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**Is Implicational Generalisation Unidirectional and Applicable in Foreign Contexts?
Evidence from Relativization Instruction in a Foreign Language**

Ahlem Ammar

A Thesis
in
The TESL Centre

Presented in Partial fulfilment of the Requirements
for the Degree of Master of Arts at
Concordia University
Montreal, Quebec, Canada

July 1996

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Abstract

Is Implicational Generalisation Unidirectional and applicable in foreign contexts?

Evidence from Relativization Instruction in a Foreign Language

Ahlem Ammar

A growing body of Second Language acquisition studies has revealed that the acquisition of some grammatical structures can be accelerated when taught. Doughty (1991), Eckman, Bell and Nelson (1988), Hamilton (1994) and Gass (1982) showed that the acquisition of relative clauses is accelerated if learners are taught the most marked relativization types first. The present study targeted relativization and examined the Markedness Generalisation Hypothesis (MGH) that was generated from the studies mentioned above. The first research question addressed was: Do the students who get instructed on relative clauses perform better than those who do not get any of that instruction? Previous research about relative clause acquisition suggested that the generalisation accruing from the instructed marked relativization is "unidirectional", towards the less marked and implicated contexts only. However, many exceptional achievements were found. Some subjects showed some instances of generalisation to the unimplicated contexts. This motivated the second and third research questions which sought to find whether the generalisation is unidirectional or bidirectional. The final part of the present study dealt with the applicability of the MGH in the Tunisian context. In Tunisia, and in foreign contexts in general, learning English may be completely limited to classrooms. Students' access to English is very limited, and this restricts their repertoire and their chances to master the language. This may weaken the application of the MGH. Students may be unable to generalise to different contexts of relativization when only one marked relative clause type is taught. Accordingly the two final questions addressed were:

Does teaching many relative clause types as presented in Keenan and Comrie's (1977) Noun Phrase Accessibility Hierarchy result in better knowledge than teaching only one marked relative clause type? This was tested both immediately and two weeks after the end of the experimental treatment.

Three experimental groups and a control group were selected to compare the changes in the subjects' relativization ability and to answer the study's questions. Instruction consisted of three thirty-minute periods for each group. Results indicated that

- Subjects who received relative clause instruction outperformed those who were taught other grammatical structures.
- Generalisation was not unidirectional.
- Teaching many relative clause types gave the same results as teaching one marked relative clause both in the short and long terms.

Acknowledgements

I owe a debt of gratitude to a number of people who have helped me in various ways throughout the preparation of this dissertation. I would like to take this opportunity to thank each one.

First, to Professor Patsy Lightbown, Director of the Graduate Program and my Thesis Supervisor, thank you for giving me the chance to enter the MA program, for your confidence in my abilities and most importantly, for your uncanny ability to understand whatever I am going through and for all the help that you offered.

I would also like to thank Randall Halter, who sacrificed much of his time to run the required statistical analyses and to discover and explain the involved processes; Professor John Upshur who provided advice concerning the appropriate statistical tests that fit the study's goals; Members of the TESL Research Group meetings who provided constructive criticism and who contributed in refining the study's final design; Professor Joanna White for the quick reading and the insightful feedback; Laura Collins and all the friends and colleagues at the TESL Centre who contributed suggestions.

I am grateful to the "Mission Universitaire de la Tunisie" with its Director Mr. Montassar Ouaili who exempted me from paying the international fees and to Professor Elizabeth Gatbonton who gave me the opportunity to work as a research assistant and to FCAR grant through which a travel grant was provided.

Several members of the administrative staff at the Secondary School El Hedi Chaker were more than co-operative throughout the data collection portion of my research. To Miss Leila Malleh who encouraged her students to participate in the project and to Miss Nadia Abid who helped in the correction as well as the administration of the tests, thank you for your help and for your interest.

I owe a great debt to my parents who encouraged me throughout my whole academic life and who supported me in moments of weakness. My husband sacrificed much of his time and energy since my first day at Concordia. I am deeply grateful for his moral as well as material support, patience, confidence and love.

TABLE OF CONTENTS

LIST OF FIGURES	VIII
LIST OF TABLES	IX
CHAPTER 1: THE MARKEDNESS GENERALISATION HYPOTHESIS AND THE RESEARCH CONTEXT	1
1.0 INTRODUCTION	1
1.1 THE NOUN PHRASE ACCESSIBILITY HIERARCHY	4
1.2 THE MARKEDNESS GENERALISATION HYPOTHESIS AND RESEARCH TESTING ITS VALIDITY	6
1.3 THE RESEARCH CONTEXT	7
<i>1.3.1 The Tunisian Linguistic Environment.....</i>	<i>7</i>
<i>1.3.2 The Tunisian Educational System</i>	<i>9</i>
1.3.2.1 The Ecole de base	9
1.3.2.2 Secondary education.....	10
1.3.2.3 Higher education.....	10
<i>1.3.3 The Educational Objectives According to Law # 91-65 of July 1991.....</i>	<i>11</i>
<i>1.3.4 The Tunisian teaching method.....</i>	<i>12</i>
1.4 ARABIC RELATIVIZATION	13
<i>1.4.1 Position of the Relative Clause</i>	<i>13</i>
<i>1.4.2 Case</i>	<i>14</i>
<i>1.4.3 Pronoun Retention.....</i>	<i>14</i>
<i>1.4.4 Relative Marker Appearance</i>	<i>15</i>
<i>1.4.5 Relative Marker Morphology.....</i>	<i>16</i>
1.5 TUNISIAN LEARNERS	17
CHAPTER 2: LITERATURE REVIEW	22
2.0 INTRODUCTION	22
2.1 THE NPAH IN SECOND LANGUAGE ACQUISITION	22
2.2 RESEARCH TESTING THE MGH	27
2.3 HYPOTHESES OF THE PRESENT STUDY	45
CHAPTER 3: METHODOLOGY.....	47
3.0 INTRODUCTION	47

3.1 DATA COLLECTION	47
3.1.1 <i>Subject Selection</i>	47
3.1.2 <i>Subjects</i>	48
3.1.3 <i>Testing</i>	51
3.1.3.1 <i>Pre-test measure</i>	51
3.1.3.2 <i>Post-testing measure</i>	53
3.2 EXPERIMENTAL INSTRUCTION.....	55
3.2.1 <i>The In-class Instruction</i>	56
3.2.1.1 <i>Elicitation</i>	56
3.2.1.2 <i>Rule presentation</i>	57
3.2.1.3 <i>Practice</i>	66
3.2.2 <i>The Take-home Part</i>	67
3.2.2.1 <i>Rule presentation</i>	67
3.2.2.2 <i>Practice</i>	68
3.3 INSTRUCTIONAL PROCEDURE	69
3.3.1 <i>First Session</i>	69
3.3.2 <i>Second Session</i>	73
3.3.3 <i>Third Session</i>	79
3.3.4 <i>Distribution of the Instructional Sessions</i>	81
CHAPTER 4: DATA ANALYSIS AND RESULTS	84
4.0 INTRODUCTION	84
4.1 DATA SCORING PROCEDURES.....	84
4.1.1 <i>The Grammaticality Judgement Task</i>	84
4.1.2 <i>The Sentence Combination Task</i>	86
4.2 RELATIVIZATION KNOWLEDGE	89
4.2.1 <i>Pre-test Knowledge of Relativization</i>	89
4.2.2 <i>Change in Relativization Ability</i>	94
CHAPTER 5: DISCUSSION AND CONCLUSION	106
5.0 INTRODUCTION	106
5.1 PRE-TEST KNOWLEDGE OF RELATIVIZATION.....	107
5.2 INSTRUCTION EFFECTS.....	109
5.2.1 <i>Explicitness</i>	110
5.2.2 <i>Exposure</i>	111

<i>5.2.3 Subjects' performance on the pre-test</i>	114
<i>5.2.4 L1 and L2 influence</i>	116
5.3 GENERALISATION	117
5.4 CONCLUSION AND PEDAGOGICAL IMPLICATIONS	120
REFERENCES	124
APPENDICES	127

LIST OF FIGURES

Figure 3.1 : Division of subjects into groups	49
Figure 3.2 : Assignment of instructional treatment conditions.....	50
Figure 3.3 : Relative clauses' recombination procedure.....	58
Figure 3.4 : Recombination procedure using "while"	62
Figure 3.5 : Recombination procedure using "before" and "after"	64
Figure 3.6 : The first experimental session (the four groups)	72
Figure 3.7 : The second experimental session (DOG and OPG).....	75
Figure 3.8 : The second experimental session (ALLG and COG).....	78
Figure 3.9 : The experimental procedure.....	82

LIST OF TABLES

Table 1.1 : Case Marking in Arabic and English Relativization	14
Table 1.2 : Pronoun Retention in Arabic and English Relativization.....	15
Table 2.1 : Doughty (1988, 1991) Individual Subjects' NPAH Levels Acquired.	35
Table 2.2 : Hamilton (1991, 1994) Pre- and Post-Instructional Levels: Sentence Combining Task.....	41
Table 4.1 : ANOVA Comparing Groups' Pre-instructional Knowledge of Relativization	89
Table 4.2 : Pre-test Accuracy on SUB, DO, IO	90
Table 4.3 : Pre-test Accuracy on OPREP, GEN and OCOMP	91
Table 4.4 : Response Pattern on the Pre-test Relativization	92
Table 4.5 : Response Pattern on the Pre-test Distracters.....	93
Table 4.6 : ANCOVA Comparing Groups' Post-instructional Knowledge of Relativization	94
Table 4.7 : ANCOVA Comparing Groups' Post-instructional Knowledge of SUB and DO RCs.	95
Table 4.8 : ANCOVA Comparing Groups' Post-instructional Knowledge of IO and OPREP RCs.	95
Table 4.9 : ANCOVA Comparing Groups' Post-instructional Knowledge of GEN and OCOMP RCs.....	96
Table 4.10 : Implicational Scale for the First Post-test Knowledge of Relativization for DOG.....	98
Table 4.11 : Implicational Scale for the First Post-test Knowledge of Relativization for OPG	99

Table 4.12 : OPG and DOG Generalisation to the Implicated Relative Clauses in the Two Post-tests (Number of Students).....	100
Table 4.13 : Implicational Scale for the First Post-test Knowledge of Relativization for ALLG.....	101
Table 4.14 : Unimplicated relative Clause types acquired by the Three Experimental Groups on the first Post-test.....	102
Table 4.15 : ANCOVA Comparing the Three Experimental Groups on the First Post-test	103
Table 4.16 : ANCOVA Comparing OPG and ALLG on SUB Relative Clause Type.....	104
Table 4.17 : ANCOVA Comparing the Three Experimental Groups' Achievement on the Second Post-test	105

Chapter 1: The Markedness Generalisation Hypothesis and the Research Context

1.0 Introduction

Is explicit, language-focused instruction beneficial for the second language learner? There is now a substantial body of research that has investigated this question. This research is of three different kinds. One group of studies has sought to examine whether formal instruction affects the order or sequence of acquisition. A second group has studied whether or not formal instruction can affect the rate of second language learning. Finally, a third group has investigated the extent to which formal instruction effects are durable.

On the basis of the evidence provided by studies in these three different areas of research, developmental sequences were found to be impervious to instruction. Lightbown and Spada (1978) and Lightbown (1983) found that the effects on sequences seem to be temporary and possibly harmful. Formal instruction which provides exposure to a limited sample of the target language may delay a learner's inevitable passage through the normal sequences. Pienemann (1984, 1989) provided further evidence for the absence of formal instruction effects on acquisition sequence, concluding on the basis of his research that instruction can not make learners skip stages of acquisition. He introduced the "teachability hypothesis" which asserts that learners can benefit from formal instruction only when they are developmentally ready for it. Instruction that is not tuned to the learner's developmental stage can not make him/ her skip stages in the

developmental sequence. However, instruction for which a learner is developmentally ready can accelerate the passage through these stages.

In contrast to the findings that show the ineffectiveness of formal instruction in changing the sequence of acquisition, explicit instruction was found to be effective in the remaining three areas of research. Findings about the role of instruction in accelerating the rate of acquisition were particularly evident.

One set of studies (Doughty 1988; Eckman, Bell and Nelson 1988; and Gass 1982) has investigated the acceleration that may accrue from teaching marked relative clauses. The paradigmatic markedness set utilised by these key studies has been Keenan and Comrie's (1977) Noun Phrase Accessibility Hierarchy (NPAH). The common hypothesis of these studies is that instruction focused on a marked structure on the NPAH may generalise such that the learners acquire both that marked structure and all less-marked structures without instruction and direct input on them. These studies also hypothesised that this generalisation is unidirectional: to the less marked relativization types and not to the more marked.

Considerable support for the first hypothesis was provided by Doughty (1988), Eckman, Bell and Nelson (1988), Hamilton (1994) and Gass (1982). Learners who received instruction on the marked relative clause type learnt it and generalised to the relative clause types implicated by it. However, Doughty's 1991 and Hamilton's 1994 findings show that learners did not generalise to all implicated relativization types. When it comes to the second hypothesis which states that the generalisation is unidirectional, the researchers found that some learners generalised not only to the less marked relative clause types but also to the more marked types, which puts the issue of the directionality

of generalisation in question. The generalisation to the more marked relative clauses that was found in these studies was treated by the authors as either insignificant or exceptional.

One common feature in these studies is that they dealt with learners of English as a second language, and none tried to study the acquisition of English as a foreign language. This in a sense makes us ask some questions. Do the two main hypotheses introduced by the MGH apply to the second and foreign language contexts in the same way? Can foreign language learners who tend to have a limited access to and knowledge of English benefit from instruction targeting only one relativization context? Can they generalise to the less marked positions?

This study will, first, investigate the effects of instruction on relative clause acquisition. The problem of the directionality of generalisation, that is, if students may generalise towards more marked structures as well as to the less marked ones, will be the second area of investigation. This study was conducted in a context where English is taught as a foreign language and that is Tunisia.

In this chapter I will start by defining the theoretical as well as the physical contexts of this research. In the theoretical part, I will give the definitions of the Noun Phrase Accessibility Hierarchy and the Markedness Generalisation Hypothesis as they were explained in the key studies that tested them. In the second part, I will describe the Tunisian linguistic context as well as the educational objectives and system there. Finally, I will display the differences and similarities that exist between Arabic and English relativization to give an idea about the possible problems subjects in this study may encounter when learning English relative clauses.

1.1 The Noun Phrase Accessibility Hierarchy

After gathering data from 50 languages, Keenan and Comrie (1977) found that the syntactic positions which languages may relativize are not random but rather universal. The authors found that noun phrases in different positions (subject, indirect object, direct object, object of preposition, genitive and object of comparison) can be relativized according to a particular hierarchical ordering. The Noun Phrase Accessibility Hierarchy (NPAH) is the expression used for the typological relationship which obtains among the relativizable syntactic positions of noun phrases. According to the NPAH the order of relativization goes as follows:

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

SU > DO > IO > OO > GEN > OCOMP

with > meaning more accessible than.

Since English does not have the OO, but rather Object of Preposition (OPREP), the hierarchy becomes as follows:

SU > DO > IO > OPREP > GEN > OCOMP

This means that the SU relativization is more accessible than the DO, the DO is more accessible than the IO, the IO more accessible than the OPREP, the OPREP is more accessible than the GEN, and the GEN is more accessible than the OCOMP.

Gass (1982) provided the following examples to illustrate each relativization type.

SU The man who saw the cat...

DO	The man that the cat saw...	
IO	The man that I gave the book to...	
OPREP	The table that he is standing on...	
GEN	The man whose book I borrowed...	
OCOMP	The man that he is taller than...	(p. 130)

All these relativization types are implicationally related such that if a language allows relativization on a given position (e. g. OPREP), it also allows relativization on any position to the left of it (i.e. IO, DO, and SU). The hierarchy is essentially an implicational scale of markedness with the higher positions being the less marked (unmarked) and the lower positions the more marked (marked). It is also a representation of an intralingual order of psychological difficulty. Keenan (1975) asserts "there is a sense in which the subject end of the NPAH expresses the 'easiest' or most 'natural' positions to relativise" (p.138).

1.2 The Markedness Generalisation Hypothesis and Research Testing its Validity

The Noun Phrase Accessibility Hierarchy that was devised by Keenan and Comrie (1977) has been utilised in the key studies (Gass 1982, Eckman, Bell and Nelson 1988, and Doughty 1988) that tested the effect of relative clause instruction on subjects' ability to form relative clauses. These studies generated what Hamilton (1991) calls the Markedness Generalisation Hypothesis (MGH). Hamilton (1991) asserts:

The common hypothesis of these studies is that instruction focused solely on a relatively marked structure of a hierarchy like the NPAH may generalise such that the learners additionally acquire all less-marked structures without direct input of these less-marked structures. This generalisation is understood to occur unidirectionally to less marked members of the set, not to more marked members, and is made possible by the universal grammatical relations holding within the hierarchy. (p. 9-10)

As we can understand from Hamilton's (1991) definition, there are three crucial assumptions in the MGH. First, once instruction is provided on one relative clause type of the hierarchy developed by Keenan and Comrie (1977), acquisition of that relativization type and generalisation to the ones implicated by it take place. This generalisation is unidirectional in that no unimplicated and more marked relative clause types are acquired. Second, instruction on one relative clause type can lead to generalisation to more than one implicated level. In other words, generalisation does not necessarily proceed one level at a time. Multiple levels of the hierarchy can be simultaneously generalised. Third, the markedness generalisation is maximal to implicated structures. All levels implicated by the instructed level can be generalised and acquired.

Research testing the MGH mainly agreed on one major assumption. Gass (1982), Eckman, Bell and Nelson (1988), Doughty (1988), and Hamilton (1991) found that instruction focused on a relatively marked structure of the hierarchy does result in the acquisition of that structure and the generalisation to implicated contexts. However, all these studies found some contradictory results to the hypothesised unidirectionality of the MGH. In fact, all the studies found that some learners do generalise to the more marked and unimplicated relative clause types. Finally two of the above studies, Doughty (1988) and Hamilton (1991), provided results showing that the MGH is not maximal, that is, not all learners learned all the relative clause types implicated by the one on which they received instruction.

1.3 The Research Context

1.3.1 The Tunisian Linguistic Environment

The Tunisian linguistic environment is marked by the presence of several foreign languages. Many languages are currently used and taught in Tunisia. Among these are Arabic, French, English, Italian and German. Arabic is Tunisia's "national language" and language of instruction especially in primary education. As a result of the strong move towards "arabicization" during the 1980's, subjects like history, geography, natural sciences, civic education, and mathematics are taught in Arabic in the primary school.

French is Tunisia's second language. Tunisian students start learning it from the age of nine. The use of French as a medium of instruction becomes more apparent in secondary education. Subjects like mathematics and natural sciences that are taught in

Arabic during the primary years are taught in French in the secondary school. Apart from learning and using French in schools, the Tunisian population is exposed to French through the French national TV channel which broadcasts for nearly 12 hours a day. French newspapers and magazines are available in large cities all over the country. In addition, three Tunisian French-language newspapers are distributed everywhere in the country, and a Tunisian French-language radio station also broadcasts for about 14 hours a day. Apart from this considerable exposure, French is the language of the administration. All government administrative forms are provided in French.

English has the status of a foreign language in Tunisia. Exposure to English takes place only in the secondary school when students are 15 or 16 years old. This academic exposure lasts about three hours a week, and it is mainly teacher-fronted. For students in non-touristic regions that represent the majority of the school population, contact with English is almost exclusively limited to formal teaching. English newspapers are available only in large cities and in limited numbers. Only one Tunisian English-language newspaper started being published in 1992. Besides, a two-hour daily program in English has recently been introduced on radio.

Apart from Arabic, French and English, Tunisians are exposed to Italian through some national Italian TV channels. Moreover, Italian and German are taught as optional classes in the secondary school.

In sum, we can say that the Tunisian linguistic environment is rich for many different reasons. French was made Tunisia's second language because of the French colonisation. The country's openness to other countries, economies and especially

technology and science made Tunisia integrate some foreign languages like Italian and German and to a greater extent English.

1.3.2 The Tunisian Educational System

In Tunisia, a country of 8 million inhabitants, all children are required by law to attend school from the age of 6 till the age of 15. These 9 years cover the whole education given in the primary school or what is known as the Ecole de base. The Ecole de base and secondary education are under the supervision of the Ministry of Education. Higher education is supervised by the Ministry of Higher Education and Scientific Research.

1.3.2.1 The Ecole de base

The primary school is divided into two complementary levels. The first level lasts six years and has as its objective the acquisition of the fundamental mechanisms of oral and written expression, as well as reading and mathematics. It is mainly meant to teach the basics. The second level lasts three years and aims at reinforcing the skills acquired in the first level, as well as offering a general education that reinforces the students' intellectual abilities.

In the first level lessons are offered primarily in Arabic. In the first two years of the first level, all the lessons are provided in Arabic only. In the remaining four years, an average of 19.75 hours is presented in Arabic and 10 hours in French each week. In the second level, in addition to being used as medium of instruction in many subjects, both French and Arabic are taught as language courses for 5 hours each. The 9 years of primary schooling culminate in a national exam that permits students to obtain the Diplome de fin d'études de l'enseignement de base.

1.3.2.2 Secondary education

Upon completion of the Ecole de base and after succeeding on the exam, students may start their secondary education that consists of two cycles lasting two years each. The first cycle is common to all students. This common education leads to the orientation to a specialised branch (arts, experimental sciences, mathematics, economics, technical sciences, and management). This speciality is studied in the second cycle of the secondary school.

In the secondary school English is obligatorily taught three hours a week in the first cycle and between three and four hours in the second cycle, depending on the area of specialisation. English is not used as a means of instruction in other subjects. Arabic and French continue to be taught as subjects and used as means of instruction in other subjects. Secondary education ends with a national exam the Baccalauréat which is the equivalent of the CEGEP in Quebec.

1.3.2.3 Higher education

Upon completion of their secondary education, students may attend different university courses depending on their choices and their results in the Baccalauréat exam. Higher studies last at least 4 years. French, Arabic, and English are used as means of instruction depending on the students' fields of specialization. It is important to note that all courses in scientific fields like medicine, engineering, physics, mathematics, and natural sciences are given in French. However, documentation in these fields is often available only in English.

1.3.3 The Educational Objectives According to Law # 91-65 of July 1991

Among the many objectives that were stated in law # 91-65, the following are the ones that are concerned with the status of languages in the Tunisian secondary school educational system:

1. Mastery of Arabic: "donner aux élèves la maîtrise de la langue arabe, en tant que langue nationale, de façon qu'ils puissent en faire usage, dans l'apprentissage et la production, dans les divers champs de la connaissance: sciences humaines, sciences exactes et technologie" (the official journal of the Tunisian Republic 1992. p. 7).
2. Mastery of another foreign language: " faire en sorte que les élèves maîtrisent une langue étrangère au moins de façon à leur permettre d'accéder directement aux productions de la pensée universelle, technique, théories scientifiques, et valeurs humaines, et les préparer à en suivre l'évolution et à y contribuer d'une manière propre à réaliser l'enrichissement de la culture nationale et son interaction avec la culture humaine universelle" (the official journal of the Tunisian Republic 1992, p. 7).

The two foreign languages that are meant in the second statement are French and English. Mastery of Italian and German is excluded here because these two languages are optional. A student can choose not to take either of them. In contrast, French and English exist in the educational programs and all the secondary school students are expected to learn them. The two objectives stated in law # 91-65 show that a certain degree of mastery is the educational objective when it comes to languages whether mother tongue or foreign languages. Mastery of English and especially of its grammar becomes more evident from the goals stated in the official programs of English in Tunisia. " Les éléments phonologiques, lexicaux et grammaticaux nouveaux doivent faire constamment l'objet d'un

réemploi conduisant à l'expression spontanée et correcte." (The official programs in the secondary schools 1993, p. 5)

Moreover, when it comes to the linguistic goals, or the language skills, as these official programs call them, the goals become as follows: "correct use of personal pronouns (subject, object, possessive); correct use of singular and plural noun forms; correct use of adverbs of frequency; control of subject-verb agreement..." (The official programs in the secondary schools 1993, p. 10)

It is clear that knowing English grammar is one of the major goals in the Tunisian educational system. This knowledge must be achieved by all the students because six written tests in English are given in each year of secondary education and a very important part of each test covers what was taught in grammar. The students are also tested orally as much as possible to ensure that they have understood and acquired everything seen in all previous lessons including grammar.

