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The Acquisition of Arabic and English Relative Clauses by L2 English and Arabic Learners

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Abstract

This study explored the acquisition of Arabic and English relative clauses by L2 English and Arabic learners. It examined the extent to which the Noun Phrase Accessibility Hierarchy (NPAH) (Keenan and Comrie 1977) and the Markedness Differential Hypothesis (MDH) (Eckman 1977) account for the acquisition of English and Arabic relative pronouns by English and Arabic L2 learners. Twenty Arabic-speaking learners of English and twenty English-speaking learners of Arabic were selected. To this end, four different tasks were used in this regard, namely the Sentence Combination task, the Multiple-Choice task, the Picture Description task, and the Grammaticality Judgement task. The results of this study showed that Arabic learners of English were able to comprehend and produce relative pronouns successfully. However, their performance was found to be affected by the system of relative pronouns of Arabic. For example, they were found better in producing who than whom. Additionally, the study found that the performance of Arabic learners of English was influenced by the type of the task (i.e., Sentence Combination Task is harder than the Multiple-Choice Task). On the other hand, the English-speaking learners of Arabic (i.e., the L2 Arabic group) produced and comprehended the Arabic relative pronouns easily despite their L1 language interference. The overall results showed that the NPAH and the MDH were able to predict the mistakes made by L2 learners of Arabic and English.

Keywords: Relative clauses; markedness differential hypothesis; noun phrase accessibility hierarchy; sentence combination task; L2 learners.

اكتساب متعلمي اللغة الإنجليزية والعربية للجمل الموصولة باللغتين العربية والإنجليزية

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الجامعة الأردنية

ملخّص

تبحث هذه الدراسة في اكتساب متعلمي اللغة الإنجليزية والعربية للجمل الموصولة باللغتين العربية والإنجليزية. وتدرس إلى أي مدى يمكن لنظرية التسلسل الهرمي للمركب الاسمي (كنان وكمري 1977) وفرضية الاستخدام التفاضلي(اكمن 1977) تفسير وجوه اكتساب متعلمي اللغة الإنجليزية والعربية للضمائر الموصولة في اللغة العربية والإنجليزية. جرى اختيار عشرين متعلم عربي للغة الإنجليزية وعشرين متعلم للغة العربية من المتحدثين باللغة الإنجليزية. كما استُخدم أربعة اختيارات في هذا الصدد : اختبار تشكيل الجمل ، واختبار الاختيار من متعدد ، و اختبار وصف الصورة ، و اختبار الحكم النحوي. وعلى الرغم من أن نتائج هذه الدراسة تظهر أن متعلمي اللغة العربية للغة الإنجليزية قادرون على فهم وإنتاج الضمائر الموصولة بنجاح، إلا أن أداؤهم يتأثر في نظام الضمائر الموصولة للغة العربية. وإضافة إلى ذلك، وجدت الدراسة أن أداء متعلمي اللغة العربية للغة الإنجليزية يتأثر في نوع الاختبار (أي أن اختبار تشكيل الجمل أصعب من اختبار الاختيار من متعدد). ومن ناحية أخرى وجدت الدراسة أن متعلمي اللغة العربية من المتحدثين باللغة الإنجليزية ينتجون ويفهمون الضمائر العربية الموصولة بسهولة حتى لو كانت لغتهم الأولى تؤثر في أدائهم.

الكلمات الدالة : الجمل الموصولة، فرضية الاستخدام التفاضلي، نظرية التسلسل الهرمي للمركب الاسمي، اختبار تشكيل الجمل، متعلمي اللغة الثانية.

1. Introduction

According to many empirical studies in the field of second language (L2) acquisition (see Muñoz and **Singleton** 2011, Larsen-Freeman 2018), there do exist several factors that have impacts on L2 learners' performance, including the learner's first language (L1) as well as his/her age, duration of L2 exposure, talent, and motivation. For instance, the differences between L1 and L2 are often referred to as obstacles or difficulties that encounter L2 acquisition (Ionin and Montrul 2010). In this regard, behaviorists have proposed that similar grammatical structures between L1 and L2 are easier to acquire (as they are acquired first), while different grammatical structures between L1 and L2 are normally more difficult to acquire (given that they are acquired later) (Selinker and Gass 2008). However, growing research from many L2 settings has found that certain grammatical constructions are more difficult to acquire than others, irrespective of the differences between L1 and L2. For example, Alasfour (2018) pointed out that passive voice, definite articles, and relative clauses are among the main challenging constructions that L2 learners make more mistakes with, as compared to other constructions.

In this research, we shed light on L2 acquisition of relative clauses among L2 Arabic learners of English and L2 English learners of Arabic. This investigation allowed us to determine whether relative clauses are a main concern in L2 settings across the board. The results of this investigation will also have significant implications for language teaching and learning as more focus should be placed on the teaching of relative clauses in L2 settings and whether curricula must be designed in a way that takes into consideration the learner's L1. Additionally, this investigation allowed us to weigh up the power of the main L2 theories (the Noun Phrase Accessibility Hierarchy, Keenan and Comrie 1977, and the Markedness Differential Hypothesis, Eckman 1977) to account for the mistakes that L2 learners of Arabic and English make.

The following discussion was structured as follows. Section 2 provided a description of relative clauses in Arabic and English with special focus on their similarities and differences. Section 3 discussed the main theories proposed to account for the acquisition of relative clauses. Section 4 explained data collection and analysis. Section 5 included the main discussion. Section 6 was the conclusion.

