Arab Journal of Applied Linguistics

e-ISSN 2490-4198

Vol. 07, No. 02, 2022, 96-141

http://www.arjals.com

Comparing L1 and L2 Transfer Effects in Definite Article Usage by Heritage and Second Language Learners of Standard Arabic

Abdulkafi Albirini[1]*, Utah State University*

Abstract

This study examined the influence of Colloquial Arabic (CA) and English on the use of the definite article by heritage and L2 learners of Standard Arabic (SA). It also investigated the role of typological proximity in language transfer and whether transfer effects change over time. The study involved 149 participants: 73 L2 learners of SA, 61 heritage learners of SA, and 15 native-speaker controls. The participants were from elementary, intermediate and advanced SA courses. The participants completed a fill-in-the-blank task and a translation task. The results indicate that CA plays a facilitative role in heritage learners' use of the definite article. However, English plays both a facilitative and a non-facilitative role for both heritage and L2 learners of SA. In general, typological proximity seems to play a positive role in the use of the definite article in SA. Negative transfer, irrespective of typological proximity, becomes less visible as heritage and L2 learners advance in their study of SA.

Keywords:

[1] Corresponding author: Abdulkafi Albirini
Email: abdulkafi.albirini@usu.edu

Introduction:

This study focuses on the role of transfer effects in the use of the definite article by heritage speakers of Arabic in the United States. In particular, the study examines how transfer effects transpire in heritage Arabic speakers who are learning Standard Arabic in a college setting. The study also compares transfer effects in heritage Arabic speakers to those in second language learners of Standard Arabic. The goal is to uncover areas of convergence and divergence in transfer effects between heritage speakers and second language learners of Standard Arabic.

Heritage speakers are children of immigrant parents whose first language (L1) is not the dominant language in the society in which they live. They are typically exposed to their parents' L1 at home and within close family relationships. However, at some point in their childhood (usually at school age or sometimes even younger), they get exposed to the dominant language of their societies, which is their second language (L2) in terms of the order of acquisition. As they start using the L2 regularly in most social domains (education, playing, socialization, etc.), the L2 becomes their dominant language of everyday use. Their overreliance on their L2 in their everyday communication and social functions typically interrupts their L1 development and may result in the attrition or loss of certain L1 forms (Montrul, 2008; Polinsky, 2011; 2015).

Research on heritage speakers of Arabic identifies different areas of language loss and attrition in this population, such as agreement morphology, plural morphology, sentential negation, word usage, relativization, and resumption, among other areas (Albirini, 2014; Albirini, Benmamoun, & Saadah, 2011; Albirini & Benmamoun, 2014; Abirini, 2018; Boumans, 2006; El Aissati, 1996). However, most of the existing studies have focused on heritage Arabic speakers' L1, which is Colloquial Arabic. Only a few studies have examined the acquisition of Standard Arabic by heritage speakers of Arabic (e.g., Albirini & Benmamoun, 2014; Albirini, 2014; Benmamoun & Albirini, 2018). This is important because Arabic is a diglossic language in the sense that it has two varieties that have different functions in Arabic speakers' lives: Colloquial Arabic (CA) and Standard Arabic (SA). While CA is used in everyday communications and casual interactions, SA is often used in more formal domains, such as formal written documents, news reports, political speeches, and religious sermons (Albirini, 2016).

Native speakers of Arabic in the Arabic-speaking region may be exposed to SA on a regular basis from school, television, books, formal written documents, newspapers, literature, and other formal venues. By contrast, heritage Arabic speakers have very limited exposure to SA in the American society. Standard Arabic (SA) is not acquired from parents as L1. It is also not used in everyday casual conversations inside or outside their homes or in any formal domains in the society in which they live (e.g., public schools, media, etc.). In other words, heritage speakers of Arabic have to *learn* SA in a

formal setting to acquire it, unlike how they acquire their L1 (i.e., CA) and L2 (i.e., English). Their main chance of acquiring SA is through formal exposure in instructed settings (tutoring, Sunday schools, college, etc.). It is not surprising, therefore, that some scholars have identified SA a third language (L3) for heritage speakers (Albirini 2014; Benmamoun & Albirini, 2018). Despite the noticeable overlap between CA and SA and their typological relatedness, there are still major differences between these two varieties at the syntactic, morphological, lexical, and phonetic levels (see Benmamoun, 2000; Aoun, Benmamoun & Chouiri, 2010).

If we accept SA as a L3 for heritage speakers, one question that this paper is interested in exploring is whether transfer occurs from L1 (CA) or L2 (English). A second and related question is the role of typological proximity in language transfer. This question is important because SA is closer typologically to CA than English. As will be explained below, according to a number of researchers, transfer is more likely to happen between languages that are typologically close (Rothman, 2010, 2011, 2015; Rothman & Cabrelli Amaro, 2010). If this is the case, then for heritage speakers transfer is more likely to occur between L1 (CA) and L3 (SA) than between L2 (English) and L3 (SA). However, this is open to empirical testing, which is one of the main purposes of this study. Another goal of this study is to examine if language transfer is affected by whether a given L3 form converges with or diverges from its counterparts in the L1 and L2 and whether

students pay attention to more nuanced uses of the definite article that depend on language-specific rules.

This paper focuses on heritage speakers whose L1 is the Egyptian and Levantine colloquial varieties. The Egyptian and Levantine varieties of Arabic are structurally similar with respect to the use of the definite article (Abu Nasser & Benmamoun, 2016; Aoun *et al.,* 2010; Brustad, 2000). While English is the dominant language for both the heritage/L3 and L2 learners of SA, the L3 learners have also learned CA. The question becomes whether and how the unique linguistic backgrounds of the L3 and L2 learners may influence transfer dynamics in these two groups.

Theoretical Models about Transfer Effects in L3 Acquisition

The question of whether transfer effects from L1 (CA) and L2 (English) play a role in the use of the definite article in L3 (SA) is tested here within the frame of three relatively recent hypotheses about the role of learners' L1 and L2 in the acquisition of an L3: The Cumulative Enhancement Model (CEM), the Typological Primacy Model (TPM), and the Linguistic Proximity Model (LPM).

The CEM (Flynn, Foley, & Vinnitskaya, 2004) posits that previously acquired languages can either affect the acquisition of L3 positively or play a neutral role. According to this model, transfer is a cumulative and selective process that utilizes previously learned forms to facilitate the learning of new forms found in newly acquired

languages. In this sense, transfer from L1 and L2 to L3 can only be positive/facilitative and cannot be negative.

The TPM (Rothman, 2010, 2011, 2015; Rothman & Cabrelli Amaro, 2010), like the CEM, suggests that both the L1 and L2 can be sources of transfer to the L3. However, unlike the CEM, this model suggests that the L1 and the L2 can play either a facilitative or a non-facilitative role in L3 learning. Following the Full Transfer/Full Access Hypothesis (Schwartz & Sprouse, 1996), this model suggests that the whole L1 and L2 systems are eligible for transfer. In addition, transfer typically occurs wholesale (e.g., form by form). Typologically close languages are the more likely source for transfer based on linguistic cues from the L3 input. Transfer operates on implicational scale: lexical > phonological > morphological > syntactic.

