Bilingual Shadowing and Code Switching between First Language and Second Language: A Case Study on Arabic and English Bilinguals

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Abstract

This paper aims at studying phenomena related to bilingualism which are also implicated in education such as code switching and shadowing. Shadowing techniques have an impact on the learners' listening skills and code switching is a useful strategy for language transfer and meaning explanation. The experimental research was conducted on collecting data from the experiment and control groups, which consist of university students in each group. The data were gathered by means of online one-on-one meetings with the students ; (1) to conduct simon test with wordlists in first language, Arabic, and second language, English, (2) and to present both experiment and control groups with correct and flawed texts in L1 and L2. The code switching findings reveal that it is faster to switch from the mother tongue/first language (L1) to the second language (L2) than vice-versa. The shadowing findings show that bilinguals present higher grammatical and lexical sensitivity in L1 than in L2.This article

suggests that teachers should employ shadowing for listening and encourage learners to use their L1 in second language L2 learning.

Keywords**:** Shadowing, Codeswitching, Bilingualism

1. Introduction

1.1. Shadowing

Shadowing is a repeating task in which the hearer is required to repeat the speech as they hear it. Subjects of this experiment are required to listen to stories in Arabic and English, each of which varies between a text including errors and a text without errors, in a way that we have 2 correct stories in first language (L1) and second language(L2), and 2 stories with an amount of 6 mistakes each in L1 and L2. In the conduct of early experiments, the subject would have to speak aloud the message on a word for word basis (Cherry & Taylor, 1954). The subject would become adept after little practice (Broadbent, 1952, Treisman, 1964). Since then, the way the human brain can receive and produce speech has been widely researched.

This study tests the sensitivity to syntactic and semantic violations. Participants were asked to listen to recordings of short stories in Arabic and English, then try to repeat them. A bilingual proficient in both languages recorded the stories with respect to correct phonetics and intonation. These stories were recorded with a smartphone and played back from laptop speakers in a quiet room so that the participant would listen to the stimuli clearly.

1.2. Codeswitching

Previous studies claim there are more costs in switching to the dominant language than to the non-dominant language. Recent studies confirm that L1 is faster than L2 and non-switch is slower than switch trials. This presented report focuses on code switching from L1 to L2 back and forth, and vice versa. The suggested experiment has been performed on 5

multilinguals, who were only required to use their Arabic and American English. Experiment proved interesting for Arabic differs from English on so many levels; That is, writing side and alphabets. The prediction is that naming time will be shortest for monolingual L1, then monolingual English, and the bilingual lists will take longer than the monolingual ones but for the two bilingual conditions there is no clear prediction, and your data are going to give an answer to this.

1.3. Bilingualism

Kroll et al. (1993) claim bilingual lexical representation as an independent system with a shared conceptual representation, and mirror translation diminishes as the user's language proficiency increases thus, concluding greater grey matter density (Mechelli et al. 2008); while late bilinguals show different cerebral organization. Balanced bilinguals show similar organization on the brain level similar to monolinguals, which matches studies that discuss informally acquired languages.

1.4. Research question

Is there a difference in number of errors in shadowing in L1 and L2? Is there a difference between code switching from first language (L1) into a second language (L2) and from L2 into L1?

2. Methodology

2.1. Shadowing

The enormous differences between Arabic and English, especially those related to phonology and sentence structure, makes this study interesting to know whether participants would correct errors from what they hear in English or in Arabic. Arabic has fixed stress and flat intonation for most chunks of words which may give hints to listeners there might be errors. In English, the position of stress in a word and its intonation are variable and thus less predictable. When shadow-listening, participants seemed to enjoy the stories and recognize

the elements of the story. The stories were read in a way to help them remember the words while focusing on the content.

In theory, when participants shadow a new story for the first time, their attention is on sounds and meaning. Participants were encouraged to repeat what they hear and not focus on the meaning from the recordings. Their full concentration should be on the phonological information, presumably. Shadowing has a strong correlation with phoneme perception but may have less correlation with listening skills. If participants shadow well, it only emphasizes their ability to hear well. If they correct the errors in the texts, there will be evidence of a mechanism in the brain that detects syntactic and semantic anomaly. Being exposed to the language daily renders the brain hyper-receptive to what an individual is hearing and will find himself picking up the words quickly and unconsciously mimicking the words. This will help the hearer store words in his brain temporarily, and longer if repeated long enough. However, the length of the texts would make it almost impossible to have a long-term memory of the words in the stories.

