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## ARTICLE

## Negative Transfer and Delay in Proficiency Development: L1 Influenced Syntax Issues Faced by Arab EFL Learners

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### ABSTRACT

Mother-tongue/L1 influence/interference in the learning process of a foreign/second language is quite common. Mother-tongue influence theory was quite popular in academia in the early twentieth century till the1950s, and fell out of favor in the 1960s, being replaced by the Interlanguage theory. However, the former has once again gained popularity as more scholars have come to accept that L1 does interfere in learning a foreign/second language, especially if learners are of mature age, and if there is little commonality between L1 and L2. L1 interference in L2 learning is usually referred to as "transfer," which may be negative or positive. Negative transfer is assumed to hinder L2 learning. In the present study, the hypothesis that negative transfer impedes L2 learners' proficiency development has been tested in a small-scale experiment conducted with Saudi first year university learners. The study provides evidence for the existence of negative transfer in the spoken English of these students. Bearing in mind the idea of L1 interference, due to dissimilarities between Arabic and English, this study was conducted with a focus on a few syntactic structures in Hijazi Arabic (HA) that are found to have clear echo in the English sentences of the participants, namely young adult Saudi EFL learners.

Keywords: contrastive linguistics; L1 interference; error analysis; syntax errors; Arab EFL learners' errors

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## **1. Introduction**

It is noticed that the average young-adult Arab learners of English oftenfind it difficult to adapt to the components of English language, even when they have reached advanced stages in their English as a Foreign Language (EFL) education (Grami and Alzughaibi, 2012; Sabbah, 2015). For instance, they frequently make mistakes in English syntax, which seems to stem from the influence of Arabic syntax on English structure (Abdulwahab, 2015; Sawalmeh, 2013). This issue in Arab EFL learning has been under investigation for a long time, through various research lenses such as L1 interference, Contrastive Analysis, error analysis, negative transfer, and more.

L1 interference theory fell out of favor among researchers for some time, especially after the concept of 'interlanguage' gained popularity in academia, but the theory has regained prominence in recent decades, albeit in a revised format. Researchers now place particular emphasis on negative transfer, as they believe that the role of transfer, whether negative or positive, in second language (SL) learning cannot be ignored (Albirini, 2022; Alhawary, 2009; Erdocia and Laka, 2018; Luk and Shirai, 2009; Whong-Barr, 2006; Yu and Odlin, 2016). Luk and Shirai (2009), for example, report that "L1 transfer is much stronger than is portrayed in many SLA textbooks and that the role of L1 in morpheme acquisition must be reconsidered" (p. 721).

Negative transfer is especially significant in adult learners since they have developed fully internalized L1 competence elements, and often impose these elements onto L2 constructions and oral production. For instance, L1 sounds that are not exactly similar but are very close approximants of L2 sounds stand the chance of being negatively transferred into SL learners' sound repertoire. A classic example is the transfer of the sound /b/ in Arabic speakers' English, replacing the English sound /p/. A similar situation arises with syntax, particularly the elements that differ between L1and L2. For example, the omission of copula, alterations of word order, and the conflation of a few tense structures in English by Arab English leaners can be attributed to negative transfer from Arabic syntax.

#### 1.1 Research problem

Elements of language that may be marked as negative transfer can become fossilized if ignored for an extended period and may interfere in learners' efforts to achieve full L2 competence. The elements of language transferred negatively are to be essentially unlearned, and therefore, the researchers assume that the process may delay L2 proficiency. In some SL learning contexts, the issue acquires serious proportions affecting a large number of L2 learners. For example, Arab SL/EFL learners are considered to be the slowest English language learners (Alasfour, 2018; Grami and Alzughaibi, 2012).

English language education in Saudi Arabia begins roughly at the age of 10 when children have gained almost full competence in their L1, even developing the capability to unconsciously draw parallels between L1 and L2 and translate linguistic elements (phonemes, morphemes, words, and sentences) between languages. Teaching of English in schools is carried out mostly using Grammar-Translation Method (Alsufvani, 2016). Therefore, owing to L1 interference learning English language becomes an uphill task for the majority of learners. Though there may be some other related factors affecting their performance, it should be noted that Arabic speakers continue to be among the lowest overall scorers in IELTS tests over the years. For instance, the mean Band scores of Arabic speakers in 2022 were 5.9 and 6.0 in IELTS Academic and General Training tests, respectively. Specifically for Saudis, these scores were 5.8 and 4.9, respectively, with 20% Saudi candidates scoring less than 4 Band score in IELTS General in 2022 (IELTS, 2022).

Negative transfer in the second/foreign language learning process of Arabic speakers can be demonstrated through innumerable parallels between the pattern of errors observed in Arab EFL learners' English sentences and elements of Arabic syntax. This fact has also been corroborated by several research studies conducted in this area over the years, especially in Saudi contexts (e.g. Alasfour, 2018; Al-Saidat, 2010; Altaha, 1995; Barzanji, 2016; Grami and Alzughaibi, 2012; Kadwa, 2012; Sawalmeh, 2013) as well as in other Arabic speaking contexts (e.g., Al-Khresheh, 2010; Sabbah, 2015). However, the assumption that negative transfer may delay SL proficiency has not yet been empirically tested, and thus warrants further research.

#### **1.2 Literature review**

The early idea of mother tongue (L1) influencing the learning process of a new language, especially among learners with full communicative competence in L1, can be traced back to Harold Palmer (1921), though Henry Sweet (1899) also hinted at such influence in a positive manner. Palmer in *The Principles of Language-Study* (1921) discusses at length the potential interference of the first language (L1) in the learning process of a new language. The concept of L1 influence in language learning is based on the assumptions of Behaviorism, which views language learning as a process of habit formation. Challenges to this theory emerged in the 1960s.

Pit Corder (1967) proposed a hypothesis that foreign language learners' errors may not be caused by "persistence of old habits" (p. 168), but rather from their attempts to create a language with the features of both L1 and L2, a concept later termed "interlanguage" by Larry Selinker (1972). Dulay and Burt (1973) conducted two studies on children who spoke Spanish as their L1 and were learning English as a second language. Their findings indicated that only three percent of the errors made by Spanishspeaking children could be attributed to their L1, while the rest were considered interlanguage errors.