Similar to the TPM, the LPM (Westergaard *et al.,* 2017) argues that both the L1 and L2 can be the source of transfer to the L3. It also agrees with the TPM in stipulating that transfer can be either facilitative and non-facilitative. Critically, however, it differs from the TPM in suggesting that transfer can occur property by property. In other words, it can be based on partial structural similarity rather than complete typological/structural similarity.

These three models are critical for this study to understand the source of transfer (L1 or L2), the role of transfer (positive or negative) in L3 learning, and whether transfer occurs wholesale or property by property.

The Definite Article in Arabic and English

Nouns can be made definite in Arabic and English by a variety of means. One of these means is the use of the definite article. In Arabic, the definite article is the bound morpheme *ʔal*. It is prefixed to nouns regardless of their number, gender, case, etc. In English, however, the definite article is a function word that precedes nouns. Regardless of whether they attach to the nouns or remain separate from it, however, the definite articles in Arabic and English are functionally similar in the sense that they turn indefinite nouns into definite nouns.

The use of the definite article is one of the intriguing aspects of acquiring both Arabic and English. This is because what is an (in)definite noun is not always clear-cut, which means that the use of the definite article with definite and indefinite nouns is not always straightforward. For example, the names of some countries are not modified by the definite article in English, whereas in Arabic (both CA and SA) the definite article can be part of their definiteness (e.g. Morocco vs. المغرب). Moreover, while it is possible to use the definite article with another modifier in Arabic, as in the use of the definite article after a demonstrative (e.g., هذا البيت, literally 'this the-house'), English does not allow this

structure. In general, there are notable disparities in the use of the definite article cross-linguistically, and it is important to investigate how learners of new languages may be affected by the patterns of definite-article usage in their previously acquired languages.

In what follows, I discuss two patterns where Arabic and English converge with respect to the use of the definite article, two patterns where they diverge, and two mixed patterns where the use the definite article in Arabic and English converge or diverge depending on language-specific requirements, contextual cues, and sentential structure. These six patterns are discussed here because these are the focus of this study.

Areas of convergence

Although Arabic and English converge in their usage of the definite article in a variety of ways, I focus here on two areas of convergence that are relevant to this particular study:

- In both Arabic and English, nouns that are re-introduced after their first mention in discourse are considered definite and are preceded by the definite article. In (1), for example, the noun *sayyaaratan* 'a car' is indefinite when it is mentioned for the first time. However, it becomes definite upon its second mention and is therefore preceded by the definite article both in Arabic and English, *ʔas-sayyaaratu* 'the car.'

(1)

ʔištaray-tu sayyaarat-an ʔas-sayyaarat-u ʔamaama manzil-ii.
Bought-1S car-Indef.Acc the-car-Nom in front of house-my
'I bought a car. The car is in front of my house.'

- In both Arabic and English, nouns that, by reason of locality or common knowledge among speakers, may refer to one particular thing are considered definite and are preceded by the definite article. In (2), for example, the word *l-masjida* 'the mosque' is considered common knowledge between the speakers due to locality reasons (e.g., the only mosque in the neighborhood of the speaker and listener) and is therefore introduced by the definite article.

(2) Saamii ya-ðhab-u ʔilaa l-masjid-i kulla yawm-in.
Sami 3-goes-SM to the-mosque-Gen every day-Indef.Gen
'Sami goes to the mosque every day.'

3.2 Areas of Divergence

Arabic differs from English in the use of the definite article in a number of areas, two of which are relevant to this study.

- Plural nouns referring generally to a whole class of people, animals, plants, or objects are introduced by *ʔal* 'the' in Arabic, while they are not in English. In (3), for example, the Arabic plural noun *ʔal-fawaakihu* 'the-fruits' is preceded by the definite article, whereas its English equivalent is not, as it is used here generically to refer to fruits in general.

(3) ʔal-fawaakih-u mufiidat-un li-l-jism-i

the-fruits-Nom useful-Indef.Nom for-the-body-Gen

'Fruits are useful for the body.'

- A second way in which Arabic differs from English in terms of the use of the definite article is that in a construct state case (i.e., *idaafa*), which is a "noun + noun" structure used mostly to indicate possession, the first noun does not take the definite article. The construct state is similar to "noun + of + noun" structure in English in terms of function and meaning, but in the latter both nouns can be preceded by the definite article. As the contrast in (4a) and (4b) shows, the use of the definite article before the noun *kitaab* 'book', which is the first noun in the construct state, renders the phrase ungrammatical.

(4) a. kitaab-u ṭ-ṭaalib-i…

book-Nom the-student-Gen

b. *ʔal-kitaab-u ṭ-ṭaalib-i…

the-book-Nom the-student-Gen

'The book of the student"

Mixed areas

I will focus here on two patterns where the definite article may or may not be used depending on language-specific requirements or the context in which the noun is used.

- Arabic nouns occurring after demonstratives may or may not be definite depending on their function in the sentence or relation to the demonstrative. Thus, they may or may not be preceded by the definite article. In verbless sentences starting with a demonstrative, for example, the demonstrative may be followed by a noun introduced by the definite article if this noun serves as *badal* 'substitute' of the demonstrative, i.e., if either the demonstrative or the following definite noun (or both) can be used without violating the grammatically of the sentence. In (5a), for example, either the demonstrative *haaða* or the definite noun *l-baytu* can be dropped while maintaining the grammaticality of the sentence. However, when the noun following the demonstrative serves as the predicate of the sentence (in which case the demonstrative serves as the subject of the sentence), then it is typically used in its indefinite form. In (5b), for example, the demonstrative *haaða* serves as the subject of the sentence and the noun *baytun* as the predicate, which is why it is indefinite and is therefore not preceded the definite article.

(5) a. haaða l-bayt-u kabiir-un
This the-house-Nom big-Indef.Nom
'This house is big.'
b. haaða baytu-un kabiir-un
This house-Indef.Nom big-Indef.Nom
'This is a big house'

- In both Arabic and English, most unique nouns are usually introduced by the definite article. As the examples in (6a) illustrate, the words *ʔal-qamar* 'the-moon' and *ʔal-ʕaalam* 'the world' are considered unique in both languages and are therefore introduced by the definite article. However, while this rule holds for the majority of unique nouns in Arabic, it does not apply to unique nouns that are also considered

proper nouns in English, such as days of the week and months/seasons of the year[1]. As the examples in (6b) show, *Thursday* and *Spring* are considered proper noun and, in their typical usage, are not introduced by the definite article in English. By contrast, their Arabic equivalents are preceded by the definite article.

