

**ÇUKUROVA UNIVERSITY
THE INSTITUTE OF SOCIAL SCIENCES
DEPARTMENT OF ENGLISH LANGUAGE TEACHING**

**A STUDY OF THE EFFECTS OF PROCESSING INSTRUCTION ON THE
DEVELOPMENT OF ENGLISH WH-QUESTIONS USED BY
TURKISH EFL LEARNERS**

İLKAY ÇELİK-YAZICI

DOCTORAL DISSERTATION

ADANA, 2007

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Supervisor: Asst. Prof. Dr. Trkay BULUT

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ADANA, 2007

To Directorate of the Institute of Social Sciences of Cukurova University,
We certify that this dissertation is satisfactory for the award of degree of Doctor of
Philosophy in the subject of English Language Teaching

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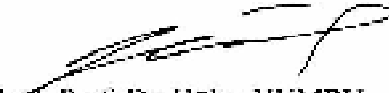
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İlkay ÇELİK YAZICI

Affectionately dedicated to my son ARDA

ÖZET

SÜREÇ ODAKLI DİL ÖĞRETİMİNİN İNGİLİZCE'DEKİ NE SORU YAPISINI ÖĞRENEN TÜRK ÖĞRENCİLERDEKİ ETKİSİ ÜZERİNE BİR ÇALIŞMA

İlkay ÇELİK-YAZICI

Doktora Tezi, İngiliz Dili Öğretimi Anabilim Dalı

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Bu çalışma süreç odaklı dil öğretimi ve geleneksel dil öğretiminin Türk öğrencilerin İngilizce'deki ne-sorularını öğrenmelerindeki olası etkilerini karşılaştırmayı; bu iki öğretim yönteminin olası olumlu etkilerini ve bu öğrenmenin uzun süreli bellekte kalıcı olup olmadığını incelemeyi amaçlamıştır. Bu çalışma için, Çukurova Üniversitesi Yabancı Diller Merkezi'nde okuyan orta-altı seviyedeki 56 Türk öğrenci rastgele iki gruba ayrılmıştır: a) süreç odaklı öğretim grubu, b) geleneksel öğretim grubu. Bu çalışmada, iki farklı öğretim paketi, bir ön sınav ve iki art sınav verilmiştir. Sınavlar anlama ve üretme olmak üzere iki bölümden oluşmuştur. Anlama bölümünde yapısal doğruluk testi, üretme bölümünde ise çeviri ve resim ipuçlu iki test bulunmaktadır. Uygulamadan iki hafta önce ön sınav verilmiştir. Öğretim ve art sınavı içeren uygulama bir hafta sürmüştür. Dört hafta sonra, aynı art sınav tekrar gruplara verilmiştir. Ön sınav ve art sınavlardan elde edilen ham puanlar iki yönlü varyans analizi kullanılarak incelenmiş; bulgu ve sonuçlar tablolar ve şekillerle gösterilmiştir.

Anlama verilerinin analiziyle elde edilen bulgular, hem süreç odaklı grubun hem de geleneksel grubun uygulamalar sonucunda bir tlr kazanım elde ettiğini; ancak sadece süreç odaklı dil öğretim grubundaki etkilerin zaman içinde kalıcı olduğunu göstermiştir.

Üretim verilerinin analiziyle elde edilen bulgular, hem süreç odaklı grubun hem de geleneksel grubun uygulamalar sonucunda bir tlr kazanım elde ettiğini ve iki dil öğretim tekniğinin de İngilizce'deki ne sorularını üretme konusunda olumlu bir etkiye sahip olduğunu göstermiştir. Diğer taraftan, ikinci art sınav sonuçları, geleneksel gruptaki katılımcıların üretimde elde ettikleri kazanımı artsınav1 den artsınav2 ye taşıyamadıklarını, fakat süreç odaklı gruptaki katılımcıların kazanımlarının daha kalıcı olduğunu göstermiştir.

Anahtar Kelimeler: Süreç odaklı dil öğretimi, geleneksel dil öğretimi, ne-soruları.

ABSTRACT

A STUDY OF THE EFFECTS OF PROCESSING INSTRUCTION ON THE DEVELOPMENT OF ENGLISH WH-QUESTIONS USED BY TURKISH EFL LEARNERS

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This dissertation has aimed at comparing the possible effects of processing instruction (PI) and traditional instruction (TI) on the development of English wh-questions by Turkish EFL learners, examining whether the possible improved performance would be long-lasting in the long-term memory. For this study, 56 Turkish students attending preparatory program at Foreign Languages Center (YADİM) at Çukurova University were randomly assigned as a) processing instruction group, and b) traditional instruction group. In this study, two different instructional packets, a pretest, and two posttests were administered. The tests were consisted of two parts: comprehension and written-production. In the comprehension part, there was a grammaticality judgement task (GJT). In the written-production part, on the other hand, we had a translation task (TT) and a picture-cued task (PCT). Two weeks before the instructional treatment, the pretest was administered. The instructional treatment and the posttest1 spanned a period of one week. Four weeks after the posttest1, the posttest2 was administered. The raw scores obtained from the pretest and posttests were examined through using two-way ANOVA and the results were presented in tables and figures.

The findings obtained from the comprehension task, namely GJT, revealed that both the PI and TI groups resulted in some kind of knowledge gain due to the treatments. However, the results of the posttest2 presented that only the effects of PI were retained over time.

The results of the analysis of the written-production data indicated that both the PI and TI groups resulted in some kind of knowledge gain and both the TI and PI had a positive effect on how learners produced the English wh-questions. However, in the posttest2, the TI group was unable to retain the proficiency gains across the posttest1 and posttest2 while the PI group's scores were durable.

KEY WORDS: Processing instruction, traditional instruction, wh-questions

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CHAPTER 1

INTRODUCTION

1.1. Introduction

Research on Second Language Acquisition (SLA) over the past two decades has seen a proliferation of studies that address the effectiveness of various instructional treatments in second or foreign language (L2) classrooms. Indeed, as Norris and Ortega (2000) indicate, "a relatively well-defined research agenda appears to have emerged in L2 instruction research since Long (1983) concluded that instruction makes a difference in L2 acquisition, when compared with naturalistic exposure" (p.418). The principal focus of L2 instruction research has thus evolved from whether or not instruction makes a difference to what types of instruction are most effective for fostering L2 learning in formal contexts.

Within the last few years, investigations have been made on the relative effects of two different types of explicit grammar instruction (EGI): the one that focuses on the learners' processing strategies followed by input-based practice and the other that focuses on traditional grammar explanation followed by output-based practice. One of these studies was conducted by VanPatten and Cadierno (1993a). They compared the effects of the two types of EGI (processing instruction vs. traditional instruction) on learners' ability to comprehend and produce sentences containing Spanish clitic object pronouns. The findings of this study revealed that even though the processing group never produced the structure, they performed just as well as the traditional group on production tasks. As a result of this study, it is possible to say that processing instruction (PI) which helps learners process information via comprehension practice might be more effective than traditional instruction which requires learners to produce language too prematurely.

1.2. Statement of the Problem

The concept of input is perhaps the single most important concept of SLA. It is trivial to point out that no individual can learn a second language without input of some sort. As VanPatten (2002) indicates, what is clear from over two decades of SLA research is that it is not sufficient to speak of input in general terms. What is necessary is that "the learning mechanisms that act upon input or interact with it be spelled out in some fashion" (VanPatten, 2002, p.757). One way in which this is done is by examining input processing.

Input processing (IP) is concerned with how learners derive intake from input. In other words, IP is related to the cognitive side of acquisition. Intake is defined by Erlam (2003, p. 560) as "the linguistic data actually processed from the input and held in working memory for further processing". As such, IP attempts to explain how learners get form from input and how they parse sentences during the act of comprehension while their primary attention is on meaning. Form in this model refers to surface features of language (e.g. inflections).

According to VanPatten (2002, p. 757), IP is "one set of processes related to acquisition that learners derive some kind of intake from the input does mean that the data contained in the intake automatically make their way into the developing mental representation of the L2 in the learner's head". In short, it can be concluded that IP makes data (input) available for acquisition. Indeed, VanPatten's notion of input processing is consistent with Schmidt's noticing hypothesis. That is, attention to input is necessary for input to become intake that is available for further mental processing.

Processing instruction (PI), as described in VanPatten (1996) and also Lee and VanPatten (1995), is a type of grammar instruction or focus on form derived from the insights of IP. According to VanPatten (2002), PI is not a comprehension-based approach to language teaching such as total physical response, the natural approach, and so on. Since the point of PI is to assist the learner in making form-meaning connections during IP, it is more appropriate to view it as a type of focus on form or input enhancement (Sharwood Smith, 1993). It is also important to note that VanPatten's processing instruction differs from traditional grammar instruction. The former is concerned with changing the way that input is perceived and processed by the learner; whereas, the latter focuses on output practice after explaining a grammatical concept. In PI, learners are given information about a linguistic form or structure, and they are pushed to process form or structure during activities with *structured-input*. There are no mechanical or non-meaningful activities in PI.

As mentioned above, in PI, learners are pushed to process the form or structure during activities with *structured-input*. Erlam (2003) describes structured-input as "input that is manipulated in particular ways so that learners become dependent on form and structure to get meaning and/or to privilege the form or structure in the input so that learners have a better chance of attending to it" (p. 561). In other words, in structured-input activities, students are required to work with language input that focuses their attention on a particular target

structure, and they are given listening and reading tasks that require them to pay attention to the form of the target structure and process its meaning. Students are not at any stage engaged in activities requiring them to produce the target structure. Indeed, the sequence of structured-input activities would begin with two or three referential activities for which there is a right or wrong answer and for which the learner must rely on the targeted grammatical form to get meaning.

Following referential activities, learners are engaged in affective structured-input activities. These are activities in which learners express an opinion, belief, or some other affective response and are engaged in processing information about the real world. In this dissertation, we will specifically bring referential activities related with the development of English *wh*-questions to the classrooms and investigate whether processing instruction affects the development of this question type.

Target Form : *Wh*-Questions

In both first and second language acquisition, many researchers have investigated how learners acquire *wh*-questions. Among these prior research studies, Felix (1981) and Spada and Lightbown (1993), for instance, have proposed that there appears to be a general developmental sequence in the acquisition of English *wh*-questions. This developmental sequence has been indicated as follows:

Stage 1: The learners use only intonational features to indicate question formation at the initial stage of the development of the structure

Stage 2: Questions with *wh*-fronting follow

Stage 3: Inversion in *wh*-questions with copula –*be* comes before inversion with –*do*.

Another researcher, Pienemann (1989), sets forth the stages of development, which are roughly exemplified below, using the role of the development sequence for *wh*-questions. Each successive stage involves a new kind of psycholinguistic processing that must be applied *in addition to* or *instead of* earlier learned processes. Studies have proved that learners in stage 2 can benefit from instruction on subject-auxiliary inversion but that learners in stage 1 cannot (Pienemann, Brindley & Johnston, 1988). These stages are illustrated by Doughy (1998) as in the following figure:

Table 1.1: Developmental Order Of The Acquisition Of English Wh- Questions

<u>TARGET QUESTION CONSTRUCTIONS</u>
Wh- question: <i>What is he doing?</i>
Embedded wh-question: <i>I don't know what he is doing.</i>
<u>Stage 1.</u> Preserve basic word order, using only intonation to indicate the asking of a question. Process: indicate that you are asking a question. <i>He is doing?</i>
<u>Stage 2.</u> Preserve basic word order and use rising intonation, but place a question word at the start. Process: front a question word. <i>*What he is doing?</i>
<u>Stage 3.</u> Manipulate word order, but only in simple clauses. Process: invert subject and auxiliary verb. <i>What is he doing?</i>
<u>Stage 4.</u> Preserve the question word order, even in embedded questions. Process: embed a question into a sentence. <i>*I don't know what is he doing?</i>
<u>Stage 5.</u> Cancel the earlier-learned processes of question inversion and remove rising intonation in embedded clauses. Process: cancel inversion <i>I don't know what he is doing.</i>

Doughty (1998)

Regarding the developmental sequence in the acquisition of wh-questions, Berent (1996) also proposed a hierarchy based on the various possibilities for wh-question formation. The hierarchy is depicted as follows:

No Movement	<	Short Movement	<	Long Movement
(The teacher advised <i>who</i> ?)		(<i>Who</i> did the teacher advise?)		(<i>Who</i> does the student think the teacher advised?)

On the basis of such studies, it was suggested that the development of wh-questions in SLA is similar to that observed in first language acquisition. However, this view of language acquisition is mainly concerned with children's language acquisition. On the other hand, there is little research investigating how the adult learners acquire wh-questions in an instructed EFL setting where the learners are exposed to a small amount of input.

More importantly, in many studies, it has been suggested that the development of wh-questions is affected by the differences between the learner's L1 and L2. Similarly, in this study, it was hypothesized that the structural differences between English and Turkish might cause learners some difficulties. As a result of this, EFL learners might not develop fully in the acquisition of English wh-questions. The structural differences related to the formulation of wh-questions in Turkish and English can be explained as follows:

First, the basic structure for wh-questions in Turkish is that in which the wh-word occurs immediately to the left of the verb. Here are some examples:

- a. [S [NP_i] [vpadresimi sana kim_j verdi]]
 address-poss/1stsg-acc you-dat who give-past
 Who gave you my address?
- b. [S [NP Satı] [vp t_i Satılmıř'a neyi_j satacak]]
 Satı Satılmıř-dat what acc sell-future
 What will Satı sell to Satılmıř?
- c. [S [NPAslı] [vp nereye gitti]]
 Aslı where go-past
 Where did Aslı go?
- d. [S [NP e] [Taksim'den Aksaray'a nasıl gidilir]]
 Taksim-abl Aksaray-dat how go-pass-aorist
 How does one go from Taksim to Aksaray?

(Akar, 1999, p. 67).

Another rule to form wh-question is that the wh-word appears in positions other than the immediately preverbal position.

- e. [S [NP_i] [vpadresimi kim_j sana t_j verdi]]
 address-poss/1stsg-acc who you-dat give-past
 Who gave you my address?
- f. [S [COMP kim_j [NP_i]] adresimi sana t_j verdi]]
 who address-poss/1stsg acc you-dat give-past
 Who gave you my address?

- g. [S [NP_{Sat} [vpneyi] Satılmıŝ'a t_j satacak]]
 Satı what-acc Satılmıŝ -dat sell future
 What will Satı sell to Satılmıŝ?
- h. [S [COMP Neyi] [NP_{Sat}] vp Satılmıŝ'a t_j satacak]]
 what-acc Satı Satılmıŝ -dat sell future
 What will Satı sell to Satılmıŝ?

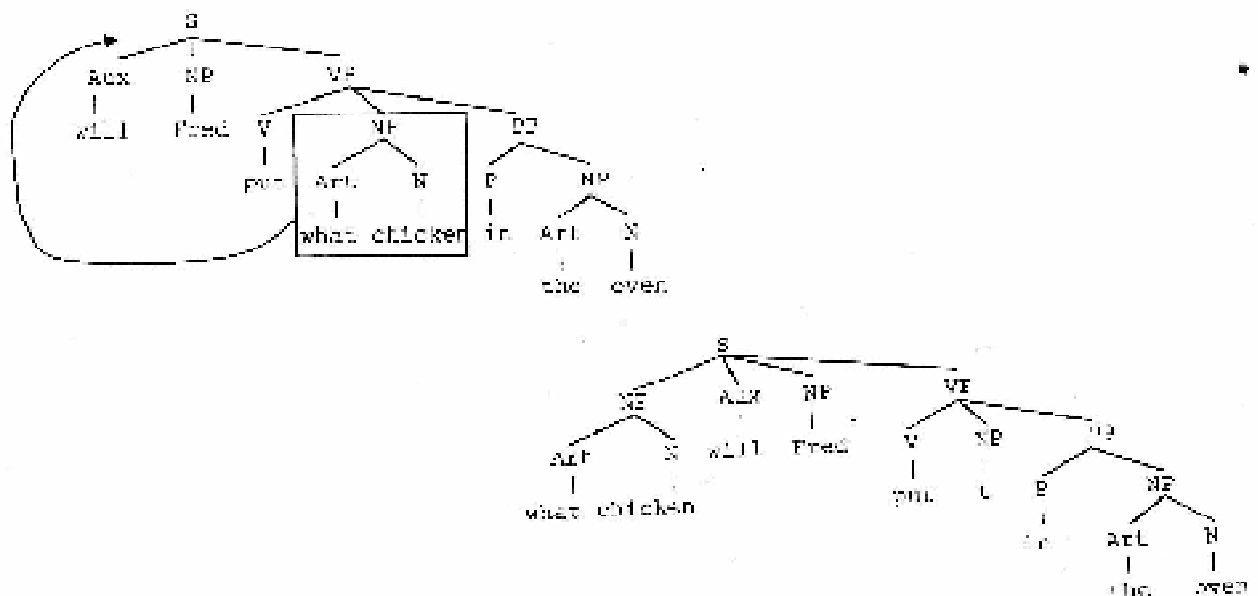
(Akar, 1999, p. 67-68)

In Turkish, the *wh*-word cannot freely occur in all positions, however. For example, the structures in which the question word appears in postverbal position are all ungrammatical as in the following sentences:

- i. * [S [NP_j] [vpNergis'e t_j kızdı klm_j]]
 Nergis-dat get angry-past who
 * Got angry with Nergis who
- * [S [NP_{Sat}] [vpSatılmıŝ'a t_j satacak] neyi_j]
 Satı Satılmıŝ -dat sell-future what-acc
 j. * Will Satı sell to Satılmıŝ what

(Akar, 1999, p. 68)

In English, however, as indicated in Dulut and Can (2001), a *wh*-phrase is moved to the beginning of the sentence, leaving a trace (*t*). A trace is essentially an empty copy of what got moved; it has the same category, but contains no phonetic material. Here is an example:



On the other hand, wh-movement does not always move words to the beginning of the sentence. In embedded type of questions, for instance, movement is to the beginning of a subordinate clause.

To sum up, the word order variation in Turkish and English seems to play a significant role in the wh-formation process. That is, English wh-questions are difficult structures for Turkish EFL learners to acquire since in their L1 there is no obligatory movement of wh-element to a specific position within the question structure. In Turkish, the wh-word is generally placed in preverbal position by a late movement rule which is referred to as Q-Placement (Akar, 1999).

1.3. Objectives and Significance of the Study

This study aims at examining the possible effects of two types of grammar instruction: processing and traditional in the learning of wh-questions by Turkish EFL learners. In addition, the present study attempts to test whether possible positive effects are retained well over time by PI and TI groups.

This study may play a significant role in using the grammar instruction, specifically, to teaching of the wh-questions in English. If the results of the study propose the positive effects of PI, this will lead us to conclude that PI can be an alternative to TI and structured input activities can be used while teaching the English wh-questions.