2. Relative clauses in English and Arabic

There are several similarities and differences between English and Arabic relative clauses. These similarities and differences have been the topic of many studies. For instance, Al-Washali and Hasnain (2013:16) reported the following similarities and differences between Modern Standard Arabic (MSA) and English relative clauses:

A. In English, relative pronouns do not inflect for the gender and number of the relativized noun, but in MSA the relative pronouns should agree with the relativized noun in gender and number.

B. In English, the complementizer 'that' can be used in all cases (Subject, Direct Object, Indirect Object) instead of a relative pronoun. By contrast, in MSA there is no such complementizer that can be used instead of relative pronouns.

C. In English, the object relative pronoun 'whom' can be replaced with 'who', especially in informal settings, whereas MSA maintains no similar cases.

D. In English, non-defining relative clauses are normally mentioned between commas. However, in MSA no commas are used.

E. In English relative clauses, resumptive object pronouns are generally judged as ungrammatical by native speakers (McKee and McDaniel 2001), as shown in following example:

(1) I saw the man that I hate (*him).

By contrast, resumptive object pronouns in Arabic relative clauses are not ungrammatical:

(2) ʃa:had-tu ʔar-radʒula ʔallaði ʔaħtarimu(-hu)
saw-I the-man who respected.I-him

'I saw the man that I respect'.

This comparison between English and Arabic relative clauses indicates that L2 Arabic and English learners of English and Arabic would face difficulties when they acquire the relativization system of the other language (Alasfour 2018).

In the following section, we provided a general background on the main theories that are still used as theoretical constructs to account for these challenges, with special reference to Noun Phrase Accessibility Hierarchy (NPAH; Keenan and Comrie 1977) and the Markedness Theory of Eckman (1977), two models of language acquisitions that are still considered viable approaches for different L2 acquisition issues (see Ender 2012, Abdolmanafi and Rahmani 2012, Ju 2013).

3. The acquisition of relative clauses

3.1. Background

Relative clauses have unique syntactic features that make them a topic worth investigation in LA studies (Algady 2013). According to Khan and Namer (2017), relativization can be an impediment to L2 learners due to the constraints that operate in this type of constructions. For this, several hypotheses have been advanced to explain the process of relative clauses L2 acquisition as well as the difficulties that emerge when acquiring relative clauses. For example, the Parallel Function Hypothesis (PFH) (Sheldon 1974) mentioned that the function and the grammatical role of relative clauses is as important as the position of relative clauses. Sheldon classified four types of relative clauses, as shown in the following examples. (The first letter indicates the position of the noun that is described by the relative clause while the second letter stands for the function of the relative pronoun inside the relative clause itself).

(3) a. The teacher who teaches me Arabic met my father. (SS)
b. My father met the teacher who teaches me Arabic. (OS)
c. The teacher who(m) my father met teaches me Arabic. (SO)
d. My father called the teacher who(m) he met yesterday. (OO)

The PFH argues that nouns which have the same grammatical function (SS, OO) are acquired faster and easier than those which have different grammatical functions (SO, OS).

Additionally, the function of the head noun in the clause and the function of the relativized noun are considered important, especially in Hamilton's (1994) Subject-Object Hierarchy Hypothesis (SOHH). Based on this hypothesis, the number of cutouts in the structure affects the difficulty of acquiring the relevant relative clause. Consider the following examples:

(4) a. The man who [met you] [...] Relativized subject (single cutout)
b. The man who [you [met] [...] Relativized object (two cutout)

Based on this, Hamilton ordered the difficulty of relative clauses as follows:

(5) OS > OO/SS > SO

Although all these hypotheses and theories have contributed to our understanding of L2 acquisition of relative clauses, Keenan and Comrie's (1977) the Noun Phrase Accessibility Hierarchy is still an important theory within L2 studies (see Hook and Pardeshi 2013). In the next subsection, we presented the core and relevant assumptions of this theory.

3.2. Noun Phrase Accessibility Hierarchy (NPAH)

Keenan and Comrie (1977) proposed the so-called Noun Phrase Accessibility Hierarchy (NPAH) to account for the variation in relative clauses. They argued that languages vary with respect to which NP positions can be relativized.

Following an analysis of fifty languages, Keenan and Comrie (1977) argued that this variation was not accidental, proposing that the dependency of the relative clauses position is universal. The Accessibility Hierarchy (AH) below presented the relative accessibility to the relativization of NP positions in main clauses: (">" means 'is more accessible than').

(6) Subject (SU) > Direct Object (DO) > Indirect Object (IO) > Oblique (OBL) > Genitive (GEN) > Object of Comparative (OCOMP).

English instances of the relative clause types of the hierarchy were mentioned in the following sentences in this order:

(7)
a. There was the man who is my brother. (subject)
b. There was the man who(m) I called by telephone. (object)
c. There was the man whom I sent an invitation to. (indirect object)
d. There was the man whom I read about in the Facebook. (oblique)
e. There was the man whose wife died last year. (genitive)
f. There was the woman who I am older than. (object of a comparative)

Keenan and Comrie (1977) proposed that the relative clause in the subject position is easier to comprehend, produce and acquire than other positions, including the direct object position. For them, when a language can relativize any position on the AH with a primary strategy, it can relativize all higher positions with the same strategy (e.g., if the speaker can relativize the indirect object, he/she can relativize the subject and the direct object). On the other hand, if the language can relativize the higher position, it is not necessary that a lower position will be relativized. They also proposed that for each position on the hierarchy, there are possible languages which can relativize that position with a primary strategy.