(6) a. ʔal-qamar = the moon
ʔal-ʕaalam = the world
b. ʔal-xamiis = Thursday
ʔar-rabiiʕ[2] = Spring

The six patterns covered here represent the areas of convergence, divergence and mixed patterns between English and Arabic with respect to the use of the definite article. For the sake of simplicity, the six patterns will be referred to CON1, CON2, DIV1, DIV2, MIX1, and MIX2. These six aspects of definite article usage will be examined in this study to see whether transfer effects may vary by whether Arabic and English converge, diverge or partially converge/diverge with respect to the use of the definite article.

Research on L1 and L2 transfer to L3

The study of L1 and L2 transfer to the L3 is theoretically significant, as it may shed light on a potentially critical factor that may affect L3 acquisition (González Alonso & Rothman, 2017). It may also help explain the role of typological similarity in transfer to L3. The study of transfer to L3 is also pedagogically important, as it may help instructors

understand whether and how heritage and L2 learners of SA are impacted by their previously acquired languages. Therefore, this type of research can equip instructors with a better understanding of the challenges that face heritage speakers and L2 learners so that they are better prepared to choose strategies and materials that suit the needs of these two groups of learners.

A number of studies has examined transfer effects in SA learners whose L1s converge with or diverge structurally from SA. For example, Alhawary (2003, 2009, 2019) examines the use of both verbal and nominal gender agreement morphology by learners of SA with English, Chinese, Japanese, French and Russian L1s. SA was L2 for some learners and L3 for others. Alhawary reports that L2 and L3 learners whose L1 does not have nominal agreement forms similar to Arabic found difficulty with these forms (English, Chinese and Japanese), unlike L2/L3 learners whose L1 is similar to Arabic with respect to nominal agreement morphology (French and Russian). Although Alhawary underlines the role of transfer in the acquisition of Arabic as L2/L3, he acknowledges that other factors, such as the nature of the acquired forms, may be in part responsible for acquisition difficulties.

Albirini and Benmamoun (2014) examine transfer effects in elicited oral narratives by Egyptian and Palestinian heritage speakers. They focus on transfer effects in the areas of plural morphology, dual morphology, construct state, and restrictive relative clauses. They found that transfer effects are responsible for various error patterns in heritage

speakers' oral output. For example, when deriving Arabic plurals, heritage speakers tend to overuse the two regular-pluralization morphemes *-aat* and *-iin* instead of using non-concatenative strategies (e.g., prosodic templates). Albirini and Benmamoun attribute this tendency to the predominance of the concatenative strategy (plural *-s*) in the English language, which is the dominant language for heritage speakers. Transfer effects were also prevalent in heritage speakers' use of dual morphology, relative clauses, and the construct state. For example, instead of using the dual morpheme to form dual nouns (e.g., *beitein* 'house-dual'), which is the default strategy in Arabic, Palestinian heritage speakers deploy the 'number + noun' strategy (e.g., *tnein beit* 'two house'), which follows the equivalent pattern predominantly used in English.

Albirini, Saadah and Alhawary (2018) compare transfer effects in L2 learners and heritage learners of SA in a number of linguistic areas. They conclude that the L1 plays a facilitative role in the acquisition of the L3, particularly when the L1 and L3 forms are compatible. For example, heritage speakers benefit from subcategorization rules in L1/CA because these are largely similar to the ones they had to use in L3/SA. By contrast, the L2 plays mostly a negative role in the acquisition of the L3 areas under study. For example, L2 learners and, occasionally, heritage speakers, are negatively influenced by the subcategorization rules in their L2, English, which differ significantly from their Arabic counterparts.

While the previous studies have focused on various areas of transfer, the literature lacks a more in-depth investigation of L1 and L2 transfer to L3 in a specific linguistic area. More importantly, the literature lacks any studies on whether and how transfer effects may change over time as students progress in their study of L3/SA. This study seeks to address these gaps in the literature by investigating the following three research questions:

1. What role does L1 and L2 transfer play in the use of the definite article by L2 and L3/heritage learners of SA?
2. What role does typological proximity play in any potential transfer effects from L1/L2 to L3?
3. How do any potential patterns of transfer change as L2 and L3 learners of SA move from elementary to intermediate and then advanced levels of SA learning?

These three questions will be investigated using the following methods.

Methodology

Participants

This study involved 149 participants, including 73 L2 learners, 61 L3/heritage speakers, and 15 speakers whose first language is Arabic (L1 speakers, henceforth). The L1 speakers were included as controls[3]. Thirty-one of the L2 learners were in first-year or beginner classes, 24 in second-year or intermediate classes, and the remaining 18 in third or fourth-year advanced classes. Twenty-six of the heritage speakers were in beginner SA classes, 20 in intermediate classes, and 15 in advanced classes. Table 1 provides a summary of the demographics of the L2 and L3 participants.

Table 1

Demographics of Heritage and L2 Learners of SA

		L2 learners	Heritage speakers
No. of participants		73	61
SA level			
	Beginner	31	26
	Intermediate	24	20
	Advanced	18	15
Gender			
	Male	41	28
	Female	32	33
Average age (in years)		20.3	19.8
Average Visits to Arab region (in months)[4]		1.6	2.1

The L2 learners were all speakers of English as L1. They all started learning SA in college. All of them were born and raised in the US to American parents whose L1 is English. None had an Arab parent. The L2 learners consisted of 41 males and 32 females. The average age of this group was 20.3 years (ranging 18-24). Among the 73 L2 learners, only 21 had visited an Arab country at least once during their college education, all for educational purposes. The duration of the visits ranged between one and four months (one semester). On average, the length of the visits made by the L2 learners to the Arab region was 1.6 months.

The heritage speakers were all born in the US, with the exception of four who were born in the Arab region and moved to the US by the age of 6 month (1 participant), 2 years (2 participant) and 3 years (1 participants). They all identified English as their dominant language of everyday use. All had two Arab parents, with the exception of two who had an Arab father and an American mother whose L1 is English. Twenty-eight were males and 33 were females. Their average age was 19.8 years (ranging 18-22 years). Among the 61 heritage participants, 29 visited the Arab region at least once since they started their formal learning of SA in college. The purpose of their visits was for family and educational purposes. The duration of their visits ranged between two weeks and three months. On average, the length of the visits made by the heritage speakers was 2.1 months.

The L1 Arabic speakers were born and raised in the Arab region. Eleven of them were males and four were females. They were all graduate students at the time of the study. They all completed their undergraduate education in the Arab region before moving to the US to complete their graduate degrees. Eight were from the Levant (Syria, Jordan, Palestine, and Lebanon) and seven from Egypt. All of them had been in the US for four years or less at the time of data collection.

Tasks

The participants completed two written tasks. The written tasks were deemed appropriate for this study because writing in Arabic is mostly associated with SA, especially in textbooks, books, documents, and reports[5]. The first task was a fill-in-the-blank task where students were instructed to insert the definite article in the blank when required by context and sentence structure. This task focused on the six patterns of definite-article usage discussed above, namely CON1, CON2, DIV1, DIV2, MIX1, and MIX2. Each pattern was represented by 4 sentences, which means that the total number of items in this task was 24. The six patterns are illustrated in examples (7) to (12).

