The Acquisition of English Relative Clauses by University Students of English in Jordan

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Abstract:

   This study investigated the acquisition of English relative clauses by Jordanian EFL learners. It also examined whether the Noun Phrase Accessibility Hierarchy (NPAH) for the acquisition of relative clauses proposed by Keenan and Comrie (1977) is applicable to Jordanian EFL learners. Moreover, the study investigated whether there is a relationship between participants' production of relative clauses and their proficiency level. Sixty undergraduate students of English completed a sentence combination task. In general, the results indicated that Jordanian EFL learners are good at producing relative clauses. However, their performance was influenced by their proficiency level whereby advanced learners outperformed intermediate learners. The results also showed that the NPAH effect is not applicable to Jordanian EFL learners regardless of their proficiency level.

Key Words: English Relative Clauses, the NPAH, Sentence combination task, Jordanian students of English.

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اكتساب طلبة تخصص اللغة الانجليزية الأردنيين الجامعيين لجمل الوصل الانجليزية

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ملخص:

تبحث هذه الدراسة في اكتساب طلبة اللغة الإنجليزية الأردنيين الجامعيين لجمل الوصل الانجليزية. وعلى وجه الدقة سعت إلى دراسة أنواع جمل الوصل التي يتقنها الطلبة وتلك التي يواجهون صعوبة باستخدامها بالإضافة إلى الكشف عن مصادر الأخطاء التي يرتكبها الطلبة باستخدام جمل الوصل. بالإضافة إلى ذلك، بحثت الدراسة فيما إذا كانت نظرية (The Noun Phrase Accessibility Hierarchy by Keenan and Comrie 1977) لاكتساب جمل الوصل تنطبق على طلبة اللغة الانجليزية الأردنيين. أظهرت نتائج الدراسة أن مستوى استخدام طلبة اللغة الإنجليزية الأردنيين الجامعيين لجمل الوصل الانجليزية بطريقة صحيحة جيد نوعا ما. لكن في ضوء نتائج الدراسة كان من الصعب إثبات نظرية The Noun Phrase Accessibility Hierarchy by Keenan and Comrie 1977) ; لذلك تقترح الدراسة أن هذه النظرية لا يمكن تعميمها على جميع متعلمي اللغة الانجليزية كلغة أجنبية.

الكلمات المفتاحية: جمل الوصل الإنجليزية، نظرية NPAH، اختبار ربط الجمل، طلبة اللغة الإنجليزية، الأردن.

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1. Introduction

English relative clause (RC) is a type of a complex post nominal adjectival modifier used in both written and spoken English. It is a type of an embedded clause, which is a noun modification construction in which one clause is subordinate to another. The grammatical function of the relative clause is to modify the noun phrase that contains it. In other words, it describes or limits the meaning of the noun phrase. Moreover, RCs are among many aspects of English grammar which have syntactic complex structures that include embedding and movement of a noun phrase from within the embedded clause (Marefat and Rahmany 2009).

Relative clauses have long been of interest to researchers due to some reasons. First, they are language universals. Second, they have unique syntactic properties derived by movement either from a subject or an object position, e.g. the man who John visited is a lawyer. In addition, they are frequent in everyday use of language. Finally, mastering the use of relative clauses has long been observed as a tough task for EFL learners (e.g. Yee 2005; Xiaorong 2007; Algady 2013; Kim 2013).

As far as the acquisition of relative clauses is of a concern, cross-linguistic research has documented a kind of systematic constraints on the type of RCs that are permitted in a particular language. For instance, Yee (2005) mentioned that most studies that examined the acquisition of RCs have found that second language learners acquire relative clauses which refer to nouns in the subject and direct object positions first, and only later they can learn to use them to modify nouns in other sentence roles such as indirect object and object of preposition.