Nonetheless, the notion of L1 interference in foreign language learning persisted, and several reputable linguists strongly believed that L1 interference was a significant factor behind many errors made by foreign language learners (Bhela, 1999; Cook, 1991; Corder, 1971; Ellis, 1997; Ellis, 2006; Ghawi, 1993; Laufer and Girsai, 2008; Noor, 1996; Nunan, 2001; Richard and Schmidt, 2002). For instance, Cook (1991) argued that not only does a learner's L1 interfere with L2 learning, but L2 also influences their L1 to some extent. Nunan (2001) believed that, "where the first and second language rules are not the same, errors are likely to occur as a result of interference between the two languages" (p. 89). Ellis (1997) referred to the interference caused by L1 in learning L2 as "Transfer." According to Ellis 'transfer' is "the influence that the learner's L1 exerts over the acquisition of an L2" (p. 51). Transfer can be positive or negative, with positive transfer occurring when L1 and L2 share linguistic features and negative transfer taking place when the two languages differ significantly.

Laufer and Girsai (2008) believed that Contrastive Analysis, particularly focused on L1 interference, could help resolve numerous errors made by foreign language learners. Contrastive Analysis also aims to explain errors made by second language learners by systematically comparing two languages to showcase their similarities and differences. The underlying idea is that if the two languages are substantially different, learners will face L1 interference as they apply L1 language patterns to L2 learning.

Another development related to L1 interference theory in foreign language learning is error analysis. Error analysis, as defined by Richards and Schmidt (2002), is "the study of errors made by L2 learners, with the purpose of identifying the causes of these errors" (p. 184). The current research primarily focuses on error analysis, as the researchers aim to identify the causes of a certain category of errors in the linguistic productions of adult Saudi EFL learners, based on the frequency of errors in the selected category.

In Saudi contexts, EFL error-analysis research has mainly focused on analyzing errors in learners' written English (e.g., AbiSamra, 2003; Alasfour, 2018; Al-Jarf, 2008; Al-Khresheh, 2010; Al-Nofaie, 2010; Barzanji, 2016; Kadwa, 2012; Khaleghi et al., 2024; Muftah, 2023; Sawalmeh, 2013; Shalaby et al., 2009). Although there are a few studies on the subject, research on errors in spoken English has been generally neglected (e.g., Abdulwahab, 2015; Al-Badawi, 2012; Al-Saidat, 2010; Altaha, 1995;

Elmahdi and Khan, 2015; Grami and Alzughaibi, 2012; Sabbah, 2015). Furthermore, research on the potential impact of negative transfer on learner proficiency development in English is completely neglected. Barzanji's (2016) study, for instance, examines the most common errors in Saudi students' writings. The researchers aimed to test whether the frequency of such errors is affected by the type of prompts used. Kadwa (2012) collected data on Saudi EFL learners' online communication to investigate their apprehensions on verbal and written communication and found that language anxiety played an important role in Saudi learners' online communication. English spellings also pose a tough challenge to Saudi adult EFL learners as Al-Jarf's (2008) reports in her research work. Phonological and orthographic problems emerge as major issues troubling Saudi EFL learners. Similarly, Shalaby et al. (2009) identified several lexical problems in Saudi learners' written compositions. Al-Nofaie's (2010) study is also worth mentioning, as the researchers investigate Saudi teachers' and students' attitude towards using Arabic as a facilitating tool in English classes, possibly based on the assumptions of Contrastive Analysis.

However, as mentioned above, there are a few studies focused on error analysis in Saudi EFL learners' verbal utterances as well. The major thrust of these researchers has been the analysis of Saudi EFL learners' pronunciation issues, particularly their difficulties in articulating certain sounds in English. Al-Saidat's (2010) research, for example, is concerned with phonologically analyzing the English phonotactics in the spoken English of EFL Arab learners. The major issue the researcher identifies in the pronunciation of Saudi adult EFL speakers is declusterization (a processes of inserting vowels between consonant clusters).

Sawalmeh (2013) has analyzed Saudi EFL learners' utterances and identified common errors, primarily learners' confusion regarding verb tense, subject-verb agreement, sentence word order, pronoun use, use of articles, prepositions, and so on. In his opinion, such errors can be traced back to learners' L1 transfer, yet the researcher's focus is not on the possible impact of negative transfer on learner proficiency.

The present study is both a continuation of, and a break from the previous studies reviewed here. It extends the studies on error-analysis of adult Saudi EFL learners' utterances, with the belief that those errors result from L1 interference. However, it deviates significantly from previous studies as it restricts the analysis to a specific type of utterances related to the concept of time and existence. The researchers hypothesize that most of the syntactic issues in learners' utterances can be traced to their confusion regarding the concept of time and existence. This concept may not be overtly stated in Arabic syntax, making it challenging to grasp in English, which requires overt expressions of time and existence through different phonemes, morphemes, words, and so on.

#### 1.3 Theoretical model

The prevalence of [negative] transfer in second language acquisition (SLA) has been theorized in various linguistics models, such as the Competition Model (MacWhinney, 1997, 2008), and the Processability theory (Pienemann et al., 2005), and following one or the other model, researchers have found evidence for L1 transfer.

Helms-Park (2003) provides evidence from a Vietnamese ESL learner who exhibited transfer of causative serial verbs to English. Similarly, Alhawary (2009) demonstrates L1 transfer from the experiences of English and French L2 learners of Arabic. Yu and Odlin (2016) suggest that, "the most typical cases of transfer – and usually the ones that preoccupy language teachers– involve divergence between the source language and the target language. Such divergences can result in negative transfer, which is often evident in vocabulary problems" (p. 2).

Erdocia and Laka's (2018) study reports that "the characteristics of L1 affect the processing of the L2 even at highly proficient and early-acquired bilingual populations" (p. 1). This study not only provides evidence of negative transfer from Arabic

EFL learners' oral productions, but also tests the assumption that negative transfer delays proficiency. The study follows the Competition Model for L2 learning of MacWhinney (1997) who argues that the entrenchment of L1 may hamper L2 learning. According to this theory, if L1 and L2 share processing cues, positive transfer facilitates L2 learning since the cues do not compete. However, significant differences between L1 and L2 lead to negative transfer as their cues compete, making L2 learning more challenging. MacWhinney (1997) draws on the study by Johnson and Newport (1989), who report that "some adult learners of English fail to attain even a basic command of syntactic structures if their first exposure to English is in adulthood," (MacWhinney, 1997, p. 136) and comment that although the studies by Johnson and Newport have design and interpretation issues, "no one doubts the fact that second language learners often have trouble overcoming transfer effects in phonology and some areas of the grammar" (MacWhinney, 1997, p. 136).