(7) عندي هاتفٌ جديد. .....هاتف على الطاولة.

(8) خالد يعود إلى ..... بيت في سيارة والده كل يوم.

(9) ..... كلاب حيواناتٌ لطيفةٌ.

(10) انتظر أحمد أمام ..... باب البيت.

(11) أحب هذه ..... جامعة.

(12) روسيا أكبر دولة في ..... عالم.

As indicated above, Arabic and English are alike with respect to the use of the definite article in the first two patterns, namely nouns re-introduced in discourse after first mention, as in (7), and nouns that are commonly known to the speakers by means of locality, as in (8). However, Arabic and English diverge in definite-article usage with regard to the next two patterns, which include plural nouns used generically to refer to whole classes, as in (9), and the first component of 'noun + noun' construct state forms, as in (10). Examples (11) and (12) represent patterns where the definite article may or may not be required based on language-specific contextual information. In (11), the noun following the demonstrative is a substitute noun, which means that the definite article is required in this context in Arabic, but not in English. In (12), the word عالَم 'world' is unique relative to the context and requires the use of the definite article in both English and Arabic. Since Arabic and English may converge or diverge in their use of the definite article based on contextual factors in the last two patterns, two out of the four sentences representing each pattern had a case where the definite article is required in both languages, and two sentences where the definite article is required in one language but ungrammatical in the other (See examples (5) and (6) above).

The second task was a translation task from English to Arabic. The purpose of this task was to verify the data obtained from the first task. Therefore, the same six patterns

mentioned above were the target of this task. Sentences (13) to (18) illustrate these six patterns in order, with the relevant nouns italicized for illustration purposes:

(13) I bought a computer. *The computer* is on my table.

(14) Mother: Where is George?

Daughter: He is at *school*.

(15) *Children* like to play.

(16) *The door* of the office is very small.

(17) This *student* comes to class every day.

(18) I did the homework on *Saturday*.

Again, each pattern was represented by 4 sentences, which means that the total number of items in this task was 24. The same observations made with respect to the distribution of items in the first task apply in this translation task. In constructing the tasks, I made sure to use vocabulary that are taken from the textbook used in the participants' classes (see below) and/or are taught by the instructors of record[6].

Data Collection and Analysis

The data was collected from three American universities. The data was collected by the author in late April and early May toward the end of the academic year in all three

universities. By that time, elementary students had almost completed their first year of SA learning, intermediate students completed their second year, and advanced students completed their third or fourth year. The data was collected from three universities to make sure that the number of participants is large enough to carry out meaningful statistical comparisons. At the time of data collection, all three universities used *Al-Kitaab fii Ta'allum al-'Arabiyya* series (Brustad, Al-Batal, & Al-Tonsi, 2011, 2007), and all focused on teaching SA with minimal attention to CA. The topic of the definite article had already been covered in the curricula in the first semester of SA learning in all three universities.

In addition to the two written tasks, the participants completed a questionnaire about their linguistic background and demographics. The participants completed the two tasks and the questionnaire in a single class session. However, due to feasibility reasons, the data from 19 students was collected in an office outside the classroom. These students were given exactly the same time to complete the tasks as the rest of the participants (50 minutes). After the data collection was completed, the data from the two written tasks were transferred to a Microsoft Excel file where correct and incorrect answers were coded. For the second task, only the use of the definite article was coded in the Excel file. In other words, mistakes that are related to anything else in the translation (e.g., word selection, grammaticality, spelling, etc.) were disregarded. The data was analyzed with SPSS version 26 statistical package.

Findings

Fill-in-the-Blanks Task

The correct and incorrect answers on the fill-in-the-blank task were tallied for every participant. Correct answers were given 1 point and incorrect ones were given 0 points. These points were entered into a Microsoft Excel sheet. Once all the points were entered, the average score for every participant was calculated on each of the six patterns of CON1, CON2, DIV1, DIV2, MIX1, and MIX2. The average scores were also computed for the combined patterns of convergence (CON), divergence (DIV), and mixed patterns (MIX). I also calculated their overall average accuracy score on this entire task.

Table 2

Average Overall Accuracy Scores on the Fill-in-the-Bank Task

	No. of participants	Accuracy %	SD
EL3	26	82.53	12.31
IL3	20	84.17	13.01
AL3	15	90.83	13.01
EL2	31	55.78	8.17
IL2	24	68.75	11.39
AL2	18	80.79	12.63
L1	15	100	0

EL3 = elementary L3/heritage learners; IL3 = intermediate L3/heritage learners; AL3 = advanced L3/heritage learners; EL2 = elementary L2 learners; IL2 = intermediate L2 learners; AL2 = advanced L2 learners; L1 = native speakers

Table 2 demonstrates the participants' overall accuracy rates on the whole task. As this table shows, the three L3/heritage groups performed relatively comparably, with average accuracy percentages of 82.53% for the EL3, to 84.17% for the IL3, and 90.83% for the AL3. By contrast, the average accuracy score of the EL2 group (55.78%) was notably lower than the score of the IL2 group (68.75%), which in turn was lower than that of the AL2 group (80.79%). However, the participants in all of the experimental groups performed poorer than the controls, who performed at ceiling (100%).

A One-Way Analysis of Variance (ANOVA) was carried out to determine whether the differences among the seven groups were significant. The test results indicate that the difference in the accuracy percentages of the groups was significant; $F(6, 142) = 39.450$, $p < .0001$. Post-hoc analyses using the Tukey technique revealed that the average accuracy rates of all the six experimental groups were significantly lower than that of the control group ($p > 0.5$), except for the AL3 group whose accuracy score does not differ significantly from the controls ($p = .256$). None of the three L3/heritage groups performed significantly better than the other L3 groups: EL3 versus IL3 ($p= .999$); EL3 versus AL3 ($p = .235$); IL3 versus AL3 ($p =.564$). The three L3 groups also did not perform significantly better than the AL2 group ($p = .999$, $p = .964$, $p = .128$, respectively). However, the three L3 groups and the AL2 group all did significantly better than the EL2 and IL2 groups ($p < .05$), who also differ significantly from each other ($p < .0001$).

I also investigated how the participants performed on the patterns of convergence (CON), divergence (DIV), and mixed patterns (MIX). As Table 3 shows, all experimental groups did better on the patterns where Arabic and English converge with respect to the use of the definite article than on patterns where they diverge and on mixed patterns. The EL2 group had the lowest scores on the CON patterns (64.52%). Apart from this group, the accuracy percentages of all the experimental groups on the CON patterns were relatively comparable with scores ranging from 78.65% (IL2 group) to 91.96% (AL3 group). On the DIV patterns, however, the accuracies of both the EL2 and IL2 groups (47.98% and 60.42%, respectively) were clearly lower than those of the EL3, IL3, AL3, and AL2 groups, whose accuracy scores were 80.29%, 82.50%, 88.39% and 76.39%, respectively. The same trend appears in the MIX patterns; the accuracy rates of the EL2 and IL2 groups (54.84% and 67.19%) were notably lower than those of the other four experimental groups whose accuracies ranged between 79.86% (AL2) and 90.18% (AL3).