"Based on their studies on about fifty languages, Keenan and Comrie (1977) proposed the Noun Phrase Accessibility Hierarchy (NPAH), which is considered as the most robust typological interpretation of RCs constraints to date" (Marefat and Rahmany 2009: 22). The higher the relative clause type is in the hierarchy, the more accessible (or acquirable) it is supposed to be:

The Noun Phrase Accessibility Hierarchy

Subject> Direct Object> Indirect Object> Object of Preposition> Genitive> Object of Comparison

Table 1 below provides examples on each type of RCs in the NPAH:

Table 1: Example sentences for different RC types in the NPAH (Keenan and Comrie 1977)

RC Type	Example
Subject	the teacher that came

RC Type	Example
Direct Object	the teacher that Mary called
Indirect Object	the teacher that Mary gave a book
Object of Preposition	the teacher that Mary sat near
Genitive	the teacher whose students are absent
Object of Comparison	the teacher that Mary is taller than

Thus, if a learner can use one of the structures at the bottom of the hierarchy, s/he is expected to be able to use any of the structures that precede it. On the other hand, if a learner can produce sentences with relative clauses in the subject or direct object position, this does not necessarily mean that s/he is able to use relatives in any other position. For instance, if the learner can produce a direct object relative clause, e.g. *the man who I met*, we cannot predict if s/he can use the object of comparison type of relative clauses, e.g. *the man who I am faster than*. Most of the research findings show that the NPAH has a predictive value in the analysis of the acquisition of L2 relative clauses. However, some studies (e.g.Tarallo and Myhill 1983; Ju 2013) found that NPAH cannot predict the acquisition of relative clauses accurately. Thus, the applicability of NPAH predictions to all languages of the world remains an open question (Marefat and Rahmany 2009).

The acquisition of relative clauses has played an important role in both linguistic and psycholinguistic studies. The issue has been studied extensively by many researchers in the field of first and second language acquisition (e.g. Izumi 2003; Yee 2005; Zagood 2012; Bahrami and Ketabi 2013; Gao 2014; Alroudhan 2016). However, the main focus of the previous studies, which investigated Arab EFL learners, was studying the performance of children or adults on subject and direct object RCs, and mainly to find out whether one type is more easily processed than the other (e.g. Alroudhan, 2016). Other researchers focused on translational pedagogy for RCs (e.g. Zagood, 2012), while others conducted a comparative study between a limited set of RCs in a certain Arabic dialect with those found in English (e.g. Shaheen, 2013).

2. Literature Review

Relative clauses have been the focus of many studies. Most of these studies have been conducted to test the universal implicational relativization hierarchy proposed by Keenan and Comrie (1977), namely, NPAH (e.g. Gass, 1979, 1980, 1982; Tarallo and Myhill, 1983; Hyltenstam, 1984; Pavesi, 1986; Eckman etal., 1988; Doughty, 1991; Hamilton, 1994; Izumi, 2003; Ozeki and Shirai, 2007; Kim, 2013). For instance, Keenan and

Hawkins (1987) conducted a study to test the claim that the NPAH may be rooted in processing difficulties. The participants were asked first to comprehend and then to produce different types of relative clauses. The results revealed that the order of difficulty in English-speaking adults and children matched the order of difficulty proposed by Keenan and Comrie (1977).

Marefat and Rahmany (2009) examined the acquisition of RCs by Persian EFL learners. Thirty-nine Persian native speakers aged between 18 and 22 majoring in English Translation took part in this study. The participants were divided into two groups based on their level of English proficiency. They performed a sentence comprehension task. The results of the study supported the prediction of the Noun Phrase Accessibility Hierarchy. In addition, the findings indicated that the proficiency level did not have a significant effect on the difficulty order of the RCs.

Kim (2013) examined whether the NPAH is applicable to Korean EFL learners and whether subject RCs are easier than object RCs in both comprehension and production tasks. Furthermore, the study investigated the factors that are relevant to RC production in English and Korean and focused on three different pairs of RCs for comparison: (1) subject and indirect object RCs, (2) direct object and object of preposition RCs, and (3) object of preposition RCs. The study found that subject RCs are easier than object RCs in both comprehension and production tasks which is consistent with the NPAH.