1.4. Statement of the Research Questions

The general research questions to be investigated in this study are the followings:

- 1) Will there be any statistically significant differences among the comprehension of the English wh-questions by the following groups of learners:
 - a) those who receive processing instruction
 - b) those who receive traditional instruction
 - 2) Will there be any statistically significant differences among the production of the English wh-questions by the following groups of learners:
 - a) those who receive processing instruction
 - b) those who receive traditional instruction
-

- 3) If there is any difference for instruction on the comprehension task, would this difference be retained equally well over time by the two instructional groups (processing and traditional)?
- 4) If there is any difference for instruction on the written-production task, would this difference be retained equally well over time by the two instructional groups (processing and traditional)?

Hypothesis 1: The student in the PI group will outperform the comprehension task when compared to those in the TI group.

Hypothesis 2: The students in the PI group will produce more accurate wh-questions than the ones in the TI group.

Hypothesis 3: The students in PI group will retain the positive effects of the instruction on the comprehension task better over time than the ones in TI group.

Hypothesis 4: The students in PI group will retain the positive effects of the instruction on the production task better over time than the ones in TI group.

1.5. Operational Definitions

In the following, the definitions of frequently used terms in this study are given:

Input: The raw linguistic data (oral or written) to which learners are exposed. Learners attend to input with a primary focus on getting meaning from it.

Structured Input: The input used in processing instruction is called 'structured input' since it is purposely prepared and manipulated.

Input Processing: Strategies and mechanisms that promote form-meaning connection during comprehension. During input processing, input is filtered and converted to intake. Input processing is only one set of processes involved in language acquisition.

Intake: The linguistic data processes from the input and held in working memory for further processing.

Processing Instruction: A type of grammar instruction in which “learners are given information about a linguistic structure of form, information about learner processing strategies that may actually hinder processing of the target item, and structured input activities that are designed to deter learners from using their natural input processing strategies and instead use more beneficial strategies.” (Farley, 2000) It seeks to alter the way in which learners perceive and process linguistic data in the input.

CHAPTER 2

REVIEW OF LITERATURE

2.1. Grammar Instruction

The role of grammar instruction in second language learning has always become the focus of researchers. Depending on the goal of instruction, grammar instruction has had a variety of forms. In grammar-translation approach, for example, the goal of foreign language learning was obviously not to communicate but to read the classics of literature in that language. Grammar-translation method was effective in language teaching until the emergence of Audio-lingual method, which was developed during World War II due to a need for people to learn foreign languages rapidly for military purposes.

The theory of the audio-lingual method was behaviorism. Therefore, the grammatical system was viewed as a set of habits to be internalized through practice and reinforcement. Without knowing the rules, learners had to correctly repeat, transform, and perform other manipulations on sentences orally as a necessary first step toward communicative ability with the language. After these methods, one of the most effective methods that became popular was the communicative language teaching.

2.1.1. Communicative Language Teaching

With the rise of communicative methodology in the late 1970s, the role of grammar instruction in second language learning was downplayed. As Nassaji and Fotos (2004) point out, it was even suggested that “teaching grammar was not only unhelpful but might actually be detrimental” (p. 126). Theoretically, the debate was represented by Krashen’s (1981) distinction between conscious learning and unconscious acquisition of language. It was claimed that language should be acquired through natural exposure, not learned through formal instruction. Therefore, it was believed that “formal grammar lessons would develop only declarative knowledge of grammar structures, not the procedural ability to use forms correctly, and that there was no interface between these two types of knowledge since they existed as different systems in the brain” (Nassaji and Fotos, 2004, p. 127). This position was supported by the findings of studies on the acquisition of English morphology, particularly the findings that speakers with different first languages learn English morphemes in a similar order (Dulay & Burt, 1974). These results led to claim that similar processes underlie both first and second language learning so if L1 learners do not require formal instruction to learn

languages, neither should L2 learners (Schwartz, 1993; Zobl, 1995). Similar claims were also made in the context of Universal Grammar (UG) and its application to SLA. Researchers (Cook, 1991; Schwartz, 1993; Goldschneider & DeKeyser, 2001) argued that if UG is accessible to L2 learners, then L2 learning, like L1 learning, occurs mainly through the interaction of UG principles with input. Therefore, formal instruction was seen to be unnecessary.

Communicative Language Teaching (CLT) proposes ways for learners to internalize a second language and to experiment in a classroom context. Therefore, the classroom context is used to create activities to teach students how to react in a real world situation, not to fake real-world situations. The activities, materials, and strategies of CLT modified the language classroom and changed its focus from form into function and from teacher into learner, which caused curriculum to be rich (Pica, 2000).

However, the research carried out regarding this issue has revealed that these activities, materials, and strategies have not been enough for learners to reach the proficiency level for effective language use. For example, several scholars (such as Celce-Murcia, 1991; Dörnyei & Thurrell, 1991, 1992; Kumaradivelu, 1993; Larsen-Freeman, 1990) have leveled critique regarding "the pedagogical treatment of linguistic forms" in CLT. For example, for Celce-Murcia, Dörnyei & Thurrell (1997), CLT grew out of the acknowledgement that previous methods "did not adequately prepare learners for the effective and appropriate use of language in natural communication" (p.144). Subsequently, a majority of scholars largely dismissed many aspects of previous methods such as the drills and pattern practice of Audiolingualism. As Larsen (2003) states, "dismissing many of these as less than optimal for developing communicative competence was probably warranted, but in some cases the babies might have been thrown out with the bath water" (p.8).

Another critique of CLT indicated by Hinkel & Fotos (2002) is that academic and professional speaking and writing are difficult to attain in the process of naturalistic learning. Advocating the use of explicit grammar instruction, Terrell (1991) proposes that some initial explicit grammar helps students focus on what to listen for in subsequent input and by feeding a learned rule to the monitor, lets them acquire it from their own output.

As a consequence of these critiques, a more eclectic approach to CLT has been adopted during the last decade. More specifically, there is a growing belief that a direct approach to CLT may be more effective than the "original indirect practice of CLT" (Celce-Murcia et al, 1997, p. 148) which, for example, Krashen (1985) is a proponent of. The characteristic of this direct approach is, in addition to communicative tasks, teacher formulaic speech, a focus on form, a promotion of language awareness and consciousness-raising as well as explicit instruction.

2.1.2. Reasons for the Reconsideration of Grammar Instruction

As Nassaji and Fotos (2004) indicate, continuing in the tradition of more than 2000 years of debate regarding whether grammar should be a primary focus of language instruction, should be eliminated entirely, or should be subordinated to meaning-focused use of the target language, the need for grammar instruction is once again attracting the attention of second language acquisition researchers and teachers. In recent SLA literature, there has been a renewed interest in whether grammar should be taught in L2 classes and how this could be incorporated. According to Nassaji and Fotos (2004), there are at least four reasons for the reevaluation of grammar as a necessary component of language instruction.

First, the hypothesis that language can be learned without some degree of consciousness has been found theoretically problematic. For instance, Schmidt (1990, 1993, 2001) advocates that conscious attention to form, in his term 'noticing', is a necessary condition for language learning. Schmidt (2001) emphasizes the role of attention as follows:

The concept of attention is necessary in order to understand virtually every aspect of second language acquisition (SLA), including the development of interlanguages (ILs) over time, variation within IL at particular points in time, the development of L2 fluency, the role of individual differences such as motivation, aptitude and learning strategies in L2 learning, and the ways interaction, negotiation for meaning, and all forms of instruction contribute to language learning. (p. 3)

Moreover, in their studies Skehan (1998) and Tomasello (1998) have found that language learners cannot process target language input for both meaning and form at the same time. Thus, it is necessary for learners to notice target forms in input; otherwise they process

input for meaning only and do not attend to specific forms, and consequently fail to process and acquire them.

Another reason for the reconsideration of grammar teaching in the L2 classroom indicated by Nassaji and Fotos (2004) is evidence that L2 learners pass through developmental sequences. According to the empirical evidence obtained from German learners of English, Pienemann (1989, 1998) developed the ‘teachability hypothesis’, which suggests that “while certain developmental sequences are fixed and cannot be altered by grammar teaching, other structures can benefit from instruction any time they are taught” (Nassaji and Fotos, 2004, p. 128). Similar to Pieneman, Lightbown (2000) agrees that based on this hypothesis it is possible to influence sequences of development favorably through instruction if grammar teaching coincides with the learner’s readiness to move to the next development stage of linguistic proficiency.

The third reason for the resurgence of grammar instruction is the increasing number of the research pointing to “the inadequacies of teaching approaches in which the focus is primarily on meaning-focused communication, and grammar is not addressed” (Nassaji & Fotos, 2004, p. 128). For example, in their research on learning outcomes in French immersion programs, Swain and her colleagues (Swain, 1985; Swain & Lapkin, 1989; Lapkin, Hart & Swain, 1991) have found that despite substantial long-term exposure to meaningful input, the learners did not achieve accuracy in certain grammatical forms. This finding suggested that some type of focus on grammatical forms was necessary if learners were to develop high levels of accuracy in the target language.

The fourth reason for the renewed interest in L2 grammar instruction is evidence for the positive effects of grammar teaching. As it is indicated by Nassaji & Fotos (2004), this evidence comes from a large number of laboratory and classroom-based studies and also from reviews of studies on the effects of instruction over the past 20 years. For instance, studies examining the effects of instruction on the development of specific language forms (e.g. Cadierno, 1995; Doughty, 1991; Lightbown, 1992; Lightbown & Spada, 1990) present that grammatical instruction has a significant effect on the attainment of accuracy.

2.1.3. Focus on Form

Due to the problems presented by traditional structure-based grammar teaching, Long (1991) proposed an approach that he termed 'focus on form' (FonF). According to Long, focus on form is "a type of instruction in which the primary focus is on meaning and communication, with the learner's attention being drawn to linguistic elements only as they arise incidentally in lesson" (1991, pp. 45-46). Long (1991) also states that FonF is in sharp contrast with traditional grammar instruction, or 'focus-on-forms' instruction, which places a focus on forms themselves in isolation and follows a structural syllabus. Fotos (1998) explains Long's view as follows:

Long suggested that the traditional pedagogy of teaching and testing isolating items, a procedure based on behaviorist psychology and structural linguistics, was outmoded and ineffective ... Long also suggested that purely communicative syllabuses were equally inadequate because of their neglect of grammar instruction. A review of the research comparing instructed with uninstructed language learning identified clear advantages for instruction in terms of learner's rate of learning and achievement. Long therefore recommended a third type of syllabus, one which he termed a 'focus on form'. Such a syllabus would combine communicative language use with instruction on grammar forms in context. (pp. 301-302)

As can be seen from the above quotation, Long articulates that "FonF overtly draws students' attention to linguistic elements as they arise incidentally in lessons whose overriding focus is on meaning or communication" (Park, 1995, p.2). Therefore, focus on form requires a task-based syllabus. Activities that require the learner to communicate while focusing learner attention on specific forms are used; the instructor provides corrective feedback on learner's errors during the course of communication (Oram & Harrington, 2002). Most important, it should be kept in mind that the fundamental assumption of focus-on-form instruction is that "meaning and use must already be evident to the learner at the time that attention is drawn to the linguistic apparatus needed to get the meaning across." (Doughty and Williams, 1998, p. 4)

Regarding the effect of focus on form, a considerable number of empirical studies have been carried out in so far. Doughty (1991), for example, examined the effect of computer-based instruction on the learning of relativization by university EFL students, comparing three treatments: meaning-oriented treatment, rule-oriented treatment, no

treatment. As a result of her study, she reported that “both types of instructional treatment had positive effects and that meaning-oriented instruction was not detrimental to the formal learning of relativization” (p. 435). According to Muranoi (2000, p. 619), this has significant pedagogical implications in that it suggests “teachers can direct learners’ attention to language forms effectively within meaning-oriented instruction if saliency and redundancy of forms are controlled sufficiently.” Lightbown and Spada (1990), observing communicative ESL courses in Quebec, also reported positive effects of focus on form. They found that a class in which focus-on-form instruction was provided within a communicative language teaching framework contributed to high levels of linguistic knowledge and improved command of progressive *-ing* and adjective-noun order in noun phrases.

2.2. Input

Input is the most important factor in SLA. It affects the progress of the learner in learning the L2. In this section, the role of input in SLA and input-based approaches to grammar instruction are discussed.

2.2.1. The Role of Input in SLA

It seems to be universally accepted that SLA is dependent on input (VanPatten, 2004). Many studies (such as Ellis, 1990; Larsen-Freeman & Long, 1991) argue that processing of linguistic data known as ‘input’ is the principal requirement for acquisition of both the native language and a second language. Interestingly, as Farley (2000) states, even in pre-1970s behaviorism, input was seen as the ‘major driving force’ of language acquisition (p. 2). In behaviorism, humans do not possess an innate set of language rules in order to acquire a language, rather “it is the hearing and repeating of language stimuli that causes habit formation, resulting in language acquisition” (Farley, 2000, p. 2). In this case, the stimuli act as ‘input’ without which the learner will be unable to form habits that lead to language learning and use.

Regarding the input in language learning, Krashen (1980, 1982) introduced the Input Hypothesis, which states that learners acquire language by comprehending the meaning of language containing structures/forms that are slightly above the learner’s level of competence ($i+1$). In contrast to the traditional assumptions of his day, Krashen proposed that for acquisition to occur, learners must be exposed to and understand the semantic content of language that is just above their current level of competence or interlanguage. He says:

... our assumption has been that we first learn structures, then practice using them in communication, and this is how fluency develops. The input hypothesis says the opposite. It says we acquire by "going for meaning" first, and as a result, we acquire structure! ... a necessary condition to move from state i (i.e., current interlanguage ability) to state $i + 1$ (i.e., control of linguistic structures just beyond the current psycholinguistic processing level of the acquirer) is that the acquirer understand input that contains $i + 1$ level input, where 'understand' means that the acquirer is focused on the meaning and not the form of the message. (1982, p.21)

Krashen's assertion that learners attend to input for meaning first and consequently acquire the forms and structures of a language is supported by Larsen-Freeman and Long (1991) in the following statement:

The best evidence for Krashen's viewpoint has to be the fact that children or adults who are not provided with comprehensible input, but only NS-NS models, either do not acquire at all or acquire only a very limited stock of lexical items and formulaic utterances ... This generalization holds across studies of first and second language acquisition, by children and adults, in normal and abnormal populations. (p.125)

Since Krashen's emphasis on the importance of input for SLA, other researchers have addressed the issue of whether attention to form in the input is necessary for acquisition to occur. While many SLA researchers agree that some kind of attentional process is required for input to become intake, opinions vary as to the amount and type of attention necessary for SLA. Schmidt (1990, 1993, 1994), for example, has proposed that 'noticing', a process beyond conscious registration, is a prerequisite for language acquisition and usage. According to Schmidt (1995, p.20), "the noticing hypothesis states that what learners notice in input is what becomes intake for learning". Schmidt also states that a) whether a learner deliberately attends to a linguistic form in the input or it is noticed purely unintentionally, if it is noticed it becomes intake and, b) that noticing is a necessary condition for L2 acquisition (Cross, 2002). To help clarify Schmidt's hypothesis, the following model is proposed by Ellis (1997, p.119):

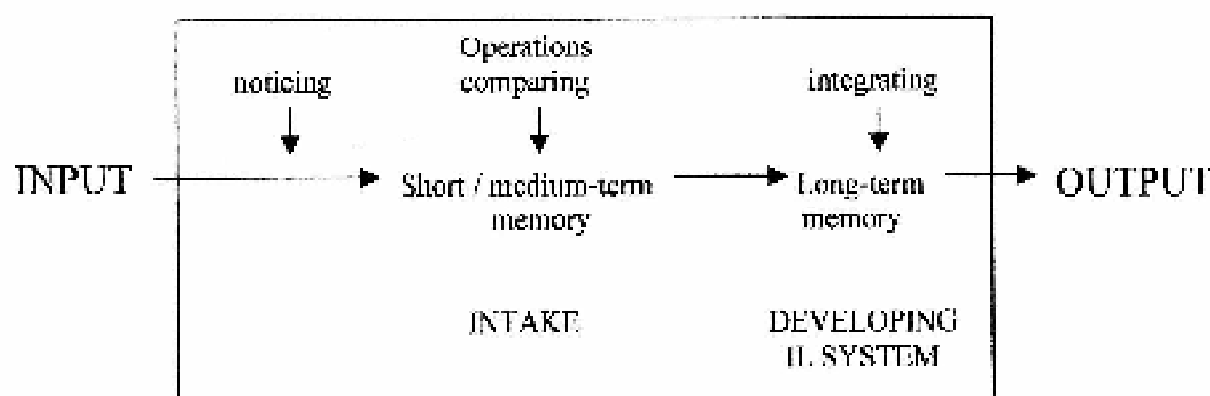


Figure 2.1. The process of learning implicit knowledge

As can be seen from the above figure, two main stages are involved in the process of input becoming implicit knowledge. The first stage in which input becomes intake involves learners noticing language features in the input, absorbing them into their short-term memories and comparing them to features produced as output. The second stage is one in which intake is absorbed into the learner's interlanguage system and changes to this system only occur when language features become part of long-term memory. According to Schmidt (1990, 1994), input cannot be filtered for further processing unless noticing takes place. Whether one agrees on the issue of conscious attention or not, the fact remains that all studies related to attention have assumed that input is essential to SLA.

The Input Processing is another framework that attributes a large role to input. VanPatten's model of input processing (1990, 1995, 1996) details the relationship between input processing and language acquisition. The Input Processing framework explains "how intake, a subset of the input, is derived from input and which psycholinguistic strategies the L2 learner tends to rely upon while processing the language data" (Farley, 2000, p.4). Without this linguistic data, input, the learner's developing system, would starve.

In short, regardless of the model of SLA to which one ascribes, researchers agree that input is a fundamental requirement for SLA, and without it a learner's linguistic system will be disadvantaged.

2.2.2. Input-based Approaches to Grammar Instruction

Ellis (1998) uses the term ‘option’ in order to refer to a specific strategy for delivering instruction. He classifies four macro-options based on a psycholinguistic model of L2 acquisition. These are: 1) input-based instruction 2) explicit instruction 3) output-based instruction, and 4) feedback. We realize each macro-option with various micro-options. For instance, grammar lessons are usually composed of combinations of options. That is, a traditional grammar lesson may start with a grammar explanation (option 2), then move on to production practice (option 3), and finish with feedback (option 4), skipping the first option.

The input-based option is “an attempt to intervene directly in the process of interlanguage development by manipulating the input to which learners are exposed” (Ellis, 1999, p. 65). Therefore, it constitutes one type of comprehension-based language teaching (Gary, 1978; Winitz, 1981).

In the following section, we will focus on the theoretical rationales for input-based grammar teaching.

2.2.2.1. Universal Grammar

The Chomskyan UG model of acquisition is based on a mentalist theory that claims that human beings biologically possess an innate language faculty that enables them to acquire the grammar of particular language. This faculty consists of principles that do not vary from one person to another and parameter settings that vary according to the particular language that the person knows. In other words, the human mind has built-in language ‘principles’ that are part of its knowledge of any language. But it also has ‘parameters’ within these principles whose values are set to the actual language it learns. The principles (e.g. structure dependency) are the permanent equipment in all minds; the parameters (e.g. pro-drop parameter) tune the principles to a particular language or languages (Cook, 1996). The language learner’s task is to discover which parameters need to be ‘set’ for whatever language he or she is trying to learn.