#### 1.4 Hypothesis

We assume that there exists a clear L1 interference in the English learning process of young adult Saudi EFL learners. The interference is reflected in the sentences constructed by the learners. Although such interference is visible in all the elements of the target language, such as phonetics, morphology, graphology (handwriting, spellings, punctuation, etc.), our research focuses primarily on the syntactic aspects, focusing on the concepts of time and existence. Based on the observable pattern of errors in English produced by Saudi EFL learners, we hypothesize that negative transfer does take place in the English learning process of Saudi EFL learners and that it delays EFL learners' proficiency development.

#### **1.5 Research questions**

In light of the hypothesis stated above, the current study is designed to answer the following research

questions:

- RQ1: Does negative transfer take place in the English learning process of Saudi EFL learners?
- RQ2: Does negative transfer delay EFL learners' proficiency development?

#### 2. Research method

The current study is evidence-based and intended to demonstrate the prevalence of negative transfer in the English sentences produced by Saudi EFL learners. The data encompasses a number of English sentences used by learners in a formal context. These sentences were collected from the Preparatory-Year English learners studying the ELIA 110 program at King Abdulaziz University – Rabigh branch (Saudi Arabia). The patterns of errors observed in the sentences support the hypothesis that negative transfer does take place in the English learning process of Saudi EFL learners, as the erroneous syntactic structure used to construct English sentences mirrors Arabic syntax.

There is a variety of Arabic used in formal settings, such as ceremonies, mosques, newspapers, and schools, known as Modern Standard Arabic (MSA). However, MSA is not the native language of any people and is only learned in schools. Like many other languages, Arabic has several different regional dialects that may exist within one Arabic speaking country. This study focuses on Hijazi Arabic (HA), as it is the dialect that most of the students at the university, where data collection was conducted, speak as their native language. References to MSA and other dialects will be made when necessary. The basis of our comparative study has been syntactic features in the two languages, but the semantic aspect could not be ignored either, as Chomsky (1957, p. 17) says, "they often complement each other, and without one the other would be incomplete."

#### 2.1 Data collection

The data collection for this study was designed to capture the nuances of L1 interference on L2 proficiency. Given the focus on syntactic structures, the approach was twofold: an observational analysis and direct testing. The participants were first-year university students at KAU, Rabigh branch. The data collection was conducted in two phases. Initially, the researchers made detailed notes on participants' interaction in the classroom and their spontaneous use of English. In the subsequent phase, only native speakers of HA-the predominant dialect in the region—were included. The participants were involved in speaking activities designed to elicit specific syntactic constructions known to be challenging due to L1 influence. To complement the spoken data, a series of written tasks were employed to further probe the participants' syntactic production. Those engaged in the written tasks were also asked to provide demographic information via a survey. A total of 20 participants were recruited, ranging in age from 18 to 22 years, with a mean age of 19.10 and a standard deviation (SD) of 0.3 months. All participants self-reported no known language, speech, or hearing problems.

## 3. Analysis and discussion

#### 3.1 Time and existence errors

Time may be expressed and understood in a myriad of ways in languages. Expression of time as a continuum or as discontinuous chunks may differ culturally. Some languages, such as English, use auxiliary verbs to convey time, while others, like Arabic, may rely less on such words and express time covertly or contextually. For examples, expressions like, 'Dr. Ahmedi didn't come today?' instead of 'Dr. Ahmedi hasn't come today?' (informal) / 'Hasn't Dr. Ahmedi come today?' (informal) / 'Hasn't Dr. Ahmedi come today?' (formal) reflect a challenge in grasping continuous nature of time in English, as opposed to a clear break from the past as seen in Arabic. Understanding the concept of time is crucial for comprehending sequences, linearity, order, and spatial arrangements.

Existence or the state of being for objects, people, and places is overtly expressed using auxiliary verbs in English, while in Arabic, it is covertly expressed in the present tense without an equivalent auxiliary verb. The researchers frequently observed students uttering sentences like the following:

- 1. Where Dr. Ahmedi?
- 2. Whose book this?

These utterances are clearly influenced by colloquial Saudi Arabic, such as Hijazi Arabic (HA). The expression '*Where Dr. Ahmedi?*' instead of 'Where *is* Dr. Ahmedi?' is the exact equivalent to the HA *faīn ad-daktūr ?aḥmadī?* (فين الدكتور احمدي). Similarly, the sentence '*Whose book this?*' instead of 'Whose book *is* this?' is the direct translation of the HA *kitāb mīn hāða* (كتاب مين هذا).

In Arabic, the concept of existence is generally understood and not overtly expressed in words. This absence of the copula in Arabic is a significant reason why Arab EFL learners may struggle to grasp the meaning and usage of the existential English expletive *there*. Consequently, learners use expressions such as '*Few of vacant chairs there*.' to mean '*There are a few vacant chairs there*.' which may not be utterly confusing. However, the omission of *there can* lead to confusion in a different context.

The possession or belonging is expressed in English using the apostrophe 's' ('s), possession is expressed through the construct state ( $id\bar{a}fa$ ). In the construct state, two nominal expressions are used. The first noun, referred to as the possessee, appears before the agent. The second noun is referred to as the possessor (Alexiadou et al., 2007; Benmamoun, 2000; Fehri, 1993).

kitāb ul-binti, which can be parsed as:

kitāb ul-binti =kitāb-u l-bint-i

'the girl's book' book-nom. the-girl-gen.

The result is that we hear expressions like the following:

3. 'Dr. Ahmedi class' instead of 'Dr. Ahmedi's class.'

4. 'Reem proposal' instead of 'Reem's proposal.'