On the other hand, some studies revealed that the NPAH effect is not applicable to other groups of EFL learners. For instance, Gao (2014) examined the difficulties that hinder the Chinese English learners' acquisition of English relative clauses. Two tests were conducted to collect the data: a sentence combination test and a grammaticality judgment test. The first test was used to examine the participants' productive ability while the second was meant to explore their intuitional knowledge. In the sentence combination test, the subjects were asked to combine two sentences together in a way that a relative clause would be formed. In the grammaticality judgment test, the participants were asked to judge the grammaticality of the given sentences and provide corrections for those they consider ungrammatical. Data obtained from both tests showed that RCs modifying objects are much easier than those modifying subjects. Thus, Keenan and Comrie's NPAH was not verified by this study.

Madsen (2015) also investigated the applicability of the NPAH to the acquisition and of RCs by EFL learners. The participants were asked to complete a clause-combining test and a gap-filling test. In the first test, they were given pairs of independent clauses with one common referent, and they were asked to insert the second clause into the first one as a relative clause. In the gap-filling test, participants were required to insert the appropriate relative pronoun into matrix clauses. The results showed that Danes have difficulties with the genitive type of relativization despite the fact that rules of genitive relativization in Danish are similar to those found in English. However, the results indicated that the difficulty order of RCs types does not follow Keenan and Comrie's (1977) NPAH.

As far as the literature on the acquisition of Arab EFL learners of English relative clauses is concerned, the following studies have tackled the issue of relative clauses from different angles. For instance, Zagood (2012) explored the problems encountered by fourth-year English department students of El-Mergib University in Libya in translating relative clauses from English into Arabic and vice versa. The study found out that the students face some difficulties in translating relative clauses from English into Arabic and vice versa. Zagood suggested that such errors might be attributed to the differences between the language systems of English and Arabic. Moreover, he argued that other difficulties could be ascribed to some limitations in teaching translation at El-Mergib University.

Shaheen (2013) investigated the syntactic structure of restrictive relative clauses with definite and indefinite heads in English and Latakian Syrian Arabic. The study examined how speakers of Latakian Syrian Arabic acquire English definite and indefinite restrictive RCs. The findings revealed that first language influence, at early stages, the participants' acquisition of restrictive RCs.

Alroudhan (2016) explored the challenges that face Arab adult EFL learners in acquiring English restrictive relative clauses in addition to the factors that affect the process of acquisition. The study discussed the syntactic structure of restrictive RCs in English and Arabic with regard to the use of resumptive pronouns and the use of overt versus covert relative pronouns as related to the definiteness of the head noun. An acceptability judgment test was distributed to 100 Arab EFL learners in order to identify potential acquisition problems. The data analysis revealed L1 interference. Moreover, the results indicated that the participants accepted the use of resumptive pronouns and preferred the overt relative pronoun to the covert

one. Finally, the study concluded with some pedagogical implications for teaching relative clauses in the EFL context.

3. Aim and Significance of the Study

This study investigates the acquisition of English relative clauses by Jordanian EFL learners. Moreover, it tests whether the Noun Phrase Accessibility Hierarchy for relative clauses in English proposed by Keenan and Comrie (1977) is applicable to Jordanian EFL learners. In addition, the study explores the types of relative clauses that Jordanian EFL learners master better in addition to the types which are more difficult to them. Further, the study tries to identify the sources of errors revealed in the use of RCs. It is hoped that the study can deepen our understanding of the difficulties faced by Jordanian EFL learners in the acquisition of English relative clauses.

The review of literature has revealed that few empirical studies have examined English relative clauses used by Arabs. In addition, almost none of these studies have examined the accessibility hierarchy of relative clauses used by Arab EFL learners in order to see what are the types of RCs that they master and the types that are more difficult to them. Thus, the present study addresses this gap and attempts to find useful insights into understanding the Arab English learners' acquisition of RCs.