In this model, the role of input is to ‘trigger’ parameter setting. That is, UG is activated through exposure to input. According to UG theory, parameter setting emerges instantaneously as a result of a minimal exposure to input containing the appropriate triggers

(Cook, 1991). Moreover, it is said that parameter setting requires only positive linguistic evidence. There is no need for negative linguistic evidence provided by error correction.

In the case of L1 acquisition, children *set* parameters. However, in L2 acquisition, learners have to *reset* parameters. To illustrate, French-speaking learners of L2 English are required to discover the position of adverbs which is between the subject and the verb as in:

Mary usually eats fish on Friday.

This position, however, is not permitted in French. Learners need to discover that in French an adverb can be between the verb and the object. It is questionable whether French learners of L2 English can achieve the necessary parameter resetting simply through exposure to positive linguistic evidence (Cook, 1991; Ellis, 1999; White, 1989). As Ellis (1999) points out, “input-based instruction becomes a way of testing whether positive evidence is sufficient” (p.66).

2.2.2.2. Information-processing Theories

Unlike UG, information-processing theories claim that language learning carries on other kinds of learning. General cognitive mechanisms process information in the input to reach a mental representation of the target language.

According to the ‘noticing hypothesis’ (Schmidt, 1990; 1995), L2 learners are to attend consciously to linguistic features available in the input in order to cause intake to occur (For intake, see section 2.4). Schmidt (1990) distinguishes between consciousness as intentional and consciousness as attention. He states that learners can learn incidentally; they do not have to make a conscious decision to learn but they cannot learn sublimally; that is, they have to be conscious of what they attend to. At this point, Schmidt differs from Krashen (1985) and Tomlin and Villa (1994), who highlight the learners’ detection of linguistic features in the input subconsciously. It can be said that form-focused instruction can help learners by leading them consciously to notice linguistic features in the input, which results in intake. However, because not everything that becomes intake is integrated into the learner’s developing system, noticing may not be sufficient for acquisition (Ellis, 1999; Truscott, 1998).

Information-processing theory also claims that human beings have limited processing capacities. According to Filter models, attention is selective by allowing learners to store only

selected information. Capacity models permit attention to be allocated to more than one task but only one or both of the tasks can be performed automatically. In L2 phenomenon, VanPatten (1989, cited in Ellis, 1999) has proposed that especially beginner learners may experience difficulty while attending simultaneously to form and meaning. Therefore, having learners focus on form while processing input for meaning may negatively influence comprehension. On the contrary, having learners focus on meaning may prevent them from noticing linguistic forms in the input, particularly if those forms are meaningless. The role of input-based grammar instruction is to assist learners to attend to form, or rather form-meaning relationships in the input (Ellis, 1999).

2.2.2.3. Skill-learning Theories

According to skill-learning theories, we learn new skills as result of practice. For instance, Anderson's Adaptive Control of Thought Model (ACT) (1976, 1980, 1993, cited in Ellis, 1999, p.67) views language learning as "involving a progression from an initial declarative knowledge stage to a final procedural stage where knowledge is automatic." For Anderson, L2 learners achieve knowledge through practice in using the L2.

In the ACT theory, there are two separate long-term memories: declarative and procedural. According to DeKeyser (2001, p.132), "declarative knowledge is knowledge THAT, e.g. Washington DC is the capital of the US; procedural knowledge HOW to do something, e.g. shifting gears in the car or using the right form of a verb."

In skill-building theories such as Anderson's, it is essential to provide large amounts of input and enough practice to achieve automatization. This is in contrast with UG which advocates the use of minimal amounts for parameter setting. Moreover, in skill-building theory practice via input-based instruction may only serve to improve learners' ability to comprehend the target structure rather than to produce it. In this respect, this theory differs from information-processing theory, which claims that input-based instruction will facilitate both comprehension and production because comprehension and production draw on the same underlying knowledge source (Ellis, 1999, p.67).

To sum up, different theories can be tested through studies designed to investigate the effects of teaching L2 learners specific grammatical points under different conditions. In the case of UG, positive input alone is sufficient for acquisition to take place. In input-processing

model, it is agreed that input-based practice works better than production-based practice. Skill-building theory, on the other hand, claims that input-based and production-based instruction leads to gains only in the particular skill being practiced (Ellis, 1999).

2.3. A Cognitive View of Language Learning

In SLA theory, the concept of input is seen as the root of language learning (Krashen, 1982; VanPatten, 1993, 1996) and from a cognitive perspective, attention to input determines internalization of language (e.g. Long, 1991; Schmidt, 1990; Tomlin & Villa, 1994).

2.3.1. Attention and Awareness in Cognitive Psychology

Over the past two decades, researchers in the field of SLA have become interested in the concept of attention. Ellis (2002) points out “we are now at a stage at which there are important connections between SLA theory and the neuroscience of learning and memory” (p. 299). The concept of attention has become especially important due to its crucial role in so many aspects of SLA such as input, processing, development, and instruction. Most of the literature on attention also addresses the concept of awareness. The two concepts are inherently connected but can be operationally distinguished.

Posner and Petersen (1990) describe attention in terms of three networks: alertness, orientation, and detection. Alertness is the initial stage of attention and refers to the general readiness of a learner to receive input or stimuli. The higher the level of alertness, the faster the speed of selecting information for processing will be. Orientation, on the other hand, refers to “the alignment of attentional resources to a particular stimulus from among a host of stimuli” (Al-Hejin, 2004). It can be said that orientation differs from alertness in that a learner might for example be ready to learn (alertness) but not know whether to focus on form or meaning (orientation). Detection is probably the most important network in attention; it refers to the cognitive registration of a stimulus. Once a stimulus is detected, it becomes available for further processing.

Regarding the concept of attention, Schmidt (1994) has emphasized detection, saying that noticing is essential for learning. According to Schmidt (1994), noticing refers to the “registration (detection) of the occurrence of a stimulus event in conscious awareness and subsequent storage in long term memory ...” (p. 179). In terms of the dimensions mentioned above, Schmidt’s definition might be represented as follows: noticing=detection + awareness.

For Robinson (1995), the concept of attention can be used to describe a) the processes involved in selecting the information to be processed and stored in the memory, b) our 'capacity' for processing information, and c) the mental 'effort' involved in processing information.

According to Tomlin and Villa (1994), attention can be defined as a limited capacity system characterized by awareness, alertness, orientation, and detection. Instruction affects awareness; motivation affects alertness and orientation. In this system, detection is the central part, and it is influenced by all three of the above.

Awareness, on the other hand, is "the subjective experience of any cognitive content or external stimulus" (Tomlin & Villa, p. 194). Allport (1988) suggests that three conditions must be met in order for a person to be aware of a given experience. First, the person must show a behavioral or cognitive change as a result of the experience. For example, a learner might begin using -ed endings as a result of having been exposed to input that targets the past tense. Second, the person must report that s/he was aware of the experience at the time it took place. For example, the learner might report having been aware of -ed endings in the verbs at the time of exposure. Finally, the person must be able to describe the experience. For example, the learner must be able to articulate the morphological rule underlying the regular past tense. Leow (2000) adopts a less strict definition of awareness requiring only the first two conditions to be met. He calls this 'low awareness' and high awareness is achieved when all three conditions are met.

For Ellis (2002), there are two types of awareness. In the first type, learners are to be aware of the formal properties of the language in the input. That is, they can be made to consciously 'notice' them. In the second one, learners are made aware explicit representation of a target form.

In short, attention and related terms such as consciousness, noticing, and awareness are sometimes used interchangeably in the literature. The reason for this overlap is that these concepts are inherently connected, and one concept often entails the other.

2.3.2. The Effects of Attention and Awareness in Learning

The effects of attention and awareness in learning have been widely examined (e.g. Anderson, 1983; Dulany, 1991; Curran & Keele, 1993; Robinson, 1995). Divided-attention studies have provided mixed results for the claims that learning may occur without awareness. For instance, in Nissen and Bullemer (1987, cited in Rosa & O'Neill, 1999) the participants were instructed to performed a dual task in which they had to follow the appearance of a light in different positions and count tones. As a result of this study, learners in this dual-task condition showed no learning of the sequence of lights when compared to a control group who had had no previous experience with such a task. This finding has revealed that "the dual task had kept learners from paying focal attention to the position of lights, which was necessary to create awareness of the sequence patterns" (Rosa & O'Neill, 1999, p. 512).

Curran and Keele (1993), on the other hand, claimed a dissociation between learning and awareness in single-task conditions, less aware individuals showed some learning of stimulus sequences. However, their findings have received different interpretations. On the one hand, Tomlin and Villa (1994) interpreted Curran and Keele's results as evidence for learning without awareness. On the other hand, for Schmidt (1995), this result shows that different degrees of learning are correlated with different degrees of awareness. In other words, Curran and Keele referred to "more aware" and "less aware" individuals, but never to "unaware" ones.

According to Robinson (1995), learning without awareness is so limited that its effects are negligible. He argued that permanent encoding of a stimulus into memory cannot emerge without detection plus noticing and subsequent rehearsal of noticed material in short-term memory.

The view that learning without attention is not possible is also advocated by Carr and Curran (1994). They state that "there is little compelling evidence that requires anyone to believe in a strong form of 'unconscious abstraction'- the full construction of very abstract rule systems completely outside of awareness -" and that "there is compelling evidence that focused attention is needed for structural learning even if what is being learned does not reach conscious levels of processing" (p. 207).

To sum up, though the issue of learning without attention is controversial, there is more agreement related to two points: 1) focal attention is a necessary component of learning (Carr and Curran, 1994; Schmidt, 1994, 1995) 2) awareness allows for a more elaborate type of structural learning (Carr & Curran, 1994; Curran & Keele, 1993). As Wong (2001) points out, "we cannot ignore the growing body of research in SLA that demonstrates that a greater degree of attention, and in some cases also awareness, leads to more learning. Thus, no matter what position one takes on the awareness issue, there is a general consensus that attention to input is a crucial construct for SLA" (p. 346).

2.4. Intake in SLA

Recently in SLA research much attention has been focused upon the cognitive mechanisms that underpin learner processing of input. In studies of how second language instruction has an effect on L2 learner's subsequent processing of input, researchers have examined how external manipulation of input can effect intake and subsequent learning.

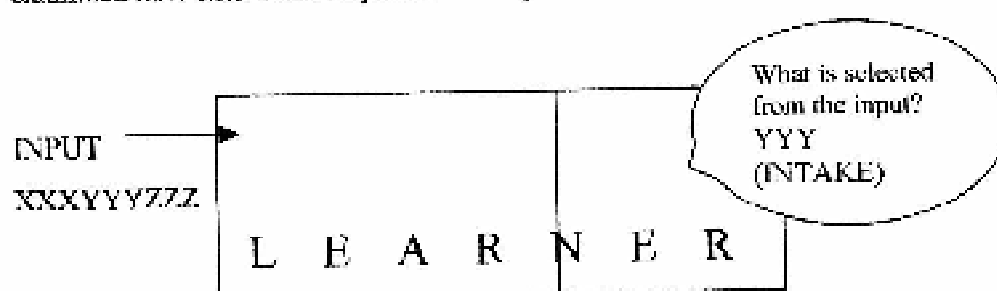


Figure 2.2. Input vs. intake (Corder, 1967)

As seen in Figure 2.2., what learners is exposed to is not the same as what learners' mind takes in. Traditionally, the distinction between linguistic *input* that the learner has yet to process and *intake*, the mental registration of the input that occurs after processing, is first proposed by Corder (1967). In his report, Corder claims:

The simple fact of presenting a certain linguistic form to a learner in the classroom does not necessarily qualify it for the status of input, for the reason that input is 'what goes in' not what is *available* for going in, and we may reasonably suppose that it is the learner who controls this input, or more properly his intake. (p. 165)

However, there has been some confusion about the definition of intake. Reviewing research on intake, Kumaravadivelu (1994) provides two views: intake as product and intake as process. In the product view, intake is a subset of input "before the input is processed by

learners" (p. 35); whereas, in the process view, intake is "what comes *after* psycholinguistic processing" (p. 36). In other words, in the product view intake is input that is unprocessed language, while in the process view, it is a part of the learner's interlanguage system and is thus processed language. Recognizing flaws in both views, Kumaravadevulu redefines the concept of intake as follows: "an abstract entity of learner language that has been fully or partially processed by learners, and fully or partially assimilated into their developing system" (p. 37). He diagrams the relationships among input, intake, and output, as shown in Figure 2.3.

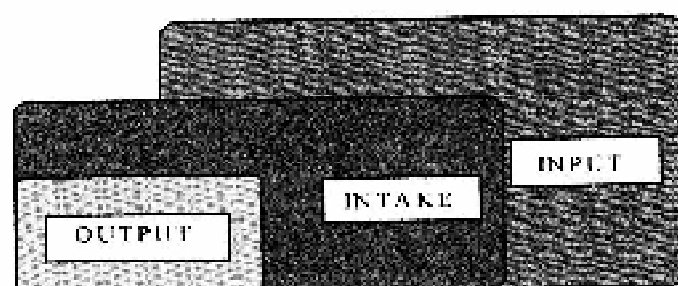


Figure 2.3. The relationships among input, intake, and output in a quantitative view
(from Kumaravadevulu, 1994)

According to SLA researchers, there are various factors influencing the input-intake process, factors that determine which input becomes intake. For instance, Kumaravadevulu (1994, p.39) proposes the following learner-internal and learner-external factors as *intake factors*:

Individual factors: Age and Anxiety

Negotiation factors: Interaction and Interpretation

Tactical factors: Learning Strategies and Communication Strategies

Affective factors: Attitudes and Motivation

Knowledge factors: Language Knowledge and Metalanguage Knowledge

Environmental factors: Social Context and Educational Context

It is generally agreed that comprehensible input is necessary (but not sufficient) for SLA to occur. Comprehensibility of input is determined not only by some of the factors listed above, but also by “linguistic factors such as language complexity, frequency, and perceptual saliency” (Ito, 2001). Several researchers have suggested that “perceptual saliency makes certain features of the input more comprehensible and thus more liable to become intake” (Henrichsen, 1984, p. 106). Hakuta (1976) recognizes perceptual saliency as one of the factors determining which forms are acquired. However, perceptual saliency is largely affected by the presence of reduced forms. When reduced forms are present, perceptual saliency lessens, thereby lessening chances of the input becoming intake (Larsen-Freeman, 1990).

A view that attention to input is necessary for input to become intake is advocated by several studies (Schmidt, 1990; Tomlin & Villa, 1994). According to Schmidt (1990), there are various factors which influence noticability. These include expectations, frequency of occurrence, perceptual salience, skill level, and task demand. Having L2 learners listen to normal and slow L2 speech, Kim (1995) examined speech elements that L2 learners attend to when they listen to L2 speech. The findings revealed that phonetic prominence of elements contributed to the noticing of particular elements.

2.5. Input Processing

VanPatten (1996) has pointed out that grammar instruction has a positive role in the acquisition process as instruction can make certain grammatical forms more salient in the input. According to him, grammar instruction provided through the input phase of the acquisition process can be beneficial while contrasting to Krashen’s view (1982) which proposes that comprehensible and meaningful input should be free of grammar instruction and proposed a model of second language acquisition. VanPatten’s model consists of three processes: I) input and intake (input processing) II) intake and the developing system (*accommodation* → how learners actually incorporate a grammatical form or structure into the mental picture of the language they are creating; *restructuring* → how the incorporation of a form or structure can cause a ripple effect and make other things change without the learner ever knowing) III) the developing system and output (output). These three processes are illustrated by VanPatten (2003, p.15) as follows:

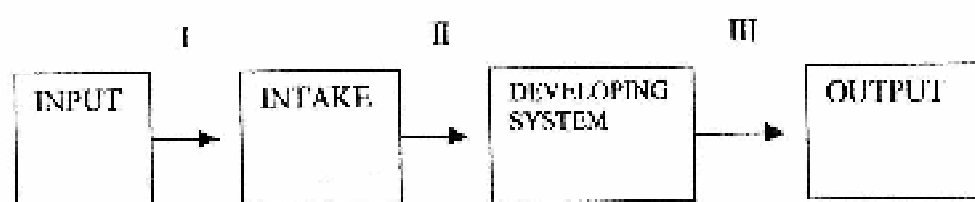


Figure 2.4. Sets of processes in SLA

One of the processes in VanPatten's model of acquisition is called 'input processing'. According to Sanz and VanPatten (1998), input processing refers to "a research domain about how learners make form-meaning connections as well as parse incoming sentences in the L2. It is, in a very real sense, the application of psycholinguistic inquiry to second language sentence comprehension and processing" (p. 50). For VanPatten (2003), input processing consists of two sub-processes: making form-meaning connections and parsing. Making form-meaning connections means getting the connection between, for example, *-s* suffix and third person singular from the input. Principle 1 (the primacy of meaning principle), 2 (the availability of resources principle), Principle 3 (the first noun principle), and 4 (the sentence location principle) guide form-meaning connections. Parsing means "mapping syntactic structures onto the utterance, for example, knowing which noun is the subject and which is object when hearing a sentence" (VanPatten, 2003, p.29).

VanPatten's model of input processing (1984, 1985, 1990, 1995, 1996) addresses the specific issue of how intake, a subset of the input, is derived from input and which psychological strategies the L2 learner tends to rely upon during input processing. These strategies have been most recently summarized in VanPatten (2004, pp. 7-17) in the form of four basic principles:

P1. The primacy of meaning Principle: Learners process input for meaning before they process it for form.

P1(a). The primacy of content words principle: Learners process content words in the input before anything else.

P1(b). The lexical preference principle: Learners prefer processing lexical items to grammatical items (e.g. morphological markings) for semantic information.

- P1(c). The meaning-before-nonmeaning principle:** Learners prefer processing more meaningful morphology before less or nonmeaningful morphology.
- P2. The availability of resources principle:** For learners to process form that is not meaningful, they must be able to process informational or communicative content at no or little cost to attentional resources.
- P3. The first noun principle:** Learners process a default strategy that assigns the role of agent to the first noun (phrase) they encounter in a sentence. We call this 'first noun strategy'.
- P3(a).** The first noun strategy can be overridden by lexical semantics and event probabilities.
- P3(b). The contextual constraint principle:** Learners will adopt other processing strategies for grammatical role assignment only after their developing system has incorporated other cues (e.g. case marking, acoustic stress).
- P4. The sentence location principle:** Learners are sensitive to position within an utterance.
- P4(a).** The beginnings of utterances are the easiest to process.
- P4(b).** The ends of utterances are the next easiest to process.
- P4(c).** The middle parts of utterances are the most difficult to process.