#### 3.1.1 Linearity errors

Syntax in English follows linearity, whereas syntax in Arabic is not strictly linear. Diab (1997) notes that Arabic exhibits more flexibility in the movement and distribution of its components. To put it differently, word order in Arabic can be altered without losing the sense, although the basic word order is VSO in MSA. Nevertheless, Brustad (2000) argues that SVO is the basic word order in spoken Arabic, and Yasin (2013) considers both SVO and VSO as canonical word orders in Arabic in general. Attia (2004) observes that, "Arabic has a nominal sentence structure of a subject phrase and a predicate phrase, with no verb or copula." Consequently, it can be concluded that Arabic allows sentences with different word orders. In English, altering the sequence of words can sometimes result in a different type of sentence. For instance, consider the following sentences:

5a. Your name is Khalifa.

5b. Is your name Khalifa?

6a. Khalifa doesn't come on time.

6b. Doesn't Khalifa come on time?

7a. You can do this sum.

7b. Can you do this sum?

8a. The teacher has come.

8b. Has the teacher come?

In each of the examples above, sentence  $\mathbf{a}$  is a statement while sentence  $\mathbf{b}$  is a question. However, there is no change in the words used; only the sequence of words is altered.

The problem arises when, under the influence of Arabic free word order, Arab learners of English do not follow the correct word order in their sentences (Khan, 2022). Sometimes, even in short sentences, the word order is disturbed, resulting in sentences like:

9. You this sum can do.

10. Doesn't come on time Khalifa.

- 11. What doing you?
- 12. Whose this pen?

#### 3.1.2 Missing copula

English relies on auxiliary verbs so extensively that an English-speaking person may find it difficult to imagine how any other language can function without auxiliary verbs. Auxiliary verbs in English express time, help form questions, indicate modality, express 'to be,' and sometimes function as main verbs. Conversely, Arabic hardly makes any use of auxiliaries. In MSA, there are some words such as kun, and its paradigm, sa, sawfa and gad, that may be considered to function as auxiliaries, but they primarily refer to time (Abdalhadi, 2023; Al-Ani, 1992; Alhawary and Benmamoun, 2005; Faik, 1975; Port and Mitleb, 1983). They do not perform other auxiliary functions. Similarly, for framing questions, the word  $\hbar al$  is used in MSA, but it does not express time or perform any other auxiliary functions. In HA  $\hbar(a)$  and  $ra\hbar$  are used, instead of sa, and sawfa, and in some other varieties such as Najdi b(i), among others, is used to mark the future.

We found that HA speakers sometimes forget to use auxiliary verbs in their English sentences. We frequently heard sentences like the following:

13. He coming tomorrow.

14. What you doing?

15. They friends.

16. I do this work tomorrow.

Apparently, these sentences parallel structures that exist in Arabic, both in HA and MSA. **Table 1** presents some English sentences produced by learners, compares them with their intended meaning, and provides the corresponding HA sentence with a literal translation to demonstrate the influence of HA on their English.

Intended meaning	Sentence produced by learners	Parallel in HA	<b>Roman Transliteration</b>	Literal Translation
17. He is a doctor.	He doctor.	هوا دكتور	hūwa daktūr	He doctor.
18. He has gone.	He went.	<u>راح</u>	rā <b>ħ</b>	(He) went.
19. He is my brother.	He/him my brother	هوا اخويا	һӣѡа ?аҳӣја	He my brother.
20. My house is far from here.	My house far from here.	بيتي بعيد من هنا	bajtī basīd min hina	House-my far from here.

Table 1. Comparison of English sentences involving auxiliary verbs with learners' utterances.

#### 3.1.3 Tense errors

The concept of tenses in English finds no correspondence in Arabic; both organize their sense of time and action in a radically different manner. For example, while the present simple and the present continuous are two tenses in English, they are expressed through only one tense structure in Arabic. Similarly, the simple past, past continuous, and present perfect tenses in English are all expressed by just one tense in Arabic. The simple past; the simple future, and future continuous are expressed only through simple future structures. It can be said that the idea of 'continuity', expressed through *-ing* in English, is not present in Arabic; and without separate provision for perfect and continuous aspects in Arabic, there is no question of perfect continuous being used.

In the initial stages of learning, it is quite challenging for HA learners to grasp the English tense system, especially the indefinite, the continuous, and the perfective aspects. For example, in response to to questions like:

- 21. How do you come to the university?
- 22. What are you doing?
- 23. Have you done your work?
- HA-speaking L2 learners of English replied:
- 24. I came by car.
- 25. I write essay.
- 26. I did my work.

#### 3.1.4 Gendered pronoun errors

English nouns are classified into masculine,

feminine, and neutral genders. Accordingly, it also has, apart from the pronouns *he* and *she*, the neutral pronoun *it*, in the third person singular, for inanimate objects, animals and small insects. Whereas Arabic has only two genders, masculine and feminine. There is no neutral gender in Arabic and, therefore, no equivalent to the third person singular *it*. Inanimate objects fall into masculine or feminine genders. There is some criterion to classify objects accordingly. However, discussion of the gender system in Arabic is beyond the scope of this paper. Sometimes Arab learners tend to use *he* or *she* for inanimate objects, insects, and small creatures where *it* must be used. For example, some beginners constructed sentences such as:

- 27. Mosquito is an insect. She spreads malaria.
- 28. My doesn't write. He has no ink.
- 29. No balance in my phone. I didn't charge him.

#### 3.1.5 Missing indefinite articles and expletives

Sentence construction in English is somewhat complex compared to Arabic due to the use of articles, helping verbs, and in some cases, the expletives *it* and *there*. Arabic syntax is relatively simplified in this regard, with no indefinite articles, helping verbs, or expletives (AlShurfa et al., 2022). As a result, HA-speaking learners of English tend to construct their sentences in English without articles, helping verbs, and expletives. **Table 2** shows how learners' English constructions were influenced by their L1 (HA).

Table 2. Comparison of English sentences involving articles and expletives with learners' utterances.

Intended meaning	Sentence produced by learners	Parallel in HA	Roman Transliteration	Literal Translation
30. There is a book on the table.	Book on the table.	في كتاب ع الطاولة	fī ki <u>t</u> āb Sa at <sup>s</sup> t <sup>s</sup> āwla	Exist book on the-table.
31. It is not my book.	Not my book.	الكتاب مو حقي	?alkitāb mu ḥaqqī	Book not mine.