4. Research Questions

This study seeks answers to the following questions:

1. Which types of relative clauses do university students of English in Jordan master better? And which types are more difficult to them?
2. Does proficiency level affect the participant' acceptability order of RCs?
3. Is the accessibility hierarchy proposed by Keenan and Comrie (1977) for relative clauses in English applicable to university students of English in Jordan?

5. Methodology

5.1 Participants

The participants of the study were 60 undergraduate students of English, who were enrolled in the Department of English Language and Literature program at The Hashemite University in Jordan. Their ages ranged between18-22 and were all native speakers of Jordanian Arabic. None of the participants had lived in an English-speaking country or had an English speaking parent.

Based on the results of an Adapted TOEFL test, the participants were divided into two groups, i.e. 30 advanced learners (AL) and 30 intermediate learners (IL). The participants were informed that the findings would be used for research purposes only and that their individual responses would remain anonymous.

5.2 Data Collection

A sentence combination task was used to collect the data. The sentence combination task is a typical type of elicitation task used in investigating relative clauses. Xu (2014) reported that although studies on L2 acquisition of English RCs employed a variety of tasks, the sentence combination task appeared to be the most often used task. Therefore, the present study employed this method to make results comparable to previous research. The test required the construction of 12 sentences; two sentences on each type of RCs. The six types of relative clauses were: (1) subject relatives (SU), (2) direct object relatives (DO), (3) indirect object relatives (IO), (4) object of preposition relatives (OPrep), (5) genitive relatives (Gen), and (6) object of comparison relatives (OComp). The order of the 12 items in the test was randomized.

In this test, the participants were asked to combine sentences using relative pronouns in a way that a word in the first sentence would be identified or specified by using the information contained in the second sentence as in:

1. *The sentence:* The man is in the garden. The man is wearing a blue jumper.

   The expected response: The man who/ that is in the garden is wearing a blue jumper.

   The participants were asked not to omit any information contained in the two sentences. They were also requested not to use any coordinating conjoiners such as *and*, *but*, *because*, *while*, etc. The test lasted for 20 minutes.

5.2.1 Reliability

Cronbach's alpha (1951) was used in order to measure the reliability and consistency of the task used in this study. The alpha coefficient value for the task is illustrated in Table 2 below:

Table 2: Cronbach's alpha coefficient value

Scale	Cronbach's α
Sentence combination task	.80

This value suggests fairly high reliability which refers to the high reliability of the test tool used in the study.

5.2.2 Scoring

The researcher followed the scoring procedure used in Izumi's (2003) study. The six types of English RCs were scored separately. One point was scored when the targeted RCs were produced and 0 points were assigned for the unintended RCs. For instance, if the participant produced a subject type of RCs for an item for which a direct object RC was expected, the answer was considered incorrect. Errors involving tense, spelling, articles were neglected.

6. Results and Discussion

The sentence combination task allowed for testing the participants' ability to produce the six types of English relative clauses and for checking whether the English proficiency level of the participants plays a role in their answers on the test.

In order to address question number one regarding the types of relative clauses that the participants master better and the types which are more difficult to them, composite scores on the six types of relative clauses were computed for each type of RCs for all subjects. The results are presented in Table 3 below:

Table 3: Descriptive statistics for the correct relative clauses used by the entire group (n= 60)

Type of RCs	Sum	Mean	Std. Deviation
SU	111	1.85	.48
DO	110	1.83	.46
IO	77	1.28	.94
OPrep	70	1.17	.94
Gen	90	1.50	.77
OComp	16	.27	.63
Total	667	11.12	3.11
Valid N (listwise)			

Table 3 shows that Jordanian EFL learners, regardless of their proficiency level, obtained high scores on subject RCs (M=1.85, SD= .48), followed respectively by direct object RCs (M=1.83, SD=.46), genitive relatives (M=1.50, SD=.77), indirect object RCs (M=1.28, SD=.94), object of preposition relatives (M=1.50, SD=.77), and finally by the object of comparison relatives (M= 0.27, SD=.63). Therefore, it seems that the participants master the first five types of RCs to some extent, and that they faced some difficulties when producing object of comparison RCs.