The first two principles are related to the processing of morphological form as well as functors (functional categories such as articles, prepositions, etc.) in the input. The third principle is relevant to order. The fourth principle, on the other hand, deals with the location of the sentence. It claims that sentence initial and sentence final positions are cognitively more salient than other constituents in a sentence.

2.6. Processing Instruction

Despite the fact that some recent SLA studies have encouraged language teachers to provide a greater role for input in the L2 classroom, relatively few teachers and practitioners have attempted to bridge the gap between what we know about input processing and how we teach language. One exception is processing instruction (PI), an instruction type based on VanPatten's (1992) model of second language acquisition and use. It is a deliberate attempt by the language teacher to intervene in the acquisition process by giving the learner explicit grammatical information concerning the target item and structured input activities (both oral and written) that force them to attend to the target item for meaning. Sanz and VanPatten (1998) define PI as "a psycholinguistically motivated focus on form that is an adjunct to communicative language teaching and/or to comprehension-based approaches" (p.50). In addition, Wong and VanPatten (2003, p. 410) suggest three basic features for PI. These are as follows:

- 1) Learners are given information about a linguistic structure or form
- 2) Learners are informed about a particular input processing strategy that may negatively affect their picking up the form/structure during comprehension.
- 3) Learners are pushed to process the form/structure during activities with structured input – input that is manipulated in particular ways so that learners become dependent on form and structure to get meaning, and/or to privilege the form/structure in the input so that learners have a better chance of attending to it. Learners do not produce the structure or form during structured input activities.

As can be understood from the components mentioned above, the PI approach is designed to avoid specific problems that learners have in processing input. In order to have a clearer understanding of the processing instruction, we should examine the difference between the traditional grammar instruction and processing instruction. While figure 2.5 shows the stages of the traditional grammar instruction, figure 2.6 shows the processing instruction.

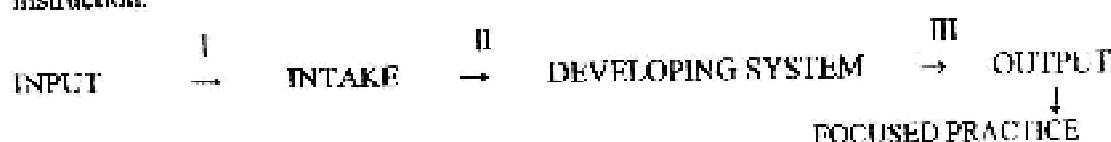


Figure 2.5. Traditional Grammar Instruction in Foreign Language Teaching
(VanPatten & Cadierno, 1993)

Traditional grammar instruction involves explanation and output practice of a grammatical point and focuses on the manipulation of learner output to affect change in the developing system.

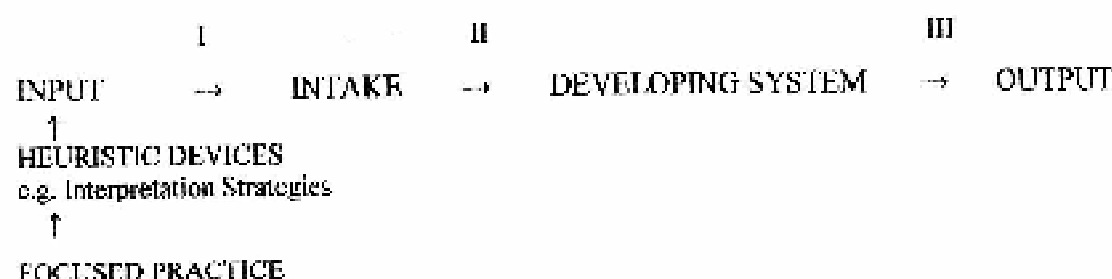


Figure 2.6. Processing Instruction in Foreign Language Teaching (VanPatten & Cadierno, 1993)

As can be depicted from Figure 2.6, processing instruction attempts to change the strategies and mechanisms used by language learners when processing I.2 input; whereas, as mentioned above, traditional instruction involves presenting learners with explanations regarding the form and then giving them practice in how to make sentences with the relevant grammar point.

2.6.1. Structured Input Activities

In PI, in contrast to many other forms of instruction, learners do not produce the language at first – they process input to understand it, and activities are designed to focus their attention on getting the right meaning from the stimuli (VanPatten, 1996). One of the criticisms that VanPatten (1996) makes of many teaching materials is that learners can do many activities without understanding the content. However, this is not acceptable within the Processing Instruction model.

The activities used in PI frequently require the learners to express a personal opinion on a theme; they often involve themes which are familiar even to beginning learners, and often an attempt has been made to make them lively and humorous. Because these activities are selective in what they target, they are said to be *structured input activities*. To develop appropriate and effective structured input activities, certain procedures should be kept in mind. VanPatten (1996, p. 69) offers the following guidelines for developing structured input activities:

- (i) *Teach only one thing at a time. (e.g. differences between subject and object personal pronouns and not this + subject-verb agreement).*

VanPatten's advice is not to burden the learner with more than one thing until the instructor is sure that the learner's have noticed and understood the form-meaning relation.

- (ii) *Keep meaning in focus. Learners must understand the stimuli to perform the activity.*

- (iii) *Learners must do something with the input. This does not mean "repeat" or "say out loud" but rather "internally process".*

VanPatten favours activities which require learners to agree or disagree with statements or to say: "Yes, that applies to me" or "No, it doesn't".

- (iv) *Use both oral and written input.*

Research on individual learning styles suggests that some learners react quite negatively to getting only oral input; they want to see what they are hearing. Certainly, written input can help learners to segment the stimuli into words and perhaps also to see certain paradigmatic relations. Because the stimuli are not transitory (if presented on a page rather than on a computer screen), learners who are still quite slow in processing can have the time they need to work out the meaning of the stimuli.

- (v) *Move from sentences to connected discourse.*

Psycholinguistic research suggests that we parse sentences and link their meanings into larger text units at the discourse level. If we start with sentences in activities, the learner has a limited stretch of speech or text to attend to notice relevant forms. Connected discourse will not give the learners sufficient time to process, but this is not buttressed by empirical data. Presumably, long sentences will present the same difficulty to learners. In short, practice the new form-meaning connections in discourse activities, but learn them first at the sentence level.

- (vi) *Keep the psycholinguistic processing strategies in mind.*

The psycholinguistic rationale for the structured input activities is that acquisition occurs when learners attend to the new structure in input rather than when they attempt to produce it. VanPatten (1993) distinguishes between referential and affective activities. Referential activities are those for which there is a right or wrong answer and for which the learner must rely on the targeted grammatical form to get meaning. Normally, as Wong and VanPatten (2003) indicate, a sequence of structured input activities would begin with two or three referential activities. Following referential activities, learners are engaged in affective structured input activities. These are activities in which learners express an opinion, belief, or some other affective response and are engaged in processing information about the real world.

2.6.2. Processing Instruction vs Consciousness Raising

Although PI seems to be similar to consciousness-raising (C-R), it differs from this approach in some ways. According to Rutherford (1987), 'grammatical consciousness-raising' is any "deliberate attempt to draw the learner's attention specifically to the formal properties of the target language" (p. 107). Rutherford also claims that language acquisition can be assisted by such consciousness-raising, but that the actual form of C-R may differ depending on first-second language contrasts and the nature of grammatical item or structure. For Rutherford, "C-R cannot be equated with traditional grammar instruction. ... It helps the processes that underlie acquisition of grammar and does not aim to contain the knowledge (or product) that must eventually be acquired" (1987, p. 24).

As for Van Patten (1996), he states the following about PI and C-R:

In a real sense, PI is a type of consciousness raising, although the term "consciousness" is somewhat unfortunate. Since PI attempts to influence the processes involved in the derivation of intake, it is not a product-oriented approach to grammar teaching that Rutherford appears to critique. That is, PI does not seek to "pour knowledge" of any kind into learners' heads; it assists certain processes that can aid the growth of the developing system over time. For this reason, we conclude that Rutherford would not have much problem in considering PI as one manifestation of grammatical consciousness-raising. (p. 85)

As it is stated above, VanPatten prefers thinking of his approach to instruction as enriching learners' subconscious intake but not as raising their consciousness about grammatical form.

2.6.3. Research on Processing Instruction

VanPatten and Cadierno (1993a, b) was the first study that compared the effects of PI and those of traditional instruction. The study was based on the first noun strategy which states that learners assign the role of agent to the first noun in a sentence. The first noun strategy explains why many learners of Spanish interpret sentences such as *Lo llama la chica* as "He calls the girl", when in fact *lo* is an object pronoun and the correct interpretation is "The girl calls him". Thus, VanPatten and Cadierno (1993) placed the subjects at the end of each sentence. A native English speaker normally assumes that the subject comes before the verb, which might cause them to interpret Spanish objects (*me, te, nos*, etc.) as subjects. Considering this, the structured input activities attempted to reorganize the interpretation strategies of learners of Spanish, so that they took notice of how each utterance was organized syntactically in terms of subject and object position.

The purpose of VanPatten and Cadierno (1993a) was to study the effects of processing instruction on the acquisition of object pronouns in Spanish. There were three groups of subjects: 1) a control group which received no instruction on object pronouns; 2) a group which received traditional instruction which included a grammatical explanation, as well as oral and written mechanical drills, meaningful drills, and communicative activities; and 3) a group which received processing instruction (explanation and structured input activities). The last group received input activities structured to counteract the first noun strategy, and were never asked to produce any language. The findings propose that PI has a greater effect on the acquisition of object pronouns (and Spanish word order) than traditional instruction which focuses on language production. Learners who received PI outperformed the other two groups on the interpretation task, and the results of the production task showed no significant difference between the PI group and the traditional instruction group, with both outperforming the control group. However, in VanPatten and Cadierno (1993b), only traditional instruction group was significantly better than control for production. Overall, considering both interpretation and production results from both studies, PI appears to show an advantage over traditional instruction.

Subsequent to VanPatten and Cadierno (1993a, 1993b), VanPatten and other researchers undertook replications of the initial studies with new target forms and a wider variety of task measures. Cadierno (1995) investigated the effects of processing instruction on the acquisition of the preterit tense in Spanish. Her study was based on the processing principle (PIb) that when a lexical item and a grammatical form encode the same semantic information, the learner will process the lexical item over the grammatical form. Because learners may use the adverbs to assign tense to an utterance, Cadierno eliminated all adverbs of time from her structured input activities so that the learners were forced to attend to the verb endings to assign tense. Just as in VanPatten and Cadierno (1993), there were three groups of subjects: 1) a control group that received no instruction, 2) a group that received traditional instruction which focused on production alone, and 3) a group that received processing instruction (explanation and structured input activities). The results of her study revealed that the learners who received processing instruction performed better than the other two groups on both comprehension and production tests, even though the processing instruction group was never asked to produce any language during the treatment. Her conclusion was that processing instruction had once again proved to be more beneficial than traditional instruction, which paralleled those of VanPatten and Cadierno (1993a).

VanPatten and Sanz (1995) investigated the effects of PI on oral language production, namely object pronouns in Spanish. There were two groups of subjects: 1) those who received PI, and 2) the control group that received no instruction. The pre-test and post-test consisted of three tasks. These are: a sentence-level task, a video-narration task, and a question-answer task. Each task had both an oral and a written version. According to the result of VanPatten and Sanz (1995) study, PI yielded beneficial effects not only for written language production but also for oral language production. For instance, the PI group performed significantly better on all three tasks after the treatment, whereas the control group showed no significant improvement.

VanPatten and Oikarinen (1996) carried out a study to investigate whether the better performance by those who receive PI might be attributed to the explicit information given as part of PI, or whether it was the structured input activities alone that produced the superior performance. The subjects in this study were divided into three groups: 1) those who received explicit grammatical information only, 2) those who received structured input activities, and 3) those who received both explicit grammatical information and structured input activities.

As a result of the study, it was indicated that the structured input-only group performed significantly better on two post-tests (an interpretation and a production task) than the explicit information-only group. There was no significant difference between the structured input-only group and the input + explicit information group. In addition, the explicit information-only group showed no significant improvement after the treatment.

Another study on PI was conducted by Cheng (2002). She investigated the effects of PI on the acquisition of the two principle copula verbs in Spanish, *ser* and *estar* through using three tasks: interpretation, sentence completion, and composition. Her results reveal that on the interpretation task, both the processing group and the traditional group made significant gains from pre-test to post-test, with the processing group making greater gains on the first of two post-tests. There was no significant difference between the processing group and the traditional group on the interpretation task of the second post-test. On both the sentence production task and the composition task, however, there was significant improvement from pre-test to post-test for both groups, and their performance was almost the same for the second post-test.

To address the issue of meaningfulness, Benati (2001) compared PI to a more meaningful output instruction on the Italian future tense. The results mirrored those of Van Patten and Cadierno (1993a) in that, for interpretation, PI outperformed the output and control groups, and for production, there was no statistical difference between instructional treatments. The findings were unique, however, in that the output group also outperformed the control group on interpretation. According to VanPatten (2002), this difference emerged from the added meaningfulness of his output condition.

Contrary to the studies mentioned above, there are some other studies proposing no significant differences between PI and TI groups. For instance, Allen (2000) investigated the relative effect of PI and TI on the acquisition of the French causative and she found that PI was as effective as TI enabling learners to interpret the French causative and that traditional instruction is more effective in enabling learners to produce the French causative.

Similarly, Cantürk (2001) found no significant difference between PI and TI groups on interpretation and production tasks. Regarding the retention of proficiency gains, both PI and TI's gains were retained over time on the production task, whereas TI's gains faded over time.

This study has a significant place because it is the only study, which measured the retention of the proficiency gains eight months after the administration of the immediate post-test.

In another study, Morgan-Short and Dowden (2006) investigated the effects meaningful output-based instruction (MOBI) compared to PI. The target form used in this study was Spanish preverbal direct object pronouns, following several previous PI studies (Cadierno, 1995; VanPatten & Cadierno, 1993a, 1993b; VanPatten & Sanz, 1995). The results of this study indicate that for both experimental groups, immediate and delayed test scores were significantly higher than pretest scores for interpretation and production, which suggests that PI and MOBI both lead to improved performance for interpretation and production of Spanish direct object pronouns. For the delayed test- for both interpretation and production- no differences were found between any groups. Overall, the results reveal that MOBI and PI performed similarly on interpretation measures, and only MOBI outperformed control on production.

The following table summarizes the studies carried on PI:

Table 2.1. Summary of studies on PI

Study	N	Participants	Target Structure	Experimental		
				Groups	Assessment Tasks	Results
VanPatten and Cadierno (1993a)	80	2nd year university Spanish	Spanish DO pronouns	PI	Interpretation	PI > TI and C
				TI C [-exposure]	Production Sentence-level completion	PI and TI > C
VanPatten and Cadierno (1993b)	49	2nd year university Spanish	Spanish DO pronouns	PI	Interpretation	PI > TI and C
				TI C [-exposure]	Production Sentence-level completion	TI > C
Cadierno (1995)	61	3rd semester university Spanish	Spanish past tense	PI	Interpretation	PI > TI and C
				TI C [-exposure]	Production Sentence-level completion	PI and TI > C
VanPatten and Sanz (1995)	44	3rd semester university Spanish	Spanish past tense	PI	Interpretation	PI > C
				C [-exposure]	Production Written and oral sentence- level completion	PI > C
Benati (2001)	39	2nd semester university Italian	Italian future	PI	Interpretation	PI > output > C
				Output	Production	PI > C
				C [-exposure]	Written verb conjugation Oral sentence-level production	PI and output > C PI and output > C

Farley (2001a)	29	4th semester university Spanish	Spanish subjunctive	PI MOI	Interpretation Production Sentence-level completion	PI > MOI PI = MOI
Farley (2001b)	50	4th semester university Spanish	Spanish subjunctive	PI MOI	Interpretation Production Sentence-level completion	PI = MOI PI = MOI
Cheng (2002)	109	4th semester university Spanish	Spanish copulas <i>ser</i> and <i>estar</i>	TI PI C [-exposure]	Key and error combined Interpretation Production Sentence-level completion	Post 1: PI > C Post 2: TI > C Post 1: PI > C Post 2: PI and TI > C Post 1: PI and TI > C Post 2: PI and TI > C Post 1: PI > C Post 2: PI=TI=C

Erlam (2003)	70	2 nd year secondary school French	French DO pronouns	IP	Comprehension	Production Sentence completion	Post 1:
				OP	Reading		PI and TI > C
				C (-exposure)	Listening		Post 2: PI > C
					Production		Post 1:
Beautrais (2005)	77	Secondary school English	English simple past tense		Written	Production Sentence-level completion	PI and TI > C
							Post 2: PI=TI=C
					Oral		
				PI	Interpretation		PI > MOI and TI
Morgan-Short and Bowden (2006)	51	First semester Spanish course	Spanish preverbal direct object pronouns	MOI	Production	Production	OP > IP and C
				TI			IP and OP > C
							OP > IP
							OP > C
Morgan-Short and Bowden (2006)	51	First semester Spanish course	Spanish preverbal direct object pronouns	PI	Interpretation	Production	PI > MOI and TI
				MOI			PI > MOI and TI
				TI			PI > MOI and TI
							PI > MOI and TI

Note: PI= Processing Instruction; TI= Traditional Instruction; C= Control group; MOI= Meaning-based output instruction; MCB= Meaning-based output

instruction; IP= Input practice; OP= Output practice; DO= Direct object. Significant differences are noted by the > sign. Nonsignificant differences are noted by the = sign.

Interpretation tasks are oral and production tasks are written unless otherwise noted.

[exposure] indicates whether the control group was exposed to the target structure.

2.7. Target Structure in the Study

The target structure in this study is *wh*-questions: Simple Questions (e.g. Who are you calling?), Embedded Inversion (e.g. Do you know where the post office is?), and Long-distance *wh*-questions (e.g. What do you think Joe thought yesterday?).

2.7.1. Bounding Theory and Subadjacency

The notion of bounding goes back to early observations, for example, Ross (1967), that movements are not possible out of certain constructions, known as “islands”. The basic idea to be captured by bounding theory is that no movement can move an element too far. This requires a principle of some kind to limit movement in the required way. In order to handle this, Chomsky (1973) suggests the theory of subadjacency, a universal constraint on the formation of *wh*-questions and related constructions. Cook and Newsom (1996) explains this theory as follows:

This theory works by defining certain nodes in a tree as ‘hurdles’ to be leapt over by a moving trace. While it is possible to leap over one hurdle at a time, what is not possible and what therefore acts to prevent movement over long distances is leaping over two or more hurdles in one leap. To put this into more formal language, nodes which are hurdles are called **bounding nodes**. The principle of subadjacency is thus: No movement can move an element over more than one bounding node at a time. Obviously, this principle accounts for the fact that all movements are local. However, it is the stipulation of what nodes count as bounding nodes that will provide us with a description of how far is *too far*. (258)

As can be seen from the following sentences, subadjacency precludes the possibility of moving a *Wh*-word out of an embedded clause which is part of a complex noun phrase [NP] (the rumor – clause), as in (2b), or a restrictive relative clause (the witness [head noun] + clause) as in (3b).