In example 30, learners often omit the indefinite article *a* but do not omit the definite article, simply because of the absence of the former and the presence of the latter in HA. They used the Arabic article *al*, which is equivalent to the English definite article *the*.

#### 3.1.6 Errors in passive formation

Passive voice in English involves a significant

syntactic transformation; the object in the accusative case is moved to the subject position and converted into the nominative case; the subject in the nominative case, now the agent of the action, is often omitted if not important; the auxiliary is changed appropriately, and the main verb is converted into a past participle. Arabic passives are relatively simpler to form; the subject in the active voice may or may not be moved; the main verb is used in the passive form by changing the vowels using the root and pattern system, and the rest of the action is understood accordingly. **Table 3** showcases learners' responses when they were asked to change sentences from active to passive orally. Their responses have been compared with Arabic sentences, which might have influenced their English production.

Table 3. Passive	e sentences	framed	by	learners.
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Correct sentence	Sentence produced by learners	Parallel in HA	Roman Transliteration	Literal Translation
32. The gate is being closed.	The gate closed/is closed/was closed.	البوابة مقفلة	al-bawwāba mgaffala.	The gate closed.
33. Rami's car has been stolen.	Rami car was stolen.	رامي اتسرقت السيارة	atsaragat as-sajjāra Rami	Got stolen the car Rami.

Interestingly, the passive structure is not used in colloquial Saudi Arabic, including HA, as it appears in MSA. Instead, the structure of example 33 is used. This results in *Rami's/Rami car was stolen*, irrespective of whether the active sentence was in the simple past or in the present perfect tense.

The fact that the past participle is not widely used in colloquial Arabic to indicate the passive is quite different from how the passive works in English. Arab beginners of English are more likely to use the simple past verb and the active form to refer to the passive when they use English. They also extend the use of one tense, the past, to refer to the simple past, the present perfect, and the past perfect sentences.

#### 3.1.7 Negation and Double tense-marker errors

Negation in English involves syntactic changes, especially in the simple present and the simple past tenses:

34. He comes late. / He does not come late.

35. He came late. / He did not come late.

Apart from the negative particle *not*, the auxiliaries *does* and *did* are also used, respectively, to effect negation. Then the tense marker *-s* is dropped in the case of the present tense, and the verb in the past form is changed into the base form in the case of the past tense. This syntactic change is a complex process as compared to negation in Arabic syntax. Arab learners were found to commit some errors in negation in English, which may be ascribed to L1 influence. For example, one comes across sentences such as:

36. He does not comes late.

37. He did not *came* late.

Additionally, in English, various other adverbs and particles, for example, *no*, *never*, *none*, *nobody*, *seldom*, *little*, *hardly*, *scarcely*, etc. are used to negate a sentence or other parts of a sentence. In MSA, negation is effected through simple lexical items [la,  $m\bar{a}$ , and lan] without many syntactic changes, although there are some rules governing where and how these particles are used. The uses of the three morphemes differ according to tenses. In HA, negation is more simplified than in MSA.

It has been observed that Arab learners typically use only *not* or *no*, and do not use the other negating adverbs and particles in English. During this study, it was uncommon to find sentences such as the following in their writings or English utterances:

38. I never tell lies.

39. We rarely meet these days.

40. There is hardly any chance of his success.

Conversely, it was very common to come across sentences like:

41. No water in the washroom.

42. I do not tell lies.

43. We do not meet these days.

44. No chance for his success.

#### 3.1.8 Errors in possessive inflections

Possession is another common source of confusion for native speakers of Arabic learning English. It's very common to hear, '*This book is for me*', instead of, '*This book is mine*'. The source of such an expression can be understood after a brief discussion of how possessive pronouns work in Arabic. Possessive pronouns can only be bound suffixes that attach to nouns and prepositions. This is illustrated by the two examples in **Table 4** below:

Arabic expression	كتابي	كتابهم	
<b>Roman Transliteration</b>	kitāb-ī	kitāb-uhum	
Parsing	book-1st person singular	book- third person plural	
English equivalent	my book	their book	

Table 4. Possessive inflection in Arabic

In HA, however, speakers also use an independent morpheme [ $\hbar ag$ -] to which the clitics (bound suffixes) aove can be attached. Thus, we hear expressions such as  $\hbar agi$ , literally, my right/for me, to mean *mine*. This usage of the bound possessive pronoun could explain why expressions such as *for me*, *for him*, *for them* are quite common, and why the English possessive pronouns such as *mine*, *yours*, *theirs* are acquired at a later stage.

## 4. Results

A careful study of the syntax in English and Arabic reveals that the two linguistic systems have hardly any similarities. If we forcibly find a similarity somewhere, it is found applicable only to one aspect; from another aspect, it may be entirely dissimilar. "Most importantly," notes Ali (2007, p. 3), "there are distinctive differences between Arabic and English in almost all syntactical, morphological, phonological, lexical, semantic, rhetorical and orthographical aspects." For example, while the verb in English is governed by the number and person of the subject, the verb in Arabic is also governed by the gender. Therefore, negative transfer from L1 in the learning process of L2 (English) is unavoidable. The data presented is clear evidence of the negative transfer since the pattern of errors displayed by learners corroborates this observation. The data supports the hypothesis that negative transfer does occur in the English learning process of Saudi EFL learners, as the syntactic structures used by learners to construct sentences in English reflect the Arabic system of syntactic structures.

The analysis reveals that for Arab EFL learners, it

is difficult to unlearn the fossilized negative transfer, and therefore, this condition is responsible for the delay in learning English, as their learning was obstructed by the presence of L1 linguistic features in their mental syntactic repertoire. The observation supports the hypothesis that negative transfer does delay EFL learners' proficiency development. The observation answers the research questions affirmatively.

## **5.** Conclusion

To summarize, the example sentences quoted above clearly reveal that Arabic grammar rules strongly influence the English linguistic productions of young adult EFL learners in Saudi Arabia. The present study sought to answer whether L1 interferes in the learning process of young adult Saudi EFL learners and whether negative transfer from L1 delays EFL learners' proficiency development; the answer is unequivocally 'Yes', as reflected in the constructed sentences in English. The results obtained from the current research corroborate the finding from Erdocia and Laka's (2018) study which reports that, "the characteristics of L1 affect the processing of the L2 even at highly proficient and early-acquired bilingual populations" (p. 1).