1.3.4 The Tunisian teaching method

From the 1970's to the early 90's the teaching of English as a foreign language in Tunisia had been based on the audio-lingual method. To develop the "good habits", that are the main objective in any audio-lingual program, teachers insisted a lot on the study of the English grammar and the language system. This was achieved through the heavy reliance on dialogue memorization and the intensive drilling. The drilling consisted of mechanical manipulations of grammatical structures on the sentence level. Classes were teacher-fronted. Teachers very often initiated interactions through display questions to

check pupils' mastery of the language. Students' role was reduced to responding to these stimuli. Responses were very often evaluated on the basis of their grammatical accuracy. This approach of teaching English in Tunisia was influenced in the late 80's and early 90's by the communicative approach principles that were adopted in different parts of the world. Hence, a new "eclectic and essentially a communicative approach", as the Tunisian official programs call it, was adopted in 1993. To reflect the communicative orientation of the new teaching programs, new textbooks were developed. With these changes teachers' role, as the only source of information, was reduced and students' role increased. Students were more and more encouraged to communicate with their peers. Group and pair work activities were adopted to achieve this goal. Teachers' emphasis on grammar decreased even though mastery of it has remained one of the main educational objectives.

1.4 Arabic Relativization

Keenan & Comrie (1977,1979), Ioup & Kruse (1984), and Schachter (1974) compared the strategies for forming relative clauses in Arabic and English. Based on their comparisons those authors predicted the problems that Arabic speakers may encounter when learning English relative clauses.

1.4.1 Position of the Relative Clause

A post nominal strategy is used by both Arabic and English. That is, the restricting clause appears to the right of the head noun from which it is separated by the relative pronoun. This similarity suggests that Arab learners of English relativization will not have problems because of a difference in the position of relative clauses.

1.4.2 Case

When studying case, researchers were concerned with the presence or absence of a morpheme (preposition, or some sort of pronoun) which unequivocally expresses which NP position is relativized. For example in English, there is [- case] strategy when the relativized NP is SUBor DO, and a [+ case] when the relativized NP is IO because the function of the relativized NP will be signalled by a [stranded] preposition. Table 1.1 illustrates the differences between Arabic and English in relative clause case marking.

Table 1.1

Case Marking in Arabic and English Relativization

Case marking	SU	DO	IO	OPREP	GE	OC
Arabic (classical)						
1. postnom, - case	+	-	-	-	-	-
2. postnom, + case	-	+	+	+	+	+
English						
1. postnom, - case	+	+	-	-	-	-
2. postnom, + case	-	-	+	+	+	+

Note. Adapted from Keenan and Comrie (1977) p. 76.

1.4.3 Pronoun Retention

Unlike English, Arabic retains pronouns in all relative clause types except for the SU. Pronouns are obligatorily retained in DO, IO, OPREP, GE, and OCOMP Arabic relative clause types. Examples [1] and [2] illustrate the non-retention in SUBrelative clauses and the obligatory retention in DO relativization.

[1] Al- rajul ya'rifu al-fatatu allati tanamu fi al-tariki.

The man knows the girl that sleeps in the street.

The man knows the girl who sleeps in the street.

[2] Al- walad ya'rifu al- rajula allathi dharabat-hu al- sayaratu.

The boy knows the man that hit him the car.

The boy knows the man whom the car hit.

the pattern of pronoun retention in relative clauses is displayed in Table 1.2.

Table 1.2

Pronoun Retention in Arabic and English Relativization

Language	SU	DO	IO	OPREP	GE	OC
Arabic	-	+	+	+	+	+
English	-	-	-	-	-	-

Note. Adapted from Keenan and Comrie (1977) p. 93.

1.4.4 Relative Marker Appearance

Arabic, like English, permits the deletion of the relative pronoun. However, the rule for deletion in Arabic is quite different from the English rule. In Arabic, the relative pronoun must be used when the antecedent (head noun) is definite, but is obligatorily omitted with indefinite antecedents. In English, relative pronoun deletion is optional.

1.4.5 Relative Marker Morphology

Arabic and English use relative pronouns quite differently. The relative pronouns (who, which, that) make a distinction in Arabic according to gender. However, no distinction is made between human and non-human relativized noun phrases. "Allathi" is used to refer to masculine relativized NP and "allati" refers to feminine relativized NP. However, "allati" and "allathi" apply to both human and non-human noun phrases. Examples [1] and [2] illustrate the use of "allathi" with masculine human and non-human noun phrases, and examples [3] and [4] illustrate the use of "allati" with human and non-human feminine noun phrases.

[1] A'rifu al-walada allathi wasafta-hu.

I know the boy that you described him.

I know the boy who(m) you described.

[2] Ra'ytu al-kalba allathi wasafta-hu.

I saw the dog that you described it.

I saw the dog which you described.

[3] A'rifu al-fata allati wasafta-ha

I know the girl that you described her.

I know the girl who(m) you described.

[4] Ra'ytu al-kittata allati wasafta-ha

I saw the cat that you described it.

I saw the cat that you described.

Having only one relative pronoun that refers to both human and non-human head nouns creates confusion for Arabic learners in the use of "who" and "which". This confusion may get worse once the students think of drawing the parallel between English and the Tunisian dialect. In fact, the relative pronoun used in the latter does not make any distinction between human and non-human or masculine and feminine noun phrases. "Illi" applies to all head nouns being human or non-human, masculine or feminine.

1.5 Tunisian Learners.

As speakers of Arabic, Tunisian learners are expected to have problems with four strategies in a roughly ascending order of difficulty: 1. case, 2. relative pronoun appearance, 3. relative pronoun marker, and 4. pronoun retention.

Relative pronoun appearance and relative pronoun marker are predicted to be easier than pronoun retention for one major reason. It is true that English and Arabic rules for deleting relative pronouns are different. Nevertheless students are always left with one possible alternative. They can always include the relative pronoun and the resulting sentence is grammatically correct. The same thing applies to the pronoun marker. Even though Arabic does not make a difference between human and non-human relativized noun phrases, this does not seem to cause a big problem. Since only restrictive relative clauses are taught in this study, students can always use the relative pronoun "that" which works for all the relativized noun phrases. This not only solves the problem of human and non-human head nouns but it also provides the perfect equivalent for the unique relative pronoun "illi" used in the Tunisian dialect.

Case can be considered as the least problematic area because the difference between Arabic and English relativization in this respect is minimal. In fact, Arabic and English are different in only one relative clause type (DO). As shown in Table 1.1, Arabic uses a certain morpheme which expresses that the relativized NP position functions as a direct object. In contrast, English does not mark DO relativization. No morpheme indicates that the relativized NP position is a direct object. Apart from this difference, case marking in English and Arabic is identical (See Table 1.1). So, learners have to overcome the problem of case marking in only one relative clause type, which may be easier than dealing with the problems of relative pronoun appearance and relative pronoun marker that apply to all relative clause types. This leaves pronoun retention as the most difficult obstacle to overcome in learning English relative clauses. The students may be constantly tempted to retain the pronouns.

Apart from these points of difficulty that were predicted by the contrastive analysis studies that were made between Arabic and English, Tunisian learners of English relativization may encounter some other problems because of French. As noted above, Tunisian students start learning French from the age of nine and, by the time they start learning English (15 years old), they are expected to have a certain ease with French, especially its grammar. This may influence the process of learning and deciding which strategies to use. This was the case with Schachter, Tyson and Duffley's subjects (1976). These researchers elicited grammaticality judgements on sentences containing relative clauses from a group of 100 high-intermediate and advanced students of ESL. The latter were from 5 different language backgrounds: Arabic, Chinese, Japanese, Persian and Spanish. For each language background the authors isolated a type of relative clause malformation that is typically produced by speakers of that language background and that speakers of other language backgrounds do not produce. For each relative clause

structure, the authors included sentences with native English relative clauses, sentences with the group's own non-native relative clauses and sentences with other non-native relative clauses. Schachter, Tyson and Diffley hypothesised that (1) learners would identify sentences with native relative clauses as grammatical; (2) learners would identify sentences with their own non-native relative clauses as grammatical; (3) learners would identify sentences with other language background non-native relative clauses as ungrammatical.

Schachter, Tyson and Diffley (1976) found that the Arabic group did not differentiate between Arabic-specific and other non-native relative clauses. The authors attributed that to some of the learners' linguistic background. In fact, four Arabic students were Algerians who considered themselves bilingual in Arabic and French. It was these Algerian students who identified the Arabic-specific relative clauses as ungrammatical. The non-Algerian Arabic students identified them as grammatical, which supported the authors' second hypothesis. This suggests that for the Algerian group, the students' knowledge of French influenced their judgement of relative clauses.

Swan and Smith (1987) explained that French learners of English relative clauses have problems with the use of relative pronouns. In fact, in French there is one subject relative pronoun (qui, which as an interrogative pronoun means who); and one object relative pronoun (que, which as an interrogative pronoun means what). This can lead to some confusion and, consequently, some problems in using relative pronouns in English. Students may produce sentences like:

*The book who made the biggest impression on me....

*The man what I saw yesterday.....

(Smith and Swan 1987. p. 54)

Added to the problem Arabic speakers may have with relative pronoun morphology because of the different rules in Arabic and English, the influence of French may cause some additional problems.

Another problem that Tunisian learners or Arabic speakers in general may encounter was not predicted by the contrastive studies mentioned above. If we go through the NPAH and compare each English relative clause type with its equivalent in Arabic we will find that, apart from pronoun retention, Arabic and English relativization systems do not differ except with the GEN. What is exceptional with GEN relativization is that Arabic does not have an equivalent for the relative pronoun "whose". Examples [1] to [6] illustrate the similarities and differences between Arabic and English relative clauses.

[1] Al-rajulu allathi rassama hadhihi al-sourata meta.

The man that drew this picture died.

The man who drew this picture died.

[2] A'rifu al-fatata allati wassafta-ha.

I know the girl that you described her.

I know the girl who(m) you described.

[3] Al-mala'bu allathi dhahabtu ilai-hi al-sanata al-faritata huddima.

The stadium that I went to it last year was destroyed.

The stadium that I went to last year was destroyed.

[4] Ra'ytu al-tifla allthi tabhathu a'n-hu.

I saw the boy that you are looking for him.

I saw the boy who(m) you're looking for.

[5] Al-fatatu allati abu-ha meta najahat.

The girl that her father died succeeded.

The girl whose father died succeeded.

[6] Al-rajulu allathi ana atwalu min-hu yala'bu tae-kwon-do.

The man that I'm taller than him plays tae-kwon-do.

The man who(m) I am taller than plays tae-kwon-do.

As shown in example [5], Arabic expresses the idea of possession in the GEN by a personal pronoun that comes along with the normal relative pronoun "allathi" or "allati". The equivalent for the single word "Whose" does not exist in Arabic and students are unlikely to infer it if their teachers do not explain its use

Chapter 2: Literature Review

2.0 Introduction

The major aim of this research was to investigate the NPAH and the MGH generated from it. As a basis to this study's hypotheses and design, this chapter reviews the literature about the two major issues of this research. The first part mainly presents the work about the NPAH that was established by Keenan and Comrie (1977). The second part deals with the studies that tested the MGH. Three major issues will be focused on in this second part. First, this chapter will present all the findings about the generalisation that results from the instruction focused on the marked relative clause types. Second, results concerning the directionality of that generalisation will be discussed. Third, the maximality of that generalisation will be reported on. Based on the findings about these three issues, the hypotheses of the present study will be formulated and presented at the end of this chapter.

2.1 The NPAH in Second Language Acquisition

Keenan and Comrie (1977) studied the formation of relative clauses in 50 native languages to build their Noun Phrase Accessibility Hierarchy. Gass (1979) tested the existence and the validity of that NPAH by studying the acquisition of relative clauses in a second language (English in this case). Gass gathered data from 17 high-intermediate and advanced adult learners whose native languages were Arabic, Chinese, French, Italian, Korean, Persian, Portuguese, Japanese, and Thai. These subjects were administered two elicitation tasks, a grammaticality judgement task and a sentence combination task, six times over a four month period.

As Keenan and Comrie had found in their analysis of mature languages, Gass found that the less marked relative clauses were the more accessible positions. That is, Gass found that clauses in the more accessible positions were produced with greater accuracy than the less accessible ones (i.e. they were accessed with fewer errors) with the GEN as an exception. As an explanation of this anomaly, Gass suggests that the fact that the GEN has one invariant relative pronoun, which is uniquely coded for case/grammatical relation, makes *whose* the most salient of the English relative clause markers. Gass further suggests that the syntactic features of the GEN in English increase its saliency to the L2 learners. She asserts that the subjects in her study may have interpreted "whose" plus the following noun phrase as a unit. This unit may have been treated as a subject or direct object of the verb.

Pavesi (1986) lent further support to the validity of the NPAH. She gathered data from 86 subjects, representing different second language acquisition backgrounds. The first was a formal group (n = 48) composed of Italian high school students, and the second was an informal group (n = 38) composed of Italian workers in Edinburgh who had had only minimal formal instruction in English or none at all. The relative clauses were elicited orally, using pictorial material Hyldenstam (1984) had devised. The material consisted of six sets of eight pictures, one set for each NP position on the hierarchy. To elicit the different relative clauses, learners were asked to identify a given numbered character. Pavesi's findings support the hypothesis that second language acquisition progresses from unmarked to marked positions both in terms of the order in which the relativization types are mastered and in terms of the different strategies employed by learners who had not mastered the linguistic form. While the informal learners used the noun retention strategy e.g., "Number four is the woman who the cat is looking at the woman", the formal group appeared to make frequent use of the strategy of pronoun

retention e.g., "The man that I saw him was walking very fast". And as far as the order of acquisition is concerned, it was found that all subjects followed the same order regardless of whether they were formal or informal learners.

The only finding in Pavesi's study that runs counter to Keenan and Comrie's (1977) results, is that the Italian subjects inverted the order of two pairs, which are IO and OPREP, on the one hand, and GEN and OCOMP, on the other. Pavesi attributes this to features of English syntax. For the first inverted pair, Pavesi claims that indirect objects do not have a clear typological status in terms of relative clause formation in that they tend to behave as either direct objects or objects of prepositions. She suggests that this may be at the origin of the merging of the two positions. In fact, English indirect objects share some syntactic and semantic features with directional locatives and are sometimes indistinguishable from other objects of preposition. This results, according to Pavesi, in the treatment of indirect objects as simple objects of preposition. For the second pair, GEN and OCOMP, Pavesi attributes the merging to stranding. She explains that the comparative conjunction "than" behaves very similarly to a stranded preposition. Besides, the author noticed that the elicitation of OCOMP in her study mirrored that of IO and OPREP. The experimenter always prompted the learner in a way that made him/her place "than" at the end of the relative. This way of prompting presented the three functions, IO, OP, and OCOMP, as having a common denominator. Pavesi (1986) explains:

Consequently, G[EN] relative construction- in which the role of the head noun in the relative clause is case marked by the relative pronoun rather than by a preposition- will be put aside and will assume, at times at least, the lowest position on the acquisitional hierarchy. (p. 50)

Nevertheless, even with these explanations, the inversions that took place remain contradictory to the Noun Phrase Accessibility Hierarchy that was established by Keenan and Comrie (1977), and this difference in findings may be significant, especially in light of Hyltenstam's (1984) study.

Hyltenstam (1984) investigated the pronominal retention strategy in the acquisition of Swedish relative clauses by speakers of Spanish, Greek, Persian, and Finnish. Hyltenstam aimed at studying the extent to which "development and learning problems (pronoun retention in this case) in a particular L1/ L2 setting [could] be predicted on the basis of a typological notion of markedness" (p. 44). He found that pronominal copies were used by all language groups (regardless of whether or not their first languages make use of this strategy) in their production of Swedish relative clauses. More importantly, the study showed that the pronominal copies were deleted in the order predicted by the Noun Phrase Accessibility Hierarchy, although the ordering was not perfect.

As in Pavesi's study, two pairs of relativization types, the GEN and OCOMP on the one hand and IO and OPREP on the other, got inverted. The second inversion was claimed by Hyltenstam as insignificant in that only the Spanish group did this. The author attributed that to the lexical content that was required in the elicitation task. However, Hyltenstam acknowledges that the first inversion (GEN, and OCOMP) was more interesting because it appeared in three of the four groups.

The deviation from the typological hierarchy may, Hyltenstam asserts, have to do with the languages dealt with. For instance, in Swedish, GEN necessitates the use of a different relativization formation strategy when compared with all other functions. The relative pronoun *vars* must be used instead of the relative particle *som*. This explanation seems logical because Hyltenstam reported that the great majority of the subjects used the

relative particle *som* in clauses where the GEN position was relativized and added a pronoun to carry the genitive case marker. It is noteworthy that the same rules of relative clause formation exist in English. To form the GEN, a learner has to use a relative pronoun, *whose*, that is different from the relative pronouns used with the other relative clause types.

The unique form of the relative pronoun for GEN, with other syntactic factors, may have made children aged between 10-12 invert the OCOMP and GEN pair when learning English relativization in Hawkins and Keenan's (1974) study. Keenan and Comrie (1977) report a study in which children were given repetition tests involving relative clauses on all the positions on the Accessibility Hierarchy. Subjects recalled SUB relative clauses with fewer errors than DO ones, that were in turn better than the IO relative clauses, which were better than those formed on either OPREP or OCOMP relative clauses, which were better than those formed on GEN relativization. Keenan and Comrie (1977) attributed this change in the order of accessibility in the Hawkins and Keenan (1974) study to stranding. They assert: "Apparently stranding the comparative particle, e. g., *the boy who Johnny is taller than*, was interpreted as being similar to preposition stranding." (p. 90)

2.2 Research Testing the MGH

Gass (1982) posed the following question: "would it be possible to provide instruction only on a low position with the learner easily able to make generalisations to the higher positions?" (p. 130). To test this, Gass (1982) divided 18 low-intermediate ESL students enrolled in an intensive English language program into one experimental group (n=13) and one control group (n=5). The subjects' native languages were: Arabic, Italian, Russian, and Spanish. Gass pre- and post-tested each group using a sentence combination task and a grammaticality judgement task to measure learners' ability on each relativization type. The experimental group was then taught the OPREP relativization type. The control group was taught relative clauses following the order of presentation in Krohn (1977) with the first relative clause types taught being subject and objects both direct and indirect. GEN was also introduced after these relative clause types, and with less emphasis. Gass did not give details about the way these structures were presented to the control group.

Two days after the instructional intervention which consisted of three days of explaining and practising relative clauses, both groups were post-tested. A comparison between the pre-test and the post-test scores (on both the grammaticality judgement task and the sentence combining task) showed that some learners in the experimental group were not limited to the OPREP relativization, and that they rather generalised to the other higher position-relative clauses (the less marked) which were not taught. A look at individual scores shows that 11 of the 13 experimental subjects showed knowledge of all the relative clause types higher than (implicated by) OPREP. In the control group, subjects' learning was limited to what had been dealt with in class.

However, the results of Gass's study can not be treated as complete support for the MGH. Some of the learners who were taught OPREP relativization generalised not only to higher positions but also to lower ones (OCOMP) on the hierarchy, a fact that runs counter to the MGH which predicted that generalisations would be made to the implicated and not to the unimplicated relativization types. Gass explained the generalisations made to the OCOMP by asserting that " it appears that the comparative 'than' may have been treated in a like manner to prepositions. It may be that the learners had not yet learned to differentiate syntactically between the comparative marker and prepositions" (1982, P. 137). This may mean that stranding was once again at the origin of this exceptional finding. Stranding the comparative article "than" may have been interpreted as similar to stranding prepositions in the IO and OPREP relative clause types. However, when it comes to the eight students who generalised to the unimplicated GEN by using 'who his' instead of 'whose', Gass acknowledges that these students may have generalised to the GEN, and that these errors of relative marker morphology are likely due to the fact that "the genitive marker 'whose' can not be intuited" (1982, P.138). These two exceptions leave the question of unidirectionality open for later research.

Eckman, Bell and Nelson (1988) replicated Gass's study with some changes in the number of groups and relativization types as well as the research questions addressed. As far as the latter are concerned, Eckman, Bell and Nelson (1988) wanted to investigate two main things: first, whether students across language backgrounds were able to generalise language learning from one structure to another, and further, whether such generalisation followed a predictable pattern; second, whether students who were taught how to form relative clauses where only the subject is relativised would be able to generalise this learning to structures where an object (more marked) or an object of preposition (the most marked position that they studied) was relativised. Following the same logic Eckman

et al. wanted to investigate whether a student who was taught how to form relative clauses where only an object of a preposition was relativised would be able to generalise this knowledge to relative clauses involving direct objects and subjects.

Like Gass (1982), Eckman, Bell and Nelson (1988) chose low-intermediate and intermediate ESL students enrolled in an English as a Second Language Intensive Program. Their study differed in the number of groups and relativization types taught. Eckman et al. grouped their 36 subjects in three experimental groups and one control group. Each experimental group was taught one relativization type (one was taught SU, the other DO, and the third OPREP), and the control group was taught techniques of combining sentences that were not related to relative clauses. The 36 subjects received instruction with different focuses depending on the group they belonged to. This instruction lasted one hour for each group, and consisted of a) a form-focused demonstration of sentence combining, b) oral exercises, and c) written exercises.

These subjects were pre-tested an unspecified amount of time before the beginning of the instruction, and post-tested two days after the end of the instruction using a sentence combination task. The test comprised only relative clauses at the SUB, DO, and OPREP levels, the same levels instructed in the three experimental groups. Eckman, Bell, and Nelson (1988) found that all the subjects not only learned the relativization type they were taught, but also the implicated types. For instance, OPREP students not only learned this type, they also generalised this learning to object and subject structures. This finding supports the hypothesis that the structure from which one will obtain maximal generalisation is the relatively more marked structure rather than the less marked. This made Eckman, Bell and Nelson conclude that: "maximal generalisation of learning will result from the acquisition of relatively more marked structures. Such generalisation will

be unidirectional, and will be in the direction of those structures which are relatively less marked." (1988, p.12)

However, two more findings need to be mentioned. Eckman, Bell and Nelson found that all groups did best on the structure on which they were trained. Furthermore, the SU instructed group did improve on the unimplicated DO level from 36 total errors on the pre-test to 25 on the post-test. Nevertheless, the DO group did not generalise to the unimplicated relativization types. The generalisation to the unimplicated DO indicates that the subjects' misinterpretation or confusion is not the only possible cause of this exception (generalising to the unimplicated level) that keeps happening. In fact, when some subjects in Gass's study generalised to the OCOMP when OP was instructed, Gass claimed that her subjects misinterpreted OCOMP relatives as a type of OPREP. This interpretation may be covering the exceptional cases in Gass's study, and may seem logical, but in Eckman, Bell and Nelson's (1988) confusion can not be at the origin of the generalisation that occurred to the DO. Indeed, there is no similarity or any syntactic common denominator that may confuse the subjects and make them generalise to DO when the SUB was instructed. This finding suggests that there is another cause that makes some students generalise to the unimplicated relativization types. This in turn adds to our questions about the directionality of generalisation.

Zobl (1985) conducted a study using English possessive pronouns instead of relative clauses to investigate the 'projection' principle, which appeared to be similar to the 'generalisation' principle proposed by the above researchers working on relative clauses. Zobl asserts: "A projection model of acquisition claims that, in acquiring knowledge about target attributes w, x, y, present in a set of input data, a learner also comes to have knowledge about one or several attributes that were not part of the input data set" (P.

330). Zobl (1985) reports on three experiments, the first of which confirmed the existence of two implicational scales for L2 English acquisition by francophone learners. Indeed, based on data gathered from 162 French-speaking learners of English, Zobl found that "any learner who exhibits categorical control of the rule governing gender marking with possessed kinship entities (e.g. his mother, her father) will also have categorical control of the rule with possessed inanimate entities (e.g. her hand, his car, her doll). The converse relation does not obtain" (1985, P. 331). This as we see parallels the MGH. The second implicational scale Zobl proposed is between the possessive determiners *his* and *her*. He argues that the possessive pronoun *her* is "more difficult" (p. 332) than the masculine possessive pronoun *his*. He suggests that *her* is more marked and that use of *her* implies *his*.