- (1) a. Anthony believes that Tony hid the files.
b. What does Anthony believe that Tony hid?
- (2) a. Anthony believes the rumor that Tony hid the files.
b. * What does Anthony believe the rumor that Tony hid?

- (3) a. Anthony interviewed the witness who saw the alien spacecraft.
 b. * What did Anthony interview the witness who saw?

2.7.2. Wh-questions in Turkish and English

Turkish differs from English in the position of wh-words in wh-questions. Consider the sentences in (4):

- (4) a. The child wanted an apple.
 b. Çocuk elma istedi.
 c. What did the child want?
 d.* The child wanted what?
 e. Çocuk ne-yi istedi?
 child what-ACC want-Past

(4a) and (4b) are declarative sentences where subjects and objects are in the canonical positions. English has SVO order, while Turkish has SOV order. In (4c) the object is wh-word *what* and it is placed at the top of the sentence. If it stays in the canonical position, the sentence becomes ungrammatical (except when it is used as an echo question), as in (4d). On the other hand, in Turkish, a wh-word remains where non-wh-words are situated in canonical word order, and thus (4e) is grammatical. “*y*” in (4e) is the trace of the wh element. In Turkish, the wh is placed in the same place of trace.

- (5) a. Başbakan istifasını YARIN verecek.
 Başbakan istifa-sın-ı ne zaman ver-ecek?
 Prime minister resignation-Poss(3sg.)-Acc when hand in-Fut
 ‘When will the prime minister hand in his resignation?’
 b. Arda partiye yorgun olduğun için gelmedi.
 Arda parti-ye neden/niçin/niye gel-me-di?
 Arda party-Dat why come-Neg-Past
 ‘Why didn’t Arda come to the party?’
 c. Defne o problemi çok zor çözdü.
 Defne o problem-i nasıl çöz-dü?
 Defne that problem-Acc how solve-Past
 ‘How did Defne solve that problem?’

In (5a), the wh-element *ne zaman* is the temporal adjunct; in (5b), *neden/niçin/niye* are wh-adjuncts denoting reason, and in (5c), *nasıl* is the manner adjunct. These examples illustrate that in simple Turkish wh-questions, the wh-constituent does not move to sentence initial position at S-structure.

Similarly, in long-distance wh-questions, too, the wh-element remains in situ, but changes the interpretation of the matrix structure:

- (6) a. Onur [Zeynep-in kim-i ara-yacağı-n]ı bil-iyor-du.
 Onur Zeynep-Gen who-Acc call-Nm-Poss(3sg)-Acc know-prog-past
 Onur know who Zeynep would call.
 b. Onur [Zeynep-in kim-i ara-yacağı-n]ı bil-iyor-du?
 Onur Zeynep-Gen who-Acc call-Nm-Poss(3sg)-Acc know-prog-past
 Who did Ali know Zeynep would call?

In (6a), the wh-element *kim* 'who' is in the embedded clause functioning as the internal argument of the matrix verb *bil*-'know2'. The scope of the wh-element is, thus, the embedded clause. The interpretation of (6b) as a matrix wh-question indicates that the wh-element has scope over the whole sentence although it remains within the embedded clause.

CHAPTER 3

METHODOLOGY

3.1. Introduction

This chapter provides a description of the experiment to investigate the differential effects of processing instruction and traditional instruction on the development of the English wh-questions by Turkish EFL students. We have hypothesized that processing instruction has an outstanding effect on the learners of English when compared to traditional instruction.

This chapter is structured in the following manner. The first section provides a summary of the pilot study. The second section gives details regarding the research design. In this section, there are two subheadings. The first part provides background information about the learners who participated in the study, and the second part described the instruments used in the instruction and assessment phases of the experiment. The third section of this chapter details the procedure used during the experiment; the fourth section explains the methods used in the scoring the assessment tests; the fifth section describes the analysis of the data.

3.2. The Pilot Study

Before conducting the main research, a pilot study was carried out with 15 Turkish students of English attending the preparatory program at Foreign Languages Center (YADİM) at Çukurova University. The main purpose of this pilot study was to determine the validity and the reliability of the items utilized in the assessment tasks: a grammaticality judgement task, a translation task, and a picture-cued task.

The results and the feedback from the participants in the pilot study provided an important insight in giving the final form to the tasks. For instance, after administering the tasks, the participants claimed that they had difficulty in understanding the meanings of some words. Therefore, the words that were chosen difficult were replaced by the more frequent ones in order to facilitate the comprehension. Moreover, after the analyses of the data, some of the sentences that had been found too long were eliminated or shortened.

3.3. Research Design

This experimental study has examined the effects of processing instruction and traditional instruction on the learners' development of English wh-questions. It was predicted that both types of instruction would have beneficial effects on learner performance, but that the processing group would display an overall superior improvement after treatment. The participants in this study, L2 learners of English studying at the university level, were divided into two groups: (1) a group that received processing instruction, and (2) a group that received traditional instruction.

Comprehension (grammaticality judgement task) and written-production tests (translation and picture-cued tasks) were developed and administered to both groups to measure the effects of the two treatments. There were three versions of each task. The first version of each task was given before the treatment as a pretest that provided a baseline to determine the effect of the instruction. Two weeks after the pretest, the instructional packets were administered for a duration of two 45-minute classes. The second version of each task (posttest1) was given immediately after the instruction in order to measure the immediate effect of techniques. The third version of the tasks (posttest2) was given four weeks after the instruction in order to evaluate how much the participants retained the gained knowledge. The following table summarizes the timeline for the research:

Table 3.1 Summary Timeline for the research

Pretest	Instruction (Simple wh- questions & Activities)	Instruction (Embedded questions & Activities)	Instruction (Long-distance wh-questions & Activities)	Posttest 1	Posttest 2
Week 1 30 Sept. Friday	Week 4 17 Oct. Mon.	Week 4 18 Oct. Tues.	Week 4 19 Oct. Wed.	Week 4 20 Oct. Thur.	21 Nov. Mon.

The obtained data on the first and second posttests were compared in order to examine the differential effects of PI and TI on the acquisition of English wh-questions. The comprehension task was designed to measure subjects' gain in their ability to judge the forms of wh-questions correctly whereas the written-production tasks were designed to evaluate the subjects' gain in their ability to produce the wh-questions.

3.3.1. Participants

A total of 56 Turkish students of English attending the preparatory program at Foreign Languages Center (YADİM) in Cukurova University, Turkey and ranging in age from 18 to 23 participated to this study. The English language proficiency level of the participants had been determined by the proficiency exam administered by YADİM at the beginning of the Fall Term of 2005-2006 academic year. As a result of this proficiency exam, two clusters at pre-intermediate level were randomly assigned as the processing group (PG, n=28) and the traditional group (TG, n=28).

Prior to the administration of the tasks, some background information was gathered from the participants using a written survey (see Appendix A). Students that knew more than one second language or had contact with English outside of class were excluded from the study. In addition, those who sought any additional explanation or practice outside of class during the treatment period were excluded.

3.3.2. Materials

For this study, two course packets and three different types of data collection tools were developed. A description of the instructional and assessment materials is provided in this section.

3.3.2.1. Instructional Materials

There were two instructional packets for the treatment (see Appendices B and C). Each packet was designed to reflect a different approach to teaching the use of the wh-questions.

The processing instruction (PI) packet consisted of various structured-input activities and a handout that explained the formation, location, and meaning of the English wh-questions. The structured-input activities in the processing packet were composed of both *referential* and *affective* activities (see Appendix B). It is important to note the distinction between the referential and affective activities. Affective activities have more than one correct answer, because the activity items ask for a learner's opinion or belief. In contrast, referential activities require the learner to focus on form and, for each activity item, to make a decision based on form. Therefore, referential activities allow for only one correct answer. Referential

and affective activities differ from more traditional activities in that the former ones are meaning-based; whereas, the latter ones are not.

As for the traditional packet, the activities here followed the pattern of moving from mechanical to meaningful and to communicative practice. Although the hints for processing the wh-questions given in the handout had the characteristics of PI, traditional instruction group were given the same explicit information as well so that the activities themselves would be the only difference between the treatments. Both instructional packets contained identical subject matter, vocabulary, and number of tokens.

3.3.2.1.1. The Processing Packet

The processing instruction packet was based on VanPatten's model of input processing. The input in these activities is structured in a deliberate attempt to force the learners to attend to the targeted forms for meaning. PI is also designed to intervene in the acquisition process by giving the learner explicit information about processing the target item. At no time is the learner required to produce the target item, rather the focus is entirely on the interpretation of pre-formed utterances that are structured to benefit the learner more than unstructured input.

The PI packet contained both oral and written input activities. The learners were required not only to read or listen to the input but to make a decision concerning what they read or heard. With the referential activities, the decision was form-based; whereas, with the affective activities the decision was opinion-based. Below are some sample items from referential activities and affective activities from the PI packet:

Referential PI Activities:

Example 1:

Two foreign exchange students are visiting Washington, D.C. Look at their questions below and circle the right answer to make grammatically correct embedded questions.

1. Driver: Where do you want to go? Airport?

Martina: The Hotel Edison. Do you know a) where is it?

b) where it is?

Driver: Sure. Get in and I'll take you there.

Martina: (*whispering to Muki*) Do you know a) how much should we tip the taxi driver?

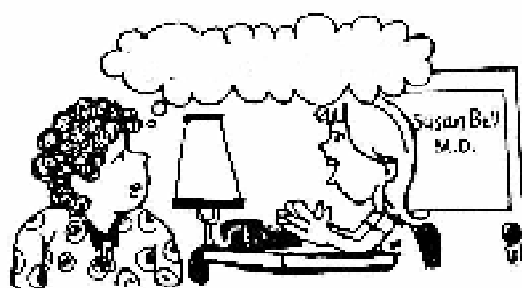
b) how much we should tip the taxi driver?

(3 more activity items of identical structure)

Example 2:

Look at the pictures below. You are going to listen to eight long-distance wh-questions.

Listen to them and decide whether they are grammatically true or not. If it is true, write T; if it is false, write F.



Instructor's Script:

1. What do you guess has made me ill? (T)
 2. Why do you guess does Mr. Hooper want to sell his flat? (F)
- (3 more script items of identical structure)

Affective PI Activities:**Example 1:**

Work in pairs. Look at these questions. In your culture, which questions are appropriate to ask someone you just met? Which are not appropriate? Compare your choices with those of your classmates.

Could you tell me	Appropriate	Not Appropriate
where you come from		
how old you are		
where you live		
why you have only one child		
how much you earn		

(5 more activity items of same format)

Example 2:

Your classmate has prepared the following questionnaire for you. Now read the questions below and answer them. Then, change your questionnaire with your partner and write a paragraph about his/her daily routine.

MY DAILY ROUTINE

1) Who do you live with?

2) What time do you get up?

3) What activities do you do in the morning?

4) How often do you have a shower?

5) What time do you have breakfast?

(6 more activity items of same format)

After completing each referential activity, the students were given feedback as to what the right answers were. This feedback was given in order that the treatment might better reflect a typical language classroom in which student responses are not left unanswered by the instructor. During this time, none of the information on the handout was repeated, and no further grammatical explanation was given. In addition, no feedback or justification was supplied when the correct answers to the activities were given.

3.3.2.1.2. The Traditional Packet

As in VanPatten and Cadierno's (1993) study, activities in the traditional packet followed the pattern of moving from mechanical to meaningful and to communicative practice (see Appendix C). Below are sample items from mechanical, meaningful, and communicative activities from the TI packet.

Mechanical Activity:

Two foreign exchange students are visiting Washington, D.C. Complete the following conversations by changing the direct questions in parentheses to embedded questions.

I. Driver: Where do you want to go? Airport?

Martina: The Hotel Edison. Do you know _____?

1. (Where is it?)

Driver: Sure. Get in and I'll take you there.

Martina: (*whispering to Miuki*) Do you know _____?

2. (How much should we tip the taxi driver?)

II. Martina: There's so much to see in Washington. Do you have an idea _____?

3. (How can we go there?)

Miuki: We could take a bus tour of the city first, then decide.

Martina: Do you know _____?

4. (How much does a bus tour cost?)

(3 more activity items of identical structure)

Meaningful Activity:

Frank Colter is a financial manager. Look at his schedule. You are given some answers. Read these answers and try to write questions for them by using the schedule below.

10 Wednesday	
9:00-10:00	meet with Ms. Jacobs
10:00-11:00	write financial reports
11:00-12:00	answer correspondence
12:00-1:00	eat lunch with Mr. Webb at Sol's Café
1:00-3:00	Attend lecture at City University
3:00-4:00	discuss budget with Alan
4:00-5:00	Return phone calls

1. A: Can you tell me _____?

B: Ms. Jacobs.

2. A: Do you know _____?

B: Financial reports.

3. A: Could you please tell me _____?

B: Mr. Webb.

(3 more activity items of identical structure)

Communicative Activity:

A Classmate's Daily routine: First make questions by using the following prompts. Then ask these questions to a classmate and write down his/her answers. Finally write a paragraph about his/her daily routine.

- live with? (person/people)
- get up? (time)
- wake you in the morning? (person)
- have a shower? (frequency)
- have breakfast? (time/food?)

In contrast to the PI materials, the TI activities required the learners to produce wh-question forms. In other words, structured input activities in the processing group make students attend to both meaning and form to successfully complete the activities but they never required students to produce the target structures; whereas, activities in the traditional packet make students produce the target structures. The initial activities do not require students to attend to meaning to successfully complete the activities.

For both groups, the same handout was distributed on the first day of instruction. This handout contained explicit information about the following: a) how wh-questions are formed and b) when they are used. After the learners read through the handout with the instructor, they began the activities. Participants in both groups were given identical explicit information so that the difference between types of treatment was limited to the nature of the activities themselves. The handout was collected on the second day of instruction to inhibit further study or review outside of class.

3.3.3. Data Collection Instruments

In order to assess the effects of instruction, three versions of the assessment tasks as the pretest, the posttest1 and the posttest2 were developed. These versions differed in terms of the order of questions and the names of subjects and objects in each sentence, but the content stayed the same. Each test consisted of three tasks:

- (1) Grammaticality-judgement task (GJT)
- (2) Translation Task (TT)
- (3) Picture-cued Task (PCT)

The GJT in a multiple-choice format was designed to examine the subjects' grammaticality judgement ability to choose the correct form of the English wh-questions. In the administration of GJT, subjects were instructed to read each of the 16 questions and then judge their grammaticality by selecting one item among three choices as presented in the following sentences:

(14) Do you know where is the bank?

() OK () NOT OK () NOT SURE

(16) What will John think Fred could find in that box?

() OK () NOT OK () NOT SURE

The TT and PCT are the two written-production tasks in the study. In TT, subjects were given 16 Turkish wh-questions, and then they were instructed to translate these Turkish wh-questions into English wh-question forms. In the PCT, however, subjects were given 12 sentences. In these sentences, some words were underlined, and subjects were required to ask a question to these underlined parts. In order to facilitate subjects' comprehension, some pictures were provided (see Appendix D).

3.3.3. Procedure

In order to control teacher variables, the researcher herself delivered the explicit instruction and practice activities and then administered the pretest, the posttest1, and the posttest2. Otherwise, there would be differences in terms of teaching style. Following VanPatten and Culierno (1993) and Allen (2000), to eliminate the location threat, all experimentation took place in the subjects' regular classroom during their regular class periods in the 2005-2006 academic year. The researcher was the teacher of the two classes. In her study, Karacaer (2003) observed that administering the instruction and posttest one week after the pretest caused students to remember test items easily. Therefore, in this study, two weeks after the pretest, instruction and posttests (1 and 2) were given.

The pretest, consisting of GFI, TT, and PCT, provided a baseline measure for knowledge of and ability with the English wh-questions and served as a means of eliminating subjects with prior knowledge of the wh-questions from the final data pool. Following the pretest, the administration of the instructional treatment for each type of wh-questions (namely, simple, embedded, and long-distance wh-questions) spanned two-45-minute class periods. All instruction took place during one week, and no homework was given during the treatment; during the intervals between the posttest1 and posttest2, no review of English wh-questions was provided. Instructional materials were collected from the learners after the treatment.

For the P1 group, there were 12 referential activities based on oral input and 6 affective activities that were communicative and based on written input (see Appendix B). The researcher read the sentences and dialogues and recorded them for the first five activities. The students listened to the sentences and dialogues, and the researcher asked them to choose/tick the correct choice: a or b. In this way, she did not allow the students to produce English wh-questions. These referential activities did not take too much time because the students listened to them once, and the researcher immediately got the answers from the students. In the affective activities, on the other hand, the researcher asked the students to find out the appropriate item(s) for themselves. Similar to the referential activities, in the affective activities, the researcher did not ask the subjects to produce the wh-questions. The students sometimes had problems about the vocabulary in the activities during the treatment. In this case, the researcher introduced the definition of the unknown words in order to prevent the students from misunderstanding the activities.

For the T1 group, there were 6 mechanical, 6 meaningful, and 6 communicative activities (see Appendix C). While the mechanical and meaningful activities did not take too much time, the communicative activities took more time. In communicative activities, the students were asked to work in groups and in pairs.

As mentioned earlier, the instructional materials for both groups had identical content and number of tokens. In addition, an effort was made to keep the P1 and T1 groups comparable with regard to time on task and amount of practice.

Immediately after the treatment, the posttest1 was given. Four weeks after the posttest1, the posttest2 was administered. The aim of giving the posttest2 was to see whether or not the proficiency gains from instruction remained stable. The data collection timetable was as follows:

Table 3.2. Data Collection Timetable

TREATMENT	
<u>Processing Instruction</u>	<u>Traditional Instruction</u>
Week 1 (30 Sept., 2006): Pretest	Week 1 (30 Sept., 2006): Pretest
Week 4 (17 Oct., 2006):	Week 4 (17 Oct., 2006):
First Hour: Presentation + Activities (Simple wh-questions)	First Hour: Presentation + Activities (Simple wh-questions)
Second Hour: Activities	Second Hour: Activities
Week 4 (18 Oct., 2006):	Week 4 (18 Oct., 2006):
First Hour: Presentation + Activities (Embedded wh-questions)	First Hour: Presentation + Activities (Embedded wh-questions)
Second Hour: Activities	Second Hour: Activities
Week 4: (20 Oct., 2006):	Week 4: (20 Oct., 2006):
First Hour: Presentation + Activities (Long-distance wh-questions)	First Hour: Presentation + Activities (Long-distance wh-questions)
Second Hour: Activities	Second Hour: Activities
21 Oct., 2006 POSTTEST1	21 Oct., 2006 POSTTEST1
21 Nov., 2006 POSTTEST2	21 Nov., 2006 POSTTEST2

3.3.4. Scoring

For the statistical analyses, raw scores obtained from the pretest and posttests were calculated in the following manner. For the GJT, when the participant correctly judged the sentence as grammatical or ungrammatical, s/he took a score of one. However, when, for instance, s/he judged the grammatical sentence as ungrammatical or the opposite, s/he took a score of zero. In addition, "not sure" answers received a score of zero, too. The total points possible for this task were sixteen.