Table 4 illustrates the means, the standard deviations, and the percentage of correct answers according to the participants' proficiency level.

Table 4: Descriptive statistics for the correct relative clauses by proficiency level for the entire group (n= 60)

Relative Clause Type	Intermediate (n=30)		Advanced (n=30)	
	Mean	**SD**	**Mean**	**SD**
SU	1.87	.43	1.83	.53
DO	1.86	.34	1.80	.55
IO	.90	.96	1.67	.76
OPrep	.83	.95	1.50	.82
Gen	1.03	.85	1.96	.18
OComp	.13	.35	.40	.81

Table 4 shows that both groups' performance in the subject and direct object RCs was somehow similar. Both groups obtained high scores on subject relatives (ILs M =1.87, SD=.43 and ALs M =1.83, SD=.53) and direct object relatives (ILs M =1.86, SD=.34 and ALsM=1.80, SD=.55) with a slight difference in favor of ILs. On the other hand, a remarkable difference can be noticed in the participants' answers in the other types of RCs. Advanced learners outperformed their intermediate counterparts in the indirect object relatives (ILs M=.90, SD=.96 and ALs M=1.67, SD=.76), object of preposition relatives (ILs M=.83, SD=.95 and ALs M=1.50, SD=.82), genitive relatives (ILs M=1.03, SD=.85 and ALs M=1.96, SD=.18), and object of comparison relatives (ILs M=.13, SD=.35 and ALs M=.40, SD=.81). The findings indicated that intermediate learners encountered many difficulties in producing these types of RCs more than advanced learners who appeared to master the first five types quite well.

Moreover, the results in Table 4 reveal that the easiest type of RCs for ILs to produce was the subject relatives whereas that easiest type for ALs to produce was the genitive relatives. In addition, the findings reveal that the type of RCs which was the most problematic for both groups was the object of comparison type. However, ALs (M= .40, SD= .81) outperformed ILs (M= .13, SD= .35) in this type of RCs.

A mixed repeated measure ANOVA was conducted to explore the effect of the relative clause types (SU, DO, IO, OPrep, Gen, OComp) on the participants' performance and to test whether the interaction between relative clause types and proficiency level is significant. The results of the mixed repeated measure ANOVA showed that the relative clauses types had a major effect on the participants' performance ($F_{(5.290)}$= 50.316, p= .000). In addition, it shows that the interaction between relative clauses types and

proficiency level had a significant effect on the participants' performance ($F_{(5.290)}$= 6.69, p= .000).

In order to examine the order of RCs accessibility for each group, paired comparisons for the correct use of RCs by each group were conducted. Table 5 below shows the paired comparisons between relative clauses types used by intermediate learners:

Table 5: Paired comparisons between relative clauses types used by intermediate learners

(I) type	(J) type	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
SU	DO	2.220E-016	.063	1.000	-.127	.127
	IO	.967*	.193	.000	.579	1.354
	OPrep	1.033*	.162	.000	.709	1.358
	Gen	.833*	.126	.000	.581	1.086
	OComp	1.733*	.138	.000	1.457	2.010
DO	SU	-2.220E-016	.063	1.000	-.127	.127
	IO	.967*	.189	.000	.587	1.346
	OPrep	1.033*	.165	.000	.703	1.363
	Gen	.833*	.132	.000	.569	1.098
	OComp	1.733*	.129	.000	1.475	1.992
IO	SU	-.967*	.193	.000	-1.354	-.579
	DO	-.967*	.189	.000	-1.346	-.587
	OPrep	.067	.140	.635	-.213	.347
	Gen	-.133	.214	.536	-.562	.295
	OComp	.767*	.181	.000	.404	1.130
OPrep	SU	-1.033*	.162	.000	-1.358	-.709
	DO	-1.033*	.165	.000	-1.363	-.703
	IO	-.067	.140	.635	-.347	.213
	Gen	-.200	.220	.367	-.641	.241
	OComp	.700*	.184	.000	.331	1.069
Gen	SU	-.833*	.126	.000	-1.086	-.581
	DO	-.833*	.132	.000	-1.098	-.569
	IO	.133	.214	.536	-.295	.562
	OPrep	.200	.220	.367	-.241	.641
	OComp	.900*	.166	.000	.567	1.233
OComp	SU	-1.733*	.138	.000	-2.010	-1.457
	DO	-1.733*	.129	.000	-1.992	-1.475
	IO	-.767*	.181	.000	-1.130	-.404
	OPrep	-.700*	.184	.000	-1.069	-.331
	6Gen	-.900*	.166	.000	-1.233	-.567