In the second and third experiments (1982 and 1983: E2 and E3, with E3 as a replication of E2), Zobl randomly assigned some low-level adult French-speaking ESL learners to two groups: 1) a human data group in which *his* and *her* marking possession of kinship entities (e. g. , his mother, her father) were presented, and 2) a non-human data group where *his* and *her* marking possession of non-human entities, including inanimate entities and body parts, (e. g. , his car, her hand) were presented. These subjects were put in what Zobl calls an "intensive exposure session", containing less explicit attention to form than the instruction in the relative clause studies. This "intensive exposure session" lasted nearly 15 minutes in each case, and the experimental intervention as a whole lasted 60 to 65 minutes. During this instruction period, the experimenter posed oral questions to the subjects about a set of eight pictures. The questions were controlled such that they elicited answers that would include reference to the type of possessed entities targeted in each group (either human or non-human). The researcher did not provide any overt

instruction or explanation. The only thing that was supplied was correction when the subjects gave incorrect answers.

Zobl administered a pre-test immediately prior to and a post-test immediately after the exposure session. In each test, the investigator used a set of 15 pictures about which he posed 20 oral questions designed to elicit responses containing *his* and *her* with human and non-human entities. The questions were similar to the ones posed in the exposure session, except that the subjects were required to write down their answers, and were exposed to no corrected answers. Thus, the only difference between the exposure session and the testing session was that the answers were orally presented and corrected in the former.

In these studies Zobl wanted to test the following two hypotheses:

1. Since control of the rule with human entities entails control of the rule with non-human entities, any knowledge benefits accruing from exposure to input data from the human domain should project to the non experienced, non-human domain.
2. Since control of the rule with non-human entities does not entail control of the rule with human entities, any knowledge benefits accruing from exposure to input data from the non-human domain should not project to the non experienced, human domain. (pp 334, 335)

Zobl found that E2 supported both hypotheses fully. The human data group surpassed the non-human group in both the domain in which they received input as well as in the domain for which they received no input (non-human domain). So, knowledge benefits resulting from exposure to the more marked domain were projected to the unmarked domain in which no input was given. The non-human group made negligible

gains in the domain in which they received input, and none in the non-experienced domain. E3 supports the first hypothesis in that the human data group outperformed the non-human group in the unmarked domain. However, unlike the subjects in E2, the non-human group in E3 showed some striking gains in the human domain, which leaves the results for the second hypothesis inconclusive.

Doughty (1988) tested the hypothesis that instruction targeting marked relative clauses will generalise to unmarked contexts of relativization. Doughty differed from Gass (1982) and Eckman et al. (1988) in that she limited her study to restrictive clauses and in particular OPREP relativization. In addition, her study was broader than the previous ones, addressing the NPAH and the MGH as well as other issues, notably the question of whether meaning-oriented or rule-oriented instruction was more effective. Doughty studied 20 adult ESL learners of various L1s in 300- and 400-level classes of an English program for foreign university students. These subjects were randomly assigned to two experimental groups, one receiving rule-oriented instruction on OPREP relativization and the other receiving meaning-oriented instruction on the same relativization type. A control group was exposed to the same text material as the other groups, but without assistance in either comprehension (meaning) or grammar (rules). Consequently, the difference between the two experimental groups and the control group was not the presence of relative clauses in the material given to the former and their absence in the latter, but rather instruction (meaning-oriented or rule-oriented) versus simple exposure to the same text material.

Doughty (1988) achieved a high control on the amount of time allotted to each group as well as on the amount of instruction and explanation given to each group by administering the instruction via a time controlled computer program. The instructional

approach followed in the three groups was a comprehension based one. The instruction, which consisted of ten lessons over ten days, was incorporated within lessons designed to build reading comprehension skills.

Each lesson consisted of a) skimming a reading passage containing OPREP relative clauses, b) reading it for understanding, c) scanning it to answer some comprehension questions, d) writing a summary. The instructional manipulation that distinguished the three groups occurred in the second section (reading for understanding). The two experimental groups were assisted in comprehension in this section, either by being given lexical or semantic rephrasing for the meaning oriented group, or by being given grammatical instruction on relativization for the rule-oriented group. The control group was simply given more time to read.

The pre-testing and post-testing measures included a written part and an oral one. A grammaticality judgement task devised by Doughty was administered one and a half weeks prior to the instructional period. The remaining sections, a sentence-combining section adapted from Gass (1982), a sentence combining task borrowed from Ioup (1983), a grammaticality judgement task adapted from Gass (1982), and a verbal picture elicitation task adapted from Hyltenstam (1984), were administered three days before the instruction began. The post-testing was administered in the same way, except that the three written tests were administered on the same day following the last instructional lesson, while the oral picture elicitation task was administered one to two days later.

For the purposes of this study, only results about the MGH will be discussed. Using a 70% acquisition criterion, Doughty found results that were similar to the previous

research findings (Gass 1982; Eckman , Bell and Nelson 1988). The scores for individual learners are presented in Table 2.1.

Table 2.1

Doughty (1988, 1991) Individual Subjects' NPAH Levels Acquired.

Learner	Subject	Direct object	Object of preposition	Obj. of comp.
11	0	0	0	0
12	+	0	0	0
14	+	0	0	0
16	+	0	0	0
1	+	+	0	0
19	+	+	+	0
4	X	0	0	0
13	X	0	0	0
15	X	+	0	0
10	X	+	X	0
6	X	+	+	0
2	X	+	+	0
7	X	+	+	+
20	X	+	+	+
5	X	+	+	+
21	X	+	+	+
17	X	X	+	+
8	X	X	X	+
9	X	X	X	+

Note. Adapted by Hamilton (1994) from Doughty, 1991, pp. 451-452. 456-457.

X= acquired on pre-test; += newly acquired on post-test; 0= never acquired. 70% acquisition criterion.

Like Gass (1982) and Eckman, Bell and Nelson (1988), Doughty (1988) found that instruction focused on the OPREP relative clause type did generalise significantly to

uninstructed, but implicated, levels of the Noun Phrase Accessibility Hierarchy. In addition, however, seven subjects generalised to the unimplicated OCOMP relativization. Doughty (1988) pointed out that the mother tongues of the subjects who generalised to the unimplicated OCOMP disallow the object of comparison relativization. This rules out the possibility of transfer, and consequently, implies that these seven subjects did really project what they learnt from OPREP instruction to the OCOMP. Furthermore, the number of students who generalised to the most marked relativization type is comparable to the number of subjects who either acquired the instructed relativization type (8 for the OPREP) or generalised to the implicated and less marked relativization types (10 for the DO, and 5 for the SU). Doughty (1988) commented on this generalisation to the most marked relative clause type by saying:

At this point in the research, only one conclusion is clear-cut: instruction incorporating unmarked data generalises only to unmarked contexts, whereas instruction incorporating marked data potentially generalises not only to that marked context, but to other contexts as well. How and why this happens are important topics for future research. (p. 52)

Doughty's statement makes us wonder about many things. First, Doughty is speaking about the difference in the benefits accruing from instruction at unmarked levels on the one hand and marked levels on the other. Where does Doughty put the limit between marked and unmarked, especially since her study did not include a group getting instruction on unmarked levels? Are we speaking about SU relativization once unmarked levels are concerned or does this include the DO relativization? Second, Doughty acknowledges that instruction on marked relative clause types generalises to other contexts. Are we speaking here about the less marked and implicated contexts as the

MGH implies, or is Doughty including the more marked contexts to explain some students' generalisation to the OCOMP relative clause type?

Besides these two findings about the generalisation to implicated as well as unimplicated relative clause types that are common among all the studies, Doughty (1991) found some more unexpected results. The accuracy scores for certain relative clause positions did not always follow the NPAH. For instance, the pre-test score on the GEN relativization was high. A mean of two students in each group reached the 70% criterion for acquisition. According to Doughty, this was the main cause for the lack of conformity with Keenan and Comrie's (1977) NPAH. Doughty asserts that the fact that the subjects did not show as much improvement on the GEN and SU performance as on other positions on the post-test is due to the high scores these subjects already had on these relativization types when they entered the experiment. These high scores and high levels did not leave much room for improvement on these relative clause types. However, one result runs counter this reasoning, and makes us wonder about the real cause. The DO position exhibited an even higher mean score on the pre-test in the rule-oriented group as well as the other two groups (9.85 for DO versus 7.99 for the GEN; calculated by Hamilton (1991 p. 28), yet the rule-oriented group improved more on DO relativization than on any other NPAH position in the post-test. This implies that the interpretation given by Doughty may not adequately explain what happened. Indeed, even though the subjects had less room to improve on DO than they had for the GEN, they, nevertheless, did make great progress on the DO relativization.

Two other important observations should be noted in Doughty's findings. First, Table 2.1 shows that not all the subjects acquired the relativization type on which they received instruction. After excluding the subjects who already had the OPREP

relativization on the pre-test, eight subjects out of 16 did not acquire the OPREP. Second, the individual scores show that not all subjects acquired the less marked and implicated relativization types. If we exclude those who already had the DO and the SU in their repertoire from the pre-test, we find that 6 out of 16 did not generalise to the DO and 1 out of 6 did not generalise to the SU.

In sum, the studies that dealt with the MGH agree on the fact that benefits derived from exposure to/instruction on the marked data do frequently project/generalise to the unmarked domain. However, when it comes to the opposite phenomenon (whether exposure to the unmarked domain leads to generalisation and projection to the marked domain), the results become confusing and inconclusive. Seeing this inconclusiveness, Hamilton (1994) put the question of directionality as a major concern in his experiment. The other major question that Hamilton addressed in his study is the maximality of the implicational generalisation hypothesis (IGH), that is, the claim that any learner who benefits from instruction focused at a particular hierarchy level will benefit on the instructed level and all levels that are implicated by it.

Reacting to Doughty's (1991) proposal that the MGH and Pienemann's (1984) teachability hypothesis have separate domains of application, Hamilton chose to use the SO hierarchy instead of the NPAH. He explains :

The SO hierarchy, unlike the NPAH, is more manifestly motivated in terms of processing complexity derived from syntactic configuration than on the basis of universal grammatical relations. Consequently by showing that markedness generalization can occur with such a hierarchy defined in terms of processing complexity, I will have shown that Doughty is probably not correct in excluding

the MGH from applying to the domain of German word order phenomena."
(Hamilton 1991, p. 49)

The SO hierarchy proposes an implicational relationship between four types of relativization, and goes as follows:

OS < OO / SS < SO

< = implicated by.

In these labels, the first code refers to the head noun as either subject (S) or direct object (O) of the matrix clause, and the second code refers to the role of the NP target of relativization within the relative clause.

Hamilton provides the following examples of each SO position in English relativization:

- OS They saw the boy who entered the room.
- OO A man bought the clock that the woman wanted.
- SS The man who needed a job helped the woman.
- SO The dog that the woman owns bit the cat.

Hamilton divided 33 low-intermediate and intermediate adult ESL learners into three experimental groups (8 subjects each) and one control group (9 subjects). The three experimental groups received instruction in SO, SS, or OS relativization. The control group received instruction in sentence combining using correlative conjunctions. Each of these four groups was instructed for 45 minutes on each of 2 consecutive days.

A pre-test was administered two weeks before instruction, and a post-test two to three days after instruction. Both consisted of a written combination task on the four relative clause types. The students were given 20 pairs of sentences that result in five tokens of each of the four relative types when correctly combined.

Based on the findings of this study and that of Doughty (1991), the maximality hypothesis was disconfirmed with conclusive results. Hamilton states: "Markedness generalization is not maximal for every implicated level and for every learner; rather, generalization may occur to only one implicated level of the hierarchy for some learners and to multiple implicated levels for others" (p.134). Furthermore, Doughty's and Hamilton's results suggested that the generalisation is constrained "from the bottom up" (Hamilton 1991, p. 134). Subjects never skipped a level in the hierarchy. A learner who was at level X before instruction could acquire X+1, or X+1 and X+2 after the instruction, but not X+2 without X+1. Hamilton explains: " only consecutive hierarchy levels are acquired, with no skipping of levels, beginning with the unacquired level highest in the hierarchy for a given learner" (p. 134). This finding holds in both the SO hierarchy and the NPAH. As far as the acquisition of and the generalisation to relativization types, Table 2.2 shows the scores for individual learners in Hamilton's study.

Table 2.2

Hamilton (1991, 1994) Pre- and Post-Instructional Levels: Sentence Combining Task

	Learner	OS	OO	SS	SO
SO-Instructed Group	1	+	0	0	0
	2	X	+	+	0
	3	0	0	+	+
	4	X	+	+	+
	5	0	0	+	+
	6	X	X	+	+
	7	X	X	+	+
	8	X	X	+	+
SS-Instructed Group	9	+	0	0	0
	10	+	+	0	0
	11	X	+	0	0
	12	X	+	0	0
	13	X	X	0	0
	14	0	0	+	0
	15	X	0	X	0
	16	X	X	X	0
OS-Instructed Group	17	+	0	0	0
	18	+	0	0	0
	19	+	0	0	0
	20	X	0	0	0
	21	-	0	0	0
	22	+	+	0	0
	23	+	X	+	+
	24	X	X	0	0

Note. Adapted from Hamilton, 1994, p. 139.

SO = Subject head noun, object target of relativization; SS = Subject head noun, subject target of relativization; OS = object head noun, subject target of relativization.

X = already acquired on pre-test and maintained on post-test. + = newly acquired on post-test. - = newly lost on the post-test. 0 = never acquired.

Using an 80% acquisition criterion, Hamilton found that gains were made in almost every case on the instructed hierarchy levels, and in certain cases on those hierarchy levels implicated by them. However, two OS students (#22, and # 23) generalised to the more difficult types (OO /SS < SO). Hamilton asserts that the evidence for unidirectionality is still ambiguous, in that it is true that the two OS students generalised to the marked types (one to the OO type and the other to the SS and SO types), but the more general pattern of implicational generalisation in all the studies is indeed unidirectional (to the unmarked implicated types). Nevertheless, a close look at the SS group for example shows that the number of students who generalised to the more marked types of relativization (two) is comparable to the number of students who generalised to the implicated relativization types. In fact, in the latter group, only three subjects generalised to the equally marked relativization type (OO), and only two generalised to the least marked relativization type (OS). This leaves the question of directionality open to further research, and the problem becomes one of finding the best way to test this directionality hypothesis.

The scores provided in Table 2.2 show that the two conclusions drawn from Doughty's subjects' scores can be drawn here too. First, not all subjects acquired the relativization type that was target of the instructional intervention. Two out of the eight SO-instructed students did not acquire the SO relativization type. More important, five out of six SS-instructed subjects did not acquire this relativization type. Second, similar to Doughty's findings, Hamilton's scores show that not all subjects generalised to the implicated and less marked relativization types. If we exclude the subjects that already had the less marked relativization types at the pre-test, we notice that in the SO-instructed group only one out of three students generalised to the least marked position (OS), and only two out of five generalized to the OO. It is true that Hamilton found that the

generalisation was not maximal but these scores show that this generalisation can sometimes be minimal. This may be the reason Hamilton (1991) suggested: "The optimal approach where implicational relations are involved may be a concentration of instruction on the more marked structures accompanied by less attention to the less marked structures, rather than total neglect of all less marked levels" (p. 135).

This minimal generalisation to the implicated and less marked relativization types is present not only in Doughty's and Hamilton's studies, but also in the one done by Croteau (1995). Croteau studied the acquisition of Italian relative clauses by learners of Italian as a foreign language. She divided her 65 subjects into three groups, each of which was taught one relativization type. One group was taught the DO, the second OPREP, and the third GEN. The instructional intervention in this study consisted of giving subjects "homework packets" that were modelled after Doughty's (1988) rule-oriented instruction. The subjects were pre- and post-tested by means of a sentence combination task.

Croteau (1995) found that the subjects learned something from the "homework packets", and this appears from the difference between the subjects' achievement on the pre- and post-tests. However, she found something that runs counter the markedness generalisation hypothesis. In fact, the OPREP group significantly improved on OPREP and DO relative clauses, but not on SU, as predicted by the markedness generalisation hypothesis. The subjects who were taught GEN relativization had the highest percent increase (about 63%) in the relative clause type taught. However, their knowledge of the OPREP increased only slightly (4%) and even decreased for SU (- 15%) and DO (- 4%) relative clause types.

Results from the studies reviewed in this chapter raise a major question: would it be more beneficial if the subjects get instruction on all the relativization types? This traditional way of teaching relative clauses becomes very plausible for two main reasons. First, as noted above, Eckman, Bell and Nelson (1988) found that all their subjects did better on the relativization type on which they received instruction. This finding was observed by other researchers, as well. In a pilot study Gass (1981) found that subjects who received instruction pertaining to OPREP relative clauses outperformed subjects who received instruction on Subject relative clauses, as measured by percent improvement on post- over pre-tests of grammaticality judgement in most relative clause categories. The only exception was that subjects instructed in the SU relative clause type evidenced 40% improvement in judging grammaticality of the SU relative clause sentences, as compared with 30% improvement on the part of subjects who had received only OPREP instruction.

Second, Hamilton (1994) and Doughty (1989) showed that the implicational generalization is cumulatively constrained. Hamilton (1994) explains that some students may not learn the X + 3 level or even the X + 2 if they do not have the X level. This explanation agrees with Doughty's findings. The scores for individual subjects provided in Tables 2.1 and 2.2, show that many students (13/19 for Doughty and 12/24 for Hamilton) had already acquired the least marked relativization type (Subject) before the beginning of the instruction. Besides, the same Tables (2.1 and 2.2) show that the majority, if not all, of the students who learnt the most marked relativization type that was the subject of instruction already had the least marked position from the pre-test. For instance, out of the eight who acquired the OPREP position in Doughty's data, seven already had the subject position in their repertoire. The same thing applies to Hamilton's data. Out of the seven subjects who acquired the most marked instructed relativization type (SO), four already had the least marked position (OS), and three out of these four had the second

least marked position (OO). This clearly agrees with Hamilton's findings about the cumulative nature of the implicational generalisation. However, these findings bring to the surface the following (inevitable) question: what if the students are early beginners who know nothing about relative clauses? Can these students still learn the most marked relativization type that is being taught (e. g. , OPREP), and generalise to the less marked? This question is very important, and needs to be investigated.

2.3 Hypotheses of the Present Study

In light of the studies which have previously indicated that instruction can increase the rate of acquisition of a particular structure in language development, the first hypothesis of this study was:

H1: Subjects who receive instruction on one or all relativization types will do better than those who do not receive any instruction on relativization.

In accord with the markedness generalisation hypothesis and the implicational relationships inherent with markedness conditions, the second hypothesis of this study was:

H2: Instruction targeting marked relative clauses will generalise to unmarked contexts of relativization that are implicated by them.

Taking into consideration the exceptional results of previous research that has called into question the validity of the unidirectionality of the markedness generalisation hypothesis, the third hypothesis was:

H3: The generalisation to other relative clause types is not strictly unidirectional. Some subjects will generalise not only to relativization types that are less marked and implicated by the instructed relative clause type of the hierarchy, but also to relativization types that are more marked and unimplicated by it.

Finally, because Doughty's (1991) and Hamilton's (1991) findings indicated that the markedness generalisation is cumulatively constrained and because some subjects in these studies did not acquire the relativization types that were targeted in the instructional intervention, the fourth and the fifth hypotheses were both motivated:

H4: In the short term, teaching all the relativization types in the order with which they were presented by the NPAH will be more beneficial than teaching one marked relativization type and letting the students generalise to the implicated levels of the hierarchy.

H5: In the long term, instruction that covers all the relativization types will have more beneficial effects than instruction that targets the marked level only.

Chapter 3: Methodology

3.0 Introduction

The purpose of this chapter is to provide a detailed account of the design of the present study. In the first part, the process of subject selection and the division of these subjects into groups are explained. In the second part, all pre- and post-testing measures are described. In the third part, information about the experimental treatment is provided. Finally, details about the experimental procedure are given.

3.1 Data Collection

Data were collected in October and November of 1995 at the secondary school "Hedi Chaker" in Tunisia. Subjects in the study were learners of English as their third language. Their ages ranged from 15 to 16.

3.1.1 Subject Selection

In order to select the subjects for the experiment, I visited two different classes in the same school. The two classes had the same teacher of English. I informed the students that I was testing some material that I had developed and asked them to volunteer to test these materials. The students were informed about the number of hours in which they would be taught and the timetable for these hours, but nothing was said about the two post-tests. This was done to prevent them from reviewing prior to these tests.

During my visit to the first class, about 25 students volunteered to participate. However, I was unable to form the needed groups from these 25 because the school

administration was not able to find three free sessions in one week for more than two groups that belong to the same class. Consequently, a pre-test was administered to the 25 volunteers and only 18 were selected. The selection of those subjects was not random but was rather guided by the subjects' performance on the pre-test. I visited the second class the following day. Surprisingly, no student volunteered because the whole class thought that the changes in the timetables would apply for the whole year. This was the reason the students gave me at the end of the experiment when I asked them. I, consequently administered the same pre-test to the whole class. Seventeen students were selected according to their achievement on that test. These students were, then, asked to participate in the study. These subjects manifested some frustration when I asked them to come for the experimental sessions. However, this frustration disappeared from the first session because their teacher explained to them that the experiment would last one week only. The Criterion for selection was the same one used with the first class. This criterion was set at 80%. In order to obtain the 80%, subjects had to get 5 correct answers out of 6 (2 for detecting correct answers, 2 for detecting the incorrect ones and 2 for their correction) for each relative clause type.

3.1.2 Subjects

The 19 girls and 16 boys who participated in this experiment were Tunisian students studying in the second year of the first cycle of the secondary school. All subjects had a low-intermediate and intermediate level, having studied English for about 90 hours. A pre-test was administered to ensure that all subjects knew nothing of English relativization. A simple questionnaire (see Appendix A) was also included in the pre-test to confirm that all the subjects had more or less the same access to English outside of school. The 35 subjects were divided into four groups with three consisting of 9 students

each and one of 8. The division was not random due to practical factors beyond my control. In fact, each class to which the subjects belonged was originally divided by the administration into two groups. This division took place from the first day of the academic year depending on some administrative criteria like the difference in the optional classes¹ that the students had. Consequently, the groups had differences in their timetables. Taking this into consideration and wishing to avoid problems caused by these differences, I divided the groups following the administrative division. That is, each single group that participated in the experiment already belonged to the bigger group set by the administration (see Figure 3.1).

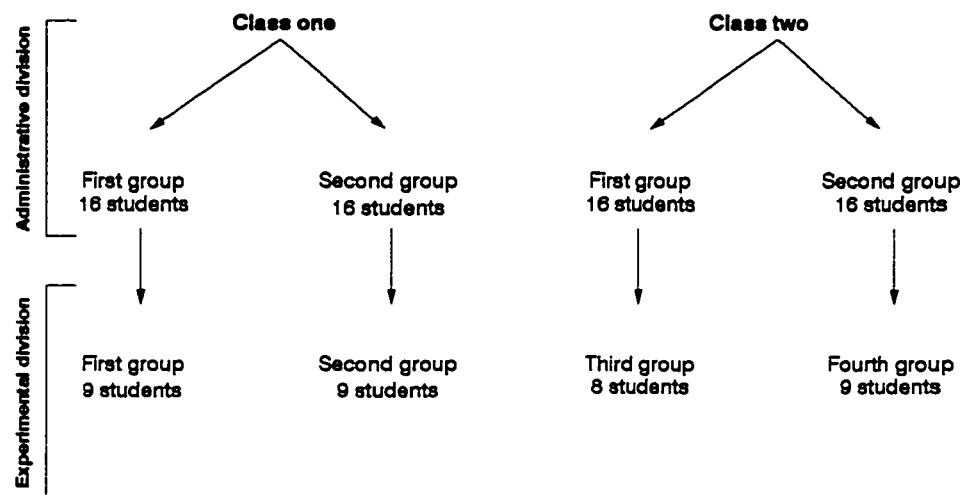


Figure 3.1. Division of subjects into groups

These four groups were then randomly assigned to three experimental conditions and a control condition (see Figure 3.2). The first two experimental groups received

¹In the second year of the first cycle students have to choose between some subjects like music, German, Italian, and drawing. Depending on these choices students from the same class are divided into different groups with slight differences in timetables. Apart from this division the whole class is divided into two big groups following alphabetical order to study technical sciences and natural sciences. These two groups study these two subjects separately once every week.

instruction focused on one relativization type, the first DO and the second OPREP. These two groups will be referred to in this study as DOG and OPG. The third experimental group received instruction on three relativization types in the order of the Noun Phrase Accessibility Hierarchy (SU, then DO, then OP), and it is referred to as ALLG. The control group (COG) received instruction on using some conjunctions, "while", "before", and "after" to combine sentences.