For the production portion, namely TT and PCT, one point was given for each correct use of wh-questions. Thus, the maximum score possible for TT was sixteen and for PCT twelve. Each blank response received a score of zero. All the raw data then were entered into SPSS (Statistical Package for Social Sciences) for the statistical analyses.

3.3.5. Data Analysis

The raw scores for each portion of the pretest and posttests were tabulated, and a two-way analysis of variance with repeated measures (ANOVA) was performed. The independent variable was Instruction Type (PI, TI); whereas the dependent variable was Time (pretest, posttest1, posttest2). The analysis was composed of three separate repeated measures of Analyses of Variance: one for the GJT, one for TT, and the other for PCT. The following table presents the summary of the analysis procedure.

Table 3.3. A Summary of the Analysis Procedure

	Recognition		Production			
	GJT		TT		PCT	
	PI	TI	PI	TI	PI	TI
Pretest	√	√	√	√	√	√
	*T		*T		*T	
Posttest1	√	√	√	√	√	√
Posttest2	√	√	√	√	√	√

*T stands for the treatment

Then, each analysis compared the mean differences among the tasks in recognition and production skills within as well as between the groups. The statistical procedures and the discussion of the findings are given in the next chapter.

CHAPTER 4

RESULTS AND DISCUSSION

4.1. Introduction

This chapter presents the analyses of the results from both the comprehension task and the written production tasks used as the pretest, the posttest, and the delayed posttest.

4.2. Analysis of the Qualitative Data Obtained from Assessment Tasks

Recognition (GJT) and production tasks (TT and PCT) were developed and administered to both groups to measure the effects of the two treatments. As mentioned in Chapter 3 (see section 3.3), there were three versions of each task. First, a pretest was administered to the pre-intermediate preparatory students at the Foreign Languages Center at Çukurova University to have a baseline to determine the effect of the instruction. Two weeks after the pretest, the instructional treatment was administered to the processing instruction and the traditional instruction groups. During the treatment, the researcher gave the explicit instruction and practice activities. Immediately after the instruction, the posttest1, which was exactly the second version of the pretest, was delivered to the processing instruction and traditional instruction groups. Four weeks after the posttest1, the subjects were given the same posttest as the delayed posttest.

T-test conducted on the pretest revealed no statistically significant differences between the groups (see Table 4.1). Basing on this finding, we can claim that any statistical significant difference on the posttest results of the groups is due to the instruction.

Table 4.1. T-test Results of the Pre-test

TASK	GROUPS		P
	PI	TI	
	Mean Scores		
GJT	8.57	7.57	0.086
TT	8.29	7.57	0.082
PCT	4.04	4.62	0.069

Significant $p < 0.05$

4.2.1. Analysis of the Data from Grammaticality Judgement Task

In GJT, as stated in the previous chapter, subjects have been asked to judge 16 sentences, which contained three different syntactic structures: subject wh-questions, embedded wh-questions, and long-distance wh-questions. In this study, the GJT has been designed to examine the subjects' grammaticality judgement ability to choose the right value of the wh-parameter in terms of three different structures. During the administration of the GJT, the participants were instructed to read each of the English wh-questions and judge their grammaticality by selecting one item among three choices (OK, NOT OK, and NOT SURE). Each item in the task had a counterpart. The following sentences can be cited as an example:

Item 2: Who called me yesterday? (OK)

Item 8: *Who did help the boy? (NOT OK)

At this point, Item 2 is grammatically correct while its counterpart, Item 8, is ungrammatical in the sense that while questioning the agent of the action in English, we do not utilize the auxiliary verb. As it can be detected from the incorrect sentence above, there is a violation of subject wh-question formation, which, in fact, should have been written as follows:

Who helped the boy?

The distribution of the sentences according to their structural categories is presented with example sentences in Table 4.2 below.

Table 4.2. The distribution of the items in GJT

	<u>OK</u> Item numbers	<u>NOT OK</u> Item numbers
Subject wh-questions	2 11 Ex: Who called me yesterday?	8 7 Ex: Who did help the boy?
Embedded wh-questions	5 9 Ex: Do you know who he is?	1 14 Ex: Do you know where is the bank?
Long-distance wh-questions	3 4 13 Ex: Who did John say Bill saw last night?	16 10 15 Ex: Who do you think did Bill call yesterday?

Table 4.2 shows that there are 7 grammatical questions (OK) and their 7 ungrammatical (NOT OK) counterparts in GJT. When the participants correctly judged the sentences as grammatical or ungrammatical, they took a score of one. Indeed, subjects have been asked to judge 16 sentences; however, there are only 14 sentences in Table 4.2. Items 6 and 12 were excluded from the table on purpose because they do not belong to the syntactic structures focused on in this study. The underlying reason for the existence of these Items is to prevent the subjects from focusing on the target structure.

As mentioned in Section 4.2., the GJT was administered to the students for three times. First it was given as a pre-test, then as posttest1 and posttest2. In the following part, the data obtained from the GJT as pre-test, posttest1 and posttest2 will be presented.

4.2.1.1. GJT as Pre-test

Both the TI and PI groups took GJT as pre-test two weeks before the treatment.

Table 4.3. Percentage and Frequency calculations of each subject wh-question item (OK)

Item Number		TI n=28		PI n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
2	0	7	25.0	16	57.1	23	41.1	4.722	1	0.030*
	1	21	75.0	12	42.9	33	58.9			
11	0	7	25.0	5	17.9	12	21.4	0.106	1	0.745
	1	21	75.0	23	82.1	44	78.6			

Chi-Square Yates , *p<0.05

Table 4.3 displays the Chi-Square results of the correct (1) and incorrect (0) judgements of the OK sentences that include subject wh-questions in GJT. According to the table, judgements made in relation to the OK sentences except Item 2 are not statistically significant between these two groups. The sentences found significant is:

Item 2: Who called me yesterday?

When the frequencies and percentages of the correct judgements of this sentence are considered, it can be inferred that there is an increase in the correct judgements of this sentence in TI group. When examined (see Table 4.2), the rates of correct judgements of the item 11 are very close to each other between the groups. When the Not OK counterparts of these sentences in Table 4.4 below are considered, it is observed that there are no significant differences in terms of Items 8 and 7 between the two groups. These two sentences violating the English value of the *wh*-parameter are as follows:

Item 8: *Who did help the boy?

Item 7: *Who did Lee see that girl at the bus stop?

Table 4.4 Percentage and Frequency calculations of each subject *wh*-question item (NOT OK)

Item Number		TI n=28		PI n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
8	0	14	50.0	17	60.7	31	55.4	0.289	1	0.591
	1	14	50.0	11	39.3	25	44.6			
7	0	12	42.9	10	35.7	22	39.3	0.075	1	0.784
	1	16	57.1	18	64.3	34	60.7			

Chi-Square Yates Note: Score range=0-1 *Statistically significant ($p \leq .05$)

Another syntactic structure in the given sentences for GJT is the embedded *wh*-questions.

Table 4.5. Percentage and Frequency calculations of each embedded *wh*-questions (OK)

Item Number		TI n=28		PI n=28		Total n=56		χ^2	df	P
		f	%	f	%	f	%			
5	0	7	25.0	8	28.6	15	26.8	0.000	1	1.000
	1	21	75.0	20	71.4	41	73.2			
9	0	14	50.0	4	14.3	18	32.1	6.632	1	0.010*
	1	14	50.0	24	85.7	38	67.9			

Chi-Square Yates, * $p < 0.05$

The table above presents the percentage and frequency calculations of the correct judgements of the OK sentences that comprise embedded *wh*-questions in the GJT. According to the results presented in Table 4.5, the correct judgements made regarding Item 9 (OK

sentence) are statistically significant across the T1 and P1 groups. On the other hand, for Item 5, the results did not yield a statistical significance. The sentence found significant is:

Item 9: Do you know who he is?

Table 4.6. Percentage and Frequency calculations of each embedded wh-questions (NOT OK)

Item Number		T1 n=28		P1 n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
1	0	16	57.1	6	21.4	22	39.3	6.064	1	0.014*
	1	12	42.9	22	78.6	34	60.7			
14	0	22	78.6	9	32.1	31	55.4	10.405	1	0.001*
	1	6	21.4	19	67.9	25	44.6			

Chi-Square Yates , *p<0.05

When we compare the significant sentence (Item 9) with its ungrammatical (NOT OK) counterpart (namely, Item 14) in Table 4.6 above, we observe that there is a similarity. Namely, there are significant differences among the correct judgements of the learners in T1 and P1 groups in this respect. Likewise, Item 1 (ungrammatical counterpart of Item 5) yielded significant results between the groups. The sentences found significant are:

Item 1: *Could you tell me where can I find Linda?

Item 14: *Do you know where is the bank?

Items 5 and 9 include embedded wh-questions. Although these sentences have been correctly judged at high frequencies by T1 group, their ungrammatical counterparts, Item 1 and 14, have been incorrectly judged at rather high frequencies T1 group.

The T1 group have been rather successful at judging Item 5 while it has judged its counterpart (namely, Item 1) with a relatively poor correctness. Similarly, the rate of incorrect judgements for Item 14 increased a great deal in T1 group. On the other hand, the rate of correct judgements in P1 group did not show a dramatic change. To arrive a sound conclusion regarding the judgement of the syntactic domain presented in these sentences, the data obtained from the other two tasks should be considered (see sections 4.2.2 and 4.2.3).

The third syntactic structure in GJT is the long-distance wh-questions. In the GJT, there are 6 sentences involving long-distance wh- questions. The grammatical (OK) long-distance wh-questions are presented in the following table:

Table 4.7. Percentage and Frequency calculations of each long-distance wh-questions (OK)

Item Number		TI n=28		PI n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
3	0	26	92.9	25	89.3	51	91.1	0.000	1	1.000
	1	2	7.1	3	10.7	5	8.9			
4	0	9	32.1	5	17.9	14	25.0	0.857	1	0.355
	1	19	67.9	23	82.1	42	75.0			
13	0	14	50.0	14	50.0	28	50.0	0.000	1	1.000
	1	14	50.0	14	50.0	28	50.0			

Chi-Square Yates , IFisher Exact Test

When we examine Table 4.7, which displays the percentages and frequencies calculated for each grammatical long-distance wh-questions in two groups, we observe no significant differences between the groups for Items 3, 4, and 16. These sentences are:

Item 3: Who did John say Bill saw last night?

Item 4: What will John think Fred could find in that box?

Item 13: How long does the doctor believe Walter will stay in bed?

When we compare these sentences with their NOT OK counterparts in Table 4.8. below, it is observed that there is no significant difference between the correct judgements of the two groups.

Table 4.8. Percentage and Frequency calculations of each long-distance wh-questions (NOT OK)

Item Number		TI n=28		PI n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
16	0	25	89.3	18	64.3	43	76.8	3.606	1	0.058
	1	3	10.7	10	35.7	13	23.2			
10	0	17	60.7	15	53.6	32	57.1	0.073	1	0.787
	1	11	39.3	13	46.4	24	42.9			
15	0	23	82.1	20	71.4	43	76.8	0.401	1	0.527
	1	5	17.9	8	28.6	13	23.2			

Chi-Square Yates

As can be seen in Table 4.8., the rates of correct judgements of Items 16, 10, and 15 are very close to each other in the TI and PI groups. The poor judgement of both OK and NOT OK sentences in relation to the long-distance wh-questions by the two groups indicate that the acquisition process in this respect is still in progress.

4.2.1.2. GJT as Posttest-1

As indicated in Section 4.2, the GJT was first delivered as the pretest two weeks before the treatment in order to provide a baseline measure for knowledge of and ability with English wh-questions. After the treatment, the same GJT was administered as the posttest-1 to measure the effects of PI. The data obtained from GJT as posttest-1 were analysed and the findings for each syntactic structure are presented in tables as follows:

Table 4.9. Percentage and Frequency calculations of each subject wh-question item (OK)

Item Number		TI n=28		PI n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
2	0	6	21.4	2	7.1	8	14.3	1.313	1	0.2521
	1	22	78.6	26	92.9	48	85.7			
11	0	8	28.6	2	7.1	10	17.9	3.043	1	0.081
	1	20	71.4	26	92.9	46	82.1			

Chi-Square Yates , IFisher Exact Test

As can be seen in Table 4.9, which displays the percentages and frequencies calculated for each subject wh-question in GJT in two groups, the rates of correct judgements of Item 2 are very close to each other in the TI and PI groups. Similar to the results for Item 2, the results for Item 11 indicate that there is a similarity in terms of the rates of correct judgements in TI and PI groups. Therefore, these two items, 2 and 11, did not yield a statistical significance between the groups. This result might indicate that both PI and TI had a positive effect on the students' performance in GJT.

When we compare these sentences with their NOT OK counterparts in Table 4.10. below, it is observed that there is no statistical significance for Items 7 and 8 in GJT.

Table 4.10. Percentage and Frequency calculations of each subject wh-question item (NOT OK)

Item Number		T1 n=28		P1 n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
8	0	14	50.0	8	28.6	22	39.3	1.872	1	0.171
	1	14	50.0	20	71.4	34	60.7			
7	0	7	25.0	4	14.3	11	19.6	0.453	1	0.501
	1	21	75.0	24	85.7	45	80.4			

Chi-Square Yates

As Table 4.10 presents above, it is seen that for Items 8, half of the subjects in T1 group (50%) incorrectly judged the sentence. When we compare the results of T1 group for Item 8 in Table 4.9 and 4.10, it is seen that there is an increase in the number of the incorrect judgements of Item 8 in T1 group from OK to NOT OK sentences (from 21.4% to 50%). This inconsistency might indicate that the subjects in T1 group are still in resetting process.

Table 4.11. Percentage and Frequency calculations of each embedded wh-questions (OK)

Item Number		T1 n=28		P1 n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
5	0	1	3.6	0	0	1	1.8	0.000	1	1.000
	1	27	96.4	28	100	55	98.2			
9	0	3	10.7	0	0	3	5.4	1.400	1	0.236
	1	25	89.3	28	100	53	94.6			

Chi-Square Yates , Fisher Exact Test

Table 4.11. presents the percentage and frequency results of the data obtained from the judgements of the embedded wh-questions in GJT. As can be depicted in the table above, it is seen that neither of the items yield statistical significance between the groups. These items are;

Item 5: Can you tell me where your parents live?

Item 9: Do you know who he is?

According to the results in Table 4.11, the subjects in T1 group are as successful as those in the P1 group, which means that both T1 and P1 groups seem to have gained some mastery on the embedded wh-questions in English at the recognition level.

Table 4.12. Percentage and Frequency calculations of each embedded wh-questions (NOT OK)

Item Number		T1 n=28		P1 n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
1	0	4	14.3	0	0	4	7.1	2.423	1	0.1111
	1	24	85.7	28	100	52	92.9			
14	0	4	14.3	0	0	4	7.1	2.423	1	0.1111
	1	24	85.7	28	100	52	92.9			

1Fisher Exact Test

When we compare these sentences with their NOT OK counterparts in Table 4.12 above, it is observed that there is no significant difference among the correct judgements of the two groups. Moreover, the rates of correct judgements of OK items in two groups are very close to the rates of the correct judgements of their NOT OK counterparts. This result reveals that both T1 and P1 have a positive effect on the recognition task.

The last group of sentences in GJT is the long-distance wh-questions. In GJT, the subjects were asked to decide whether the formation of the long-distance questions were correct or not. The findings are presented in the following tables:

Table 4.13. Percentage and Frequency calculations of each long-distance wh-questions (OK)

Item Number		T1 n=28		P1 n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
3	0	21	75.0	13	46.4	34	60.7	3.668	1	0.055
	1	7	25.0	15	53.6	22	39.3			
4	0	5	17.9	1	3.6	6	10.7	1.680	1	0.1931
	1	23	82.1	27	96.4	50	89.3			
13	0	12	42.9	13	46.4	25	44.6	0.000	1	1.000
	1	16	57.1	15	53.6	31	55.4			

Chi-Square Yates, 1Fisher Exact Test

In Table 4.13, the percentage and frequencies calculated for long-distance wh-questions are presented. The result reveals that none of the items have been found statistically significant between the groups. The mentioned items comprise sentences:

Item 3: Who did John say Bill saw last night?

Item 4: What will John think Fred could find in that box?

Item 13: How long does the doctor believe Walter will stay in bed?

Table 4.14. Percentage and Frequency calculations of each long-distance wh-questions (NOT OK)

Item Number		TI n=28		PI n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
16	0	3	10.7	0	0	3	5.4	1.409	1	0.2361
	1	25	89.3	28	100	53	94.6			
10	0	19	67.9	17	60.7	36	64.3	0.078	1	0.7801
	1	9	32.1	11	39.3	20	35.7			
15	0	22	78.6	20	71.4	42	75.0	0.095	1	0.7581
	1	6	21.4	8	28.6	14	25.0			

Chi-Square Yates , (Fisher Exact Test

When we compare these sentences with their NOT OK counterparts in Table 4.14, above, it can be observed that regarding Item 3, its NOT OK counterpart shows a sharp decrease in the rates of incorrect judgements (for Item 16 from 21 to 3 in TI group and for Item 13 from 13 to 0 in PI group). On the other hand, the results for Items 10 and 15 (ungrammatical counterparts of 4 and 13) reveal that there is a sharp increase in the rates of incorrect judgements in TI group. In other words, the subjects in TI group could not successfully judge the grammaticality of the given items. As for PI group, this finding suggests that similar to the results in TI group, PI group have difficulty in judging the grammaticality of the long-distance wh-questions, which means that they are in still resetting process.

4.2.1.3. GJT as Posttest-2

In the fourth phase of the study (see Chapter 3), the GJT was administered for the third time (first for pretest, second for posttest1). The data obtained from the posttest2 are given in the following tables:

Table 4.15. Percentage and Frequency calculations of each subject wh-question item (OK)

Item Number		T1 n=28		P1 n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
2	0	6	21.4	0	0	6	10.7	4.667	1	0.023*
	1	22	78.6	28	100	50	89.3			
11	0	12	42.9	5	17.9	17	30.4	3.041	1	0.081
	1	16	57.1	23	82.1	39	69.6			

Chi-Square Yates , 1Fisher Exact Test, *p<0.05

Table 4.15 displays the percentage and the frequency results of the data obtained from the judgements of the questions in GJT involving subject wh-questions. As the items (namely, 2 and 11) are examined, it is seen that there is a statistical significance only for Item 2. This item found significant is:

Item 2: Who called me yesterday?

On the other hand, there is no statistical significance for Item 11. The findings in Table 4.15 above suggest that the subjects in T1 group are not as successful as those in P1 groups.

When these sentences are compared with their NOT OK counterparts in Table 4.16 below, it is seen that Item 8 (the ungrammatical counterpart of Item 2) and Item 7 (the ungrammatical counterpart of Item 11) have yielded a significant result between the groups. The sentences found in these items are as follows:

Item 8: *Who did help the boy?