The Paired comparisons of relative clauses used by intermediate learners revealed significant differences between subject RCs (1.87) and the following relatives: IO RCs (.90), OPrep RCs (.83), Gen RCs and OComp relatives. Moreover, DO appeared to be statistically higher than IO (.90), OPrep (.83), Gen (1.03) and OComp (.13) relatives. In addition, intermediate students' performance on IO relatives (.90) was significantly higher than that for OComp (.13). Likewise, their performance on genitive relatives (1.03) was significantly higher than that for OComp relatives (.13). Similarly, their performance on OPrep relatives RCs (.83) was significantly better than that on OComp RCs (.13). No more significant differences were found. Thus, the accessibility order of RCs used by intermediate learners in the sentence combination task is as follows:

SU= DO > IO= Gen= OPrep>OComp

It can be noticed that this hierarchy is not exactly similar to the NPAH as some of the differences between the RCs types did not appear to be statistically significant.

Table 6 below shows the paired comparisons of relative clauses types used by advanced learners:

Table 6: Paired comparisons between relative clauses types used by advanced learners

(I) type	(J) type	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
SU	DO	.033	.063	.600	-.093	.160
	IO	.167*	.193	.393	-.221	.554
	OPrep	.333*	.162	.044	.009	.658
	Gen	-.133*	.126	.294	-.386	.119
	OComp	1.433*	.138	.000	1.157	1.710
DO	SU	-.033	.063	.600	-.160	.093
	IO	.133*	.189	.484	-.246	.513
	OPrep	.300*	.165	.074	-.030	.630
	Gen	-.167*	.132	.212	-.431	.098
	OComp	1.400*	.129	.000	1.141	1.659
IO	SU	-.167*	.193	.393	-.554	.221
	DO	-.133*	.189	.484	-.513	.246
	OPrep	.167	.140	.238	-.113	.447
	Gen	-.300	.214	.166	-.729	.129
	OComp	1.267*	.181	.000	.904	1.630
OPrep	SU	-.333*	.162	.044	-.658	-.009
	DO	-.300*	.165	.074	-.630	.030

(I) type (J) type		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
	IO	-.167	.140	.238	-.447	.113
	Gen	-.467	.220	.038	-.907	-.026
	OComp	1.100*	.184	.000	.731	1.469
Gen	SU	.133*	.126	.294	-.119	.386
	DO	.167*	.132	.212	-.098	.431
	IO	.300	.214	.166	-.129	.729
	OPrep	.467	.220	.038	.026	.907
	OComp	1.567*	.166	.000	1.234	1.899
OComp	SU	-1.433*	.138	.000	-1.710	-1.157
	DO	-1.400*	.129	.000	-1.659	-1.141
	IO	-1.267*	.181	.000	-1.630	-.904
	OPrep	-1.100*	.184	.000	-1.469	-.731
	6Gen	-1.567*	.166	.000	-1.899	-1.234

The paired comparisons of relative clauses types yielded that advanced learners' performance on SU relatives (*M*=1.83) was significantly higher than that of OPrep relatives (*M*=1.50) and OComp relatives (*M*=.40). Their performance on the DO relatives (*M*=1.80) was also significantly higher than that for OComp relatives (*M*=.40). Other significant differences were found between students' performance on OPrep (*M*=1.50) and Gen relatives (*M*=1.96), and between OPrep (*M*=1.50) and OComp relatives (*M*=.40). Finally, the paired comparisons revealed a significant difference between Gen type (*M*=1.96) and OComp relatives (*M*=.40).