When a list of words that must be remembered is longer than that which can be held in short-term memory, the first and last items in the list are more accurately recalled than items in the middle of the list. Presumably, words in the middle would not be recalled and checked as much as the first and last words, so if we were to introduce the errors in the middle of our texts, the chances of them being perceived and corrected would diminish.

Proficient bilinguals, on the one hand, would correct grammatical errors because words they heard match the vocabulary they had acquired, but would repeat the same semantic errors in the text for they repeated them without a second check. This is explained by the unpredictability of the lexical changes all long the recorded text. Bilinguals with predominant L1 Arabic in their lives, would fail to correct the grammatical errors in their shadowing of stories in L2 English because their skills of matching words to phonemes have

not been as developed as their L1s. There was significant difference between the shadowed texts in L1 and in L2, so the null hypothesis is rejected in this study. We postulate that according to previous results the number of errors in shadowing L1 would be less than L2 for most cases.

According to Levelt's model (1989), language production starts with conceptualization, then formulation where the message is turned into linguistic representation and grammatical and phonological encoding take place, after that monitoring. Shadowing would provide direct input into the mind then the shadowed text would go through the grammatical and phonological encoding and then onto monitoring. Previous studies show that native speakers correct themselves by starting over the sentence instantly, so is the case for proficient bilinguals. This proves there exists self-feedback and monitoring on the level of conceptualizer. Providing a direct input through shadow-listening may activate the monitoring for grammar encoding and checking, but the text would be stored in short-term memory and repeated as it is. Participants would very often start their sentence over to correct the mistake after realization, and in some cases, errors would be corrected before speech articulation.

Cohen (1980) based his study on the shadowing of texts containing phonological and lexical speech errors. He noted that subjects tend to overhear phonological errors more readily than lexical ones. Automaticity, which is the ability to do things without occupying the mind, plays a role in complete shadowing, and the first error free texts draws subjects defenses down. In the opposite case, monitoring one's own and recording's speech may provide the participant with structural constraints on the next utterance, a correction or an answer.

2.2. Code switching

We postulate that according to relevant studies that code switching is present in a bilingual's daily life. A longitudinal study on a bilingual would necessarily prove proficiency in both L1 and L2. The prediction is that bilinguals are more fluent in L1 than L2 and there would a switching cost from a language to another. Another study claims that preparation time and evidence of bilingualism proficiency would reduce the cost.

Arabic is the dominant language in Tunisia, French being the second official language makes bilinguals, with a significant exception of multilingualism cases. Eavesdropping a conversation between multilinguals would reveal a complex use of vocabulary. All the participants in this experiment are proficient in English and fluent in Arabic. They communicate in English with their colleagues and friends, online and at their universities. They were required to inhibit two languages alternatively and separately while naming words from monolingual and bilingual lists. Each list has 80 items for monolingual L1 and monolingual L2 lists, while bilingual lists with alternating predominance have 60 items in the dominant language that represent 2/3 of their respective lists.

Participants were required to read each list separately and mark their time taken to complete each naming task. They read words composed of 2 syllables in both Tunisian Arabic and American English. To progress further in the list they had to press an arrow key and read silently each word on the next slides. There were not any practice lists and second trials. The present table below includes the experiment results for each list and each participant.

2.3. Participants

Tunisians are presumably bilinguals with varying degrees of language proficiencies and ages of onset of L2 acquisition. Some are early fluent bilinguals while others may not use French as frequently as Arabic. The participants in this study are balanced bilinguals, having

acquired the second language before school, then formally instructed at the age of 8 (3rd grade primary school). Participants (N=5) taking English courses at a university in Tunis, Tunisia, were accompanied during the recording time to observe their reaction to errors in the stories. Some participants insisted their playback to be handled confidentially so a real-time transcription was adopted for most results. Stories last few seconds each at a reasonable and steady pace so that participants could understand the meaning of the story. When we read a text aloud, we focus entirely on words, but when we listen to stories to understand the meaning and the lore, we tend to pay less attention to words. There is a chance that the participants would either notice the errors and automatically become alarmed to pay more attention to words and lose the meaning, or nod along while listening to the lore of the stories and repeat the same errors.