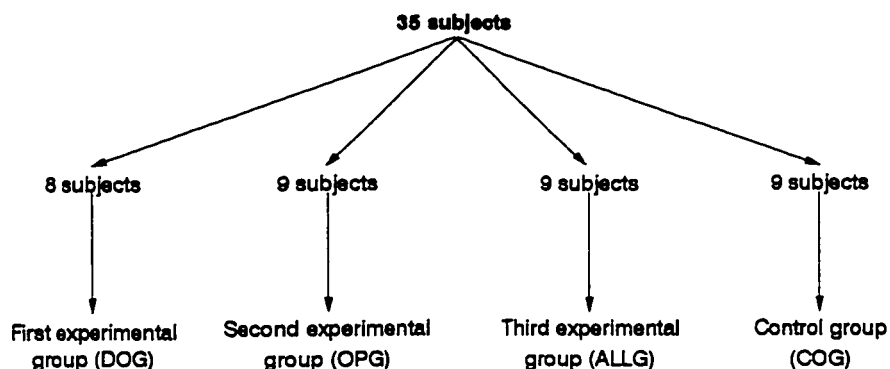


Figure 3.2. Assignment of instructional treatment conditions

The choice of these instructional treatment conditions was made to better test the directionality problem. In the previous studies that tested the MGH (Doughty 1988; Eckman, Bell and Nelson 1988; and Gass 1982) the major exception to the unidirectionality of the MGH was found with the OCOMP relative clause type. Subjects showed more success in generalising to the more marked OCOMP than to the more marked GEN when taught the OPREP. This was attributed in the case of Gass's 1982 study to a possible confusion that students may have had between prepositions in IO and OPREP relative clause types and the comparative "than" in OCOMP. Including a group (DOG) that will not be taught any relative clause type that contains prepositions may help us find out if confusion is the real and only reason behind the generalisation to the

unimplicated OCOMP. It will also give more chances to test the directionality of the generalisation that takes place. Contrary to some previous studies (Doughty, 1988 and Gass, 1982) that taught the OPREP and that, consequently, tested the generalisation to the more marked relative clauses in two positions only (GEN and OCOMP), the DOG in this study will give us two more chances to test that generalisation (IO and OPREP). In fact, if there are any possibilities to generalise to the more marked positions students will have four chances (IO, OPREP, GEN and OCOMP) to do so in the DOG. The ALLG and the OPG were included mainly to investigate which way of teaching (one relative clause type vs. many relative clause types) would be more effective in terms of achievement for Tunisian foreign language learners of English. These two groups provide additional chances to test the directionality of the MGH.

3.1.3 Testing.

Subjects in this study were tested once before the experimental treatment and twice after it. Two kinds of testing measures, a grammaticality judgement task and a sentence combination task, were used.

3.1.3.1 Pre-test measure

Prior to the experimental treatment, a test was administered to assess the students' knowledge of relative clauses. This test was adapted from Gass's (1980) and Doughty's (1991) grammaticality judgement task. The subjects were given four sentences representing each of the six relativization types on the NPAH with two containing pronoun retention errors and two correct sentences (the area of pronoun retention was chosen because it has been identified by contrastive studies as a problematic one for Arab

learners of English relativization). [1] and [2] are examples of a correct and an incorrect sentence taken from the pre-test.

[1] The book that I read yesterday is very interesting.

[2] *The test that I gave it was very difficult.

Apart from the 24 sentences testing the subjects' knowledge of English relativization, I included eight more sentences serving as distracters. The latter contained four sentences with subject verb agreement errors and four noun plural errors. Sentences [3] and [4] illustrate these two types of distracters.

[3] *The students is going on a journey to Monastir next Sunday.

[4] *Tunisia has many beautiful beach and hotels.

These distracters were included in the pre-test for two main reasons. First, and most importantly these sentences can show whether the students were focusing on the task. Second, including distracter sentences may prevent the students from identifying the targeted structure. Pluralisation and subject verb agreement errors were chosen because these two grammatical points occur very early in the students' English program and tend to be reviewed frequently. Thus, one would anticipate that students who are focusing on the task would have high accuracy on these items.

The 32 sentences were listed in random order. Subjects were instructed to read each sentence and decide whether it was a correct or an incorrect English sentence. If the sentence was a correct one, students were asked to circle "yes"; if not, they had to circle "no". To avoid having students focus on spelling, the students were told in the instructions

that there were no spelling mistakes (See Appendix A). After doing this, the students were instructed at the end of the test to correct the sentences they judged as incorrect. In scoring for accuracy, students' ability to correct errors was considered of the same importance as their ability to identify both the correct and incorrect sentences for two main reasons. First, students' correction can be a means to see whether they were judging by mere chance or out of knowledge. Second, students may judge one sentence as incorrect not because of the error existing in the target feature (pronoun retention) but because of other reasons. For instance, students may decide that some sentences were incorrect because they thought that the right tense was not used. This case shows that these students were not acting out of knowledge of relative clause formation but rather that they were acting following criteria they had about other grammatical points. So, if we judge the students' decision only, we may not get an accurate picture of what these students know about relative clauses. However, once we see the reason they judged some sentences as incorrect, we will be able to judge their knowledge more authentically.

Even though the lexicon was simple (no adjectives or quantifiers to modify nouns and only the simple past and the present tenses occurred), students were encouraged to ask about the meaning of any vocabulary item in the test. However, even though students had not been taught relative clauses, no questions were answered about relative pronouns.

3.1.3.2 Post-testing measure

At the end of the experimental treatment subjects were tested twice to determine post-treatment knowledge of relativization. The post-tests were similar to the pre-test in one respect: the use of a grammaticality judgement task. Once again the students were asked to judge sentences and to correct the incorrect ones. On the post-test, subjects were

[6] We saw the cat.

The dog is bigger than the cat.

We saw the cat that the dog is bigger than. (OCOMP)

One adaptation of the instructions used in this task was made when it was administered to the COG. Seeing that the control group subjects did not know relative clauses and that they studied combining sentences using the conjunctions "while", "before" and "after", I decided to take off the last sentence from the instructions, which left the following:

Please combine the two sentences into one correct English sentence. Always begin with the first sentence. Do not leave out any information.

These changes were adapted to minimise the extent of frustration that might be felt on the part of the COG students. This frustration may already have been present due to the subjects' inability to judge the 48 sentences in the first task.

These two tasks (grammaticality judgement and sentence combination) were kept constant in both post-tests; however, the sentences differed in that some equally simple lexical items were substituted from one post-test to the other. This difference was created to avoid the possibility of having subjects memorise the sentences. The sentence types in both tests were presented following a random order.

3.2 Experimental Instruction

The relative clause instruction presented to the four groups consisted of two main parts: (1) An in-class part (three 30-minute sessions) that was partly modelled after

Doughty's (1990) rule-oriented instruction; (2) a take-home part adapted from Croteau's (1995) "homework packets".

3.2.1 The In-class Instruction

The in-class instruction mainly consisted of three different parts: elicitation, rule presentation, and practice.

3.2.1.1 Elicitation

Before the beginning of the experimental lessons, I selected four pictures (see Appendix B) that dealt with two subjects, namely public place situations and classroom situations, which could be used with the four groups as a starting point (elicitation activity) in the instructional treatment. These four pictures were stuck on the blackboard each time they were used, and I asked the subjects to describe them using full sentences. To avoid losing time and focus, the description was not always totally free. In fact, I sometimes intervened by prompting the students and asking them questions so that they would focus on some specific actions that could provide sentences that met my expectations and plans. Sentences [1] and [2] are examples of these questions and prompts.

[1] What do we call this person?

Expected answer: waiter.

[2] What is the waiter doing in this picture?

The questions were mainly to identify persons and to describe the actions they were doing. Each time one student gave a sentence, I discussed it with the whole class

especially to improve it in case it was incomplete or incorrect. I then wrote it on the blackboard. This activity always lasted about seven or eight minutes maximum, the time it took to elicit eight or nine sentences.

3.2.1.2 Rule presentation

This part of the procedure was experimentally manipulated, and was, consequently, different for each of the four groups.

The experimental groups

The rule oriented part for the experimental groups contained two sub-parts. The first one was mainly modelled after Doughty's (1990) recombination procedure. The second one consisted of a grammatical explanation that was based on a contrastive analysis between Arabic and English relativization with respect to the pronoun retention problem. In the first sub-part I explained the recombination procedure to each group in the same way except that each group dealt with a different relative clause type. That is, the recombination task was explained using sentences that relativize the Subject, the DO, and the OPREP for the ALLG, the DO for the DOG, and the OPREP for the OPG.

To explain the task for the DOG, I chose four pairs of sentences elicited in the previously described activity. I chose sentences that could be combined to obtain DO relativizations. Starting with one pair of these four, I explained the recombination procedure by going through the following steps.

1. Inform the students that the 2 sentences are simple ones and that they can be combined into one single sentence to avoid repetition.
2. Ask the students to identify the noun that is repeated in both sentences and underline or highlight it.
3. Inform the students that to combine the two sentences, one has to replace the underlined noun in the second sentence with a relative pronoun, and explain the use of the relative pronouns that would be used in the experiment.
4. Ask the students if the noun in the sentences is human or non-human and replace it in the second sentence with the corresponding relative pronoun depending on whether it is human or not.
5. Tell the students to move the relative pronoun to the beginning of the sentence if it is not already at the beginning.
6. Tell the students to insert the relative clause after the underlined noun in the first sentence.

Figure 3.3 displays the recombination procedure.

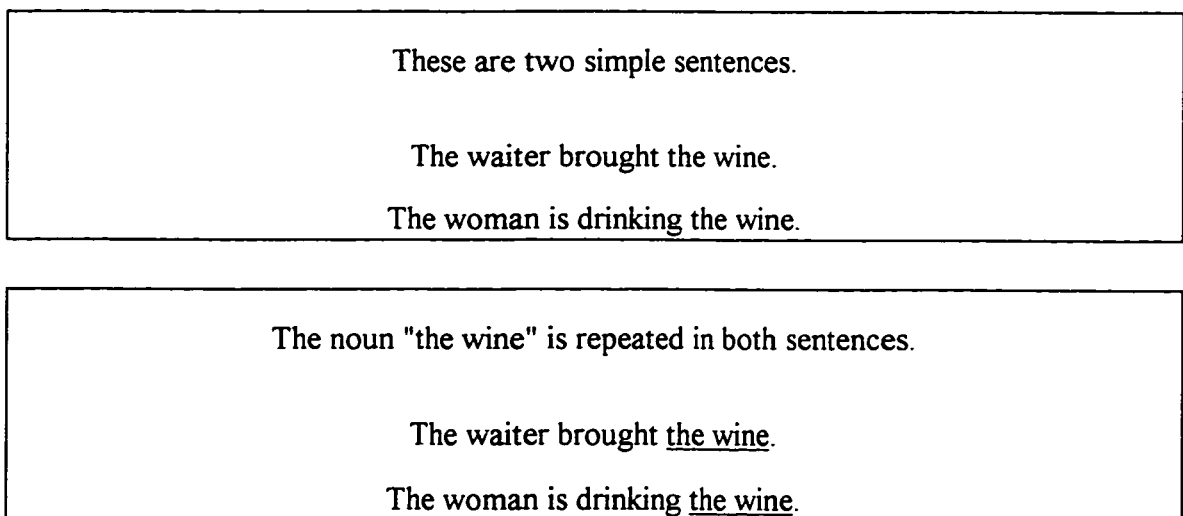


Figure 3.3. Relative clauses' recombination procedure

Figure 3.3 (continued)

Three relative pronouns can be used to replace a repeated noun depending on whether it is human or non-human.

Who for human nouns.

Which for non-human nouns (animals and things).

That for both human and non-human nouns.

"The wine" is non-human. Which/ that are the relative pronouns for "the wine".

The second sentence will become the relative clause.

Which\ that takes the place of "the wine" in the second sentence.

The waiter brought the wine.

The woman is drinking which.

If the relative pronoun is not at the beginning of the sentence, it must be moved to the beginning.

The waiter brought the wine.

Which the woman is drinking.

The relative clause can be inserted after the noun " wine" in the first sentence.

The waiter brought the wine which the woman is drinking.

This same procedure was explained each time a new relativization type was introduced. The difference between all the explanations was the examples that served as a starting point. These examples differed depending on the targeted relativization type. For instance, only examples that could be combined into sentences with Subject relative clause types were used when the Subject relativization was dealt with in the ALLG.

The explanation of the pronoun retention problem was done in three main steps. First, I wrote a sentence containing a relative pronoun error like [3] below and asked the students to judge whether it was correct or not.

[3] *The woman is eating the rice that the cook prepared it.

Seeing that each time I did so three or four students judged the sentence as correct, I proceeded to the second step. This consisted of going back to the recombination procedure (see Figure 3.3) and more precisely to the fourth step which said the following:

"The wine" is non-human. Which/ that are the relative pronouns for "the wine". The second sentence will become the relative clause. Which or that takes the place of "the wine" in the second sentence.

The waiter brought the wine.

The woman is drinking which.

I explained that the noun in the second sentence should be replaced only once and that is with the relative pronoun, and that no other pronouns should be added.

Finally, and to further explain the point, I drew the differences between Arabic and English relativization by writing and explaining the two sentences below.

[4] Akaltu al tuffahata allati wajadtuha. (Arabic)

I ate the apple that I found it.

[5] I ate the apple that I found. (English)

I explained that English is different from Arabic in forming relative clauses in that with the former no pronouns other than the relative ones are needed in the relative clause and that once other pronouns are added the resulting sentence becomes incorrect.

The control group

The COG was taught the procedure of combining two simple sentences not by using a relative clause but by using the conjunctions "while", "before", and "after". A recombination procedure was developed to use "while", and another one to explain "before" and "after".

To explain the use of the conjunction "while", I started with a pair of sentences that were elicited in the first portion of the session (elicitation activity), and went through the following explanatory stages.

1. Inform the subjects that the two sentences are simple and that they can be combined into one single sentence.
2. Inform the subjects that "while" is used to combine two sentences with two actions happening simultaneously. Underline the two verbs.
3. Inform the subjects about the placement of while.

4. Give information about how to combine the sentences.
5. Explain the use of the -ing form after "while" in the presence of the same subject in both sentences.
6. Explain the difference in meaning when "while" is used in a sentence that has one verb in the simple tense and another in the progressive.

Figure 3.4 displays this recombination procedure.

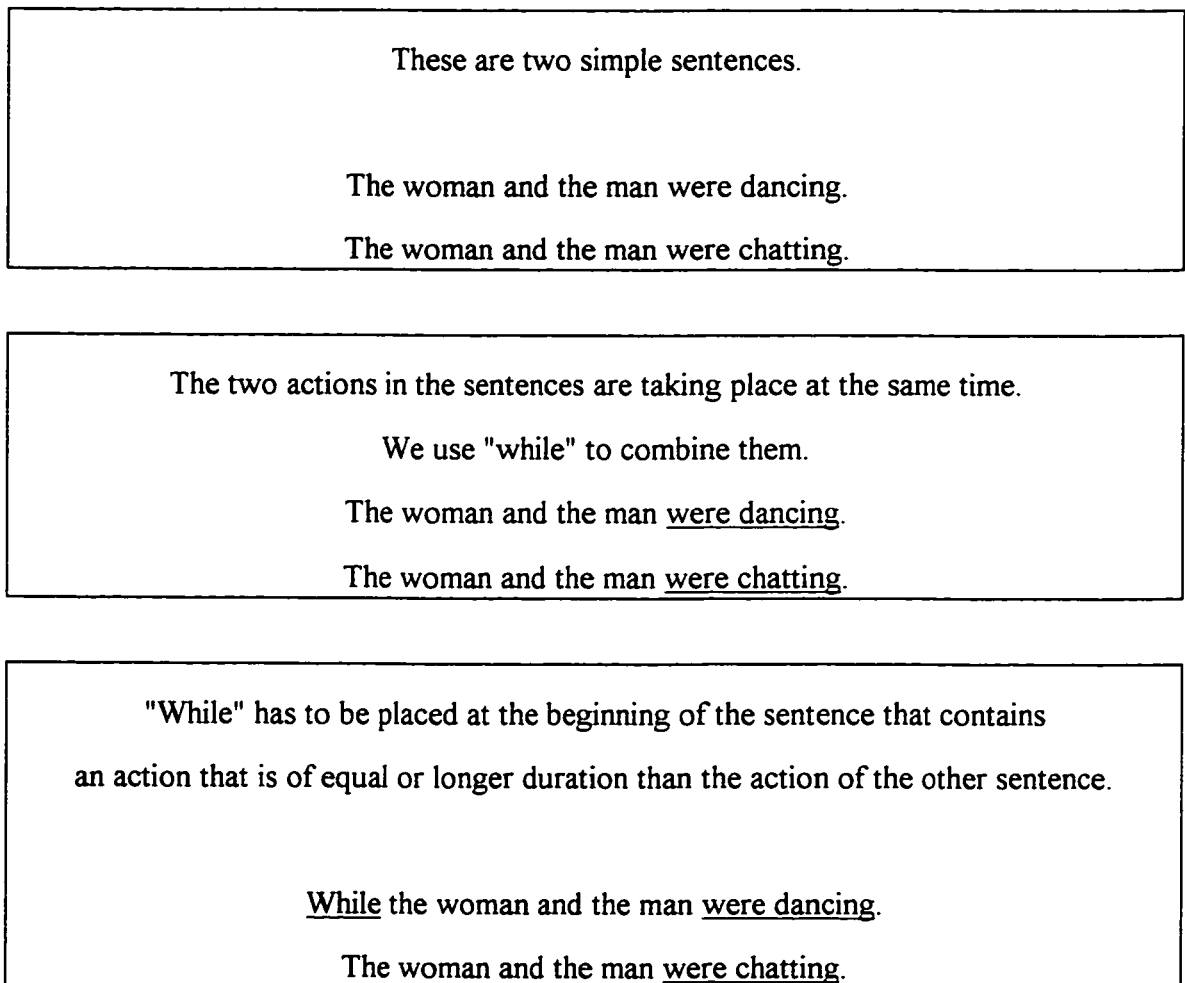


Figure 3.4: Recombination procedure using "while"

Figure 3.4 (continued)

Replace the full noun phrase subject by a pronoun in one sentence.

While the woman and the man were dancing

They were chatting

We combine the two sentences by taking off the full stop that ends the sentence containing while and replacing it by a comma.

While the woman and the man were dancing, they were chatting.

If we have the same subject in both sentences,
we can use the -ing form only after "while".

While dancing, the woman and the man were chatting.

or

The woman and the man were chatting while dancing.

"While" can be used when the two actions aren't happening at the same time.

When this happens, it means that one action (the simple tense) interrupts the continuous one.

The phone rang while I was studying.

Nearly the same stages were followed to explain the recombination procedure with "after" and "before".

1. Inform the subjects that the two sentences are simple ones and that they can be combined into one single sentence.
2. Inform the students that the actions in the two sentences are happening at different times and that one uses either "after" or "before" to express the succession in time.
3. Inform the students about the placement of "after" and "before".
4. Explain how to combine the sentences.
5. Inform about the use of the -ing form after "after" and "before" in the presence of the same subject in both sentences.

Figure 3.5 displays this recombination procedure.

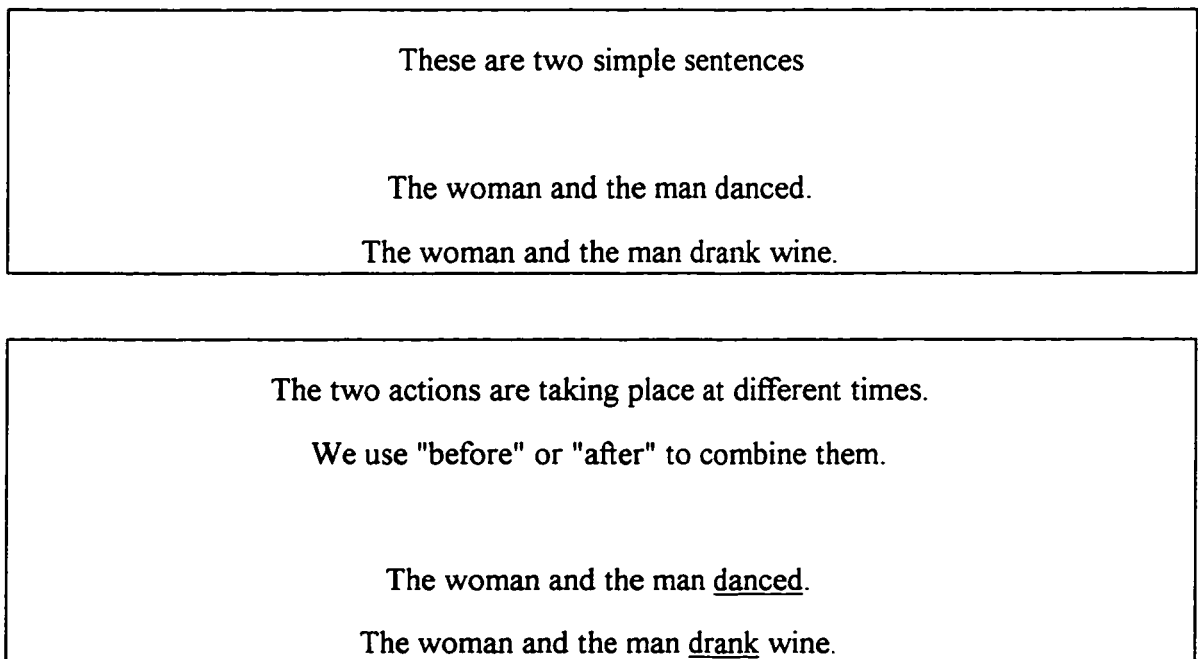


Figure 3.5. Recombination procedure using "before" and "after"

Figure 3.5 (continued)

"Before" has to be placed in the sentence that contains an action that takes place before the action in the other sentence.

Before the woman and the man danced.

The woman and the man drank wine.

"After" has to be placed in the sentence that contains an action taking place after the action in the other sentence.

The woman and the man danced.

After the woman and the man drank wine.

We combine the two sentences just by taking off the full stop that ends the first sentence.

If "before" or "after" is used in the first sentence, we put a comma in the place of the full stop. If it comes second we don't put anything. If we have the same subject in both sentences we replace the second with a personal pronoun.

Before the woman and the man danced, they drank wine.

The woman and the man danced after they drank wine.

If we have the same subject in both sentences, we can use the -ing form after "before" or "after".

Before dancing, the woman and the man drank wine.

The woman and the man danced after drinking wine.

3.2.1.3 Practice

This part consisted of three kinds of exercises: grammaticality judgement, scrambled sentences, and sentence combination. Each exercise contained eight sentences.

As in the pre- and two post-test grammaticality judgement tasks, the students were instructed to decide whether the sentences were correct or incorrect, and to circle "yes" or "no" depending on their judgement. i. e., "yes" for correct, and "no" for incorrect sentences. Besides, the subjects were told to correct the sentences they judged as incorrect and to write these corrections in the lines that were provided underneath the sentences (see the grammaticality judgement task given to the DOG, Appendix B, exercise B1). The four incorrect sentences that were included in this exercise contained pronoun retention errors for the three experimental groups. As far as the COG was concerned the errors were mainly ones of tense.

In the scrambled sentence exercise, the sentences were divided into blocks with each containing two sentences (see Appendix B, exercises B2 and B3). Students were instructed to put the words in the right order to obtain sentences with relative clauses for the experimental groups and sentences with "while", "after", and "before" for the COG.