Therefore, the results of paired comparisons demonstrated that the accessibility order of RCs used by advanced learners is as follows:

Gen= SU =DO= IO>OPrep>OComp

This hierarchy indicates that the advanced learners' ability to produce Gen, SU, DO and IO relative was too good to be differentiated statistically. It seems that ALs reach a stage at which they create these types equally well at the time of the experiment. Moreover, it can be noted that the genitive type of RCs appeared to be the easiest type for ALs to produce. This result goes in line with the findings of Gass (1979). The explanation she provided for this result is that the English relative pronoun*whose* isunique to the genitive. In addition, she suggested that its position in the sentence facilitates its relativisation because *whose* with its complement can be regarded as one unit. For example, in the sentence, *The girl whose doll was*

lost is sad, *whose doll* is interpreted as the direct object of lost. This might explain why the participants obtained high scores on genitive relatives.

In the same vein, Izumi (2003:318) proposed that "previous studies have found that the genitive RC is the only type of relative clauses whose acquisition does not conform to the NPAH." Wong (1991, cited in Alotaibi, 2016) also proposed that genitive type of RCs is more accessible to learners as opposed to other types on the NPAH hierarchy. Nevertheless, Shaheen (2013) claimed that Arab EFL learners are expected to have difficulty acquiring genitive relatives' structure since it is different from the structure they have in their L1. However, her assumption was not verified in the study reported here as the results showed that the participants master genitive relative clauses to some extent. This result might be attributed so the fact that the only relative pronoun that can be used with genitives is *whose,* so learners may find it easy to produce this type as there are no other ambiguous possibilities.

In sum, the results of the paired comparisons for each group illustrated that the differences of the means for both groups do not support the NPAH effects in the Jordanian students' acquisition of English relative clauses because the statistical differences between some of the relative clauses types were not significant. This result replicates Ozeki and Shirai's (2007) results in which they reported that the accuracy rates between subject relatives and direct object relatives did not differ significantly, i.e. SU= DO>OPrep.

With respect to the types of error found in the participants' answers, an examination of the incorrect answers highlighted an abundance of errors made by both groups. The most noticeable one was the use of a resumptive pronoun which was found in different positions on the NPAH. Examples from the participants' incorrect answers are provided below:

2. a *My boss, *who was very nice, __he__ lived in London*. (SU)

   b. *She bought the computer *which her brother recommended __it__ for her*. (DO)

   c. The boy *whom I sent a birthday card to __him__ was my best friend.* (IO)

   d. I won the prize *which they were talking about __it__.* (OPrep)

   e. The house *whose roof is very old __it__ belongs to me.* (Gen)

   f. *Mick *who Tom was faster than __him__ won the race.* (OComp)

The use of a resumptive pronoun might be ascribed to L1 transfer where the resumptive pronoun is used in the participants' L1 in all positions

except for the subject. However, a number of cases were detected where a resumptive pronoun was used in subject position as well (see example 2.a above). Alroudhan (2016) suggested that learners may employ the resumptive pronoun strategy in order to make a connection to resolve ambiguity by referring to the head noun, not because they have resumptive pronoun in their first language. This may explain the use of a resumptive pronoun in subject position by some participants.

Another type of error found in the participants' answers for indirect object relatives was passivisation. See the examples below:

3. a. The woman ***who was given*** a cat was the pet shop owner. (IO)

    b. The boy ***who was sent*** a birthday card is my best friend. (IO)

The examples above show some participants' preference towards subject relatives rather than object relatives. So, instead of using IO RCs: *The woman whom I gave a cat to was the pet shop owner,* or *The boy who I sent a birthday card to was my best friend*, they tended to passivize the object so that it becomes the SU of the clause. This result is congruent with Xu's (2014) findings which revealed that ChinesL2 learners opted to change the targeted DO, IO, and OPrep RC types into SU relatives, and no cases were reported where a targeted SU being changed into a different type. Participants could resort to passivization as an avoidance strategy, so they use a syntactic structure they master instead of taking a risk with something they may get wrong.