Item 7: *Who did Lee see that girl at the bus stop?

Table 4.16. Percentage and Frequency calculations of each subject wh-question item
(NOT OK)

Item Number		T1 n=28		P1 n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
8	0	16	57.1	5	17.9	21	37.5	7.619	1	0.006*
	1	12	42.9	23	82.1	35	62.5			
7	0	19	67.9	4	14.3	23	41.1	14.461	1	0.000*
	1	9	32.1	24	85.7	33	58.9			

Chi-Square Yates, *p<0.05

According to the results in Table 4.16, there is inconsistency between the judgements of the T1 group in OK and NOT OK sentences while the rates of the incorrect judgements of P1 group were almost the same, leading us to conclude that the effects of P1 are more durable at recognition of subject-wh questions.

In the following Tables 4.17 and 4.18 below, the percentages and frequencies calculated for embedded wh-questions are presented:

Table 4.17. Percentage and Frequency calculations of each embedded wh-questions (OK)

Item Number		T1 n=28		P1 n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
5	0	4	14.3	0	0	4	7.1	2.423	1	0.1111
	1	24	85.7	28	100	52	92.9			
9	0	3	10.7	0	0	3	5.4	1.409	1	0.2361
	1	25	89.3	28	100	53	94.6			

Fisher Exact Test

The results in Table 4.17 above reveal that the Items 5 and 9 regarding the OK judgements have not been found statistically significant between the groups. As can be observed from Table 4.17, the correct responses of the T1 and P1 groups for Items 5 and 9 are very close to each other.

Table 4.18. Percentage and Frequency calculations of each embedded wh-questions
(NOT OK)

Item Number		TI n=28		PI n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
1	0	6	21.4	0	0	6	10.7	4.667	1	0.023*
	1	22	78.6	28	100	50	89.3			
14	0	6	21.4	3	10.7	9	16.1	0.530	1	0.469!
	1	22	78.6	25	89.3	47	83.9			

[Fisher Exact Test, *p<0.05]

When the grammatical embedded wh-questions are compared with their NOT OK counterparts in Table 4.18 above, it is seen that only Item 1 (the ungrammatical counterpart of Item 5) has yielded a significant result between the groups. The sentence found significant in this Item is:

Item 1: *Could you tell me where can I find Linda?

In GJT, there are also six long-distance wh-questions. The findings related to these items are as follows:

Table 4.19. Percentage and Frequency calculations of each long-distance wh-questions (OK)

Item Number		TI n=28		PI n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
3	0	23	82.1	7	25.0	30	53.6	16.154	1	0.000*
	1	5	17.9	21	75.0	26	46.4			
4	0	10	35.7	2	7.1	12	21.4	5.197	1	0.023
	1	18	64.3	26	92.9	44	78.6			
13	0	18	64.3	17	60.7	35	62.5	0.000	1	1.000
	1	10	35.7	11	39.3	21	37.5			

Chi-Square Yates , *p<0.05

Table 4.19 presents the results of the data obtained from the subjects' judgements of the grammaticality of the long-distance wh-questions in GJT. According to the results depicted in the table above, it is seen that Items 3 and 4 (except 13) yield significant differences between the groups. When the results are considered, we see that the statistical

significance in the items presented above (namely 3 and 4 in GJT) stem from the results obtained the judgements provided by the subjects in the T1 and the ones provided by the P1 groups. We observe that T1 group is not as successful in the recognition of the grammaticality of the long-distance wh questions as the other group (P1). However, for item 13, the correct responses of the T1 and P1 groups are very close to each other.

When we compare these OK sentences with their NOT OK counterparts in Table 4.20 below, it is observed that there is significant difference between the correct judgements of the two groups only for Item 16. The sentence found significant is as follows:

Item 16: *Who do you think did Bill call yesterday?

Table 4.20. Percentage and Frequency calculations of each long-distance wh-questions (NOT OK)

Item Number		T1 n=28		P1 n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
16	0	14	50.0	1	3.6	15	26.8	13.112	1	0.000*
	1	14	50.0	27	96.4	41	73.2			
10	0	23	82.1	19	67.9	42	75.0	0.857	1	0.355
	1	5	17.9	9	32.1	14	25.0			
15	0	26	92.9	25	89.3	51	91.1	0.000	1	1.000!
	1	2	7.1	3	10.7	5	8.9			

Chi-Square Yates , !Fisher Exact Test, *p<0.05

Regarding Items 10 and 15, Table 4.20 displays that the majority of the subjects in both groups are not successful in judging the grammaticality of the given long-distance wh-questions. When the results are considered, it is seen that students had difficulty in recognition of Items 10 and 15. The inconsistency among the items reveals that the subjects are still in the resetting process.

4.2.2. Analysis of the Data from Translation Task

In this section, the data obtained from the TT will be analyzed and discussed. The TT is a written production task: that is, the participants were asked to translate 16 Turkish interrogative sentences into English. The interrogatives were formed in various syntactic forms. The distribution of these interrogatives according to their syntactic structures is presented in the following table.

4.2.1. The Distribution of the Items in 'TT'

<i>Syntactic Structures</i>	<i>Item numbers</i>
Subject/Object wh-questions	2, 6, 9, 11 Ex: Who woke up the child?
Embedded wh-questions	3, 5, 10, 16 Ex: Could you tell me where Kate stayed last night?
Long-distance wh-questions	1, 7, 13, 15 Ex: Who do you think Mary gave the book?

As can be observed from the table above, Items 4, 8, 12 and 14 were removed from the table on purpose as they do not belong to any of the syntactic structures presented in the table. The underlying reason for the existence of these items in TT is to prevent the participants from focusing on the target structure.

Similar to the administration of the GFT, the TT was administered to the participants for three times (as pretest, posttest1 and posttest2). In the following part, the data obtained from the TT as pretest, posttest1 and posttest2 will be presented.

4.2.2.1. TT as Pretest

Both the T1 and P1 groups were administered the TT as pretest two weeks before the treatment.

The first syntactic form studied in the TT is the subject and object wh-questions. Table 4.22 displays the percentages and frequencies calculated for subject and object wh-questions in TT.

Table 4.22. Percentage and Frequency calculations of each subject and object wh-questions

Item Number		T1 n=28		P1 n=28		Total n=56		χ^2	df	P
		f	%	f	%	f	%			
2	0	11	39.3	8	28.6	19	33.9	0.319	1	0.572
	1	17	60.7	20	71.4	37	66.1			
6	0	9	32.1	7	25.0	18	28.6	0.088	1	0.767
	1	19	67.9	21	75.0	40	71.4			
9	0	19	67.9	18	64.3	37	66.1	0.000	1	1.000
	1	9	32.1	10	35.7	19	33.9			
11	0	1	3.6	3	10.7	4	7.1	0.269	1	0.6111
	1	27	96.4	25	89.3	52	92.9			

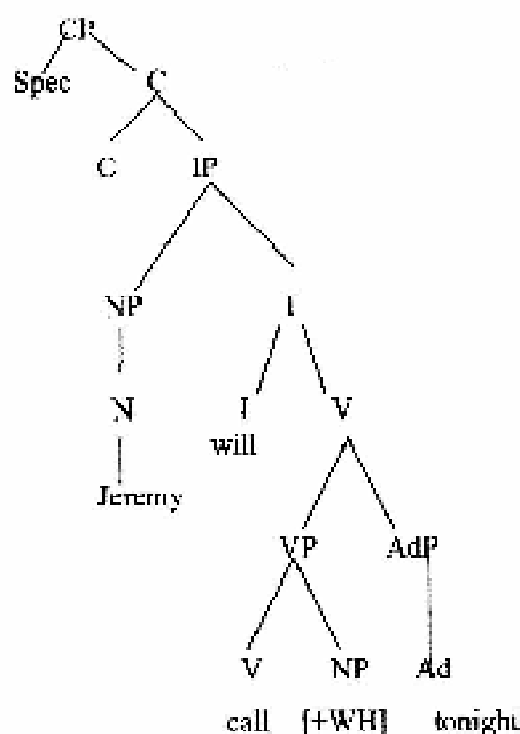
Chi-Square Yates , Fisher Exact Test

According to the results of TT, there are no significant differences between the groups for Items 2, 6, 9 and 11. From this, it can be inferred that the level of proficiency for subject and object wh questions between the groups is almost the same. As can be observed from Table 4.22, incorrect responses of the P1 and T1 groups for Item 9 are very close to each other and the number of incorrect responses for Item 9 in both groups is the highest among the other items (namely 2, 6, and 11).

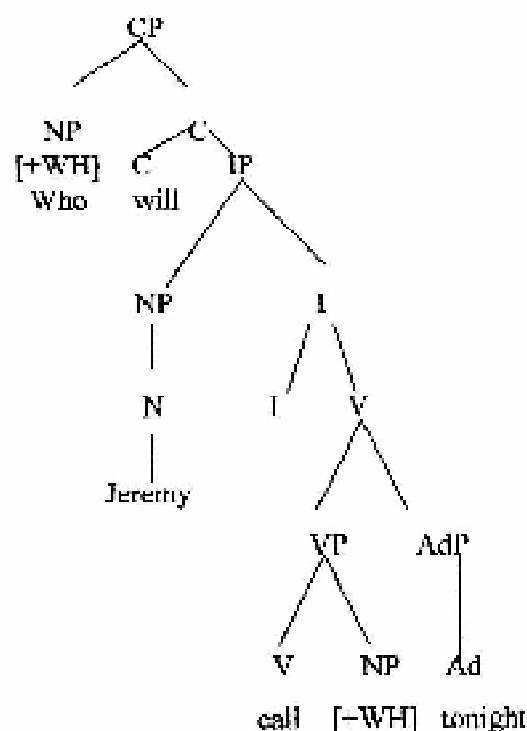
The questions in this syntactic category can also be classified as the simple questions. In simple questions in English (i.e. questions containing a single word beginning with wh – like what, who, when, where, why), after having constructed the deep structure, we are in a position to apply the wh-movement transformation. For instance, in Items 2, 6, 9, and 11 this wh-movement transformation rule has moved the noun phrase (NP) “who” (which bears the [+WH] feature) to the specifier of complementiser phrase (Spec of CP) at the beginning of the sentence. In English, apart from the wh-movement transformation, an additional transformation, which is called Subject-Auxiliary Inversion (SAI), is required to form a direct question. This transformation is required to obtain the correct Surface Structure for matrix (main clause) wh-questions. Therefore, this additional transformation must change the order of the subject noun phrase and the auxiliary verb as it happens in Items 2 and 6. The result is the structure given in TT6 below:

TT6: Who will Jeremy call tonight?

Deep Structure

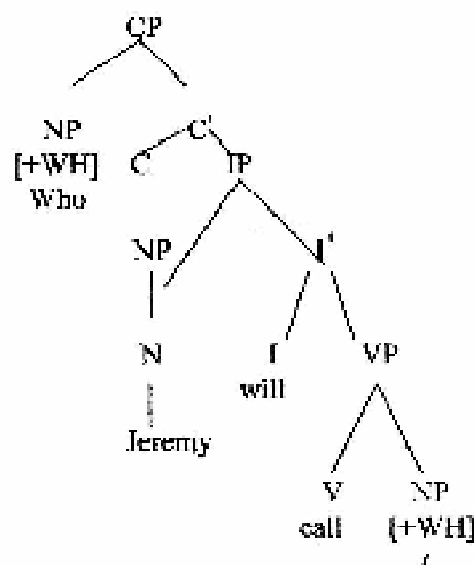


Surface Structure



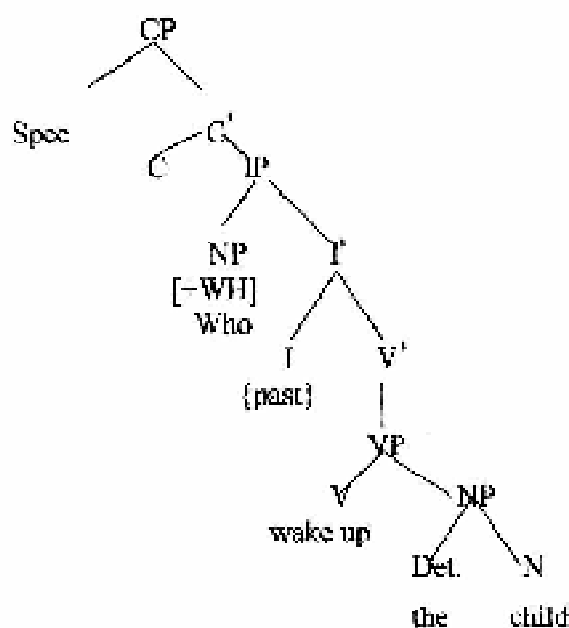
From the participants' responses for Item 6, it is clear that the majority of the participants (71.4 %) in both groups were able to translate the given interrogative into English grammatically. When the incorrect responses are analyzed, it can be seen that the participants could not apply the SAI rule correctly to the given sentence and produced sentences as follows:

*Participants' Response: *Who Jeremy will call tonight?*

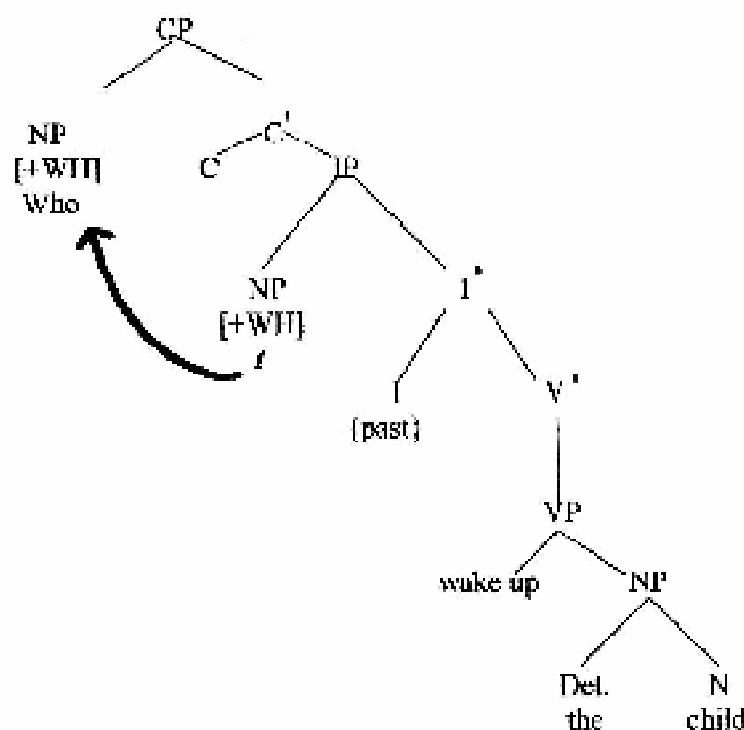


Regarding the Items 9 (Çocuğu kim uyandırdı?) and 11 (Bahçede kim çalışıyor?) in TT, these are subject questions because it is the subject – the person who woke up the child or the person who is working in the garden – which is being questioned. In other words, different from the wh-questions in which the constituent that has moved has been an object (see TT2 and 6), in Items 9 and 11, the adjuncts undergo wh-movement in much the same way as the objects. If we depict the Deep structure by using the phrase structure (PS) rules, the structure for Item 9 in TT will be as follows:

TT9: Çocuğu kim uyandırdı? (Expected Response: Who woke up the child?)



In order to move the [+WH] phrase to Spec of CP, we use the wh-movement transformation and the result is as follows:



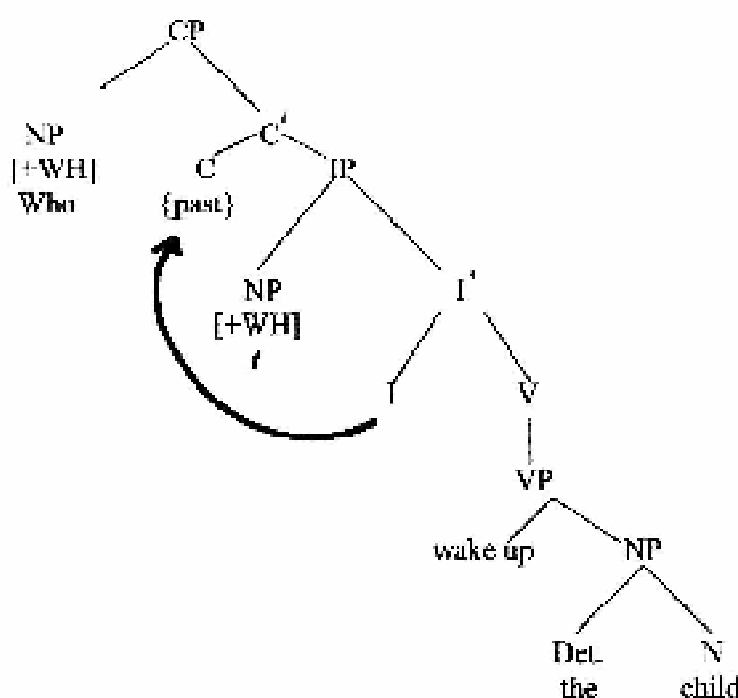
As can be seen in the tree diagrams above, the change in the structure does not affect the way the sentence appears in the Surface Structure. The wh-word “who” was in initial position in the Deep Structure, and it is still in the same position in the Surface Structure. Indeed, as far as the deep structure process is concerned, the wh-movement has been performed; consequently, the subject wh-word moves to Spec position of CP. Furthermore, the tree diagram reveals that in subject questions, the subject-auxiliary inversion (SAI) has not been applied. However, the sentences provided by the participants reveal that the participants applied both SAI rule and Do-support, which would not yield the correct answer (Who woke up the child?). When the responses given by the participants in the P1 and T1 groups are analyzed, it is seen that the participants utilized the auxiliary verb while questioning the agent of the action, which is ungrammatical in English. This finding supports the idea that 66.1% of the participants gave incorrect responses mostly because they made overgeneralization in their interlanguage and applied SAI to subject wh-questions as follows:

TT9: Çocuğu kim uyandırdı?

Expected Answer: Who woke up the child?

Participants Response: *Who did wake up the child? (f=27)

The tree diagram of this incorrect sentence below is different from that of the expected answer because the participants applied SAI rule to subject wh-question:



Another syntactic structure studied in the TT is the embedded wh-questions. The following table gives the data related to this category.

Table 4.23. Percentage and Frequency calculations of each embedded wh-question

Item Number		T1 n=28		P1 n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
3	0	21	75.0	9	32.1	30	53.6	8.687	1	0.003*
	1	7	25.0	19	67.9	26	46.4			
5	0	21	75.0	6	21.4	27	48.2	14.018	1	0.000*
	1	7	25.0	22	78.6	29	51.8			
10	0	22	78.6	18	64.3	40	71.4	0.788	1	0.375
	1	6	21.4	10	35.7	16	28.6			
16	0	18	64.3	18	64.3	36	64.3	0.000	1	1.000
	1	10	35.7	10	35.7	20	35.7			

Chi-Square Yates, *p<0.05

Table 4.23, presents the results of the data obtained from the participants' translations of the embedded *wh*-questions. According to the table above, the results presented suggest that Items 3 and 5 show statistically significant differences between the groups. The items found significant are as follows:

TT3: Kate'in dün gece nerede kaldığını bana söyler misin?