The final task, sentence combination, was like the one given in the two post-tests (see Appendix B, exercise B4). Subjects were instructed to combine the eight pairs of sentences into eight sentences containing relative clauses for the experimental groups and "while", "after" and "before" for the COG. Subjects were warned against leaving any information out and were asked to always begin with the first sentence of each pair.

3.2.2 The Take-home Part.

This part consisted of "homework packets" adapted from Croteau (1995). These "homework packets" were made as similar to each other as possible especially for the three experimental groups. Furthermore, they were structured in a way that paralleled the content of the in-class instruction part. In fact, both a rule presentation part and a practice part were included in these homework packets.

3.2.2.1 Rule presentation

Each of the homework packets (see Appendix B for the OPG packet) given to the subjects contained an explanation of the recombination procedure as it appears in Figure 3.3 for relative clauses, and in Figures 3.4 and 3.5 for the conjunctions "while", "after", and "before". First two sample sentences were presented. Then, the students were presented with a step-by-step explanation of the changes these original sentences undergo to obtain a single sentence containing a relative clause for the experimental groups or the conjunctions taught for the COG. One thing which has to be noted is that the subjects were given this recombination procedure part for each structure they were taught. This was done just by changing the sample sentences for the experimental groups. Indeed, these sentences targeted SU, DO, and OPREP for the AllG, DO relativization for the DOG and OPREP for the OPG. The DO and OPREP recombination procedures that were given to the AllG were exact copies of the ones given to the DOG and OPG respectively.

3.2.2.2 Practice

Like the in-class instruction, the homework packets also comprised practice questions. The latter consisted of a grammaticality judgement exercise, a scrambled sentence exercise, and a sentence combination task. The groups were always given only the relativization types appropriate to their group.

As in the pre-test, the two post-tests and the in-class grammaticality judgement task, subjects were instructed to circle "yes" if they decided that a sentence was correct, and "no" if they thought it was incorrect (see Appendix B, exercise B5). The instructions also required the students to correct the sentences they judged as incorrect. Pronoun retention was always the error that had to be detected in the four incorrect sentences by the experimental groups. The control group subjects had to find errors in tense. In fact, seeing that the conjunction "while" is followed by the progressive, the students were exposed to four sentences where the simple past followed "while". So, all that the students had to do was to correct these four sentences by putting the continuous instead of the simple past after "while".

The scrambled sentence exercise was an exact replica of the one done in class (see Appendix B, exercise B6). The only difference between the two was the words used in the sentences. In fact, some words were changed but the structure of the sentences remained the same. Students were instructed to put the words in the right order to obtain sentences with relative clauses.

The sentence combination task was also very similar to the one done in class and to the ones given in the two post-tests. In fact, the instructions were exactly the same.

Subjects were, once again, instructed to combine the eight pairs of sentences into eight single sentences containing relative clauses. They were warned against leaving any information out and were asked to always begin with the first sentence of each pair (see Appendix B, exercise B7).

3.3 Instructional Procedure

The instructional intervention that took place in this study consisted of three sessions for each group.

3.3.1 First Session

In the first portion of the lesson, all four groups did the elicitation activity. By the end of that activity, I managed to get eight or nine simple sentences that could be combined using a relative clause.

As a second step, I proceeded to the rule presentation part of the lesson. The latter was experimentally manipulated, and was, consequently, different for each of the four groups.

The experimental groups

In this part of the lesson I explained the recombination procedure to each of the three groups in the same way except that each group dealt with a different relative clause type. The recombination task was explained using sentences that relativize the SUB for the ALLG, the DO for the DOG, and the OPREP for the OPG.

To explain the task for the DOG, I chose four pairs of sentences that can be combined to obtain one sentence containing a DO relativization. I then took the first pair of sentences and asked the students to try to combine them into a single sentence. Seeing that the students did not know how to form relative clauses, I explained the recombination procedure as it appears in Figure 1. The same procedure was followed once more using another pair of sentences elicited in the first part of the lesson. Students were then asked to combine the remaining pairs with my help whenever needed. The same procedure was explained with examples targeting SUB and OPREP relative clause types for the ALLG and OPG respectively. After explaining the recombination procedure, I brought up the pronoun retention problem for each of the three experimental groups. This problem was explained in a rule oriented way as explained above.

The control group

The control group was taught how to combine sentences using the conjunction "while". Starting from a pair of sentences that was elicited in the first activity, I went through the explanatory stages of the recombination procedure as they appear in Figure 3.4. The recombination procedure was explained another time with another pair of sentences. Then I asked the students to combine the remaining pairs and helped whenever necessary.

In the third portion of the lesson all four groups did a grammaticality judgement task on the structure they saw in the recombination task. Students were given 4 to 5 minutes to think about the exercise if there was enough time left. Then I nominated students randomly to do the sentences orally. If no time was left, the students were not

given the time to think about the exercise, and they were, consequently, obliged to move to the oral part immediately.

As a last step I distributed the first part of the homework packets. This part contained the step-by-step explanation of the recombination procedure of relative clauses as it appears in Figure 1, and of the conjunction "while" as it is displayed in Figure 3.4. The grammaticality judgement exercise was also given to the four groups. The recombination procedure and the grammaticality judgement exercise were about SUB, DO, and OPREP relativization for the ALLG, DOG, and OPG respectively. The conjunction "while" was the subject of these two parts (the recombination procedure and the grammaticality judgement task) for the COG. Figure 3.6 displays the procedure that was followed for the four groups in the first session.

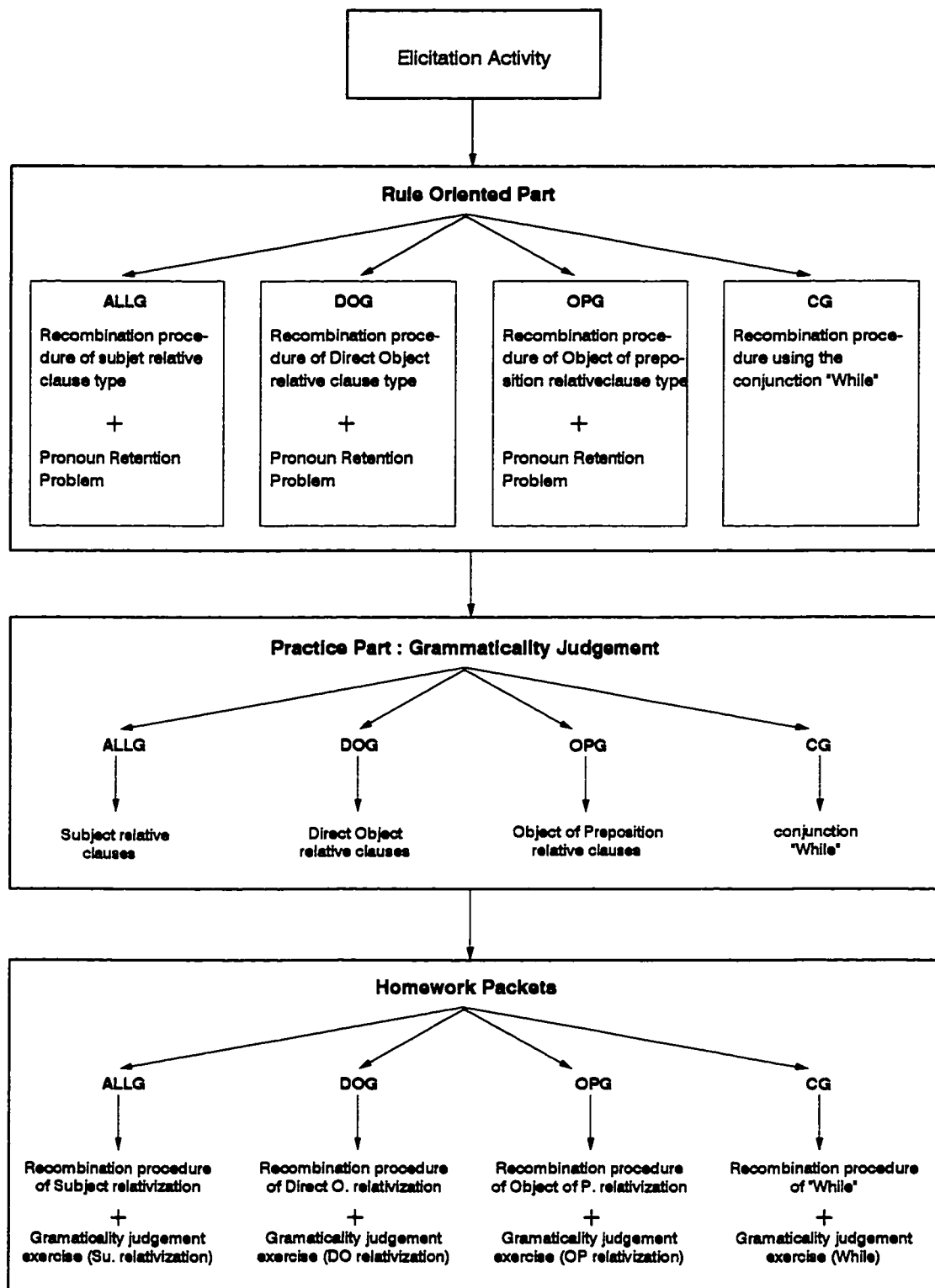


Figure 3.6. The first experimental session (the four groups)

3.3.2 Second Session

In the first part of this session I quickly reviewed the recombination procedure and corrected the take-home exercise with the subjects of the four groups. Subjects were allowed to ask any questions about what they had been taught in the first class. The second part of the lesson differed from one group to another depending on the structure being taught.

The DOG and the OPG

These two groups spent the rest of the 30 minutes doing 2 scrambled sentence exercises. In the first exercise subjects were divided into two groups. I placed six scrambled sentences in three envelopes, with each containing two sentences. Another copy of the same sentences was made so that each group would have its own copies and no problems would be caused by waiting for the other group to finish with one specific envelope. I placed the envelopes (three for each group) on my desk and asked the students to pick just one at a time, find the sentences in it, stick them on a big folder that I provided, and then pick up another envelope and do the same thing with the sentences in it. Students were not given all the sentences at once in an attempt to guarantee a maximum contribution of all the group members.

Seeing that the students were not familiar with this kind of exercise, I decided to provide some context to the targeted sentences. In fact, students were told that the scenes representing the sentences they were looking for existed in the four pictures that were used at the beginning of the first class and that were stuck on the blackboard. So all that was required was looking at the pictures and trying to guess the sentences using the given

words. Once a group finished doing the task, I put the folder on the blackboard and asked the other group to judge the sentences. If the latter judged all the correct sentences as so , the first group was declared the winner. If the sentences were incorrect and the judges declared them as so, the second group won. If the judges were wrong, the first group was asked to explain how their sentences were correct. If no satisfactory explanation was given, I explained the sentences by myself. Some little rewards were distributed to the winners.

In the second exercise, the whole group was divided into pairs to further guarantee maximum contribution of all the students. I prepared eight sentences that were not context supported this time. Four copies of these sentences were made so that each pair had a separate copy. Each two sentences were placed in an envelope and the subjects were asked to do exactly the same thing as in the first exercise. In other words, while the first scrambled sentence exercise was context supported and was done in groups of four students at least, the second exercise was more challenging in that no context was provided and only two students had to think and find all the sentences.

At the end of the session, students were given the second portion of the homework packets containing a scrambled sentence exercise for each group. The only difference between the two was that the targeted relative clauses were of the DO type for the DOG and the OPREP type for the OPG. Figure 3.7 illustrates the procedure that was followed with these two groups in the second session.

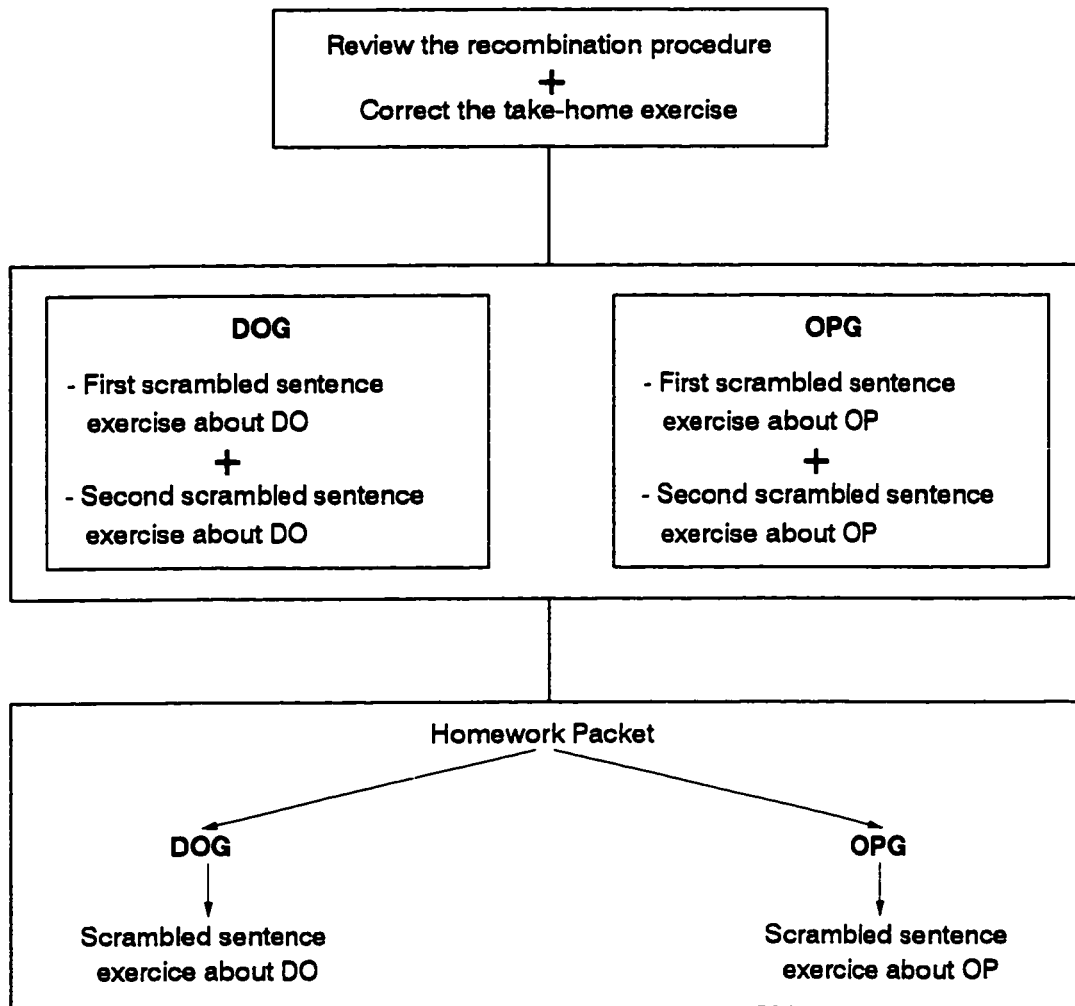


Figure 3.7. The second experimental session (DOG and OPG)

The ALLG

Subjects in this group viewed the four pictures of the first day once again, and with my questions and prompts described some people and some actions in these pictures. Four pairs of sentences that could be combined into four sentences containing DO relative clauses were elicited and written on the blackboard. Using a pair of these sentences, I went through the recombination procedure quickly (see Figure 3.3). The subjects were then asked to combine the other three pairs. As in the first lesson, I explained the pronoun retention problem by comparing English with Arabic and students were allowed to ask any questions about it.

After finishing with the recombination procedure and the explanation of the pronoun retention problem, subjects did a scrambled sentence exercise. The latter was the same as the first one done by the DOG. In other words, the students were divided into two groups and were given three envelopes, one at a time, containing two sentences each. These sentences described some actions in the four pictures used in the elicitation activity.

Finally, subjects were given the second portion of the homework packets. This portion contained the recombination procedure as it appears in Figure 3.3. Since the instruction in the second session was about the DO relative clause type, the recombination procedure that was included in this part of the homework packet was about that same relativization type. A scrambled sentence exercise about DO relativization was also included in this part of the homework packet.

The control group

Since the control group was going to see how to combine two simple sentences using the conjunctions "before" and "after", I started by eliciting some sentences that could serve as a starting point to explain the recombination procedure.

Then, I took two sentences and explained the changes they had to undergo to obtain one single sentence containing either "before" or "after". This explanation followed the stages described in Figure 3.5. To further explain the combination procedure, I took two more sentences and explained the changes once again. Later, the students were asked to combine the remaining pairs using the same conjunctions. I intervened whenever the students asked for my help, or to further explain things.

After finishing with the combination procedure, subjects were given a sentence combination task. Students were given the time to think about the exercise and to do it or at least to do a part of it. Then, I proceeded by asking individual students to do the sentences orally. Correction was provided whenever possible and especially whenever a student failed to combine the sentences. Some brief explanations of some parts of the combination procedure were explained once again for those who were unable to do the task.

At the end of this second session students were given the second portion of the homework packet designed for their group. Similar to the other groups this portion contained information matching the content of the lesson: recombination procedure as it is displayed in Figure 3.5, and a sentence combination task asking the students to combine eight pairs of sentences using the conjunctions "before" and "after".

Figure 3.8 illustrates the procedure followed with the ALLG and the COG in the second session.

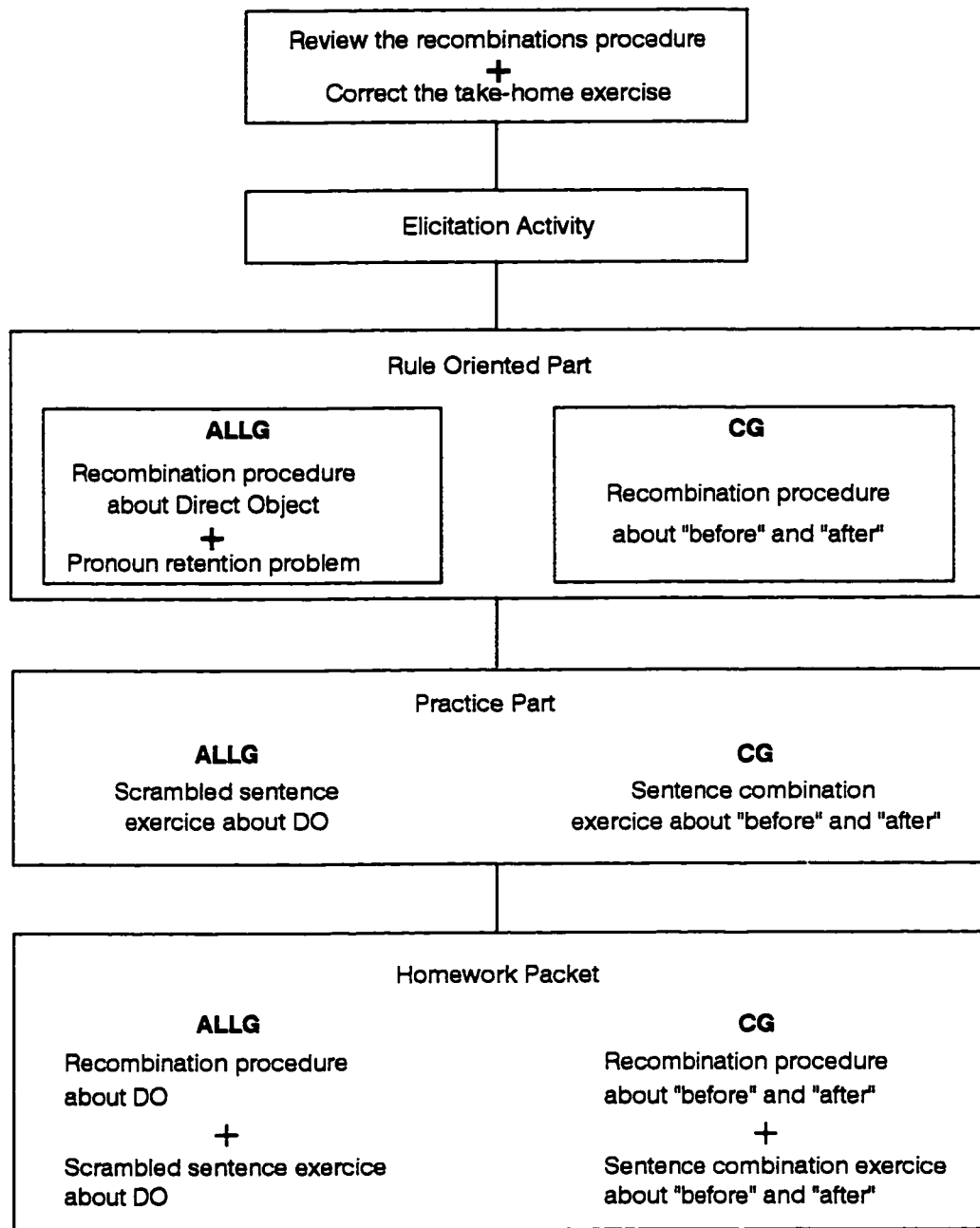


Figure 3.8. The second experimental session (ALLG and COG)

3.3.3 Third Session

This session was once again alike for the two experimental groups that were taught the DO and the OPREP relativizations and different for the two other groups. However, one part of this lesson was common for the four groups regardless of the structure they were being taught. In fact, each group started by reviewing whatever they had done in the preceding session and by correcting the take-home exercise that was given in that same class. Once this was done, the groups proceeded to doing different things.

The DOG and the OPG

These two groups spent the remaining time doing a sentence combination task individually. I distributed the exercise papers, explained the instructions for the students and asked them to do the task immediately. The students were given all the time they needed to finish the exercise. An oral correction followed. Individual students were asked to read their sentences aloud so that the other students could hear and correct if they could. In situations where students detected errors, they tried to explain them to their friends so that they could correct their sentences. Subjects were required to explain the errors by referring to the recombination procedure (see Figure 3.3) if the errors were about relative clause formation. Otherwise, they were left free to choose the way they prefer.

At the end of the session, students were given the last part of the homework packets. This part consisted of a sentence combination exercise that was very similar to the one done in class. I asked the students to bring that exercise the following day and to give it either to me or to their regular English teacher.

The ALLG

This group was exposed to the last targeted relative clause type (OPREP). This was done, as previously, in a rule-oriented style. After eliciting some sentences about the four pictures used with all the four groups, I explained the recombination procedure as illustrated in Figure 3.3. Students were then asked to try to combine the remaining elicited pairs of sentences. I ended this rule-oriented part by checking the pronoun retention problem and by explaining it because there were some students who still thought that the pronoun could be retained.

A sentence combination task followed this part. Students were given some time to think about the sentences, then the oral discussion and correction took place.

Finally, I distributed the last part of the homework packets. An explanation of the recombination procedure of OPREP clauses as well as a sentence combination task were included in this part of the homework packet. As in the other two groups, students were asked to bring the exercise the following day.

The Control Group

The control group subjects spent the rest of the 30 minutes doing two scrambled sentence exercises about the three conjunctions they saw in the two previous sessions. These two exercises were structured in the same way as the ones done by the two experimental groups DOG and OPG in their second session. First, students did the context supported exercise in two groups. This was followed by the oral correction and

distribution of rewards. The group was then divided into pairs and students did the second scrambled sentence exercise that had no context support.

At the end of the session and after finishing with the correction of the second scrambled sentence exercise, I distributed the last part of the homework packet designed for the control group. This part contained, as usual, a replica of what was done in the in-class lesson. Students were given a scrambled sentence exercise and were asked, as it was the case with the experimental groups, to find the sentences contained in the four blocks of words.

3.3.4 Distribution of the Instructional Sessions

The experimental instruction was divided into three lessons of 30 minutes each. To make sure that these thirty minutes would be entirely spent in teaching, I asked the subjects of each group to come 5 minutes earlier. In case this was impossible I tried to add 5 minutes at the end.

The three sessions were distributed in the same way for the four groups. Three days after the pre-test, I started teaching the four groups. Two days after the first session, I taught the second session. Seeing that not all the students had free time to do the third session two days after the second one, I decided to teach the third lesson one day after the second class. This was the case only for the three experimental groups. The COG had its third session as it was planned from the start of the experiment. i. e., two days after the second session.

One day following the end of the instructional intervention, the first post-test was administered to the four groups. Two weeks later, the second post-test was administered to the three experimental groups only. The COG was not tested the second time to avoid the frustration that was apparent on the subjects' faces while they were doing the first post-test. Figure 3.9 displays the distribution of the three sessions and the three tests.