3. Results and discussion

3.1. Shadowing results

The results of the corrected items for L1 are significantly different from those of L2. We note the errors in L1 stories were corrected during the shadowing, while the means for corrected items in L2 are lower than the number of deliberate errors. By analyzing the results, we conclude that participants repeated fewer errors in L1 than in L2, and fewer grammatical errors than lexical for both L1 and L2. Table 1and figure 1 include the experiment results for each participant.

Table 1. Grammatical and lexical correction in L1 and L2

	Grammatical correction for L1	Lexical correction for L1	Grammatical correction for L2	Lexical correction for L2
Participant 1	3	3	1	1
Participant 2	2	2	0	0
Participant 3	3	2	1	0

Participant 4	3	3	1	0
Participant 5	3	3	0	0
Mean	2.8	2.6	0.6	0.2

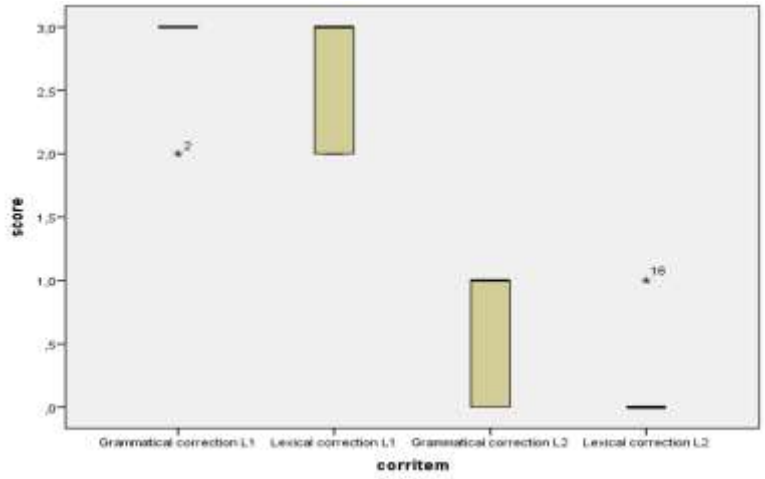

Figure 1. Boxplot representation of grammatical and lexical correction in L1 and L2

The distribution of score is the same across the corrected items for L1, according to Independent-samples Kruskal-Wallis test. The independent samples means comparison table adds the information that corrected Grammatical items in L1 (M= 2,8 ; SD= 0.44) differs from those of L2 (M= 0,6 ; SD= 0,54).There would be significant difference between the grammatical corrected items in L1 and L2 (95% CI [1.47 , 2.92]) From the table on independent sample test, the mean difference between the samples (2,2) is significant.

The independent samples means comparison table adds the information that corrected Lexical items in L1 (M= 2,6 ; SD= 0.54) differs from those of L2 (M= 0,2 ; SD= 0,44). There would be significant difference between the lexical corrected items in L1 and L2 (95% CI [1.67 , 3.12]) From the table on independent sample test, the mean difference between the samples (2,4) is significant. The means reveal a difference between the corrected shadowing for L1 and L2. The difference was significant as shown in the table and analysis results previously. The findings show much more sensitivity to grammatical and lexical errors between the two groups.

3.2. Code switching results

According to test of Normality and Levene's, p> .05 there is no significance, so we conclude there is difference between time taken to read the lists. According to ANOVA, F(3)= 5,733 , p < .05 there is positive and significance difference between the naming time for all the lists. The results of the first list (M= 53,75 ; SD= 5,058) are significantly different from the results of the second list (M= 58 ; SD= 5,958) which are both different from the results of the third list (M= 46,2 ; SD = 5,449) and the fourth one (M= 46,4, SD = 4,878), concluding a switch cost between languages. By analyzing the means we note that bilingual lists have the shortest time taken for naming task (M3= 46,2) and (M4=46,4) in comparison with (M1=53,75) and (M2=58).