Tarallo and Myhilll (1983) clarified the order of NPAH with respect to the distance between the antecedent and the trace as shown in (8):

(8) a. The man who _____ came: Subject.
b. The man who(m) Salma saw _____: Direct object.
c. The man who(m) Salma talked to _____: Indirect object.
d. The table which Salma put the food on _____: Object of preposition.
e. The man whose hair is black _____: Genitive.
f. The man who my father is taller than _____: Object of comparison

Based on the examples in (8), it appeared that whenever the first part of the clause (antecedent; be it the subject or the object), was close to the second part of the clause (the trace), it would be easier to comprehend and acquire; otherwise, it would be difficult to comprehend and acquire. Keenan and Comrie (1977) also argued that the lower position in the NPAH was more marked than those in a higher position. This argument was consistent with Markedness Differential

Hypothesis (Eckman 1977) (MDH) which proposed that the less marked feature is easier to acquire than the highly marked one. We presented the assumption of the MDH in the following subsection.

3.3. The Markedness Theory of Eckman (1977) (MDH)

This hypothesis designated the markedness relations between languages. Markedness is defined along the following lines:

(9) Markedness: A phenomenon A in some language is more marked than B if the presence of A in a language implies the presence of B; but the presence of B does not imply the presence of A.

Based on this definition, Eckman (1977) proposed that the areas of the target language which differ from the native language and which are more marked than the native language will be difficult for L2 leaners to acquire. Additionally, he maintained that the relative degree of difficulty of the areas of the target language which are more marked than the native language will correspond to the relative degree of markedness. He also assumed that those areas of the target language which are different from the native language but are not more marked than the native language will not be difficult for L2 learners to acquire. According to the MDH, the degree of difficulty in L2 acquisition can be predicted according to the degree of typological markedness between learners' L1 and L2 (Jin 2008).

4. Methodology

4.1. Study sample

In order to achieve the goals of this paper, two groups of participants were selected. The total number of participants was 40 L2 learners divided in two groups. The first group consisted of twenty Jordanian students at Helen Center for Languages and Human Resources Development in Amman. All students were Arabic native speakers who never lived in an English-speaking country or have an English-speaking parent. The second group consisted of twenty British students from London University (SOAS); they were commencing the fall semester in Qasid Institute after one full year in learning Arabic at SOAS. All of them were English native speakers who have never lived in an Arabic-speaking country or have an Arabic-speaking parent. The participants were in the age from 19-26 (their average age was 22). Participants were of the two genders. All participants were at the intermediate level. Their level was determined based on the placement test which the learners took at Helen and Qasid Institutes.

The researchers obtained the permission from the student's supervisor at SOAS University (for English students) and the head manager of Helen Academy (for Arabic students) prior to conducting the study. The instructions of the four tasks were explained in Arabic and English for the two groups. All participants confirmed that they fully understood how to manage the entire test. Furthermore, the researchers solved an example of each task to make sure that all participants were confident to start the test. The time given to finish the four tasks was 60 minutes, where approximately 15 minutes used for each task including the time of instructions.

4.2. Data collection

Four tasks were used. The purpose of performing four different types of tasks was mainly to examine the comprehension and production of relative pronouns by the participants. Similar tasks were used in many previous studies, a matter that confirm their reliability and validity (e.g., Alotaibi, 2016). Each of the four tasks consisted of twelve sentences. The participants were told that this study was a volunteering participation, and they had the right to ask about anything during the time of the test. All participants were notified that the result of these tasks will be only used for research purposes. The participants filled a personal-information questionnaire before they began the test.

4.2.1. Sentence Combination task

The first task was *Sentence combination* which is one of the typical tasks used to measure the acquisition of relative clauses (see, e.g., Munnich et al., 1994). The task included all types of relative pronouns in English and Arabic. All sentences were randomized. The participants were asked to combine two sentences using relative pronouns and not to delete any essential information in the two sentences. They were also asked not to use any conjunction like *and, but, because* etc. This task included all the types of relative pronouns in English and Arabic languages. In the English relative pronoun test, there were four sentences for both *who* and *which* (with different grammatical functions), three sentences for *whom* and one sentence for *whose*. In the Arabic relative pronoun test, there were two sentences for (الذي، اللذين، الذين، اللواتي، Ø) one of Arabic relative pronoun for (التي، اللتين). In the two tests, sentences were randomized. Below, some examples of the suggested answers for the sentences.

(10) Arabic example:

شاهدتُ الأستاذةَ / الأستاذةُ تشرب القهوة في المكتب >>> شاهدت الاستاذة التي تشرب القهوة في المكتب

(11) English example:

The man sold his car last week. The man is a doctor >>>> The man who sold his car last week is a doctor.

4.2.2. The Multiple Choice Task

The second task was *the Multiple-Choice task* whereby the participants were asked to choose the right pronoun to complete the sentence (see Bleske-Rechek, et al. 2007; Khan and Namer 2017). Each part had four choices; one of them was correct. The fourth option was 'I don't know' which was used to indicate whether a participant was confused between the options. In this task, the participants should be aware of the use of each pronoun, based on all factors that affect the use of pronouns in English and Arabic. In the English test, there were three sentences for *who* and five sentences for *which* (with different grammatical functions) and two sentences for the use of *whom* and *whose*. In the Arabic language test, there were two sentences for اللتين، التي، الذين، اللذين، الذي and one Sentence for Ø ،اللواتي. Sentences were put randomly in the test.