Sometimes, learners apply syntax of their mother tongue directly to English sentences without any consideration for the differences between the two languages. This is a serious learning issue. The optimal remedy would be to teach English to EFL/ ESL learners without any reference to L1. However, this approach is impractical in non-native contexts, such as Saudi Arabi, where English is typically taught to learners only in their adulthood, by which time L1 syntax is firmly entrenched in their linguistic repertoire, resulting in minimal proficiency in L2, especially in spoken English.

The present study was conducted with the Competition Model proposed by MacWhinney (1997, 2008) and behaviorist-structural approach to Contrastive Analysis in mind which suggests that the entrenchment of L1 may hinder L2 learning. In foreign/second language learning, the syntactic aspects of L1 compete for dominance over L2 syntax. If L1 and L2 share processing cues, L2 learning is facilitated by positive transfer. However, if there are wide differences between L1 and L2 syntax, negative transfer occurs, making L2 learning difficult. This study provides evidence of negative transfer from L1 syntax, and findings from a smallscale experiment suggest that negative transfer delays L2 learners' proficiency development since they have to unlearn and dislodge L1 negative transfer.

Although many contemporary scholars now favor a cognitive approach to behavioristic-structural, discarding any possible interference of L1 syntax on foreign/second language (L2) learning, it is still observed that L1 significantly impacts L2 learning. If L2 learning begins late, when the principles and the innate grammar of L1 are firmly rooted in the learners' psyche, its influence is more pronounced. L1 syntax does influence L2 learning, as learners, especially if they start late, view everything from the perspectives and parameters of what they have already acquired.<sup>①</sup>

They tend to generalize new concepts from the perspective of their mother tongue. It is a kind of mental mapping of the new things, where understanding in this occurs only if the new concept fits perfectly into the pre-existing grooves made in the mind by L1. Thus, it can be concluded that transfer and interference of L1 play a more significant role than one might think.

## 6. Suggestions for improvement

Understanding abstract ideas, such as the syntactic rules of a new language, is particularly challenging if the new concepts have little or no correspondence with the concepts already learned. Solving this problem is a complex issue for linguists, language planners, curriculum designers, and language teachers alike. One suggestion is to start English instruction early in learners' education, so that L1 transfer and interference can be minimized, and the foreign/second language can be *acquired*, not *learned*, alongside L1.

English instructors must consider viable solutions to the problem arising from the late teaching of English in Saudi Arabia. Having discussed the problems learners face with English syntax, we offer the following suggestions to address syntax-related issues.<sup> $\square$ </sup>

- I. Regarding the linearity in English syntax and its near absence t in Arabic, the learners must be given a clear idea of 'types of sentences' and their typical structure in English. It should be emphasized that altering word order can change the sentence type and meaning in English.
- II. The issue of the lack of auxiliary use in Arabic is particularly rooted in the covert expression "to be" in Arabic. Learners must first understand the concept of existence or 'thereness' and how the English language expresses it through forms of the verb 'to be', whereas the Arabic language leaves it unexpressed, to be understood from context.
- III. The distinctive characteristics of English and Arabic theory of tenses requires special attention. It is vital to adhere to the English theory of tenses to construct grammatically correct sentences. Teachers should explain the concepts of indefiniteness, continuity, and completion of actions as expressed in English tenses, distinguishing these concepts through comparison and contrast, such as comparing the indefinite tense to the continuous tense, the continuous with the perfect, the past simple with the present perfect, and son on.
- IV. Regarding negation in English, this issue is comparatively simple, as it mainly involves verb inflections in two tense forms; present

① Our observation is based on the real-life analysis of the mothertongue influence on learners. Mother-tongue leaves a lasting impression on the learners, so much so that it is quite challenging to teach some aspects of the second language, like, for example, sounds, the rhythm, the tone, and the idioms of the second language because the learners find them too strange from the perspective of their mother-tongue.

 $<sup>\</sup>textcircled{O}$  Our suggestions are based on our own experiments in the classroom, and we have found them working very well. We would be very happy to receive feedback from other classrooms as well.

simple and past simple, and to some extent, present perfect tense. Another suggestion is that interrogatives and negatives must be taught together, as both involve a similar kind of syntactic changes.

# 7. Strengths and weaknesses of the study

This study holds a great significance for the English teaching-learning practices in Saudi Arabia, as it enables learners to be trained not to use, consciously or unconsciously, Arabic syntactic structures to framing sentences in English. Teachers may also benefit from the suggestions offered. Thus, the major strength of this research is that it approaches a persistent learning issue from a fresh perspective. The study also presents several relevant aspects of L1 interference in learning L2 English, putting the syntactic structures in the two languages in parallel for clarity.

Due to the lack of time and resources, the researchers did not take into account other aspects of the problem, such as phonological and orthographic elements that also lead to L1 interference in the current study. Additionally, the researchers did not investigate whether L1 interference affects male and female EFL learners equally, or if there is some divergence, given that male and female campuses are segregated where data collection was conducted.

## **Author Contributions**

Abdullah Alfaifi conceptualized the research, finalized the research design and methodology, and prepared the first draft of the manuscript. Mohammad Saleem collected data and revised the manuscript. All authors approve the final version of the articles.

## **Conflict of interest**

The authors declare no conflict of interest.

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## References

- Abdalhadi MAS (2023). The Impact of the First Language Transfer on English Language Syntax for Arab ESL Students at Private Language Center in Mid-Size University Town [PhD thesis]. University of Arkansas, Fayetteville. https://scholarworks.uark.edu/ etd/5204
- Abdulwahab HA (2015). Difficulties of English Pronunciation Encountered by Saudi Learners [Master's thesis]. Open University of Sudan.
- AbiSamra N (2003). An analysis of errors in Arabic speakers' English writing. http://abisamra03. tripod.com/nada/languageacq-erroranalysis. html
- Al-Ani S (1992). Readings in Arabic Linguistics. Indiana University Linguistics Club.
- Alasfour AS (2018). Grammatical Errors by Arabic ESL Students: An Investigation of L1 Transfer through Error Analysis [Master's thesis]. Portland State University.