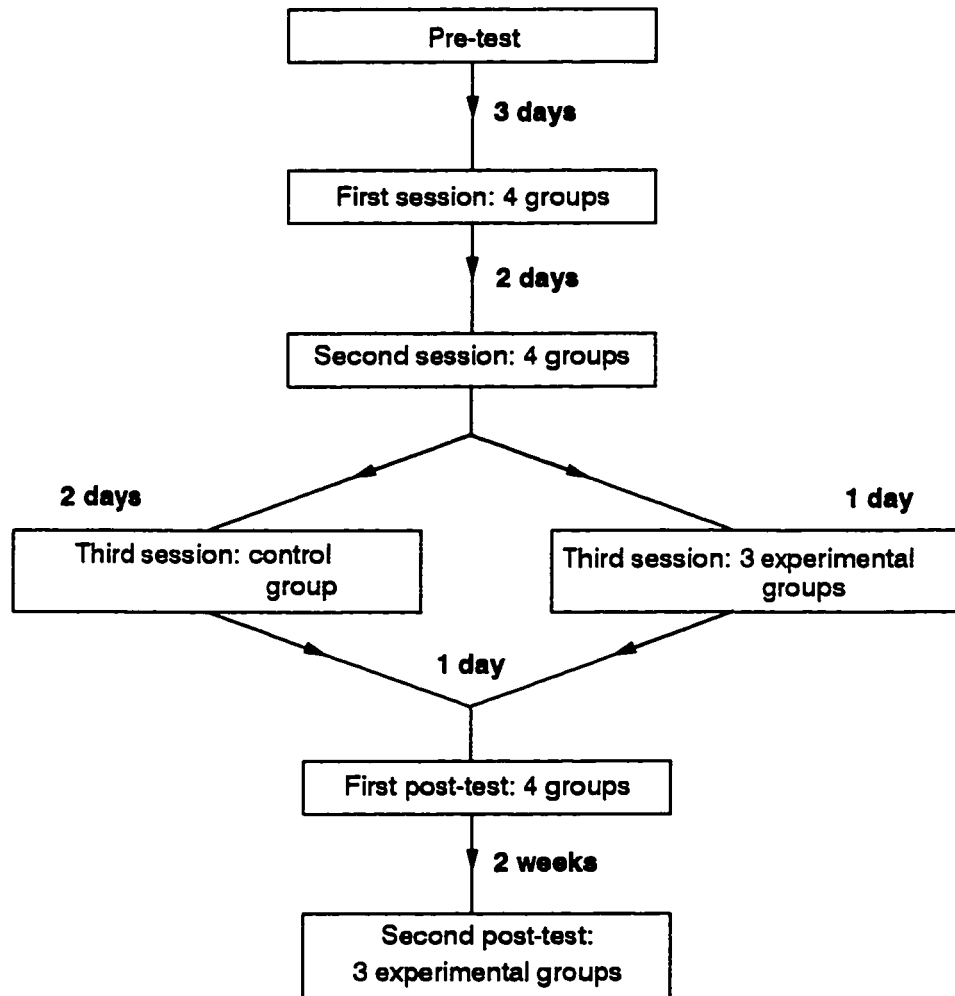


Figure 3.9. The experimental procedure

All students were present during the instructional intervention for the four groups and the first post-test. However, two students were absent in the second post-test, one each from the DOG and the ALLG.

Chapter 4: Data Analysis and Results

4.0 Introduction

The data analysis and results will be reported in this chapter. Section 4.1 includes a discussion of the scoring procedure. The other major section of the chapter, 4.2, is divided into two main sub-sections. The first deals with the pre-test results and the second covers the results of the statistical analyses that were run to test the five hypotheses of this study.

4.1 Data Scoring Procedures

4.1.1 The Grammaticality Judgement Task

Each of the grammaticality judgement items was given 0, 1, or 2 points. Sentences that were grammatically correct and were judged so, were counted as correct and got one point (see example 1).

	yes	no	score
[1] The girl who was happy went home.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1 point

Correct sentences that were judged as incorrect and incorrect sentences judged as correct received a score of 0. (See example 2).

	yes	no	score
[2] I know the girl whose father died.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0 point

When subjects identified an incorrect sentence but did not give the correct alternative, the item received one point as in [3]. If they provided the correction they would get 2 points as in [4].

	yes	no	score
[3] I bought the book that John read it. No correction provided.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1 point
[4] I saw the boy who he loves Mary. I saw the boy who loves Mary.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2 points

Some other facts about the scoring of the grammaticality judgement need to be noted. Some subjects judged some sentences as incorrect for reasons other than the target feature (pronoun retention). For example, some students judged a correct sentence as incorrect and as a correction they changed the relative pronoun. If the resulting sentence was grammatical, students received one point for the item. Example [5] illustrates this situation.

	yes	no	score
[5] The dog that I gave the food to was friendly. The dog which I gave the food to was friendly.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1 point

Other students judged a correct sentence as incorrect because of the tense used in the sentence. Again, a point was given if the new sentence was grammatical in terms of the relative clause. This is illustrated in [6] below.

	yes	no	score
[6] The father whose son had an accident is very sad.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1 point

The father whose son had an accident was very sad.

Finally, some students judged an incorrect sentence as incorrect not because of the retained pronoun but because of other reasons like tense, or relative pronouns, or the pronoun used in the sentence as in [7], [8], and [9]. Therefore, when they provided their corrections, they corrected the latter problems and left the retained pronoun. In these situations the students' answers were treated as incorrect and no points were given. The students' correct judgement was ignored because they failed to attribute the incorrectness to the retained pronoun.

	yes	no	score
[7] The coffee that my mother prepared it is strong.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0 point
* The coffee that my mother prepared it was strong.			
[8] I bought the book that John read it.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0 point
* I bought the book which John read it.			
[9] The cat that I gave the medicine to it was sick.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0 point
* The cat that I gave the medicine to she was sick.			

4.1.2 The Sentence Combination Task

Each of the 12 sentences was scored as either correct or incorrect and there were no half points. Subjects received a score of 1 point when they provided the correct

sentence and 0 when the resulting sentence was incorrect. Answers were counted as incorrect only if the subjects failed to produce the syntactic configuration of the targeted RC type. Therefore, errors in relative pronoun choice, punctuation, spelling, subject-verb agreement, and changes in tense were not treated as errors. A sentence like [1] below was counted as correct.

[1] The girl which is happy went home.

Target: The girl who is happy went home.

Moreover, it was recognised that SUB sentence pairs can be combined in two different ways: either sentence could be made the subordinate. This situation is illustrated in the SUB pair in [2] below, where both combinations preserve the original meaning of the root sentences.

[2] The girl is happy.

The girl went home.

The girl who went home is happy.

The girl who is happy went home.

Seeing that the students in both situations followed the instruction that asked them to start with the first sentence, these two possible combinations were counted as correct regardless of which clause was made subordinate.

The most common errors were (1) changing the order of sentences, which resulted in either nonsense sentences or sentences containing relative clause types other than those targeted, or (2) omitting some parts of the sentences that were essential, such as

prepositions in IO and OPRE relative clause types. In both situations the answers were counted as incorrect and subjects received a score of 0.

The first type of error is illustrated in [3] and [4] below.

[3] We prepared the food.

The dog ate the food.

* The food that the dog ate we prepared.

Target: We prepared the food that the dog ate.

[4] The stadium is full.

The children went to the stadium.

The children went to the stadium that is full.

Target: The stadium that the children went to is full.

Example [5] below illustrates the second type of error.

[5] The stadium is full.

The children went to the stadium.

* The stadium that the students went is full.

Target: The stadium that the students went to is full.

In the pre-test, the points that each student obtained from judging and correcting the four sentences of each relativization type were added up. These scores were used to measure the groups' performance on individual relative clause types as well as their performance on the six types together. In the post-tests, the total scores obtained from the grammaticality judgement task and the sentence combination task for each relativization type were added up to measure individual and group performance on single as well as combined relative clause types.

4.2 Relativization Knowledge

4.2.1 Pre-test Knowledge of Relativization

An Analysis of Variance was conducted to compare the relativization ability of the four groups DOG, OPG, ALLG, and COG at the outset of the experiment. Results of the ANOVA indicated no significant difference among the groups on the pre-treatment knowledge of relativization. See Table 4.1. The relative clause items in the pre-test accounted for a total of 36 points: 12 for correct sentences, 12 for incorrect ones, and 12 for the expected corrections.

Table 4.1

ANOVA Comparing Groups' Pre-instructional performance on Relativization

Group	N	Mean	SD
DOG	7	12.71	2.87
OPG	9	12.56	2.55
ALLG	8	11.38	3.62
COG	9	12.33	2.87

$F(3,29) = 0.32, P < .81$

The mean scores and standard deviations show that the four groups scored similarly on the pre-test. This suggests that there was no difference in general performance on relative clauses at the time of the relativization instruction experiment. The pre-test results were analysed in terms of response patterns for the different relative clause types and for the correct and incorrect sentences separately. Tables 4.2 and 4.3 display the accuracy of pre-test performance in all four groups. The rates in Tables 4.2 and 4.3

indicate the subjects' accuracy on judging correct sentences (Y), incorrect sentences (N) as well as correcting incorrect sentences (C). These scores are calculated separately for each relative clause type.

Table 4.2

Pre-test Accuracy on SU, DO, IO

Group	SUB			DO			IO		
	YES %	NO %	COR %	YES %	NO %	COR %	YES %	NO %	COR %
DOG	78.5	14	0	85.7	21	0	57	35	0
OPG	72	38.8	14	88.8	22	25	27.7	66.6	0
ALLG	81	25	50	75	18.7	0	43.7	56	0
COG	72	22	0	66.6	38.8	14	38.8	77.7	0

Note. YES = accuracy on correct sentences; NO = accuracy on incorrect sentences; COR = accuracy on correction.

Percentage scores in Table 4.2 suggest that students did not show the same accuracy in judging correct (Y) and incorrect (N) sentences. Subjects in the four groups tended to judge as correct not only correct sentences but incorrect ones as well. This pattern of judgement was very clear in the SU and the DO relative clause types. However, subjects in the DOG and especially ALLG, OPG and COG showed a different pattern of judgement with IO sentences. Instead of accepting everything, subjects tended to reject many correct and incorrect IO relative clause sentences. It would be difficult to interpret this as a sign of any knowledge of relative clauses because no one in the four groups provided the correct IO alternative sentences.

Table 4.3

Pre-test Accuracy on OPREP, GEN and OCOMP

Group	OPREP			GEN			OCOMP		
	YES %	NO %	COR %	YES %	NO %	COR %	YES %	NO %	COR %
DOG	85.7	14	0	50	28.5	0	85.7	35.7	0
OPG	62.9	22	0	55.5	44	25	61	16.6	33
ALLG	75	12.5	0	37.5	18.7	33	75	0	0
COG	48	50	0	33	33	0	77.7	55.5	0

Note. YES = accuracy on correct sentences; NO = accuracy on incorrect sentences; COR = accuracy on correction.

When judging the OPREP, GEN and OCOMP, subjects followed the same pattern they adopted when judging the SUB, DO and IO relative clause types. Many sentences were judged as correct. This bias was clear especially with the OPREP and the OCOMP relative clauses. The pattern was less evident with the GEN. Subjects showed a smaller tendency to accept genitive relative clause sentences. Once again, the ability to correct the identified incorrect sentences was very low, which may mean that the accurate judgements were accidental.

To better see the subjects' bias towards accepting all sentences, the response pattern on all relative clause types together was calculated for the four groups (see Table 4.4). Rates are calculated by dividing the number of times students answered by "yes" or "no" by the total number of both correct and incorrect sentences in the pre-test.

Table 4.4

Overall Response Pattern on the Pre-test Relative Clause Sentences

Group	Yes %	NO %	Unjudged %
DOG	72	21.4	6.5
OPG	56.9	32.8	10
ALLG	65.5	23.4	10.9
COG	55	43	2.7

These rates reflect a tendency to accept sentences with relative clauses regardless of whether they were correct or not. This may have two possible interpretations. First, subjects' performance might be evidence of a very low knowledge of relative clauses. Second, subjects' lack of effort and concentration on the day of the test could be at the origin of this performance. Subjects may have done the task without making any effort to find the difference between correct and incorrect relative clauses. Instead, they randomly circled "no" and in the majority of the cases "yes" in order to get through the task they were required to do.

The response pattern was found to be different on distracters in the pre-test. Calculated rates revealed less tendency judging everything as correct. Table 4.5 displays the response pattern on distracters.

Table 4.5

Response Pattern on the Pre-test Distracters

Group	Yes %	No %	Unjudged %
DOG	48.2	48.2	3.5
OPG	38.8	55.5	5.5
ALLG	14	75	10.9
COG	54	44.4	1

Students' relative success in identifying incorrect distracter sentences and the absence of the bias towards accepting all sentences as was the case with relative clauses suggest that subjects in the four groups were making an effort, first, to find incorrect sentence distracters and, second, to do the whole task. This implies that students' tendency towards accepting all relative clauses was mainly due to the low knowledge of that structure and not to the absence of concentration.

Two students who showed a great bias in judging relative clauses and especially distracters by circling "yes" for all the answers regardless of whether they were correct or incorrect were excluded from the experiment. These students belonged to the DOG and ALLG. This reduced the number of subjects to 7 for the DOG and 8 for the ALLG. The complete bias towards accepting everything was treated as evidence of either the absence of any concentration on and serious consideration of the administered task or an overall ability level which was so low that students could not benefit from the instruction.

4.2.2 Change in Relativization Ability

Hypothesis 1: Subjects who receive instruction on one or all relativization types will do better than those who do not receive any instruction on relativization.

An Analysis of Co-Variance (ANCOVA) using the pre-test score as a co-variate was calculated to determine the relativization ability of the four groups, DOG, OPG, ALLG and COG after the instructional treatment. Results of the ANCOVA indicated that the three experimental groups DOG, OPG and ALLG performed significantly better than the COG on the first post-test. Table 4.6 displays the differences between the groups on the post-treatment knowledge of relativization.

Table 4.6

ANCOVA Comparing Groups' Post-instructional Performance on Relativization

Group	N	Mean Max=84	SD
DOG	7	68.14	4.53
OPG	9	64.78	11.85
ALLG	8	66.25	10.08
COG	9	19.89	10.81

F (3.28) = 46.95, P< .001

Separate ANCOVAs were run on the four groups' performance on each relative clause type. Results are displayed in Tables 4.7, 4.8, 4.9 below.

Table 4.7

ANCOVA Comparing Groups' Post-instructional Performance on SU and DO RCs.

Group	N	SU		DO	
		Mean Max=14	SD	Mean Max=14	SD
DOG	7	13.14	1.57	13.57	0.79
OPG	9	10.44	3.28	12.89	1.83
ALLG	8	13.63	0.74	12.13	3.09
COG	9	3.78	2.73	4.00	2.60

F (3.28) = 29.63, P< .001 for SUB
 F (3.28) = 37.12, P< .001 for DO

Table 4.8

ANCOVA Comparing Groups' Post-instructional Performance on IO and OPREP RCs.

Group	N	IO		OPREP	
		Mean Max=14	SD	Mean Max=14	SD
DOG	7	12.29	1.50	12.00	1.63
OPG	9	11.11	4.11	12.56	2.79
ALLG	8	11.25	3.33	12.38	2.20
COG	9	2.44	1.33	2.67	1.50

F (3.28) = 23.98, P< .001 for IO.
 F (3.28) = 49.74, P< .001 for OPREP.

Table 4.9

ANCOVA Comparing Groups' Post-instructional Performance on GEN and OCOMP RCs.

Group	N	GEN		OCOMP	
		Mean Max=14	SD	Mean Max=14	SD
DOG	7	3.71	1.80	13.43	0.79
OPG	9	4.11	3.55	13.67	0.71
ALLG	8	4.13	1.96	12.75	1.91
COG	9	2.33	1.73	4.67	3.04

F (3.28) = 0.92, P < 0.45 for GEN.

F (3.28) = 36.71, P < .001 for OCOMP

The mean scores that appear in Tables 4.7, 4.8 and 4.9 as well as the ANCOVA tests indicate that the three experimental groups did significantly better than the control group on all relativization types except for the GEN. Subjects in the three experimental groups did not show any advantage over the control group when judging and forming genitive relative clause sentences.

Overall, both the ANCOVA conducted on the subjects' performance on the whole post-test and the ANCOVAs run on the separate relative clause types shows that the experimental groups performed significantly better than the control group in relativization knowledge. This finding supports the first hypothesis.

Hypothesis 2: Instruction targeting marked relative clauses will generalise to unmarked contexts of relativization that are implicated by them.

In order to test the second hypothesis, the results were analyzed in terms of the performance of individual students. The data were converted to a binary form representing whether or not a subject had acquired a particular relative clause type on the test administered. The criterion for acquisition was set at 80%. In order to obtain the 80% criterion, subjects had to get 5 correct answers out of 6 on the pre-test or 12 out of 14 on the post-tests for each relativization type. However, subjects in this study had to meet a further criterion in the post-tests to obtain this 80%. In addition to 80% accuracy on the judgement task, students had also to get at least one correct sentence in the sentence combination task to be included among those who were considered to have acquired the relative clause in question. Only the data obtained from the DOG and OPG will be considered when testing the second hypothesis. The COG is excluded because no relativization instruction was provided to the subjects in this group. The ALLG will not be considered here because, as explained previously, the ALLG was taught SUB, DO, and OPREP relative clause types. This implies that the generalisation to the less marked and untaught relativization can be tested only with the IO. However, this can not be done because generalisation of the knowledge accruing from the marked OPREP can not be held as the only cause for the acquisition of the IO. Instead, generalisation to the more marked relative clause could also be at the origin of that acquisition. That is, students might have been able to judge and form IO relative clause sentences because they projected the knowledge they internalised from the DO instruction. The findings for the DOG are displayed in Tables 4.10 and 4.11.

Table 4.10

Implicational Scale for the First Post-test Knowledge of Relativization for DOG

Student	SU	DO	IO	OPREP	GEN	OCOMP
1	+	+	-	-	-	+
2	+	+	+	+	-	+
3	+	+	+	-	-	+
4	-	+	+	-	-	+
5	+	+	-	-	-	+
6	+	+	+	+	-	+
7	+	+	+	+	-	+

Note. + = newly acquired on post-test; - = never acquired. 80% acquisition criterion.

In addition to acquiring the DO relative clause type, 6 subjects out of 7 projected their knowledge to the implicated untaught SUB. A similar pattern of acquisition and generalisation was found with the OPG. Findings are displayed in Table 4.11.

Table 4.11

Implicational Scale for the First Post-test Knowledge of Relativization for OPG

Student	SU	DO	IO	OPREP	GEN	OCOMP
8	-	+	-	-	-	+
9	-	-	-	-	-	+
10	+	+	+	+	-	+
11	-	+	+	+	-	+
12	+	+	+	+	+	+
13	+	+	-	+	-	+
14	+	+	+	+	-	+
15	-	-	+	+	-	+
16	-	+	+	+	-	+

Note. + = newly acquired on post-test; - = never acquired. 80% acquisition criterion.

Subjects in the OPG were not limited to learning the OPREP relative clause type. Three subjects were able to project the relativization knowledge they internalised from the provided instruction to all relativization types that are less marked. Four other subjects projected that same knowledge to one or two implicated positions of the NPAH. Students # 8 and # 9 did not learn the OPREP. They, therefore, could not project that knowledge. Student # 8, however, did learn the DO. Table 4.12 displays the number of students from both the DOG and OPG who generalised to the implicated relative clause types.

Table 4.12

OPG and DOG Generalisation to the Implicated Relative Clauses in the Two Post-tests
(Number of Students)

Group	First post-test			Second post-test		
	SU	DO	IO	SU	DO	IO
OPG N= 9	4	7	6	7	9	4
DOG N= 7	6			5		

Overall, the results strikingly support the second hypothesis which predicted that the uninstructed, less marked levels of the NPAH would experience gains when a relatively marked level of the hierarchy was instructed.

Hypothesis 3: The generalisation to other relative clause types is not strictly unidirectional. Some subjects will generalise not only to relativization types that are less marked and implicated by the instructed relative clause type, but also to relativization types that are more marked and unimplicated by it.

Tables 4.10 and 4.11 show that subjects in the DOG and OPG generalised not only to the relative clause types implicated by the relativization targeted by the instruction, but also to the relative clause types that were not implicated by it. Three subjects in the DOG were able to generalise to all unimplicated more marked relative clause types except for the GEN. The remaining 4 subjects either generalised to 2 or to 1 more marked relative clause type. Table 4.10 clearly shows that all students generalised to at least one more marked level of the NPAH. It also shows that the GEN was the only relative clause type to which no generalisation occurred.

Subjects in the OPG showed the same ability to generalise to the unimplicated OCOMP. Once again, the GEN seemed to be beyond the subjects' ability to project the relativization knowledge they internalised from the instructed relative clause type. In fact, only one student was able to generalise to that position on the NPAH. Finally the ALLG showed the same pattern of generalisation towards more marked relative clause types. See Table 4.13

Table 4.13

Implicational Scale for the First Post-test Knowledge of Relativization for ALLG

Student	Su	D.object	Lobject	O.Prep	Genitive	O.Comp
17	+	+	-	+	-	+
18	+	+	+	+	-	+
19	+	+	+	+	-	+
20	+	-	-	-	-	-
21	+	+	+	+	-	+
22	+	+	+	+	-	+
23	+	+	+	+	-	+
24	+	-	-	-	-	-

Note. + = newly acquired on post-test; - = never acquired. 80% acquisition criterion.

Subjects in the ALLG showed the same ability as those in the DOG and OPG when it came to generalising to the unimplicated OCOMP and GEN. Nearly all subjects generalised to the relative clause that is the lowest on the NPAH i.e. , the OCOMP. At the same time, no one was able to project the internalised relative clause system to the GEN.

Table 4.14 displays the number of students who generalised to each relativization type that was not implicated by the relative clause taught to each experimental group on the first post-test.

Table 4.14

Unimplicated relative Clause types acquired by the Three Experimental Groups on the first Post-test

Group	IO	OPREP	GEN	OCOMP
DOG N= 7	5	3	0	7
OPG N= 9	X	X	1	9
ALLG N= 8	X	X	0	6

Note. X = RC implicated by the relativization type taught to the group.

Nearly all subjects in the three experimental groups generalised to the most marked relative clause type, the OCOMP. This generalisation is evidence for disconfirming the MGH which, by its nature, says that generalisation is not bidirectional. The instruction benefits were not limited to the relative clause types targeted by instruction and the contexts implicated by them, but these benefits were also extended to the unimplicated contexts of relativization. These findings disconfirm the hypothesised unidirectionality of the MGH and, thus, support the third hypothesis of this study.

Hypothesis 4: In the short term, teaching all the relativization types in the order with which they were presented by the NPAH will be more beneficial than teaching one marked relativization type and letting students generalise to the implicated levels of the hierarchy.

Although there was a significant difference between the three experimental groups on the one hand and the control group on the other (see Table 4.6), there was no significant difference between the three experimental groups DOG, OPG and ALLG. See Table 4.15.

Table 4.15

ANCOVA Comparing the Three Experimental Groups on the First Post-test

Group	N	Mean	SD
DOG	7	68.14	4.53
OPG	9	64.78	11.85
ALLG	8	66.25	10.08

F (2.20) = 0.24, P < .79

At the outset of the experiment, it was expected that the instruction provided to the ALLG would result in a significantly better relativization knowledge than would be the case with the DOG and OPG. However, subjects in the three experimental groups performed equally well on the first post-test. The mean scores (Table 4.14) show no evidence of the difference in knowledge that was expected to accrue from the different experimental treatments. Strikingly, the ALLG was the experimental group that got the lowest mean score on the first post-test.

Separate ANCOVAs were run to see if there were any significant differences between the three experimental groups on each relative clause type. These ANCOVAs showed a significant difference only with the SU relativization type. See Table 4.16.