4.2.3. The Picture Description Task

The third task was *the picture description*. The participants here were asked to describe the picture based on the question asked after the picture which helped participants to answer the question. See the following examples:

(12)

English example: This man's expensive car is for sale.

Who is this man? This is the man **whose car for sale**.

(13) Arabic example:

الفتاتان تقرآن كتاباً جديداً.

من هاتان الفتاتان؟

هاتان الفتاتان **اللتان تقرآن كتاباً جديداً**..

4.2.4. The Grammaticality Judgement Task

The fourth task was *grammaticality judgement*. Algady (2013) mentioned that the grammaticality judgment task provides a measure of what learners comprehend and not from second language and the point view of L1 transfer. This task helped the researchers measure the predictability of the Markedness Differential Hypothesis (MDH). Shaheen (2013) adapted this task to examine the restrictive relative clauses. The researchers in the present study modified Shaheen's task to match the aim of this study. In the Arabic test, there were six grammatical sentences and six ungrammatical sentences. In the English test, there were five grammatical sentences and seven ungrammatical sentences. The aim of this test was to examine the realization of relative pronouns for both English and Arabic participants. All vocabularies in this task were considered common for L2 learners of Arabic and English. The participants were asked to read the sentence and if it is ungrammatical, they should have underlined or mentioned the part that made the sentence ungrammatical. Some representative examples of

this task were mentioned below:

English example:

(14) The footballer whose could not hit the ball was passing on the right.

(15) Arabic example:

ذهبتُ إلى الحديقة الذي بجانب البيت.

4.2.5. Data analysis

The researchers collected the results from the four tasks. The participants' answers were marked, and their results were shown in an Excel sheet for each task for the two groups. The researchers analyzed the results from three different perspectives: a chart of right answers, the answers of participants instead of the right answers and the percentages of right and wrong answers. These results were shown in charts.

5. Results and discussion

This section presented the main results of the four tasks conducted to explore the acquisition of Arabic and English relative clauses by L2 English and Arabic learners. Table 1 showed the percentages of the right and wrong answers for the two groups with respect to each task.

Table 1: The percentages of the right and wrong answers for the two groups with respect to each task

The name of task	English speakers		Arabic speakers	
	Right answers	Wrong answers	Right answers	Wrong answers
Sentence combination task	76.3%	23.8%	55%	45%
Multiple-choice task	89.6%	10.4%	65.4%	34.6%
Picture description task	88.8%	11.3%	51.7%	48.3%
Grammatical judgmental task	76.8%	23.3%	59.2%	40.8%

5.1. Results of the sentence-combination task

The overall results of the sentence-combination task indicated that the subject type of English relative clause appeared to be the easiest for Arabic-speaking participants to produce, whereas the indirect object type was found to be the most difficult one. Moreover, the results showed that the accessibility order for different types of English relative pronouns was as follow:

(16) Subject > Object > Genitive > Indirect Object

Arabic-speaking learners faced difficulties in the use of *whom* with 65% wrong answers, while they mastered the use of *who* with 70% right answers. *Which* became in the second level after *who* with 65% right answers. The right answers for *whose* was only 50%. These percentages of wrong and right answers indicated that the participants did not have noticeable differences regarding the use of subject and direct object relative pronouns. On the other hand, the indirect object and genitive relative pronouns were the most difficult to use.

The next question relates to what the participants used instead of the right answers. This was important because it helped to notice the highly marked and the low marked English relative pronouns for Arabic-speaking learners. Most of wrong answers were related to the use of *who* and *whose* with 7 out of 18 wrong uses of *who*. 5 answers were empty without a relative pronoun where the participants thought that it could be right without a relative pronoun such as some cases with Arabic relative clauses (i.e., when the head noun is indefinite). *Whom* was the most difficult to use for Arabic-speaking learners with 52 wrong answers out of 80. This implied that Arabic-speakers did not differentiate if the head noun was the subject or the object. The last relative pronoun was *whose* with 10 wrong answers out of 20 without a high significant use of a specific relative pronoun. Furthermore, Arabic-speaking learners showed a good level in combining two sentences by English relative pronouns, however with a lot of mistakes. Although the relative pronoun *whose* was highly marked in the Arabic relativization structure, the participants showed good proficiency in using it than the indirect object *whom*.

As for English speaking learners, they encountered many difficulties in producing sentences with indefinite nouns (Ø= فارغ), with 47.5% wrong answers, a fact which pointed to the lack of the definiteness concept in Arabic relative pronouns. On the other hand, the feminine singular definite relative pronoun was produced with high awareness (التي) with 95% right answers. Additionally, the results showed that the masculine relative pronouns were more familiar in use among English speaking learners, as compared to the feminine one. The participants did not leave any sentence without answers. As for which relative pronoun was used instead of the right answer. The results showed that the participants used (التي) and (Ø) three times instead of (الذي). It was clear that some of participants were confused between the masculine and feminine relative pronouns.