One-way ANOVA tests were carried out to determine whether the differences in the average accuracy rates of the groups on the CON, DIV and MIX patterns were significant. With respect to the CON patterns, the test results showed that there was a significant difference among the groups; $F(6, 142) = 14.105$, $p < .0001$. Post hoc analysis using Tukey tests showed that the accuracy scores of the EL2 participants were significantly lower than those of all other groups ($p < .05$). The IL2 group performed significantly better than the EL2 group, significantly worse than the controls ($p < .05$), and

marginally worse than the AL3 group (p = .061). The difference in the accuracy rates of all the other experimental groups was not significant: EL3 versus IL3 (p = .997), EL3 versus AL3 (p = .756), EL3 versus IL2 (p = .618), EL3 versus AL2 (p = 1.0), IL3 versus AL3 (p = .974), IL3 versus IL2 (p = .317), IL3 versus AL3 (p = 1.0), AL3 versus AL2 (p = .865), IL2 versus IL3 (p = .643).

Table 3

Average accuracy scores on the CON, DIV, and MIX patterns in the fill-in-the-blank task

	No. of participants	CON	DIV	MIX
EL3	26	85.58	80.29	81.73
IL3	20	88.13	82.50	81.88
AL3	15	91.96	88.39	90.18
EL2	31	64.52	47.98	54.84
IL2	24	78.65	60.42	67.19
AL2	18	86.11	76.39	79.86
L1	15	100	100	100

One-way ANOVA tests also revealed significant differences among the groups with respect to their accuracy scores on the DIV patterns; $F(6, 142) = 31.361$, $p < .0001$. Post hoc analyses demonstrated that both the EL2 and IL2 groups performed significantly poorer on the DIV patterns than the other four experimental groups ($p < .05$). By contrast,

the AL2 group's accuracy score was not significantly different from those of the EL3 (p = .978), IL3 (p = .866), and AL3 (p = .181) groups. Similarly, there was no significant difference between any of the three L3/heritage groups: EL1 versus IL3 (p = .999); EL3 versus AL3 (p = .520); IL3 versus AL3 (p = .866). However, five of the six experimental groups performed significantly poorer than the control group on the DIV patterns (p < .05). The exception was the AL3 group, which did not differ significantly from the controls in this respect (p = .420).

The groups also differed significantly in the MIX patterns, as revealed by the ANOVA analyses: $F(6, 142) = 19.281$, $p < .0001$. Post hoc comparisons showed that the EL2 group's accuracy was significantly lower than those of the other groups (p < .05), with the exception of the IL2 group where the difference between these two groups was marginally significant (p = .074). Similarly, the IL2 group's accuracy was significantly lower than those of the three heritage/L3 groups (p < .05), but not the AL2 group (p = .151). The AL2 group did not differ from the EL3 and IL3 (p = 1.00) or the AL3 group (p = .441). No significant differences were found in the accuracy percentages of the three heritage groups: EL3 versus IL3 (p = 1.00); EL3 versus AL3 (p = .578), IL3 versus AL3 (p = .655).

Lastly, we examined the participants' performance on the six patterns of the definite article usage, which were referred to as CON1, CON2, DIV1, DIV2, MIX1, and MIX2. The goal was to detect whether there was any notable discrepancy in the

participants' performance on any specific pattern. As expected, the differences between the two definite-article forms within each of the CON, DIV, and MIX patterns were minimal (Table 4). For example, the accuracy percentages on the CON1 and the CON2 were, respectively, 88.46% and 82.69 for the EL3 group, 90.00 and 86.25 for the IL3, 93.33 and 91.67 for the AL3 group, 68.55% and 60.48% for the EL2 group, 81.25% and 76.04% for the IL2 group, and 88.89% and 83.33% for the AL2 group. The same applies to the rest of the task where the participants showed consistency in their use of the definite article in the DIV1 and DIV2 patterns as well as the MIX1 and MIX2 patterns.

Table 4

Average accuracy percentages on the six definite-article patterns in the fill-in-the-blank task

	CON1	CON2	DIV1	DIV2	MIX1	MIX2
EL3	88.46	82.69	78.85	81.73	83.65	79.81
IL3	90.00	86.25	81.25	83.75	83.75	80.00
AL3	93.33	91.67	88.33	90.00	91.67	90.00
EL2	68.55	60.48	52.42	43.55	55.65	54.03
IL2	81.25	76.04	64.58	56.25	65.63	68.75
AL2	88.89	83.33	77.78	75.00	81.94	77.78
L1	100	100	100	100	100	100

In general, the findings from the-fill-in-the-blank task show that heritage/L3 learners of SA are more competent in deploying the definite article than their L2 counterparts at the elementary and intermediate levels. At the advanced level, however, the performance of the L3 and L2 learners become relatively similar. The results also show that the participants do generally better on patterns where Arabic and English converge than on patterns where they diverge or where mixed patterns exist.

Translation Task

For the translation task, the accurate and inaccurate uses of the definite article on the target nouns were analyzed while ignoring all other grammatical, spelling, and translation errors. Correct use of the definite article was awarded 1 point, and incorrect use of the definite article was given 0 points. The correct and incorrect answers were tallied for each participant. Then, the average accuracy percentages of every participant was calculated on the overall translation task, the three broad patterns of CON, DIV, and MIX, and each of the six individual patterns comprising the task: CON1, CON2, DIV1, DIV2, MIX1, and MIX2.

As Table 5 demonstrates, the accuracy percentages of the six experimental groups were generally lower on the translation task than on the fill-in-the-blanks task, while the controls performed at ceiling on both tasks (100%). The accuracy rates for the three L3/heritage groups were relatively close, with 69.71%, 74.17%, and 78.61% accuracies for

the EL3, IL3, and AL3 groups, respectively. The L2 participants had accuracy rates markedly lower than those of their L3 counterparts. The accuracy of the AL2 group (69.68%) was the closest to those of the three heritage/L3 groups, while the accuracies of the EL2 (48.92%) and IL2 (59.72%) groups were clearly lower than those of the L3 groups.

Table 5

Average overall accuracy percentages on the translation task

	No. of participants	Accuracy %	SD
EL3	26	69.71	13.05
IL3	20	74.17	15.21
AL3	15	78.61	16.65
EL2	31	48.92	6.80
IL2	24	59.72	12.02
AL2	18	69.68	9.88
L1	15	100	0

EL2 = elementary L3 learners (i.e., heritage speakers); IL3 = intermediate L3 learners; AL3 = advanced L3 learners; EL2 = elementary L2 learners; IL2 = intermediate L2 learners; AL3 = advanced L2 learners; L1 = native speakers

A One-way ANOVA was conducted to determine whether there was a significant disparity in the accuracy percentages of the groups on the translation task. The test results revealed a significant difference among the groups; $F(6, 142) = 38.544$, $p < .0001$. Multiple comparison analyses using the Tukey test showed that the accuracy scores of all the six

experimental groups were significantly lower than that of the controls ($p < .01$). The accuracy rates of the three heritage groups did not differ significantly from one another: EL3 versus IL3 ($p = .852$); EL3 versus AL3 ($p = .216$); and IL3 versus AL3 ($p = .919$). The accuracy score of the EL2 group was significantly lower than the scores of all the other groups ($p < .05$). Similarly, the IL2 group also performed significantly poorer than all the other groups ($p < .05$), except the AL2 groups where the difference was marginal ($p = .090$). While the AL2 group differed significantly from the EL2 group ($p. < .0001$) and marginally from the IL2 group ($p = .090$), it did not differ significantly from the EL3 ($p = 1.00$), IL3 ($p = .894$) or AL3 ($p = .295$) groups.