Table 4.16

ANCOVA Comparing OPG and ALLG on SU Relative Clause Type

Group	N	Mean	SD
DOG	7	13.14	1.57
ALLG	8	13.63	0.74
OPG	9	10.44	3.28

P < .05

The post-hoc Tukey showed that the ALLG performed better than the OPG in SU relativization with $P < .05$. It also showed no significant difference between the ALLG and the DOG when SU relativization is concerned. Furthermore, the OPG and the DOG did not show any significant differences on the SU relative clause on the first post-test. No significant differences were found between the three experimental groups' performance on the remaining five relative clause types in the first post-test.

In sum, the ANCOVAs run on the subjects' post-instructional knowledge of relativization show that the three experimental treatments did not result in a significant difference between the three experimental groups' knowledge of relative clauses. This disconfirms the fourth hypothesis which predicted a better performance from the ALLG.

Hypothesis 5: In the long term, instruction that covers all the relativization types will have more beneficial effects than instruction that targets the marked level only.

An ANCOVA test run on the students scores in the second post-test revealed no significant differences between the three experimental groups. Table 4.17 displays the results of that test.

Table 4.17

ANCOVA Comparing the Three Experimental Groups' Achievement on the Second Post-test

Group	N	Mean	SD
DOG	6 ²	69.83	5.64
OPG	9	70.11	6.35
ALLG	7	74.29	4.64

F (2.1) = 1.54, P < .24

Although the ALLG got the highest mean in the second post-test, the difference is not significant. This fails to confirm the fifth hypothesis. Nevertheless, the scores show that all groups continued to improve during this two-week period.

² The number of subjects in the DOG is 6 rather than 7 because one student was absent in the second post-test. The same applies to the ALLG.

Chapter 5: Discussion and Conclusion

5.0 Introduction

Three major findings emerge from this study. First, exposure to relative clauses as well as the relativization instruction provided to the three experimental groups had strong and positive effects. The control group, whose treatment involved exposure to structures other than relative clauses, did not experience any gains in relativization ability. The second finding of the experiment was that the three instructional treatments were equally effective with respect to gains in relativization. No evidence showed the difference of relative clause knowledge that was expected to result from the different instructional treatments provided to the DOG, OPG and ALLG.

The third finding of the study adds further support to the hypothesised generalisation that is expected to take place once one marked relative clause type on the NPAH is taught. Subjects in the OPG were able to project the rules they internalised from the instructed OPREP to the implicated and less marked contexts of relativization which had not been taught. Subjects from the DOG showed knowledge of the SUB relative clause type when they were taught the DO only. However, the results added to the controversy about the presumed unidirectionality of the MGH. Subjects' knowledge of the untaught most marked relative clause types (GEN and OCOMP) showed some improvement in the three experimental groups. Learners were able to project the rules of the relativization system to more marked contexts of relativization.

In this chapter I will first provide possible interpretations of the learners' performance on the pre-test. Second, the characteristics of the three experimental

interventions will be examined to determine why the three experimental groups improved significantly more than the control group in their ability to relativize, as well as why there were no differences between the experimental groups' tests of relativization despite their having been taught different relative clause types. I will then discuss the generalisation pattern observed in this study. The chapter ends with a summary of this study's findings and their pedagogical implications.

5.1 Pre-test knowledge of relativization

On the pre-test (see Tables 4.2, 4.3 and 4.4)), students in the four groups showed a great bias towards judging everything as correct. This bias mainly reveals that students' performance on English relative clauses was either based on incomplete or accidental knowledge. At first glance this behaviour on the pre-test might be attributed to the absence of concentration on the part of the tested subjects. However, the same subjects' performance on distracters (see Table 4.5) shows that this can not be the only reason. Their performance on distracters clearly shows that students were trying to detect incorrect sentences. It is true that some subjects did better than others, but their rates show that students in all groups were making an effort to detect errors. Students' performance can also be caused by confusion. Two major things can be at the origin of that confusion. The first is the test itself. Even though both their teacher and I clearly explained that the test was neither to be graded nor to be considered in their final grades, students showed some difficulty understanding that and thought it was a surprise test. This made them panic and they consequently became very agitated. The second source of confusion may be the nature of the test. The fact that the subjects were expected to judge three grammatical points, relative clauses, subject verb agreement errors and pluralisation errors may have prevented them from defining the aspects they were expected to judge.

This particular confusion was, of course, part of the research design. At the pre-test, it was preferable to avoid having students focus on relative clause errors only. There are two reasons for this: they had not previously been taught relative clauses so they would have been very distressed at being tested specifically on an unknown form. Second, the test might have served to "teach" relative clauses, or at least provide considerable focussed exposure. This would have been of particular concern in the COG. Thus, students may not have known what aspects to judge.

Students' bias towards accepting all relative clauses seems a little bit strange when we keep in mind the possible influence their L1 may have. In light of the fact that Arabic retains pronouns in all relative clause types except SUB, a bias towards accepting incorrect relative clauses that contain retained pronouns and rejecting correct ones seems more logical. However, pre-test results did not reflect this expected behaviour. On the one hand, the correct sentences were in the majority of the cases (62%) accepted by students in the four groups. On the other hand, the incorrect sentences were not accepted all the time. Students identified them as incorrect 30% of the times. However, the success in detecting these incorrect sentences may be by mere chance. Students may have rejected the incorrect relative clause sentences for irrelevant reasons.

Another possible influence may be the subjects' L1 and L2. First, as explained previously, Tunisian students start learning French by the age of 9. By the time they reach the second year of the first cycle in the secondary school, which is the level from which the present subjects are selected, these students are supposed to have a certain mastery of French. This intermediate and sometimes advanced knowledge of French may have helped the students detect the great resemblance between French and English rules for relative clause formation, which may have facilitated the detection of correct sentences. This

interpretation may make us wonder about the reasons that prevented these same subjects from drawing parallels between French and English when judging incorrect sentences. Subjects' strong L1 influence may be at the origin of the inability to detect incorrect relative clause sentences. Subjects in this study, and Arabic speakers in general, know that a sentence like "the man who you met him is my uncle" is the correct form of a relative clause in Arabic. Saying the same sentence in another language without the pronoun may seem incorrect if no one explains the rules in that other language. This may account in some measure for the subjects' tendency to accept these incorrect relative clauses in their first contact with them. L1 influence as Schachter, Tyson and Diffey (1976) explained seems to be one major factor that may be at the origin of the students' performance on incorrect relative clauses.

5.2 Instruction effects

The outstanding performance of the experimental groups when compared with that of the control group and the equivalent effects of the relativization instruction which obtained in the three experimental groups may be explained by the multiple levels of exposure that resulted from the nature of the instructional treatments. The explicitness of that instruction can also be at the origin of the post-instructional knowledge evidenced in the three experimental groups. Subjects' similar performance on the pre-test may have equalised the chances of learning relative clauses. Finally, subjects' L1 and L2 influence may have been so strong that the differences attributable to the three experimental treatments was overwhelmed.

5.2.1 Explicitness

Enhancing the input by making the formal properties of the target language prominent in some way is a basic requirement for the acquisition of linguistic competence. According to Rutherford and Sharwood Smith (1988),

One can explicitly call attention to a grammatical feature and, if necessary, even articulate an informal pedagogical 'rule' as an instructional aid; one can implicitly call attention to a grammatical feature through calculated exposure of the learner to crucial pre-selected data; and one can choose to ignore a grammatical feature altogether. (p. 277)

In sum, one technique of raising learners' consciousness of specific grammatical phenomena is the explicit presentation of the formal properties of these phenomena to the learner. At the other end of the consciousness raising continuum is the implicit presentation of material in order to encourage learners' own inferential capabilities. From this definition it follows that the instruction provided to this study's three experimental groups is of the explicit type. Subjects were explicitly provided with the rules behind the different steps that enable them to combine two simple sentences into a single complex one containing a relative clause. During the sentence combination process, in which one sentence became the relative clause that was then embedded in the first sentence, subjects were able to observe how one co-referential noun turned into a relative pronoun, see the relative pronoun move to the correct position, notice how the co-referential pronoun was deleted, and finally how the relative clause itself moved to the target position. All these steps were accompanied by an explicit statement of the relevant rules. This perceptual

saliency may be at the origin of the success of instruction and of the experimental groups' high performance on the post-test.

The explicitness that characterised the instructional intervention was of the same degree for the three experimental groups. In fact, each group was given the same rules for relative clause formation. The problem of pronoun retention as well as the recombination procedure were explained in exactly the same ways with similar details. No instructional instrument that could have increased the degree of explicitness was provided to one experimental group without being provided to the others. All the rules were the same and the whole teaching procedure was alike. So, even though the three experimental groups were taught different positions for relativization, the similarity in the degree of explicitness of the relativization instruction provided to these groups may account for the equivalent effects of the instructional treatments.

5.2.2 Exposure

In this study, the same pre-test on relative clauses and distracters was administered to all four groups. Consequently, all groups may have benefited, to some extent, from a test effect during the treatment and post-testing phases of the study. The test provided subjects in the four groups with a non-negligible opportunity to come in contact with relative clauses in a repetitive way and to notice the way they were formed. This first opportunity to notice relative clauses was accompanied by an additional level of redundancy available in the instructional treatment provided to the three experimental groups, DOG, OPG and ALLG. The instruction, as previously described, started with an overt explanation of the procedure followed to combine two simple sentences to obtain a single complex sentence containing a relative clause. The explanation of this procedure was repeated each time students in any experimental group showed incomprehension of

some aspects of relativization. Apart from this rule-oriented presentation, subjects in the three experimental groups did exercises that not only enabled them to practice that recombination procedure, but also provided them with the opportunity to read sentences containing relative clauses repeatedly. The COG on the other hand did not benefit from further opportunities to understand what they might have noticed in the pre-test. This might have favoured the three experimental groups and might have given them important chances to understand English relativization.

Overall, both the pre-testing measure and the redundancy features built into the in-class instruction served the same function of providing subjects with repeated exposure to sentences containing relative clauses. However, the in-class relativization instruction provided to the three experimental groups only is likely to be the major factor that created the significant difference between their achievement on the post-test and that of the control group. In fact, even though the control group and the experimental groups had the same level of relativization knowledge at the outset of the experiment, and although the four groups had the same opportunity to notice relative clauses in the pre-test, the COG's performance on the post-test was very low when compared with that of the experimental groups. Logically, this means that the instruction provided to the experimental groups is the major factor that created the difference in post-instructional relativization knowledge. This instruction that provided the students with an explicit explanation of relative clauses and a frequent exposure to them may have enabled the DOG, OPG and ALLG to outperform the COG.

One major characteristic of this exposure is that it was equal in the three experimental groups. The instructional intervention provided the three experimental groups with equal chances of exposure. The frequency with which relative clauses were

represented did not differ from one experimental group to the other, which may account for the equivalent effects of the three instructional treatments provided to these groups.

Homework packets that were given to the three experimental groups may have increased the redundancy level and, consequently, increased the three groups' chances of acquiring relative clauses. At the same time, they may have equalised the groups' chances of acquiring them. As previously described, the homework packets contained two major parts: the step by step explanation of the recombination procedure and relative clause exercises. On the one hand, this may have given the students a second chance to understand the recombination procedure at their own pace and in a stress free environment. It may also have given them more chances to read and understand sentences containing relative clauses as well as to practice forming sentences with relative clauses. On the other hand, these homework packets may have equalised the processing time available to the three experimental groups and, thus, equalised the chances of acquisition. In fact, the way the instructional treatment was designed gave more processing time for the DOG and OPG. Seeing that these groups had to deal with only one relative clause type, the students had enough time to process the relative clause information, to do many exercises and to ask all the questions they had about relative clauses. The ALLG, on the other hand, had to deal with three relative clause types in the same period of time. Each type had to be explained separately by going through the whole recombination procedure. This did not leave much time for the students to process the information and especially to do as many exercises as the DOG and OPG. However, the impact of this inequality in time amounts may have been overcome by the homework packets. Since the DOG and OPG subjects got enough time to think about and practice relative clauses in class, they, consequently, may not have required very much time to do the homework packets. On the other hand, subjects in the ALLG could take all the time they needed to process the

information and could make up for the time lost in classroom treatment when doing the same homework packets.

In sum, the multiple levels of redundancy accruing from the in-class instruction as well as the homework packets may have probably enabled the subjects in the three experimental groups to learn relative clauses significantly better than the control group. At the same time, the fact that relative clauses were made redundant for the three groups in nearly similar ways may account for the equivalent effects of the instructional treatments provided to the three experimental groups.

5.2.3 Subjects' performance on the pre-test

As it appears in Tables (4.2 and 4.3), subjects in the three experimental groups had high scores on correct sentences from the pre-test. They accepted many correct sentences in SUB, DO, OPREP, OCOMP relative clause types. However, they accepted fewer correct sentences in IO and GEN relative clause types. Nevertheless, even if with the latter relative clause types students identified incorrect sentences, they were unable to provide the correct alternatives. This indicates that the detection of the incorrect sentences may have been due to chance rather than knowledge. This achievement on the pre-test reveals that subjects had a certain knowledge of how a relative clause is supposed to look from the outset of the experiment. However, these same subjects were at the same time far less successful in either detecting incorrect relative clauses, or correcting them if they succeeded in identifying them. This means that the main problem that the students had to master was the very feature that caused those sentences to be incorrect i. e., pronoun retention. Subjects had to know which relative clauses contained retained pronouns, and especially how to correct them. So, the instruction provided in this study

did not really have to teach all aspects of relative clause formation. Rather, students needed to learn how to detect and correct pronoun retention errors. Since that problem was explained in the three experimental groups, all the three groups' achievement on the post-test showed a dramatic jump. This jump was especially manifested in detecting and correcting incorrect relative clauses. Judging correct relative clauses did not show the same dramatic improvement because the subjects' performance on these sentences was already high from the pre-test and no room was left for big improvements.

So, explaining the problem of pronoun retention that limited the accuracy of the students' performance to the three experimental groups may have contributed to creating the big difference between them and the control group on the post-test. This explanation (how to detect and correct pronoun retention errors) may also have enabled the experimental subjects to equally master the relativization aspect they missed in the pre-test, regardless of the experimental treatment they received. During the explanation of the pronoun retention problem, subjects in the three experimental groups were presented with the same information. First, they were presented with a sentence containing a retained pronoun and were asked to judge it. Then these subjects were referred to the fourth step of the recombination procedure which explained how the co-referential noun turned into a relative pronoun. Finally, subjects' attention was drawn to the deletion of the co-referential pronoun and to the difference between the resulting English relative clause sentence and its equivalent in Arabic. Even though the explanation was about the deletion of pronouns that occupied different functions in the sentences (SUB, DO, OPREP), the same details and rules were given to the three experimental groups. More importantly, the explanation was about the same aspect, pronoun retention and deletion. This may have minimized the difference that was expected from the different treatments.

5.2.4 L1 and L2 influence

All subjects in the three experimental groups and the control group are of the same background. They are all Tunisians whose L1 is Arabic and whose L2 is French. The problems that these subjects are likely to encounter are of the same type if they are due to their linguistic background. Due to their Arabic linguistic background, subjects may encounter problems with relative pronoun use and especially pronoun retention. The former problem may be aggravated by the influence of French relativization. To a large extent, subjects can rely on and use all the similarities that exist between these two systems and the English one as a starting point when learning English relative clauses. The fact that this study's subjects share the same linguistic background may have influenced the similarities in their acquisition of English relativization, regardless of the experimental group to which they belonged. This may have contributed in equalising the three groups' chances of acquiring relative clauses.

The similarity with which the subjects' linguistic background may influence the acquisition of relative clauses, the similarity between the three experimental treatments in terms of redundancy and explicitness and the great similarity of the subjects' performance on the pre-test may have contributed to reducing the effect that might otherwise have resulted from the different instructional treatments provided to the three experimental groups.

5.3 Generalisation

As it appears in Table 4.12, some subjects in the DOG and OPG experimental groups not only learnt the relative clauses targeted by the instructional intervention, but also generalised to some of the relative clause types that are less marked and implicated by them. Instruction which focused at one position of relativization on the NPAH was generalised by subjects to other contexts of relativization. This finding provides further support to one basic principle of the MGH that states that once instruction is provided on one relative clause type of the hierarchy developed by Keenan and Comrie (1977), acquisition of that relativization type and generalisation to the ones implicated by it take place.

However, subjects in the present study improved in some unimplicated types of relativization, a fact which is inconsistent with the MGH which predicts that generalisation takes place to the implicated positions only. From a first look at the pattern of the generalisation that occurred in the OPG and ALLG, one is led to the same interpretation given by Gass (1982). Gass attributed this generalisation to the students' inability to differentiate syntactically between the comparative conjunction "than" and prepositions in both indirect objects and objects of preposition. The interpretation gets stronger especially since the students did not generalise to the genitive that is considered less marked than the OCOMP. However, subjects' confusion of the comparative marker and prepositions can not be held as the only probable reason for this generalisation if we look at the DOG's achievement. Even though subjects in this group were not taught relative clauses containing prepositions (IO, OPREP) or OCOMP relativization, generalisation to these unimplicated and more marked relative clause types did occur. Furthermore, two students from the DOG generalised to the OCOMP without generalising to the less marked IO and

OPREP relative clause types that contain prepositions. These instances may show that the students were not treating the comparative conjunction "than" as a preposition, and that they were having less difficulty relativizing OCOMP than is the case with the IO and the OPREP relativizations. Nevertheless, this achievement on the OCOMP remains difficult to explain.

One possible interpretation of this unexpected generalisation to the more marked relative clauses in the three groups is that learners in the three experimental groups may have understood, from the instruction provided, the system behind relative clause formation and applied it to the remaining untaught relative clause types (Doughty, 1991). In the case of the present study, the subjects' mother tongue and L2 may have provided further help to understand that system and to apply it to all relativization types in the same way. Subjects may have concluded that Arabic, French and English relativizations are alike in many respects and that the only thing to be avoided is the pronoun retention that characterises the Arabic system and that is focused on in the study and the tests. This, consequently, may have facilitated their task, and may account for the large number of students who generalised to the unimplicated relative clause types.

This interpretation becomes more plausible when we consider the students' inability to generalise to the genitive. In fact, seeing that the genitive formation requires a system that is quite different from the one that governs the formation of the other relative clause types on the hierarchy, the subjects' application of the system they developed from the relativization targeted by the instructional treatment resulted in the formation of incorrect sentences and in an inability to judge genitive sentences. The subjects' possible reliance on the big similarity existing between English and Arabic in the formation of the other relative clauses may have aggravated the situation. As noted in chapter 1, Arabic

does not have the equivalent for the relative pronoun "whose". Rather, the genitive is expressed by the normal relative pronoun used in all types of relative clauses and a pronoun that expresses the idea of possession. Using their knowledge of Arabic may have led subjects to accept the incorrect relative clauses which matched the Arabic pattern.

If we assume that the subjects developed one system that they used with all relative clause types, and if we further assume that the big similarity that exists between Arabic, French and English relativizations facilitated the development and the reinforcement of that system, we can understand how these subjects generalised to the unimplicated relative clause types except for the genitive.

Both Hyltenstam (1984) and Pavesi (1986) found that their subjects showed a tendency to acquire the GEN after the OCOMP. Their subjects showed a greater ability in producing OCOMP relative clauses. Tables 4.10, 4.11 and 4.13 show that subjects in the present study tended to behave in the same way with the two most marked relative clause types. Even though subjects were able to project their knowledge of relative clauses to the most marked relative clause type (OCOMP), generalisation to the GEN was very limited. Students tended to accept both "whose" and "who his/her" in judging genitive relative clauses. Two possible reasons may account for the students' behaviour. With retained pronouns in the GEN, the pronoun comes immediately after the relative pronoun. This may have led the students to interpret it differently from retained pronouns in other positions. Gass (1982) asserts that "since the pronoun is adjacent to the relative clause marker, it may have been considered part of the marker as opposed to being part of the restricting sentence as in the other positions" (p. 138).

The influence of Arabic may be the second reason for the students' inability to generalise to the GEN. However, when it came to the sentence combination task some students used "whose" to combine sentences containing GEN relative clauses. "Whose" was used in 9 instances in the first post-test and 18 instances in the second post-test by subjects in the three experimental groups. When I noticed that unexpected use on the day of the test, I asked the students about their reasons behind that use. These subjects said that in the first exercise they felt that both "who his" and "whose" might be possible and correct but that they preferred to use "whose" in the second exercise because they knew that the presence of a pronoun in the relative clause might be problematic. So, students were aware of the possible problems that might accrue from the presence of pronouns in the GEN sentences. However, at the same time they felt that these pronouns made sense. Being faced with this dilemma, the students chose the safest alternative which is using the relative pronoun "whose".

5.4 Conclusion and pedagogical implications

The findings of this study were as follows:

- Explicit instruction was shown to have a positive effect on the acquisition of relativization in English. The three experimental groups who received a rule-oriented instructional treatment improved significantly more in the first post-test than the control group which was taught other grammatical structures.

- Instruction which takes into account the markedness relations which comprise the NPAH was shown to facilitate acquisition by speeding up passage across other relativization contexts, even though the instruction focused on only one level of the NPAH.

- Subjects in the 3 experimental groups were not limited to the acquisition of the most marked relative clause targeted by the instruction. It was demonstrated that the generalisation accruing from the instructed relative clause type goes in the direction of the more marked contexts as well as the less marked ones.

- Instruction focussed on the problem (pronoun retention) that limited the accuracy of Arabic subjects' performance in the experimental groups was shown to facilitate the acquisition of the English relativization system. Subjects became able to detect that error and to avoid it when forming relative clause sentences.

- Tunisian students were found to be unable to project relativization knowledge to the genitive when other relative clause types were taught.

- Teaching many relative clauses in the order of the NPAH did not result in better knowledge than teaching only one context of relativization. In other words, though the three experimental treatments focused on different relative clause types, the post-instructional performance did not show any difference in relative clause knowledge. Contrary to the prediction, the ALLG did not outperform the DOG and the OPG. This was attributed first to the equal levels of exposure as well as to the comparable degrees of explicitness that resulted from the nature of the instruction. Second, the equal influence of subjects' L1 (Arabic) and L2 (French) and the equal level of relativization knowledge evidenced in the pre-test were considered as other possible reasons for the resulting similarity of post-instructional knowledge of relative clauses.

- Teaching DO relativization appeared to give the same results as teaching the more marked OPREP. Subjects in the DOG were able to perform as well as the OPG on all implicated and unimplicated relative clause types.

Three pedagogical conclusions can be drawn from these findings once the Tunisian learning context is considered. First, instruction focusing Tunisian Arabic students' attention on the problem of pronoun retention seems to facilitate the comprehension and acquisition of the English relativization system. This instruction helps them see the major difference that exists between the Arabic and the English relativization systems, and, subsequently, may enable them to avoid the error (pronoun retention) that many Arabic speakers frequently make. Once the problem of pronoun retention is overcome, students, as is the case in this study, can generalise the internalised relative clause knowledge to other relative clause contexts even if only one single position of the NPAH is taught.

Second, this study's findings clearly indicate that the genitive is beyond students' ability to generalise no matter what relative clause or clauses get taught. This implies that Tunisian, and Arabic learners of English in general, need a brief explanation of the formation of the genitive. Because the formation of the genitive in English requires a different relative pronoun and a different procedure, an explanation of the use of "whose" as well as the operations involved in forming genitive relative clauses is required. Teaching one relative clause type and expecting students to generalise to the genitive does not apply to the Tunisian context even if the pronoun retention problem is explained. Students will not have any clue about the necessity of using "whose" and the possessive pronoun that is used in genitive relative clauses will not be treated as a useless incorrect repetition as is the case with other relative clause types. It will, rather, be seen as a necessary item to express the idea of possession and belonging.

The final implication of the present study seems to be less evident than the two previous ones. Teaching only one marked context seems as beneficial as teaching many relative clause types together. One might think that in longer terms (more than two weeks as is the case with the present study) the instruction covering many contexts would be more efficient. However, until another study investigates the long-term difference in the knowledge resulting from teaching many relative clauses vs. teaching only one relative clause, the evidence from this study suggests that there is no such difference. A larger number of subjects needs to be included in future studies in order to have the sufficient data to better test the hypotheses.

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APPENDICES

APPENDIX A

Testing Measures

The pre-testing measure

Please read each sentence and decide whether it is correct or incorrect. If you think the sentence is a good, correct English sentence, circle "yes". But if you think the sentence is a bad, incorrect English sentence, circle "no". Circle only ONE answer for each sentence. All WORDS ARE SPELLED CORRECTLY.