Examining the participants' incorrect answers on genitive relatives, the following answers were found in the intermediate learners' answers: *The house **which** roof is very old belongs to me*, *The house **that its'** roof is very old belongs to me, *The little girl **that** doll was lost is sad, *The little girl **that her** doll was lost is sad.* Such answers reveal that some intermediate learners face some difficulty with the genitive type of RCs, so instead of using the relative pronoun *whose* they used *that* either with a resumptive pronoun (as is the case in the participants' L1), or without it.

Some instances of the incorrect use of relative pronouns by intermediate learners were also found with other types of RCs, e.g. *They called a lawyer ***which*** lived nearby.*The baby ***which*** the woman carried was her nephew and *She bought a computer ***whom*** brother had recommended.* Such instances might indicate that some intermediate participants may not be fully aware of the animate versus inanimate aspect of relative pronouns.

An investigation of the participants' answers demonstrates that the object of comparison relatives were the most problematic type of RCs for the participants regardless of their proficiency. Instead of providing the answers: Mick *who Tom is faster than won the race, and* Mr.Jatt *who Mr. Watson is richer than was the owner of that company*, most participants tended to provide the antonym of the given adjective in order to produce a SU relative clause instead of an OComp one. Thus, they provided the following answers respectively:

4.   a. Mick *who won the race was **slower** than Tom.*
     b. Mr.Jatt*, who is **poorer** than Mr. Watson, was the owner of that company.*

The error analysis reveals that although the participants' performance in the subject and object relatives was not statistically significant in terms of accuracy rate, the comparative ease and structural preference of subject relatives was reflected in the direction of RC-type conversion.

In breif, the accessibility hierarchy for Jordanian EFL learners was not exactly the same as the NPAH. However, positive evidence was found for the implicative power of the NPAH in the participants' responses. First, a SU/DO> IO/OPrep pattern was observed in the learners' responses accuracy. This ranking is compatible with the NPAH order. In addition, the preference of SU over DO was confirmed by qualitative analysis of the learners' productions. Moreover, the results indicated that proficiency level had major effect on the participants' performance. However, the overall performance of the participants in this task was generally good.

In order to answer the third question of the study regarding the applicability of the NPAH to Jordanian EFL learners, the statistical analysis of individual participant's data demonstrated that out of 60 participants, only one participant performed exactly the same as the NPAH predicts. The performance of the other 59 was different from the hierarchy. See figure 1 below:
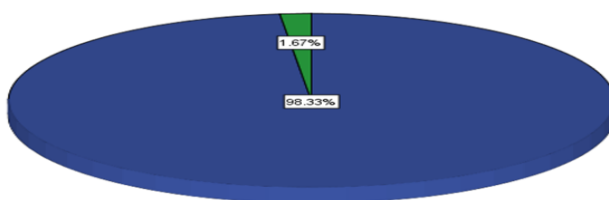
Figure 1.The applicability of theNPAH to students of English in Jordan

As illustrated by Figure 1, the NPAH cannot universally predict and explain the acquisition of relative clauses by every L2 learners. This result goes in line with some SLA studies that have not supported the NPAH (e.g. Yee 2005). Therefore, it seems that the implicational hypothesis of accessibility to relative clauses might not be universal.

7. Conclusion

The purpose of the current study was to investigate the acquisition of English relative clauses by Jordanian EFL learners. The study tested whether the Noun Phrase Accessibility Hierarchy (NPAH) for the acquisition of relative clauses (Keenan and Comrie, 1977) is applicable to Jordanian EFL learners. It also examined the acceptability hierarchy of relative clauses between by two proficiency groups. The findings revealed that the NPAH effect is not applicable to Jordanian EFL learners. Consequently, the study proposes that the implicational hypothesis of accessibility to relative clauses might not be universal

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