The experimental and control groups also diverged with respect to their performance on the three patterns of CON, DIV, and MIX. As Table (6) shows, all experimental groups did better on the patterns where Arabic and English converge in their use of the definite article (CON) than on the patterns where they diverge (DIV) or on mixed patterns (MIX). When comparing the experimental groups on the CON patterns, the EL2 and IL2 groups had the lowest accuracy scores: 55.65% and 66.15%, respectively. The accuracy scores of the EL3 (76.44%), IL3 (79.38%), AL3 (84.82%), and AL2 (77.78%) groups were close to one another. The EL2 (43.95%) and the IL2 (56.77%) groups also performed poorer than all the remaining groups on the DIV patterns. The same trend appeared in the MIX patterns where the EL2 (47.18%) and IL2 (56.25%) groups lagged behind their counterparts in the use of the definite article in this context.

Table 6

Average Accuracy Percentages on the CON, DIV, and MIX Patterns in the Translation Task

	No. of participants	CON	DIV	MIX
EL3	26	76.44	66.83	65.87
IL3	20	79.38	72.50	70.63
AL3	15	84.82	73.21	74.11
EL2	31	55.65	43.95	47.18
IL2	24	66.15	56.77	56.25
AL2	18	77.78	67.36	63.89
L1	15	100	100	100

One-Way ANOVA tests showed that there were significant differences among the groups in the use of the definite article in the CON patterns; $F(6, 142) = 16.563$, $p < .0001$. Post hoc tests using the Tukey measure revealed that the accuracy scores of the EL2 group were significantly lower than those of all the other groups ($p < .05$), except the IL2 group where the difference was not significant ($p = .189$). The IL2 group performed significantly poorer than the AL3 group ($p < .05$) and only marginally poorer than the IL3 group ($p = .091$). However, no significant difference was detected between the IL2 group and either of the EL2 ($p = .189$), AL2 ($p = .224$) or EL3 ($p = .251$) groups. The AL2 group did not differ significantly from the heritage EL3 ($p = 1.00$), IL3 ($p = 1.00$), or AL3 ($p = .848$) groups.

Similarly, none of the heritage groups differed from one another: EL3 versus IL3 (p = .996); EL3 versus AL3 (p = .638); IL3 versus AL3 (p = .943).

The ANOVA tests also revealed significant differences among the groups on the DIV patterns; $F(6, 142) = 24.797$, $p < .0001$. Multiple comparisons showed that the controls did significantly better than the six experimental groups ($p < .0001$). By contrast, the EL2 groups performed significantly poorer than the other groups ($p < .05$). The IL2 group were significantly better than the EL2 group ($p < .05$), but significantly worse than the IL3 and AL3 groups ($p < .05$). No significant differences were found between the IL2 group and the EL3 group (p = .267) or the AL2 group (p = .320). The AL2 group did not differ significantly from the heritage EL3 (p = 1.00), IL3 (p = .951) or AL3 (p = .804) groups. Similarly, the three L3/heritage groups did not differ significantly from one another: EL3 versus IL3 (p = .886), EL3 versus AL3 (p = .677), and IL3 versus AL3 (p = .999).

With respect to the MIX patterns, the ANOVA tests pointed to significant differences among the groups on this pattern; $F(6, 142) = 25.653$, $p < .0001$. Post hoc analyses showed that the controls performed significantly better than the rest of the groups ($p < .0001$). The EL2 group was significantly outperformed by all other experimental groups ($p < .05$), except the IL2 group (p = .253). The IL2 group performed significantly poorer than the IL3 and AL3 groups ($p < .05$), but they did not differ significantly from the EL3 (p = .233), EL2 (p = .253), or AL2 groups (p = .626). The AL2 group did significantly better than the EL2 group ($p < .05$) but did not differ significantly

from any of the heritage groups: AL2 versus EL3 (p = .999), IL3 (p = .786), and AL3 (p = .226). The L3/heritage groups did not differ significantly from one another: EL3 versus IL3 (p = .927), EL3 versus AL3 (p = .349), and IL3 versus AL3 (p = .941).

Table 7

Average Accuracy Percentages on the Six Definite-Article Patterns in the Translation Task

	CON1	CON2	DIV1	DIV2	MIX1	MIX2
EL3	76.92	75.96	66.35	67.31	68.27	63.46
IL3	80.00	78.75	71.25	73.75	72.50	68.75
AL3	83.33	86.67	76.67	73.33	80.00	71.67
EL2	57.26	54.03	45.97	41.94	45.16	49.19
IL2	67.71	64.58	59.38	54.17	55.21	57.29
AL2	80.56	75.00	66.67	68.06	61.11	66.67
L1	100	100	100	100	100	100

Lastly, the participants' accuracy scores are examined across the six patterns of the definite article usage, namely CON1, CON2, DIV1, DIV2, MIX1, and MIX2. The goal was to check for any discrepancies in the groups' performance on any specific patterns (Table 7). As was the case with the fill-in-the-blank task, the participants' accuracy scores on the CON1 and the CON2 in this translation tasks were relatively comparable: 76.92% and 75.96% for the EL3 group, 80.00% and 78.75% for the IL3, 83.33% and 86.67% for the AL3

group, 57.26 and 54.03 for the EL2 group, 67.71% and 64.58% for the IL2 group, and 80.56% and 75.00% for the AL2 group. The same can be noted about the rest of the task where the participants showed consistency in their use of the definite article in the DIV1 and DIV2 patterns as well as the MIX1 and MIX2 patterns.

In general, the results obtained from the translation tasks were similar to those acquired from the fill-in-the-blanks task, even though the experimental groups' accuracy scores on the latter were generally higher than their scores on the former. Heritage/L3 learners of SA outperformed their L2 counterparts in the elementary and intermediate levels with respect to the use of the definite article. At the advanced level, however, the L3 and L2 learners become relatively comparable. The findings also indicate that both L3 and L2 learners do better on patterns that are shared between Arabic and English than on patterns that are not shared and on mixed patterns.

