a. Dependent Variable: retrieving lexical items

Table 3.12 illustrates the P-value for each explanatory variable. The P-value of length of residence is 0.013 ($P < 0.05$). On the other hand, the P-value of both L1 use and constant are 0.000 ($P < 0.05$). Hence, the final regression model is as follows:

Table 3.13 Model Summary of multiple regression

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.722 ^a	.521	.506	.08862

a. Predictors: (Constant), Length of residence, L1 use

Since the standardized Beta is not dependent on the unit of measurement, a standardized coefficient (β) was used in comparing all the independent variables. As Table 3.13 demonstrates, about 52% of the variance in the dependent variable can be accounted for by the model. Furthermore, the largest unique contribution is made by the L1 use variable (Beta= 0.674).

4. Conclusion

The overall results of this study show that L1 attrition affects only a small percentage of the participants in the bilingual group. Indeed, the majority of the participants remain within the range of native-like L1 proficiency. After analyzing the collected data from the PNT, it was found that almost all of the participants retrieved the name of both concrete and abstract words. Although the extent of retrieving concrete words is higher than that for retrieving abstract words, the respondents generally had no difficulty in retrieving words.

Different extra-linguistic variables such as length of residence, use of L1, attitude towards Iranian people in Canada, attitude towards foreign languages, attitude towards Canadians, and attitude towards Iranian people in general were studied. The effect of these extra-linguistic variables on first language attrition was investigated. With respect to contributing factors, it is shown that attitudinal factors do not outweigh others such as length of residence and L1 use.

It can be concluded that the performance of the informants in retrieving words was high because they had frequent contact with the L1. They used the L1 frequently in different circumstances. Therefore, being exposed to L1 input seems important and the use of the L1 seems to support maintenance of the L1. As a result, attrition appears to be the result of both the lack of L1 input as well as the increasing influence of the dominant L2. Consequently, the use of the L1 plays a significant role in decreasing the influence of the L2 and providing L1 input

to the immigrants. Through using the L1 in a new linguistic environment, L1 knowledge will be more resistant to language attrition phenomena, slowing down the attrition process.

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