As for the wrong answers made by the participants instead of the plural relative pronouns: (الذين) and (اللواتي), the results showed that the participants had low awareness about the gender regarding the use of relative pronouns even in the plural relative pronouns. The large number of participants used (اللواتي) instead of (الذين). On the other hand, the main mistakes concerning the use of (اللواتي) was with the singular and dual feminine relative pronouns (التي) and (اللتان ، اللتين). The dual relative pronouns were the highly marked by the participants with a large number of mistakes. As for the mistakes of participants with respect to the use of the dual masculine relative pronoun, the results showed that the participants used the plural masculine relative pronoun (الذين) instead the dual masculine relative pronoun. The masculine pronoun was low marked, as compared to the feminine one. This was clear in the next Figure that showed the mistakes in the use of dual feminine relative pronoun.

English-speaking learners showed a high proficiency level in using Arabic relative pronouns to combine two sentences. The participants were aware about the Arabic relativization structure and comprehended the use of these pronouns as follow:

(17)

- Singular relative pronouns > Dual relative pronouns > Plural relative pronouns
- Masculine relative pronouns > Feminine relative pronouns

The overall results of the sentence-combination task indicated that the subject type of English relative clause appeared to be the easiest for Arabic-speaking participants to produce, whereas the indirect object type was found to be the most difficult one. Moreover, the results showed that the accessibility order for different types of English relative pronouns was as follow:

(18) Subject > Object > Genitive > Indirect Object

The order of English relative pronouns types in this hierarchy was similar to the one of NPAH for the subject and direct object, but it was different in the order of genitive and indirect object. NPAH order for English relative clauses is: Subject > Object > Indirect Object > Genitive.

The results of the Arabic relative pronouns test implied that the proficiency of producing the Arabic relative pronouns depended on more than one factor. Firstly, the participants produced the relative pronouns based on the number as follows: Singular relative pronouns > Dual relative pronouns > Plural relative pronouns. This result did not match with the MDH by Eckman (1977) who claimed that the learners face difficulties in acquiring what is highly marked in their first language. The dual relative pronouns are different to the English structure since there are no dual pronouns in English language. While the plural relative pronouns are less marked in the English structure, they were more difficult to produce by English-speaking learners. Secondly, the participants produced the relative pronouns based on the gender as follows: Masculine relative pronouns > Feminine relative pronouns. English structure is not sensitive to whether the head noun is masculine or feminine, so the participants faced difficulties in producing the Arabic feminine relative pronouns since it is highly marked in their first language which goes in line with Eckman's MDH (1977).

The order of English relative pronouns types in this hierarchy was similar to the NPAH for the subject and direct object, but it was different than the NPAH with respect to the order of genitive and indirect object. Recall that the NPAH order for English relative clauses is [Subject > Object > Indirect Object > Genitive].

In this regard, Shaheen (2013) claimed that the genitive relative clause is difficult to acquire for Arabic-speaking learners as it is different from the Arabic structure. However, her assumption found no support from the result of this task. On the other hand, this result was consistent with the results of Khan and Namer (2015) (*who* > *whose* > *which* > *whom*) and Alotaibi (2016) (*whose* > *who* > *which* > *whom*). These two studies claimed that *whom* is the most difficult pronoun for Arabic learners to acquire as it appears at the end of the hierarchy. They assumed that the indirect object is not common in use in the Arabic relativization structure. The participants had also difficulties in differentiating between the use of *who* and *which*. This is predicted given that the Arabic structure is not sensitive to whether the head noun is human or non-human.

The results of the Arabic relative pronouns test by the English-speaking participants showed that the participants produced the relative pronouns based on their number value as follows: Singular relative pronouns > Dual relative pronouns > Plural relative pronouns. This result did not match with the MDH because learners would face difficulties when acquiring the highly marked element in their first language. The dual relative pronouns are not used in English. While the plural relative pronouns are less marked in the English structure, they were more difficult to produce by English-speaking learners. Secondly, the participants produced the relative pronouns based on the gender as follows: Masculine relative pronouns > Feminine relative pronouns. English structure is not sensitive to whether the head noun is masculine or feminine, so the participants faced difficulties in producing the Arabic feminine relative pronouns since it is highly marked in their first language, a result that was consistent with the MDH.

5.2. Results of the multiple-choice task

According to the main results of the task, *whose* and *whom* had the same percentages of right and wrong answers with 47.5% right answers and 52.5% for wrong answers. The relative pronoun *which* scored high percentage with 77% right answers, followed by 70% right answers for the relative pronoun *who.* The *Empty* category in this task was considered when the participants chose the last option of answers, namely *I do not know*, a few numbers of participants chose this option.

Additionally, the results showed that Arabic-speaking learners faced some difficulties in distinguishing between the use of *who* and *which*. 9 of wrong answers were by using *which* instead of *who*. Additionally, the participants used the relative pronoun *whose* instead of 14 choices of *which*. Moreover, the participants chose 13 times of *which* instead of *whose*. The participants also used *whose* 9 times and *who* 7 times instead of *whom*. Since *whom* and *whose* had the same percentages of right and wrong answers, it can be noticed that the participants were more confused with respect to the use of the relative pronoun *whom* with 9 answers of *whose*, 7 answers of *who*, 3 answers "I don't know" and 2 answers with *which*. Concerning instances of *whose*, the participants were confused between *whom* and *which*. From the right answer's percentages, this was clear that this task was the easiest for Arabic-speaking learners. Participants had a high proficiency level with *which* and *who* then *whose* and *whom* with a good matched with the results of the previous task. The AH of this task was:

(19) *Which* > *Who* > *Whose* = *Whom.*

As for English Speakers, they gained a high score in this task, as compared with other tasks. The low percentage of right answers was 70 % for (اللواتي) while the high percentage of the right answer was 97.5 % for (التي) and (الذين). In this task, the participants were aware of the definiteness concept with 95.0 % right answers. The other results were divided into two parts based on the gender and the number of the relative pronoun. Only two participants chose indefinite noun instead of definite noun for (الذي). On the other hand, one participant chose (الذي) instead of (التي) for one time. With respect to the number of the head noun, the participants got a high score in the proficiency of the pronoun of masculine plural (الذين) with one error. Regarding the use of the feminine plural, the participants made 3 mistakes with (التي) and 3 mistakes with (اللتان). This fact indicated that the participants were aware of the gender but not of the number factor. Accordingly, it can be suggested that the participants were confused between (اللذان) and (اللتان) 7 times and 4 times they chose "I don't know". Even if the participants used 7 times of (اللتان) instead of (اللذان) but they were aware of the use of (اللتان) without committing any mistakes.

The general results of multiple-choice task showed that this task was the easiest task for participants (with approximately 87% right answers). They did not also leave any sentence without answers. In the English pronouns test, the non-human pronoun *which* was found the easiest to comprehend with 77% of right answers, while the human pronouns *who* came next with 70%.

Both pronouns *which* and *who* were close to each other in use which explain why Arabic learners do not care whether the head noun is human or non-human. Even if they used the same pronoun for the two cases in their first language, they were almost fully aware of using them in English. This result supposed the following hierarchy: *which* > *who* > *whom=whose.* This result was predicted under MDH as it claims that ‘‘Those aspects of the TL [target language] which are different from the NL [native language], but which are not more marked than in the NL will not be difficult” (Eckman 1977: 321).

It was important to notice here that most wrong answers instead of *which* (15 times) were related to the use of the pronoun *whose*. This observation was consistent with the result of the previous task as in some cases *whose* could be understood as a pronoun of the direct object. The participants were found confused between the use of *which* and *whose*. The participants also did not master the differences between *who* and *whom*. As the concept of formal and informal pronouns was not utilized in the Arabic relative pronoun systems, the participants had less ability to elucidate the differences between *who* and *whom*.

On the other hand, in the Arabic relative pronouns test, the proficiency of using the Arabic pronouns was almost complete by the English-speaking learners. They made less mistakes as compared to the results of the Arabic-speaking learners. Even though gender is not important in the English relatives, the participants did only two mistakes.

5.3. Results of the Picture Description Task

This task was the hardest one for participants with 51.7% right answers and 48.3% wrong answers. The highest score was 71.3% right answers to pronoun *who* and lowest one was 31.7% to pronoun *whose*. In this task, the participant did not face problems regarding the use of the human and non-human relative pronoun (they committed only 2 mistakes by using *which*). However, they were confused between the use of *whom* and *whose*. Additionally, the participants were confused about the definiteness factor in the English relativization structure.

In the same way, the participants were aware of the differences between *which* and *who*, but they were not aware of the differences between *which, whose* and *whom*. With 5 mistakes, the participants were confused with definiteness. With the high score of mistakes, the participants used 17 times of *who* instead of *whose* and 11 times with *whom*, 7 times with *which* and 6 times with respect to indefinite pronouns. Similar to the results of task one, the participants had a high proficiency with *who, which* then *whom* and *whose*.

As for English speaking participants, the participants were aware about the plural, the dual then the singular relative pronouns while the second one showed that the masculine relative pronouns were easier than the feminine relative pronouns. In contrast to the results of Arabic-speaking learners, the English-speaking learners achieved more right answers with total 88.8% percent. The highest right score was 100% for (اللواتي) and the lowest right score was 81% for (التي).

The participants here were fully aware of the use of the masculine singular relative pronoun. Just one participant did an error. On the other hand, the participants encountered difficulties regarding the feminine singular relative pronoun. The participants faced some difficulties concerning the differences in the use between the masculine and feminine relative pronouns. In the case of masculine dual relative pronouns, the participants were proficient in this. It was clear in this task that the participants did not face difficulties in the use of the dual relative pronouns even it was masculine or feminine.

The plural relative pronouns are familiar in the English structure, so the participants did not make a lot of mistakes or get confused between the plural and singular. Even if the relative pronoun of the feminine plural is highly marked in the English structure, the participants were fully aware of its use without committing any mistakes.

The results of the Picture Description Task in the English relative pronouns by Arabic-speaking learners showed that the order of the right answers for the four types of the relative pronouns should be maintained as follow:

(20) Who > which > whom > whose

This hierarchy shows that the Arabic-speaking participants were aware of the type of the head noun (human or non-human) more than its grammatical function (subject, object …etc.). This hierarchy was justified by the MDH. Similar to the sentence-combination task, the results of this task indicated that the participants’ proficiency level in producing and

comprehending the relative pronouns *who* and *which* were higher than their proficiency level with *whom* and *whose*. As we mentioned earlier, the ability for English-speaking learners was better than the ability of Arabic-speaking learners in producing full sentences by the suitable relative pronoun.