DOI: https://doi.org/10.15760/etd.6436

Al-Badawi K (2012). An analysis of phonological, morphological and syntactic errors in English: A case study of Saudi BA students at King Khalid University. International Journal of Social Science and Humanity 2(6): 536-538.

DOI: https://doi.org/10.7763/ijssh.2012.v2.165

- Albirini A (2022). Comparing L1 and L2 transfer effects in definite article usage by heritage and second language learners of standard Arabic. Arab Journal of Applied Linguistics 7(2): 96-141. https://www.arjals.com/ajal/article/view/365
- Alexiadou A, Haegeman L, Stavrou M (2007). Noun Phrase in the Generative Perspective. De

Gruyter Mouton. doi: 10.1515/9783110207491

Alhawary MT (2009). Speech processing prerequisite or language transfer? Evidence from English and French L2 learners of Arabic. Foreign Language Annals 42(2): 367-390.

DOI: https://doi.org/10.1111/j.1944-9720.2009. 01025.x

Alhawary MT, Benmamoun E (2005). Perspectives on Arabic Linguistics. John Benjamins.

DOI: https://doi.org/10.1075/cilt.267

Ali NA (2007). Some linguistic problems facing Arab learners of English. Adab Al Rafidayn 37(48): 465-488.

DOI: https://doi.org/10.33899/RADAB.2007. 33586

- Al-Jarf R (2008). Phonological and orthographic problems in EFL college spellers. In: Proceedings of the First Regional Conference on English Language Teaching and Literature (ELTL1); 17 February 2008; Islamic Azad University, Iran. https://files.eric.ed.gov/ fulltext/ED611115.pdf
- Al-Khresheh MH (2010). Interlingual interference in the English language word order structure of Jordanian EFL learners. European Journal of Social Sciences 16(1): 105-116.
- Al-Nofaie H (2010). The attitudes of teachers and students towards using Arabic in EFL classrooms in Saudi public schools - A case study. Novitas-ROYAL (Research on Youth and Language) 4(1): 64-95. https:// novitasroyal.org/volume-4-issue-1-april-2010/?wpdmc=volume-4-issue-1
- Al-Saidat EM (2010). Phonological analysis of English phonotactics: A case study of Arab learners of English. The Buckingham Journal of Language and Linguistics 3: 121-134.

DOI: https://doi.org/10.5750/bjll.v3i0.26

AlShurfa N, Alotaibi N, Alrawi M, Elyas T (2022). English features in Saudi Arabia: A syntactic study within the World Englishes Framework. Frontiers in Communication 7: 753135.

DOI: https://doi.org/10.3389/fcomm.2022.753 135

- Alsufyani M (2016). English as a Foreign Language Teachers' Perspectives of The New Curriculum Training in Taif, Saudi Arabia [Master's thesis]. Bowling Green State University. http://rave.ohiolink.edu/etdc/view?acc\_ num=bgsu1467210940
- Altaha FM (1995). Pronunciation errors made by Saudi university students learning English: Analysis and remedy. International Journal of Applied Linguistics 109(1): 110-123.

DOI: https://doi.org/10.1075/itl.109-110.05alt

- Attia, A. (2004). Report on the introduction of Arabic to ParGram. In: Proceedings of The ParGram Fall Meeting 2004; 31<sup>st</sup> August - 4<sup>th</sup> September 2004; Dublin, Ireland.
- Barzanji A (2016). Identifying the Most Common Errors in Saudi University Students' Writing: Does the Prompt Matter? [Master's thesis]. University of Central Florida. https://stars. library.ucf.edu/etd/4922
- Benmamoun E (2000). The Feature Structure of Functional Categories: A Comparative Study of Arabic Dialects. Oxford University Press.
- Bhela B (1999). Native language interference in learning a second language: Exploratory case studies of native language interference with target language usage. International Education Journal 1(1): 22-31. https://openjournals. library.sydney.edu.au/index.php/IEJ/article/ view/6747/7392
- Brustad K (2000). The Syntax of Spoken Arabic: A Comparative Study of Moroccan, Egyptian, Syrian, and Kuwaiti Dialects. Georgetown University Press.
- Chomsky N (1957). Syntactic Structures. De Gruyter Mouton. doi: 10.1515/9783112316009

Cook VJ (1991). The poverty-of-the-stimulus

argument and multicompetence. Second Language Research 7(2): 103-117.

DOI: https://doi.org/10.1177/026765839 100700203

Corder SP (1967). The significance of learner's errors. International Review of Applied Linguistics in Language Teaching 5(1-4): 161-170.

> DOI: https://doi.org/10.1515/iral.1967.5.1-4.161

Corder SP (1971). Idiosyncratic dialects and error analysis. International Review of Applied Linguistics in Language Teaching 9(2): 147-160.

DOI: https://doi.org/10.1515/iral.1971.9.2.147

- Diab N (1997). The Transfer of Arabic in the English writings of Lebanese students. The ESPecialist 18(1): 71-83. https://revistas.pucsp.br/index. php/esp/article/view/9792
- Dulay HC, Burt MK (1973). Should we teach children syntax? Language Learning 23(2): 245-258.

DOI: https://doi.org/10.1111/j.1467-1770.1973. tb00659.x

Ellis NC (2006). Selective attention and transfer phenomena in L2 acquisition: Contingency, cue competition, salience, interference, overshadowing, blocking, and perceptual learning. Applied Linguistics 27(2): 164-194.

DOI: https://doi.org/10.1093/applin/aml015

- Ellis R (1997). Second Language Acquisition. Oxford University Press.
- Elmahdi O, Khan WA (2015). The pronunciation problems faced by Saudi EFL learners at secondary schools. Education and Linguistics Research 1(2): 85-89.

DOI: https://doi.org/10.5296/elr.v1i2.7783

Erdocia K, Laka I (2018). Negative transfer effects on L2 word order processing. Frontiers in Psychology 9(Article no. 337). DOI: https://doi.org/10.3389/fpsyg.2018.00337

- Faik S (1975). A Comparison between the Modificational Structures of the English Language and the Arabic Language of which Class 1 Words are Head. Iraqi Republic Railways' Service Press Service Press. https:// archive.org/details/cu31924006158079
- Fehri AF (1993). Issues in the Structure of Arabic Clauses and Words. Springer.