Discussion and Conclusion

This study examines L1 and L2 transfer effects in heritage/L3 and L2 learners of Standard Arabic (SA). In particular, the study seeks to understand the role of L1 and L2 transfers in the use of the definite article by L3 and L2 learners of SA. For heritage/L3 learners, CA is L1, while English is L2 and SA is L3. For L2 learners, English is the L1, whereas SA is their L2. A second goal of the study is to examine the role of typological proximity, in this case the relation between CA and SA, in language transfer. A third goal is to investigate

whether transfer effects change as L3 and L2 learners advance from elementary SA courses to intermediate and then advanced SA courses. To this end, the participants completed two tasks: a fill-in-the-blank task and a translation task. What follows is a discussion of the findings in relation to the three research questions.

The first research question concerns the role that L1/L2 transfer plays in the use of the definite article by heritage/L3 and L2 learners of SA. The findings indicate that, for heritage learners of SA, their L1/CA plays mostly a positive role in the use of the definite article. This positive role is underlined by the fact that heritage speakers, particularly at the elementary and intermediate levels, outperformed their L2 counterparts in the use of the definite article. Heritage speakers' superior performance compared to the L2 learners is likely due to the influence of their L1/CA, which shares the same uses of the definite article with SA. This supports findings from previous studies showing that heritage speakers rely heavily on their L1, especially in beginner college courses of SA when they do not have a strong command of SA and try to compensate for that by resorting to CA (Albirini, 2015; Albirini *et al.*, 2018; Benmamoun & Albirini, 2018; Albirini & Benmamoun, 2014).

English also seems to play a facilitative role in the acquisition of the definite article by both heritage speakers and L2 learners of SA, but only in forms shared by Arabic and English. This explains why all experimental groups did better on the convergent patterns than on divergent patterns. By the same token, English seems to play a negative role in

the acquisition of the definite article in DIV and MIX cases. Again, this explains the poor performance of all experimental groups, regardless of their SA level, on the DIV and MIX patterns. The negative influence of English on heritage speakers' Arabic-language development, use, and learning is well documented in the literature, and this influence involves both CA and SA (e.g., Albirini, 2014, 2018; Albirini & Benmamoun, 2014; Albirini *et al.*, 2011). This is not surprising because, even though it is their L2, English is the dominant language for heritage Arabic speakers and their medium of everyday communication.

The second research question investigates the role of typological proximity in L1 and L2 transfer to L3/SA. This question is pertinent to heritage learners of SA/L3. This question is examined in the light of three models: The Cumulative Enhancement Model (CEM), the Typological Primacy Model (TPM), and the Linguistic Proximity Model (LPM). The results of the study support all three models in one respect, namely that transfer can occur from both L1 and L2. Additionally, the findings support the TPM and LPM models in the proposition that transfer can be both facilitative and non-facilitative. It is clear from the results that CA plays mainly a facilitative role. On the other hand, English seems to play both a positive and a negative role. As explained earlier, English plays a positive role in the CON patterns, but a negative role in the DIV and MIX patterns.

Critically, the findings align only with the predictions of the LPM in that transfer does not occur as a whole but property by property. This is explained by the fact that all

experimental groups did almost as poorly on the MIX patterns as they did on the DIV patterns. Mixed patterns require specific linguistic knowledge of SA that takes into account context of use and other sentential requirements. The MIX patterns can be relatively unpredictable if SA learners rely on their knowledge of English (their dominant language) to analyze these forms. It is likely that the experimental groups did in fact use their knowledge of English to decipher these patterns, which explains their low accuracies on the MIX patterns. Thus, typological proximality/distance may not be the only factor that plays a role in the correct deployment of the definite article. Learners of SA need to understand the different properties of SA (e.g., the issue of the *substitute* noun) to be able to use the definite article accurately. Although this premise in the LPM model is projected on L3 learners, it seems that it may be extended to L2 learners whose performance on the MIX patterns is also influenced by their lack of knowledge of specific properties of SA.

The third research question examines whether there are any changes in the transfer patterns among the elementary, intermediate, and advanced L3/heritage and L2 groups. This is important to uncover whether transfer effects change as a result of instruction. For L2 learners of SA, the negative effects of English seem to diminish over time, as the comparison between the accuracy scores of L2 learners at the elementary, intermediate, and advanced levels demonstrate. This is expected as L2 learners typically improve their proficiency as they advance in their study of SA, which also comes with

less influence from their dominant L1, namely English. The negative correlation between proficiency level and transfer effects has been observed in previous studies on language transfer (Albirini et al. 2018, Alhaway, 2013).

Unlike their L2 counterparts, all the heritage groups did not differ significantly from one another in terms of their overall performance as well as their average accuracy scores on the CON, DIV, and MIX patterns. If we take this finding as an indication of the trajectory that heritage students take between elementary and advanced courses of SA, it simply reflects the fact that heritage speakers make minimal gains as they advance in their SA learning from elementary to intermediate and then advanced levels. This could be a case of fossilization, which might be related to their imperfect knowledge of L1. In other words, heritage speakers' performance could be mainly influenced by their knowledge of CA/L1, which already has many gaps due to their interrupted or arrested L1 development (Albirini, 2018). It is also likely, however, that this is caused by the fact that heritage speakers are placed in the same courses as their L2 peers. These courses are mostly geared toward L2 learners, which means that they do not necessarily cater for the linguistic background of heritage speakers or their learning needs. Hence, they make little progress in SA courses.

A number of pedagogical implications can be derived from this study. One of the pedagogically important findings from the data in this study is that heritage speakers start their study of SA with an advantage over L2 learners. This advantage possibly comes

from the overlap between their L1 and the L3 in certain areas, such as lexical items, phonetic inventory, and so on. It could also be caused by whatever little exposure they may have had to SA from the internet, books, religious teaching, etc. From a pedagogical perspective, this means that, instead of treating them as complete strangers to SA, teachers should first try to assess heritage speakers' previous knowledge of SA. Teachers should also work on designing materials, activities, and assignments that build on their previous linguistic experiences in meaningful ways. By not recycling materials that L3 learners already possess, teachers can make SA courses more appealing and more beneficial to students.

A second pedagogical implication for this study has to do with the issue of using the current understanding of transfer effects to enhance the learning experiences of SA learners. It is clear, for example, that CA has largely a positive role in SA acquisition (See similar findings in Albirini, 2015; Benmamoun & Albirini, 2018; Albirini & Benmamoun, 2014). This means that teachers may need to explore ways to harness heritage speakers' knowledge of CA to enrich and enhance their learning experience in SA classrooms. Future studies should focus on this topic due to the lack of research on the impact of CA on SA acquisition. Future research may also consider exploring language transfer effects in areas other than the definite article to compare and contrast transfer effects across different linguistic areas.

References:

Abu Nasser, M., & Benmamoun, E. (2016). Quantifying lexical and pronunciation variation between three Arabic varieties. In S. Davis, & U. Soltan (Eds.), *Perspectives on Arabic Linguistics*, XXVI (pp. 187–215). doi: https://doi.org/10.1075/sal.3.09abu

Albirini, A. (2015). The role of the colloquial varieties in the acquisition of the standard variety: the case of Arabic heritage speakers. *Foreign Language Annals*, 47(3), 447–363. https://doi.org/10.1111/flan.12087

Albirini, A. (2016). *Modern Arabic sociolinguistics: Diglossia, variation, codeswitching, attitudes, and identity*. London & New York: Routledge.