However, contrary to the result of the sentence-combination task, the relative pronoun (التي) (feminine singular pronoun) came at the end of the hierarchy, while the relative pronoun (اللواتي) (feminine plural pronoun) came in the head of the hierarchy, as shown in the following hierarchy:

(21)

التي< الذين< اللتان< اللذان< الذي< اللواتي

(Feminine plural> masculine singular> masculine dual> feminine dual> masculine plural> feminine singular)

In this task, the picture made the suitable relative pronoun easy to realize in the case of the feminine plural which made it easy to comprehend and use. But the singular feminine relative pronoun has two uses in the Arabic language. It uses for feminine people and things and for the non-human plural elements which are highly marked for English-speaking learners. We also found that the participants had a low proficiency level with respect to the use of masculine plural as they did not realize the differences between human and non-human plural elements.

5.4. Results of the grammatical judgment task

The percentage of right and wrong answers indicated a low proficiency level of the knowledge of English relative pronouns by Arabic-speaking learners with total 59.2% right answers, especially when it came to the use of *whose* (20%) and *whom* (10%). The highest proficiency score was for the pronoun *which* with 86.7%. *Whose* is the pronoun for possessive uses in general which equal (*who* has) in Arabic, so for most of the wrong answers in the sentences with *who* was by *whose*, as in the following example, 10 participants out of 20 supposed that the sentence should be with *whose* is right. 3 participants chose *which* instead of *who*, while 8 participants chose *who* instead of *which*. Contrary to the previous tasks, the participants did not mix between the relative pronoun *which* and *whose* or *whom*. But 6 participants thought that sentences could be right without *which*. *whom* again was the hardest pronoun to realize for participants as there was no sentence containing it directly. Additionally, for the following example, 16 participants thought that *whose* was the right answer.

Similar to the previous tasks, English-speaking learners had a more ability to comprehend and produce the Arabic relative pronouns with 76.7% total the percentage of right answers. It was not expected that the relative pronoun (اللذان) got 95% right answer while (الذين) got 25%. Based on these results, we can order the accessibility of the comprehension of Arabic relative pronouns as in the following hierarchy: اللذان > الذي = التي > اللواتي > Ø > اللتان > الذين.

As for the number and gender of the head noun, the participants were fully aware of the use of singular masculine relative pronoun, and their errors were referred to the definiteness factor. 6 participants were confused between the definite and indefinite head noun. While participants faced difficulties in realizing the singular feminine relative pronouns. It can be argued that the participants used (اللواتي) 4 times and (الذين) 2 times because as we mentioned before that (التي) is used in two cases: after the singular feminine and the non -human plural head noun.

In this task, it was easy for the participants to realize that sentences with the masculine dual relative pronoun is true. It may the conjugation of the verb which helped them, even the wrong answer was with (الذين) which is so similar to (اللذان) in the case of "*mansob*" (اللذين) when it is the direct object. The participants showed a lack of knowledge regarding the use of dual feminine relative pronoun with a lot of errors. This might be attributed to the fact that this pronoun is a highly marked relative pronoun in English structure. They made 4 mistakes with both (التي), (اللواتي) and 3 mistakes with (الذي). The participants were expected to face less difficulties regarding the acquisition of plural relative pronouns than the dual one. This was because the plural is used in the English structure, but the dual is not present at all. Unlike the expected scenario, the participants carried out a large number of mistakes between (الذين) and (الذي) or the indefinite case. The feminine relative pronouns, even the singular or dual, were not an obstruction for participants in this task. Similarly, the feminine plural pronoun was easy to realize by the English-speaking learners. As mentioned earlier, the presence of the Arabic relative

pronoun is related with the definiteness of the head noun, a condition which is not operating in the English structure. English-speaking learners had a low proficiency level in dealing with the definiteness concept with 14 mistakes.

The results of the grammatical judgment task generally revealed a significant difference between the performance regarding the relative pronouns of the two groups. Grammatical Judgment Task and Multiple-Choice Task were designed to measure the proficiency level of comprehension of the relative pronouns. The results of these two tasks were close to each other as we noticed from the hierarchy of them:

(22)

a. Multiple-Choice task's hierarchy: *which* > *who* > *whom=whose.*

b. Grammatical Judgment Task's hierarchy: *Which* > *who* > *whose* > *whom*

The participants were fully aware of the use of *who* and *which* which they use in the positions of the subject and the direct object. This result was consistent with the NPAH which asserted that a language must first be able to relativize the subject before other positions on the hierarchy. Additionally, the subject and the direct object are the less marked in the Arabic structure. Then this hierarchy was matched with the MDH.

English-speaking learners were found to master the Arabic relative pronouns with 76.7% of right answers. They had a high proficiency level with the relative pronoun of masculine dual pronouns more than the singular (feminine and masculine) relative pronouns, and the masculine plural pronouns came at the end of the hierarchy, as it appears in the following hierarchy:

(23)

اللذان > الذي = التي > اللواتي > Ø > اللتان > الذين

(masculine dual> masculine singular = feminine singular> feminine plural>Ø> feminine dual>masculine plural)

The hierarchy of the English relative pronouns by Arabic-speaking learners was based on the results of the four tasks of the English relative pronouns test. These results wre shown in the following table:

Table 2: The accessibility hierarchy of the English relative pronouns.

Task	The accessibility hierarchy
1	Who > Which > Whose > Whom
2	Which > Who >Whose = Whom
3	Which ≥ Who >Whom ≥ Whose
4	Which > Who > Whose > Whom

A careful consideration of table 2 indicates that the participants master the use of *who* and *which* than *whose* and *whom*. For this, we proposed that the acquisition of English relative pronouns by Arabic-speaking learners is subject to the following hierarchy: ***Which ≥ Who >Whose ≥ Whom.*** One possible justification of this hierarchy is that Arabic-speaking learners require more time and exposure to possessive and indirect object pronouns in order to become familiar with the fact that the selection of English relative pronouns is based on the position of the head noun rather than its type.