DOI: https://doi.org/10.1007/978-94-017-1986-5

- Ghawi M (1993). Pragmatic transfer in Arabic learners of English. Journal of Second Language Acquisition and Teaching 1: 39-52. https://journals.uair.arizona.edu/index.php/ AZSLAT/article/view/21461
- Grami GMA, Alzughaibi MG (2012). L1 transfer among Arab ESL learners: Theoretical framework and practical implications for ESL teaching. Theory and Practice in Language Studies 2(8): 1552-1560.

DOI: https://doi.org/10.4304/tpls.2.8.1552-1560

Helms-Park R (2003). Transfer in SLA and creoles: The implications of causative serial verbs in the interlanguage of Vietnamese ESL learners. Studies in Second Language Acquisition 25(2): 211-244.

> DOI: https://doi.org/10.1017/S0272263103 00010X

- IELTS (2022). https://ielts.org/researchers/ourresearch/test-statistics#Test\_performance
- Johnson JS, Newport EL (1989). Critical period effects in second language learning: The influence of maturational state on the acquisition of English as a second language. Cognitive Psychology 21(1): 60-99.

DOI: https://doi.org/10.1016/0010-0285(89) 90003-0

Kadwa MS (2012). Attitudes of Saudi Arabian

Learners to Online Communication in EFL [Master's thesis]. University of South Africa. http://hdl.handle.net/10500/8880

Khaleghi M, Saleem M, Mansoor M, Wajid MA (2024). An appraisal of recurring grammar errors in Saudi premedical EFL learners' academic writing. Forum for Linguistic Studies 6(2): 2077.

DOI: https://doi.org/10.59400/FLS.v6i2.2077

Khan A (2022). The effect of writing exercises in classroom on the production of written sentences at undergraduate level by Saudi EFL learners: A case study of error analysis. Cogent Education 9(1): 1-18.

DOI: https://www.doi.org/10.1080/233118 6X.2022.2122259

Laufer B, Girsai N (2008). Form-focused instruction in second language vocabulary learning: A case for contrastive analysis and translation. Applied Linguistics 29(4): 694-716.

DOI: https://doi.org/10.1093/applin/amn018

Luk Z, Shirai Y (2009). Is the acquisition order of grammatical morphemes impervious to L1 knowledge? Evidence from the acquisition of plural -s, articles, and possessive 's. Language Learning 59(4): 721-754.

DOI: https://doi.org/10.1111/j.1467-9922.2009. 00524.x

- MacWhinney B (1997). Second language acquisition and the competition model. In: DeGroot AMB, Kroll JF (editors). Tutorials in Bilingualism: Psycholinguistic Perspectives. Psychology Press. pp. 113-142. https://psyling.talkbank. org/years/1997/degroot.pdf
- MacWhinney B (2008). A unified model. In: Robinson P, Ellis NC (editors). Handbook of Cognitive Linguistics and Second Language Acquisition. Routledge. pp. 341-371. https:// psyling.talkbank.org/years/2008/unified.pdf
- Muftah DM (2023). Error analysis in second language acquisition (SLA): Types and

frequencies of grammatical errors of simple present and past tense in the elicited written production task of Arab EFL undergraduate learners. Colombian Applied Linguistics Journal 25(1): 42–56. https://doi. org/10.14483/22487085.19202

- Noor HH (1996). English Syntactic Errors by Arabic Speaking Learners: https://files.eric.ed.gov/ fulltext/ED423660.pdf
- Nunan D (2001). Second language acquisition. In: Carter R, Nunan D (editors). The Cambridge Guide to Teaching English to Speakers of Other Languages. Cambridge University Press. pp. 87-92.

DOI: https://doi.org/10.1017/CBO978051166 7206.013

- Palmer HE (1921). The Principles of Language-Study. World Book Company. https://www. gutenberg.org/files/46961/46961-h/46961-h. htm
- Pienemann M, Di Biase B, Kawaguchi S, Hakansoon G (2005). Processing constraints on L1 transfer.In: DeGroot AMB, Kroll JF (editors). Handbook of Bilingualism: Psycholinguistic approaches. Oxford University Press. pp. 128-153
- Port RF, Mitleb FM (1983). Segmental features and implementation in acquisition of English by Arabic speakers. Journal of Phonetics 11(3): 219-229.

DOI: https://doi.org/10.1016/S0095-4470 (19)30823-X

- Richards JC, Schmidt RW (2002). Dictionary of Language Teaching & Applied Linguistics. Pearson Education Limited.
- Sabbah SS (2015). Negative transfer: Arabic language interference to learning English. Arab World English Journal (AWEJ) Special Issue on Translation (4): 269-288. https:// awej.org/images/AllIssues/Specialissues/ Translation4/17.pdf

Sawalmeh M (2013). Error analysis of written

English essays: The case of the student of the preparatory year program in Saudi Arabia. English for Specific Purposes World 40(14): 1-17. http://esp-world.info/Articles\_40/ Sawalmeh.pdf

Selinker L (1972). Interlanguage. International Review of Applied Linguistics in Language Teaching 10(1-3): 209–231.

> DOI: https://doi.org/10.1515/iral.1972.10.1-4.209

Shalaby NA, Yahya A, El-Komi M (2009). Analysis of lexical errors in Saudi college students' compositions. AYN - Journal of the Saudi Association of Languages and Translation 2(3): 65-92. https://fac.ksu.edu.sa/sites/default/files/ Analysis\_of\_Lexical\_Errors.pdf

Sweet H (1899/1964). The Practical Study of

Languages: A Guide for Teachers and Learners. Oxford University Press. https://files.eric. ed.gov/fulltext/ED033624.pdf

Whong-Barr M (2006). What transfers? In: UnsworthS, Parodi T, Sorace A, Young-Scholten M(editors). Paths of Development in L1 and L2Acquisition. John Benjamins. pp. 187-199.

DOI: https://doi.org/10.1075/lald.39.09who

- Yu L, Odlin T (2016). New Perspectives on Transfer in Second Language Learning. Multilingual Matters.
- Yasin A. (2013). Syntax-prosody interface: Whmovement in Jordanian Arabic and Egyptian Arabic. Studies in the Linguistic Sciences: Illinois Working Papers 38: 37-52. https:// www.ideals.illinois.edu/items/44799