Albirini, A., & Benmamoun, E. (2014). Aspects of second language transfer in the production of Egyptian and Palestinian heritage speakers. *International Journal of Bilingualism*, 18(3), 244–273. https://doi.org/10.1177/1367006912441729

Albirini, A., Benmamoun, E. & Saadah, E. (2011). Grammatical features of Egyptian and Palestinian Arabic heritage speakers' oral production. *Studies in Second Language Acquisition*, 33, 273–303. https://doi.org/10.1017/S0272263110000768

Alhawary, M. T. (2003). Processability Theory: Counter-evidence from Arabic second language acquisition Data." *Al-ᶜArabiyya*, 36, 107–166.

Alhawary, M. T. (2009). Speech processing prerequisites or L1 transfer: Evidence from English and French L2 learners of Arabic. *Foreign Language Annals*, 42, 367–390. https://doi.org/10.1111/j.1944-9720.2009.01025.x

Alhawary, M. T. (2019). *Arabic second language learning and effects of input, transfer, and typology*. Washington, DC: Georgetown University Press.

Aoun, J., Benmamoun, E., Choueiri, L. (2010). *The syntax of Arabic*. New York, NY: Cambridge University Press.

Benmamoun, E. & Albirini, A. (2018). Is learning a standard variety similar to learning a new language? Evidence from heritage speakers of Arabic. *Studies in Second Language Acquisition*, 41(1), 31–61. https://doi.org/10.1017/S0272263116000383

Boumans, L. (2006). The attributive possessive in Moroccan Arabic spoken by young bilinguals in the Netherlands and their peers in Morocco. *Bilingualism: Language and Cognition*, 9, 213–231. https://doi.org/10.1017/S1366728906002598

Brustad, K. (2000). *The syntax of spoken Arabic: a comparative study of Moroccan, Egyptian, Syrian, and Kuwaiti dialects*. Washington, D.C.: Georgetown University Press.

Brustad, K., Al-Batal, M., & Al-Tonsi, A. (2011). *Al-Kitaab fii Ta ᶜallum al-ᶜArabiyya: A Textbook for Arabic, Part One (3rd edition)*. Washington, DC: Georgetown University Press.

Brustad, K., Al-Batal, M., & Al-Tonsi, A. (2007). *Al-Kitaab fii Ta ᶜallum al-ᶜArabiyya: A Textbook for Arabic*, Part two (2nd edition). Washington, DC: Georgetown University Press.Brustad, K., Al-Batal, M., & Al-Tonsi, A. (2007). *Al-Kitaab fii Ta ᶜallum al-ᶜArabiyya:A Textbook for Arabic, Part three (2nd edition)*. Washington, DC: Georgetown University Press.

El Aissati, A. (1996). Language loss among native speakers of Moroccan Arabic in the Netherlands (Unpublished doctoral dissertation). University of Nijmegen, Nijmegen, the Netherlands.

Flynn, S., Foley, C., & Vinnitskaya, I. (2004). The cumulative-enhancement model for language acquisition: Comparing adults' and children's patterns of development in first, second and third language acquisition of relative clauses. *International Journal of Multilingualism*, 1, 3–16. https://doi.org/10.1080/14790710408668175

González Alonso, J., & Rothman, J. (2017). From theory to practice in multilingualism: What theoretical research implies for third language learning. In T. Angelovska & A. Hahn (Eds.), *L3 Syntactic Transfer: Models, new developments and implications*. (pp.

277–298). Amsterdam, NL: John Benjamins Publishing Company. https://doi.org/10.1075/bpa.5.13gon

Montrul, S. (2008). *Incomplete acquisition in bilingualism: Re-examining the age factor*. Amsterdam, the Netherlands: John Benjamins.

Polinsky, M. (2011). Reanalysis in adult heritage language: A case for attrition. *Studies in Second Language Acquisition, 33*, 305–328.

Polinsky, M. (2015). When L1 becomes an L3: Do heritage speakers make better L3 learners? *Bilingualism: Language and Cognition*, 18(2), 163–178. https://doi.org/10.1017/S1366728913000667

Rothman, J. (2010). On the typological economy of syntactic transfer: word order and relative clause high/low attachment preference in L3 Brazilian Portuguese. *International Review of Applied Linguistics in Language Teaching*, 48(2–3), 245–273.

Rothman, J. (2011). L3 syntactic transfer selectivity and typological determinacy: The typological primacy model. *Second Language Research*, 27(1), 107–127. https://doi.org/10.1177/0267658310386439

Rothman, J. (2015). Linguistic and Cognitive Motivations for the Typological Primacy Model of Third Language (L3) Transfer: Timing of Acquisition and Proficiency

Considered. *Bilingualism: Language and Cognition*, 18(2), 179–190. https://doi.org/10.1017/S136672891300059X

Rothman, J., & Cabrelli Amaro, J. (2010). What variables condition syntactic transfer? A look at the L3 initial state. *Second Language Research*, 26(2), 189–218. https://doi.org/10.1177/0267658309349410

Schwartz, B. D., & Sprouse, R. A. (1996). L2 cognitive states and the Full Transfer/Full Access Model. *Second Language Research*, 12, 40–72. https://doi.org/10.1177/026765839601200103

Westergaard, M., Mitrofanova, N., Mykhaylyk, R., & Rodina, Y. (2017). Crosslinguistic influence in the acquisition of a third Language: The linguistic Proximity Model. *International Journal of Bilingualism*, 21(6), 666–82. https://doi.org/org/10.1177/1367006916648859

[1] This also applies to some nouns that refer to certain periods of time that are indefinite in English but are definite in Arabic, such as الظهر 'noon.'

[2] ʔal 'the' turns into ʔar due to an assimilation process where the last sound of the definite article, namely /l/, becomes identical to the first sound in the following word rabiiʕ, which is /r/. This process applies to the so-called "Sun Letters" when they follow the definite article.

[3] This study reports only on data that are relevant to this particular paper, which is part of a larger pool of data. For example, L2 learners who studied a language other than Arabic were excluded from this study. The same applies to L2 learners of SA who are also heritage speakers of other languages (e.g., Spanish). Excluded also are nine heritage

speakers who studied SA in a formal setting before college (private Islamic school, tutoring, mosque-arranged classes, and courses offered by Muslim Society of America)

[4] The participants were asked about the length of their visits to the Arab region since they started learning SA in college. This could be relevant to both L2 learners' and heritage speakers' acquisition of SA. Visits prior to their formal learning of SA could be simply for tourist purposes and family relationship. In the latter case, it is difficult to ascertain whether they had any SA learning experiences.

[5] Of course, new patterns of writing in CA are spreading nowadays with the spread of the internet, social media, and even in some literary genres.

[6] This was done in consultation with the participants' instructors.