The hierarchy of the Arabic relative pronouns by English-speaking learners as shown in table 3 is based on the results of the four tasks of the Arabic relative pronouns test.

Table 3: The accessibility hierarchy of the Arabic relative pronouns

Task	The Accessibility Hierarchy
1	Ø> اللواتي > اللتان > اللذان > الذي > الذين > التي
2	اللواتي> اللذان > Ø > الذي > التي > الذين > اللتان
3	التي > الذين = اللتان > اللذان > الذي > اللواتي
4	الذين > اللتان > Ø > اللواتي > التي = الذي > اللذان

A closer look at table 3 indicates that the participants mastered the use of Arabic relative pronouns with a different order in each task. A possible explanation for this lies in the fact that the type of the task played an important role in their answers. For example, the feminine plural relative pronoun was difficult to use and realize by participants in three tasks, while it was easy in the Picture Description one as the picture helped participants. On the other hand, the feminine singular relative pronoun was the most difficult pronoun to produce. It was the relative pronoun used for feminine and non-human plural elements. Also, we noticed that the acquisition of Arabic relative pronouns by English-speaking learners was subject to more than one hierarchy, based on the task's type. This was supported by Doughty (1991) who argued that the way of learning the relativization and the type of instruction are very important factors in the acquisition or the ability to acquire the relative clauses in the target language. As we mentioned earlier, the use of Arabic relativization structure depends on the gender, number and the definiteness of the head noun and does not depend on the grammatical position of the head noun in the clause. The hierarchy of the relative pronoun was as such different from the hierarchy of the relative clause that was advanced by Keenan and Comrie (1977). The following hierarchy shows the accessibility of the Arabic relative pronouns:

(24)

Definite singular/plural masculine > definite singular/plural feminine > definite dual masculine / feminine > indefinite. (الذين الذي > اللواتي التي > اللذان اللتان >Ø).

Following this analysis, the MDH could be successful in accounting for the difficulties that face Arabic-speaking learners. They mastered *which* and *who* which are less marked in the Arabic structure, more than *whose* and *whom*, which are highly marked in the Arabic structure. Likewise, the English learners were aware of the use of the definite relative pronouns, while they faced difficulties with the indefinite one. Additionally, they acquired the singular and plural before the dual, which is highly marked in English. Finally, they master the masculine pronouns more than the feminine one.

Furthermore, the results of this study indicated that Arabic-speaking learners of English relative pronouns were good at comprehending and producing the English relative pronouns. However, based on the hierarchy mentioned above, is clear that the participants were aware of the use of subject and direct object whatever the type of the head noun is. Accordingly, their performance of *who* and *which* was higher than that of *whom* and *whose*, the relative pronouns of possessive and indirect object. Furthermore, the NPAH accounted the Arabic-speaking learners in their choice of the English relative pronouns. On the other hand, English-speaking learners followed a special hierarchy whereby the order of relative pronouns is based on the type of the head noun rather than the syntactic position of the head noun.

6. Conclusion

This study had examined the extent to which the NPAH and the MDH could account for the acquisition of relative pronouns for English and Arabic L2 learners of Arabic and English languages.

The current study had found that there was no clear-cut evidence in favor of the applicability of the NPAH for Arabic relative pronouns, while the evidence of the applicability of the NPAH for English relative pronouns was clear. The overall results of the English relative pronouns in the four tasks showed that *who* and *which*, which were used with the subject and direct object relatives, were easier to acquire. The relative pronoun *whose* was also found to be easy for Arabic speaking participants to produce and comprehend because it was only used with genitive relatives. The pronoun *whom* was found the most difficult to acquire because it is used in the formal settings, a property that is not important for the Arabic relativization system.

In the Arabic relative pronouns test, the performance of the participants depended on the type of task. For example, the Multiple-Choice Task was the easiest task with fully right answers by 9 participants without any errors in the 12 sentences, while only two participants got right answers in the Grammatical Judgment Task. Furthermore, the results of this test showed that the less marked aspects (i.e., singular / plural masculine relatives) in L1 will be acquired in high proficiency in L2.

Additionally, the findings of the four tasks of this study showed that the MDH was supported as the results revealed that when participants were good at the use of the indirect object and genitive relatives, they were good at the use of subject and direct object. Also, the participants were aware of what is less marked in their L1 more than what is highly marked. On the

other hand, the Arabic-speaking learners performed exactly as the NPAH in the Picture Description Task only, while in the other tasks, they were better regarding the use of genitive relatives than indirect object one. But for English-speaking learners, they created their own hierarchy according to the type of the head noun and not according to its position.

According to the findings of the current study, the researchers suggest a number of pedagogical implications to L2 teachers and learners:

1. Learners should be aware of the similarities and differences between the relativization systems of their L1 and L2. This makes them avoid the ungrammatical uses of relative pronouns. It also helps them realize the differences between the type and the functions of the head noun.
2. Various tasks of L2 learning should be used inside the classroom to offer the opportunity for learners to help them acquire the relevant constructions.
3. The results of this study showed that teachers and curricula designers must focus on the marked relatives as they do with the unmarked types of relative pronouns. They also should raise the awareness of the NPAH and MDH in classroom settings.

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