EXAMPLE: The boy play hand-ball. yes no

The boy plays hand-ball. yes no

1. The person I gave my money to him is very confidential. yes no

.....
2. Tunisia has many beautiful beach and hotels. yes no

.....
3. I talked to the man who bought a new car. yes no

.....
4. The person who I'm speaking with him is my teacher. yes no

.....
5. I have some picture about Canada. yes no

32. The boy who I am older than him is Karim.

yes no

.....

Now, try to write your correction underneath each incorrect sentence.

EXAMPLE: The boy play hand-ball.

yes no

.....

The boy plays hand-ball.

yes no

.....

The post-testing measure

Exercise 1: Please read each sentence and decide whether it is correct or incorrect. If you think the sentence is a good, correct English sentence, circle "yes". But, if you think the sentence is a bad, incorrect English sentence, circle "no". Circle only ONE answer for each sentence. All WORDS ARE SPELLED CORRECTLY.

EXAMPLE: I have three new dress. yes no

I ate three red apples. yes no

1. I know the man who Mary is happier than. yes no

.....

2. The girl who was happy went home. yes no

.....

3. The girl whose book is new is happy. yes no

.....

4. I saw the boy who Mary gave the book to him. yes no

.....

5. I know the girl who her father died. yes no

.....

6. The dog that I gave the food to was friendly. yes no

.....

7. I bought the book that John read it. yes no

.....

8. The person who John is older than her is Mary. yes no

.....

9. I know about the boy who is absent. yes no

-
10. I know the girl whose father died. yes no
-
11. The girl who I saw was happy. yes no
-
12. I know the boy who Mary is talking about. yes no
-
13. The man whose child died is crying. yes no
-
14. The animal that the cat is nicer than is the dog yes no
-
15. I know the boy who Mary was talking about him. yes no
-
16. The girl who I gave the book to was absent. yes no
-
17. The cat that I gave the food to it was friendly. yes no
-
18. I saw the boy who the dog ate his sandwich. yes no
-
19. The teacher gave the girl who she came late some homework. yes no
-
20. I saw the boy who Mary gave the book to. yes no
-
21. The girl who John was looking at her is here now. yes no
-
22. I saw the boy who Mary likes. yes no

.....

Now, try to write your correction underneath each incorrect sentence.

EXAMPLE: I have three new dress. yes no

.....

I ate three red apples. yes no

.....

Exercise 2: Please combine the two sentences into one correct English sentence. Always begin with the first sentence. Do not leave out any information.

1. I know the boy. Mary is talking about the boy.
.....

2. I saw the boy. The boy likes Mary.
.....

3. The girl was happy. I gave the book to the girl.
.....

4. The girl is here now. John was looking at the girl..
.....

5. I know the man. Mary is older than the man.
.....

6. The man is crying. The man's child died.
.....

7. I saw the girl. John likes the girl.
.....

8. The girl is angry. The girl is crying.
.....

9. The boy ate the food. The mother prepared the food.
.....

10. The boy is young. I'm taller than the boy.
.....

11. The dog is sick. I gave the food to the dog.
.....

12. I know the girl. The girl's father is a teacher.
.....

Questionnaire

Name:

Class:

Please read the following questions and circle "yes" if your answer is positive and "no" if your answer is negative. Please circle only one alternative for each question.

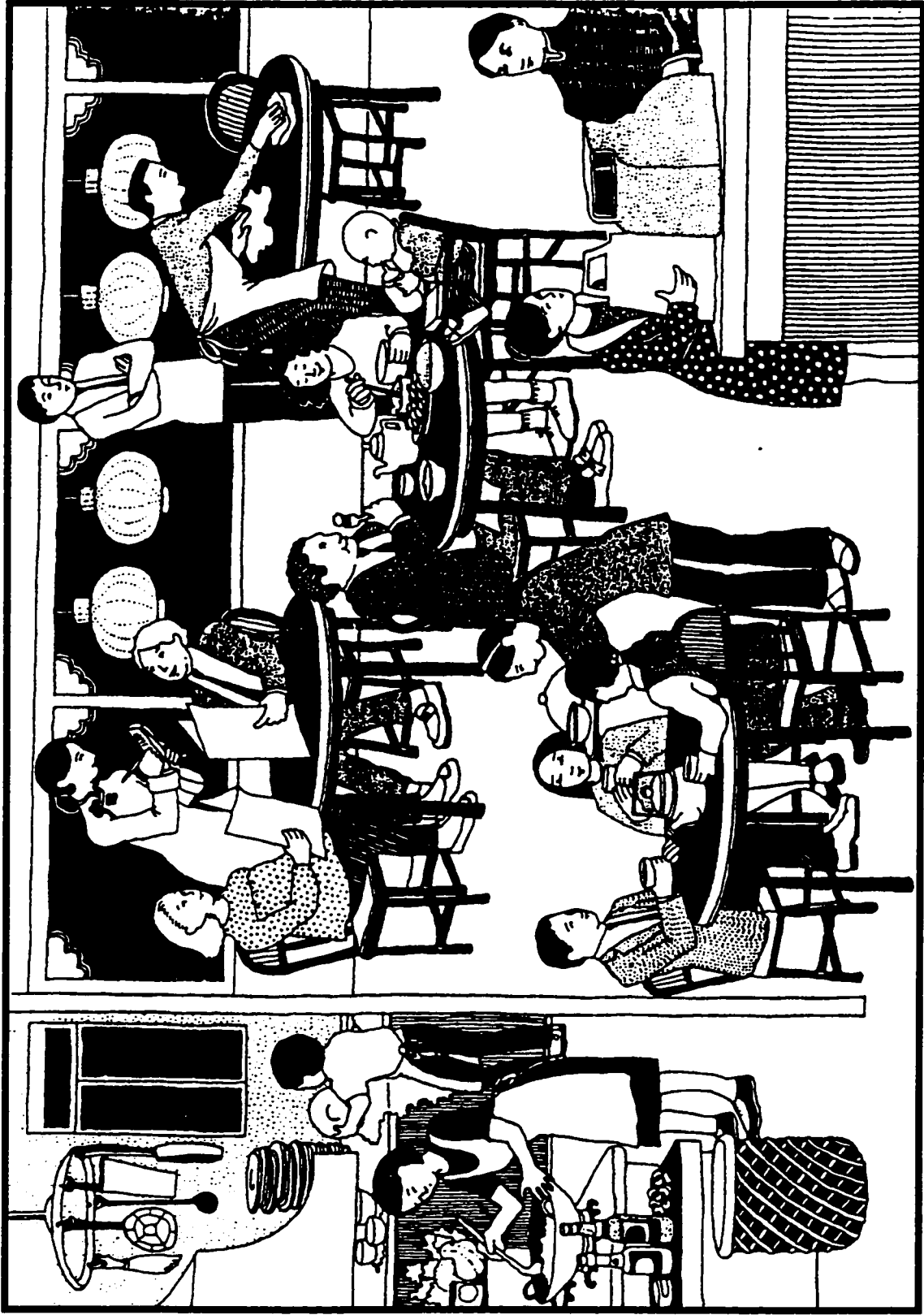
- | | |
|---|-----|
| 1) Are your parents Tunisians? | Yes |
| | No |
| 2) Does one of your parents speak English? | Yes |
| | No |
| 3) Do your parents speak English at home? | Yes |
| | No |
| 4) Have you visited any English speaking country? | Yes |
| | No |
| 5) Do you watch any English TV channels? | Yes |
| | No |
| 6) Do you read any English novels and books? | Yes |
| | No |

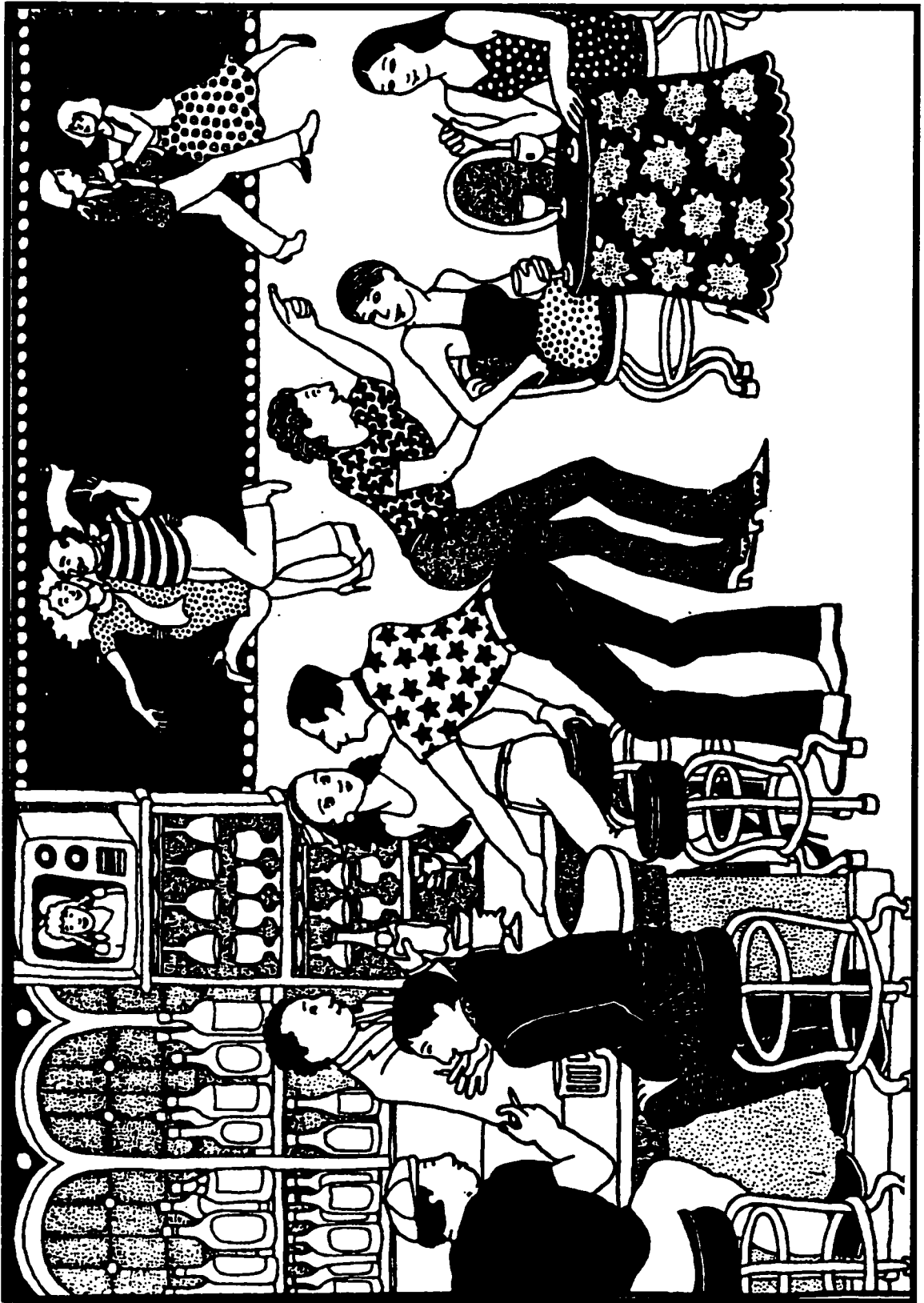
APPENDIX B

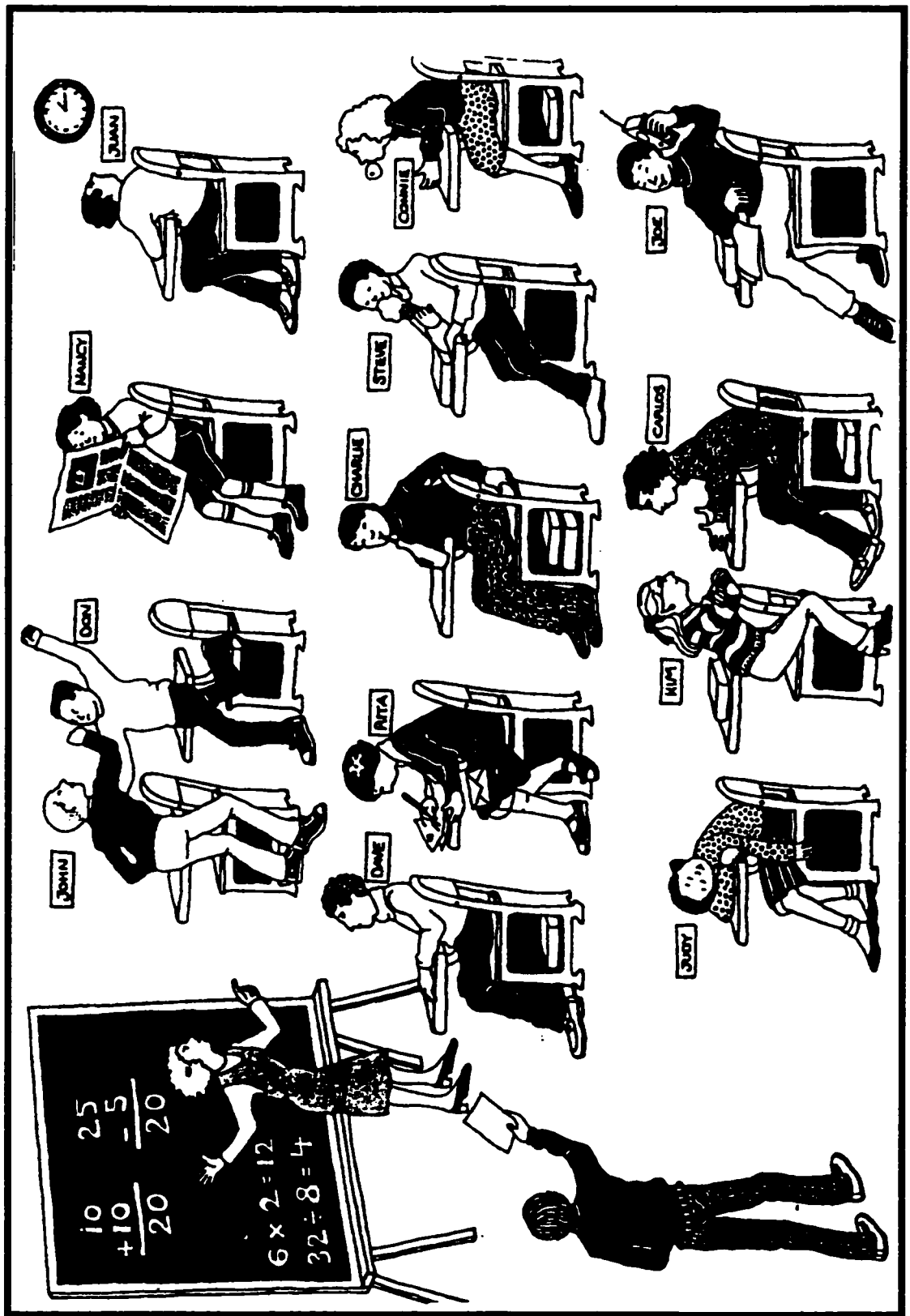
Teaching Materials

Elicitation pictures









In-class exercises

Exercise B1: Please read each sentence and decide whether it is correct or incorrect. If you think the sentence is correct, circle "yes". But if you think the sentence is incorrect circle "no" and give the corrections in the lines underneath.

1. The book that I bought isn't interesting. yes no

.....

2. The car that my father rented it is very big. yes no

.....

3. The cat that you saw it last week died yesterday. yes no

.....

4. The man that you met in my parents' house is a lawyer. yes no

.....

5. The exercise that the teacher gave it is very easy. yes no

.....

6. I bought the book that the teacher recommended. yes no

.....

Exercise B2: Each block contains the words for two sentences that contain relative clauses. Try to find the order of these words to obtain these sentences.

Nancy is the dishes the little reading the customers the
newspaper boy that she used borrowed is washing from
Juan which.

that Dave is down the the lesson following meals which
the waiter the teacher is writing the customers is explaining
ordered.

the woman the test the rice doing is are eating
the students which the cook that the teacher gave
prepared.

Exercise B3: Each block contains the words for two sentences that contain relative clauses. Try to find the order of these words to obtain these sentences.

the vase my father which my mother is eating prepared I
broke the cake that I bought.

our new tests back the neighbours the house are painting
the teacher last week which gave they bought which
we did .

my in the kitchen gave yesterday brother is my mother ate
doing the cat the homework that the fish his teacher
left which.

the policeman from the the wallet the book lost three weeks ago
which I borrowed I lost found that my mother library.

Exercise B4: Please combine the two sentences into one sentence containing a relative clause. Always begin with the first sentence. Do not leave any information out.

I saw the man.

John described the man.

.....

I found the architect.

Mrs. Miller recommended the architect.

.....

The book describes Canada.

I read the book.

.....

The book was interesting.

I bought the book.

.....

The song was beautiful.

Mary sang the song.

.....

should buy the book.

Mr. Smith wrote a book.

.....

The students repeated the words.

The teacher pronounced the words.

.....

The letter was from Mr. Miller.

John saw the letter.

.....

Mary made the coffee.

John drank the coffee.

.....

I enjoyed the concert.

We saw the concert last night.

.....

The plane arrived on time.

I took the plane to Canada.

.....

I saw the doctor.

My friend recommended the doctor

Homework packet

Study the two sentences below

The woman is very happy.
The man is dancing with the woman.

The noun that is repeated in both sentences is **THE WOMAN**.

The woman is very happy.
The man is dancing with the woman.

To combine the two sentences into one single sentence we replace the noun in the second sentence with a relative pronoun.

There are three relative pronouns.
Who for human nouns.
Which for non-human nouns (animals and things).
That for both human and non-human.

The woman is very happy.
The man is dancing with who.

If the relative pronoun is not at the beginning of the sentence, it must be moved to the beginning of the sentence.

The woman is very happy.
who the man is dancing with.

The second sentence is called a relative clause. This relative clause can be inserted in the first sentence after the noun: THE WOMAN.

The woman who the man is dancing with is very happy.
(Relative Clause)

Exercise B5: Please read each sentence and decide whether it is correct or incorrect. If you think the sentence is correct, circle "yes". But if you think the sentence is incorrect circle "no" and give the corrections in the lines underneath.

- | | | |
|--|-----|----|
| 1. The man who I'm speaking with him is my friend's father. | yes | no |
| 2. My mother bought the toy that I'm playing with. | yes | no |
| 3. The car that I'm looking for it is black. | yes | no |
| 4. The bus that we were waiting for was an hour late. | yes | no |
| 5. Philosophy is one of the subjects that I'm interested in it. | yes | no |
| 6. The student that Ali was fighting with is very shy. | yes | no |
| 7. The man that I was staring at started to stare back at me. | yes | no |
| 8. The geography book that I'm looking for contains many interesting maps. | yes | no |

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.

8.

Exercise B6: Each block (2 lines) contains the words for two sentences that contain relative clauses. Try to find the order of these words to obtain these sentences.

1. the girl talking about is our neighbour that who is very young
I'm playing with the girl the man is

2. the teacher the student who that I'm looking for the doctor is absent
wears glasses is talking about.

3. the person is my brother the book.....that isn't expensive that you're
staring at I'm looking for.

4. that accident yesterday the girl has cancer who last week my uncle is
walking with the woman the girl I played with had a terrible.

1.

2.

3.

4.

5.

6.

7.

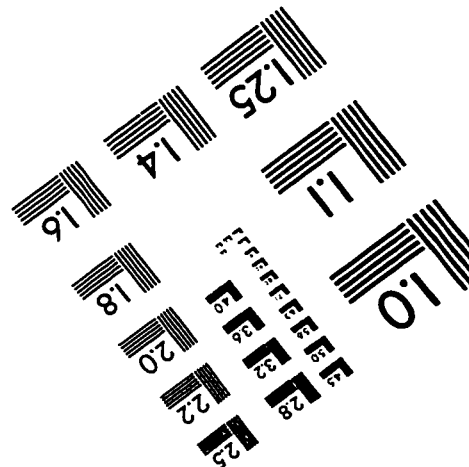
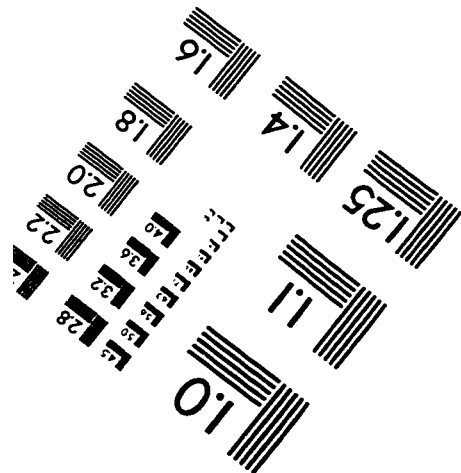
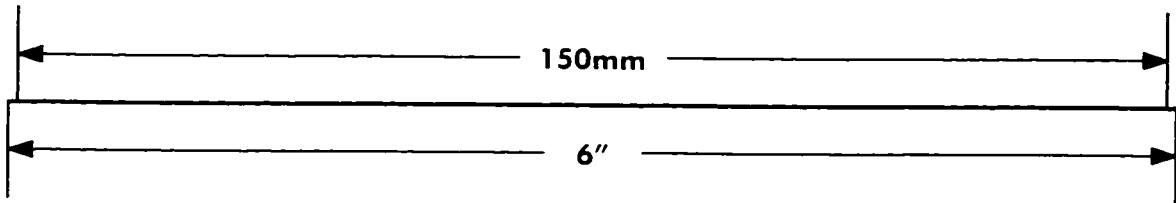
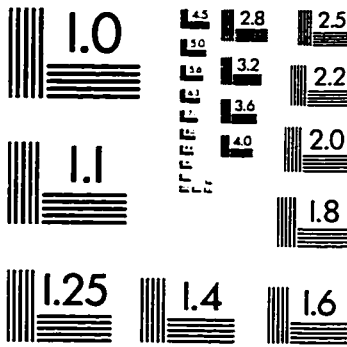
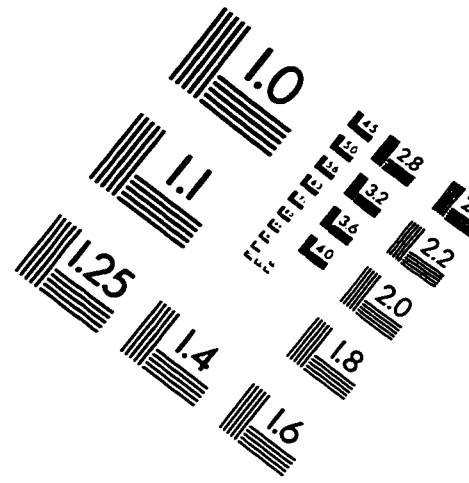
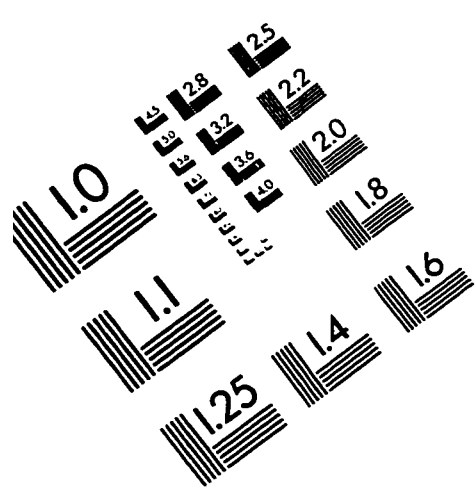
8.

Exercise B7: Please combine the two sentences into one sentence containing a relative clause. Always begin with the first sentence. Do not leave any information out.

- | | |
|--------------------------------|--|
| 1. The film is about monsters. | My father is talking about the film. |
| 2. The cat is white. | I'm looking for the cat. |
| 3. The book is boring. | The teacher is talking about the book. |
| 4. The woman is a lawyer. | My father is speaking with the woman. |
| 5. The flight is to Canada. | I'm waiting for the flight. |
| 6. The man was angry. | Tom was arguing with the man. |
| 7. The boy was very strong. | I was fighting with the boy. |
| 8. The article is about AIDS. | I'm looking for the article. |

1.
2.
3.
4.
5.
6.
7.
8.

IMAGE EVALUATION TEST TARGET (QA-3)



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