Table 2. Codeswitching cost between L1 and L2 in seconds

	Word list in L1	Word list in L2	Bilingual word list with L1 dominance	Bilingual word list with L2 dominance	Mean
Participant 1	53 s	55 s	45 s	47 s	50 s
Participant 2	58 s	66 s	43 s	45 s	53 s
Participant 3	48 s	50 s	40 s	39 s	44.25 s
Participant 4	58 s	59 s	54 s	52 s	55.75 s
Participant 5	51 s	60 s	49 s	49 s	52.25 s
Mean	53.6 s	58 s	46.2 s	46.4 s	

Table 3. Descriptive analysis representation of each word list

	Word list in L1	Word list in L2	Bilingual word list with L1 Dominance	Bilingual word list with L2 Dominance
Mean	53,60	58	46,2	46,4
Median	53	59	45	47
SD	4,393	5,958	5,45	4,879

Minimum	48	50	40	39
Maximum	58	66	54	52
Range	10	16	14	13

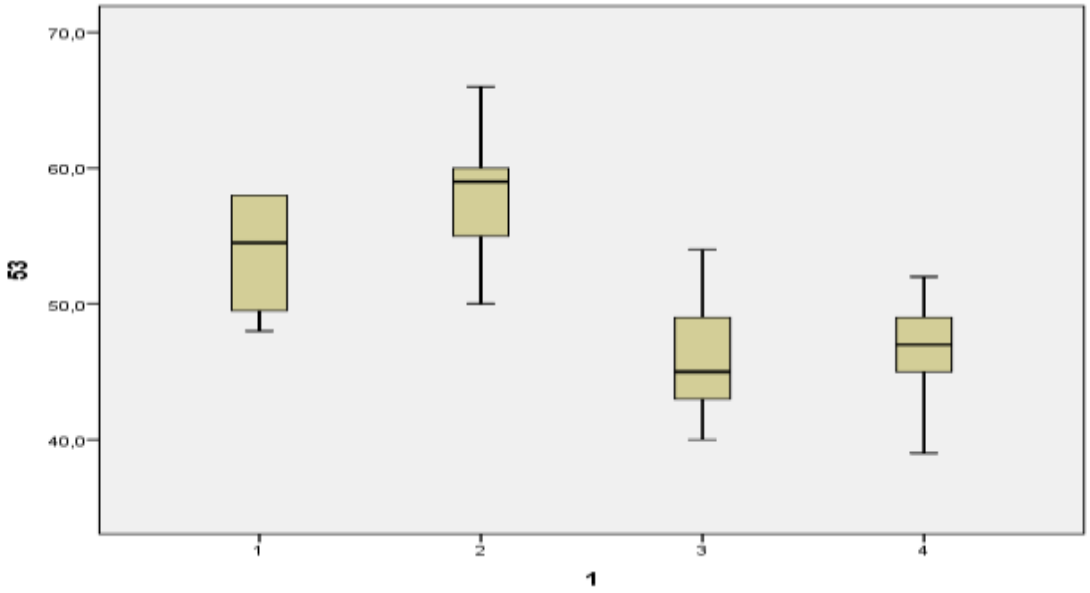

Figure 2. Boxplot representation of the wordlists

Table 2, 3 and figure 1 show that the participants completed the bilingual lists faster than the monolingual ones. Naming time for the bilingual lists was the shortest. Comparing M1 to M2, the mean difference would be M2-M1= 4,25 seconds. I conclude that the naming time for the L1 monolingual list was only shorter than the L2 monolingual list. Within the Bilingual lists results we divide the participants into 3 categories according to their personal record for naming task. For some participants it took longer to finish the bilingual list than the other. We focus mainly on the means and continue our analysis based on the available data. We conclude the naming time for the bilingual list with L1 dominance was shorter than the one with L2 dominance.

Conclusion

A descriptive analysis has been conducted showing the number of corrected items for error-containing text. The assumptions were that subjects would succeed in correcting the

shadowed text for L1, but for L2 it was quite vague to decide; Subjects would repeat the text as they hear it in L2 generally, presenting a complete shadowing. We deduce from the present comparison between means and sample tests that the difference is significant, and bilinguals present higher grammatical and lexical sensitivity in L1 than in L2. Some of the participants slightly improved the way they pronounce some words so we conclude shadowing would help students with intonation should it be implemented in schools.

The participants in this experiment are proficient multilinguals, so the results may differ from those of bilinguals; But for this experiment, it takes less time to read a bilingual list with L1 dominance. Code switching between L1 to L2 is shorter than that of the opposite. It takes less time to switch from L1 to L2 than from L2 to L1.

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