Expected Answer: Can you tell me where Kate stayed last night?

TT5: Maria'nın tatil için nereye gideceğini biliyor musun?

Expected Answer: Do you know where Maria will go for her holiday?

From Table 4.23, it is clear that the participants in PI group have reconstructed the sentences in TT with higher frequency of correct response. On the other hand, there is a sharp increase in the incorrect responses of these items in TI group. That is, the majority of the participants (75%) in the TI group were not able to construct the interrogatives in Items 3 and 5 with a correct word order. The most frequent incorrect responses in TI group are as follows:

*TT 3: *Can/Could you tell me where did Kate/she stay(ed) (at) last night? (f=11)*

**Do you tell me where did Kate/she stay (at) last night? (f=5)*

*TT 5: *Do you know where will Maria/she go for holiday? (f=14)*

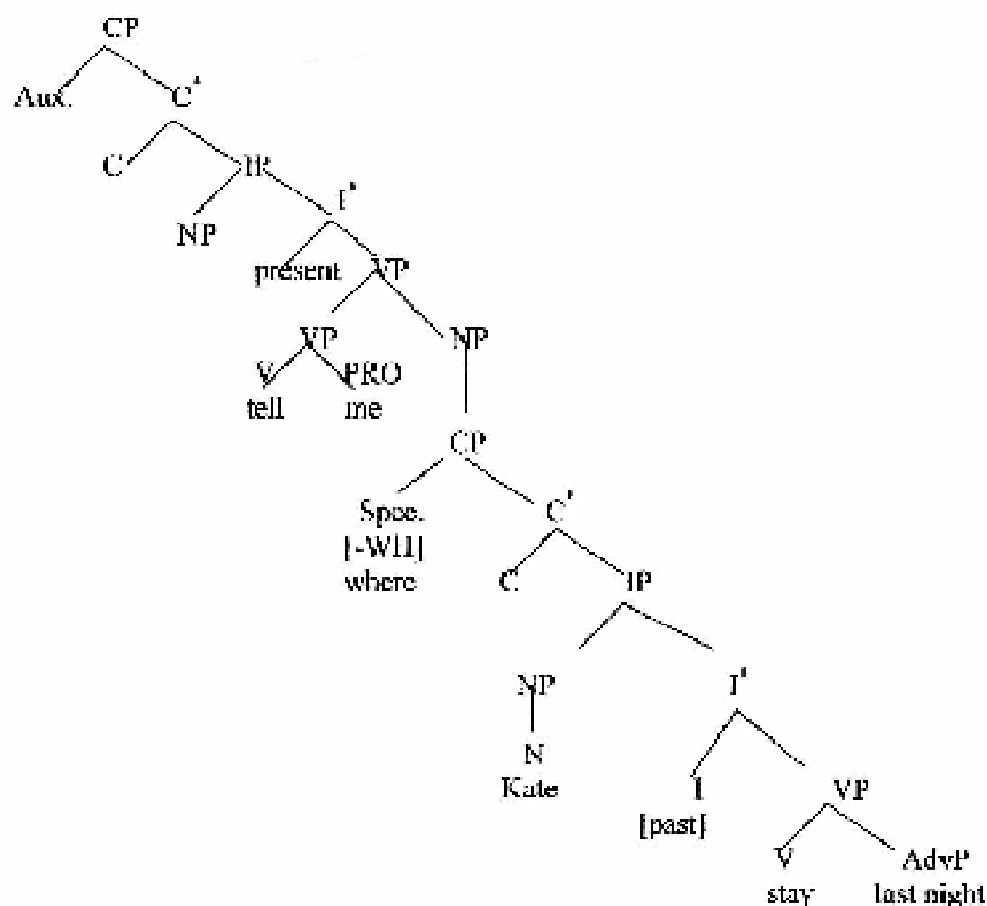
**Do you know where is Maria going for holiday? (f=3)*

When we examine the participants' written-production in TI group for Items 3 and 5, we can observe one type of error, which might be called as inversion error. As can be seen from the incorrect sentences above, the participants incorrectly applied SAI rule to these embedded questions. In other words, the participants in TI group failed to form a correct embedded question as they used inversion between *wh*-word and the subject of the embedded question, which is a syntactic error.

In English, the embedded *wh*-questions differ from direct *wh*-questions in that the entire clause occupies an argument position. Second they are different from direct *wh*-questions in terms of word order. That is, although an embedded clause begins with a *wh*-word or phrase, there is no helping verb between the *wh*-word or phrase and the subject of the embedded questions. For instance, the Deep Structure of TT3 below can show what happens during the derivation process of the embedded questions:

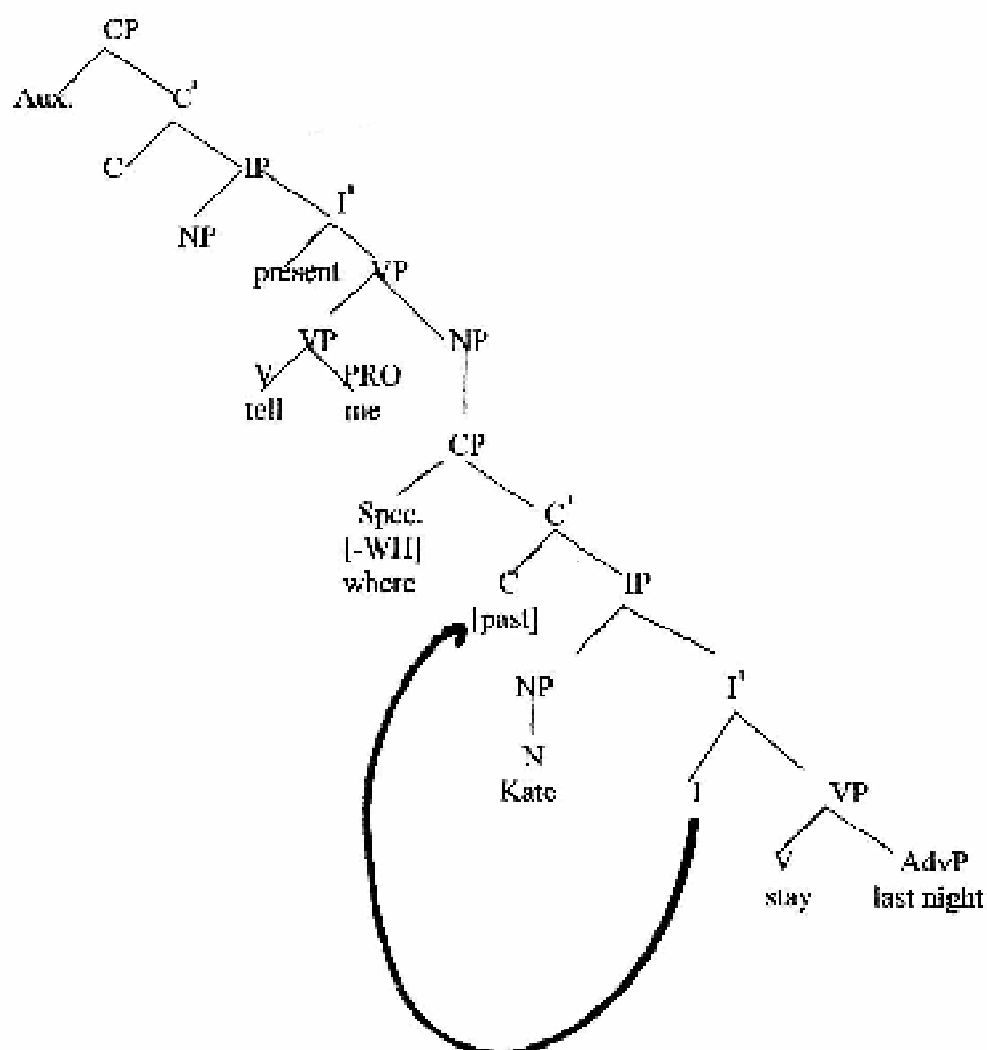
TT3: Kate'in dün gece nerede kaldığını bana söyler misin?

Expected Answer: Can you tell me where Kate stayed last night?



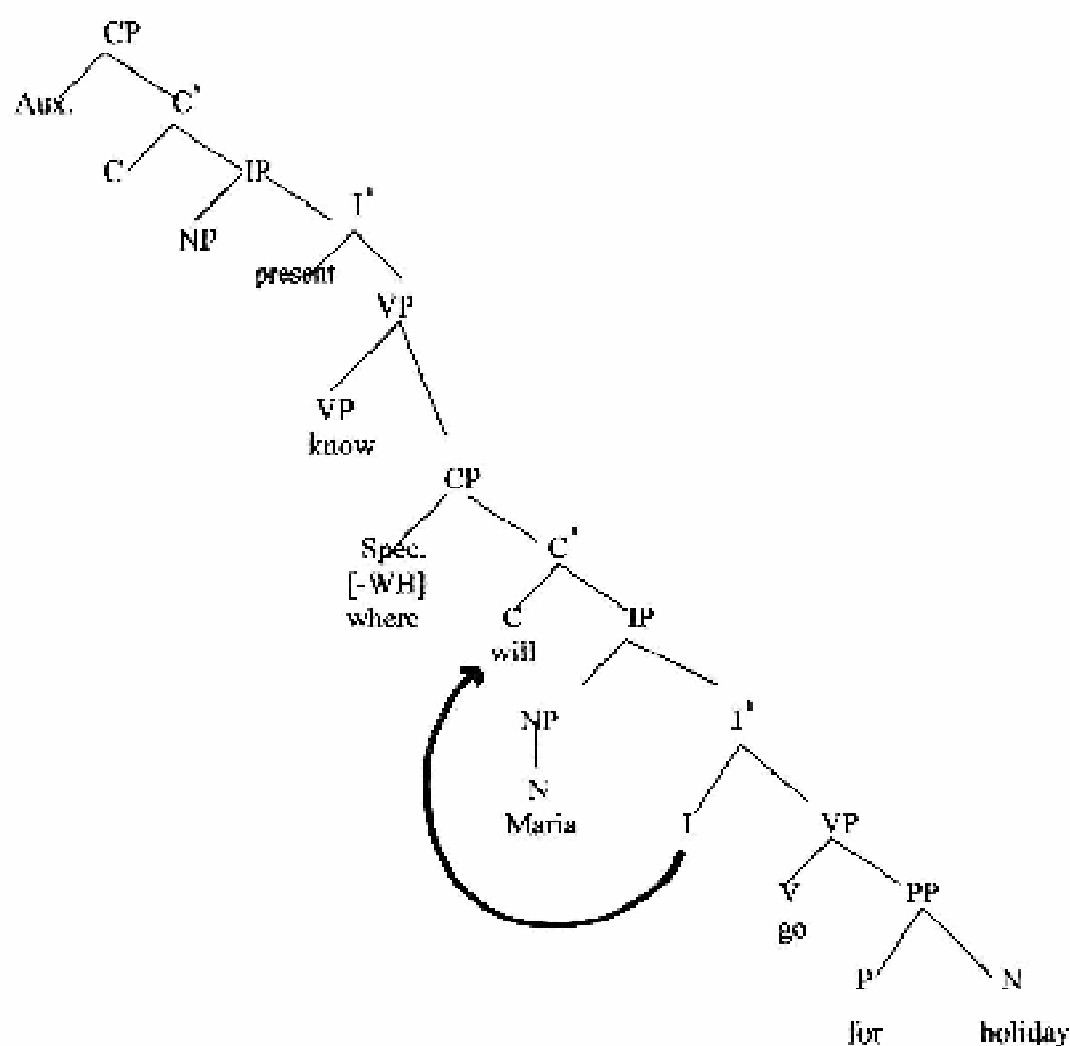
However, if we examine the most frequent incorrect response provided by the participants for Item 3, the tree diagram for this item would be in the following way. As can be seen from the diagram below, the participants overgeneralized the SAI rule and made inversion error in the indirect question.

*Participants' Response: *Can you tell me where did Kate stay(ed) last night?*



Similarly, when we examine the results for Item 5 in T1 (see Table 4.23), we see that the 75% of the participants in the T1 group made incorrect translations. The findings regarding the embedded questions in T1 show that the participants incorrectly applied SAI rule to the embedded part of the question and tended to put a helping verb before the subject as it happens in Item 5 below:

T1 5: *Do you know where will Maria go for holiday?



The last syntactic form examined in this part is the long-distance wh-questions. In English, sometimes the wh-word moves long distance – out of an embedded clause's domain. This type of questions is called long-distance questions. In these questions, the final resting place of the wh-word is the matrix CP. The items regarding long-distance wh-questions in the study are presented in Table 4.24 below:

Table 4.24. Percentage and Frequency calculations of each long-distance wh-question

Item Number		T1 n=28		P1 n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
1	0	26	92.9	24	85.7	50	89.3	0.187	1	0.669!
	1	2	7.1	4	14.3	6	10.7			
7	0	24	85.7	24	85.7	48	85.7	0.000	1	1.000!
	1	4	14.3	4	14.3	8	14.3			
13	0	26	92.9	24	85.7	50	89.3	0.187	1	0.669!
	1	2	7.1	4	14.3	6	10.7			
15	0	27	96.4	23	82.1	50	89.3	1.680	1	0.193!
	1	1	3.6	5	17.9	6	10.7			

[Fisher Exact Test]

In Table 4.24, we see the frequencies and χ^2 results of the each long-distance wh-question in TT in both T1 and P1 groups. As observed from the figures in the table above, the difference between none of the items have been found statistically significant. When the incorrect translations depicted in Table 4.24 are considered, we see that the number of the incorrect responses of the T1 and P1 groups are very close to each other, leading us to conclude that the participants are still in the resetting process.

Regarding the sentences provided by the participants, it might be said that the participants had difficulty in translating the long-distance wh-questions. The following sentences are the most frequent incorrect responses given by the participants:

TT 1: Mary'nin kitabı kime verdiğini düşünüyorsun?

Expected Answer: Who do you think Mary gave the book?

Participants' Responses: *What do you think who did Mary/she give the book? (f=28)

*What do you think who Mary gave the book? (f=5)

TT 7: Mary'nin Sam'e ne göndereceğini düşünüyorsun?

Expected Answer: What do you think Mary will send to Sam?

*Participants' Responses: *What do you think what will Mary send to Sam? (f=25)*

**What do you think what Mary will send to Sam?(f=10)*

TT 13: Roger'ın dün ne aldığı düşünüyorsun?

Expected Answer: What do you think Roger bought yesterday?

Participants' Responses:

**What do you think what did Roger buy (yesterday)? (f=18)*

**What do you think what Roger bought yesterday? (f=15)*

TT 15: Annesi, Alec'in dün gece nerede kaldığına inanıyor?

Expected Answer: Where does Alec's mother believe Alec stayed last night?

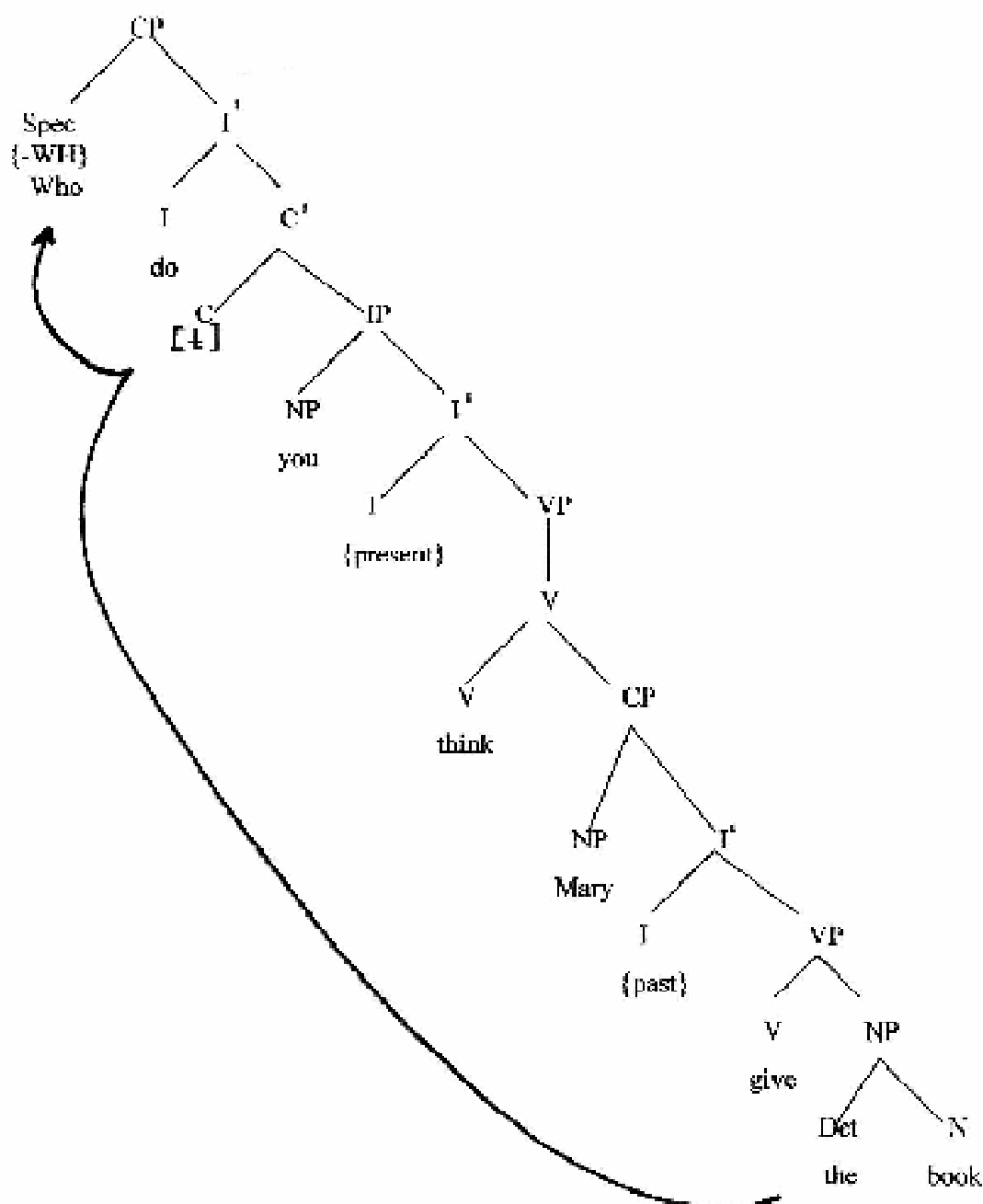
Participants' Responses:

**What does Alec's mother believe/think where did Alec stay (last night)? (f=21)*

**What does Alec's/his mother believe/think where Alec stay(ed) last night? (f=17)*

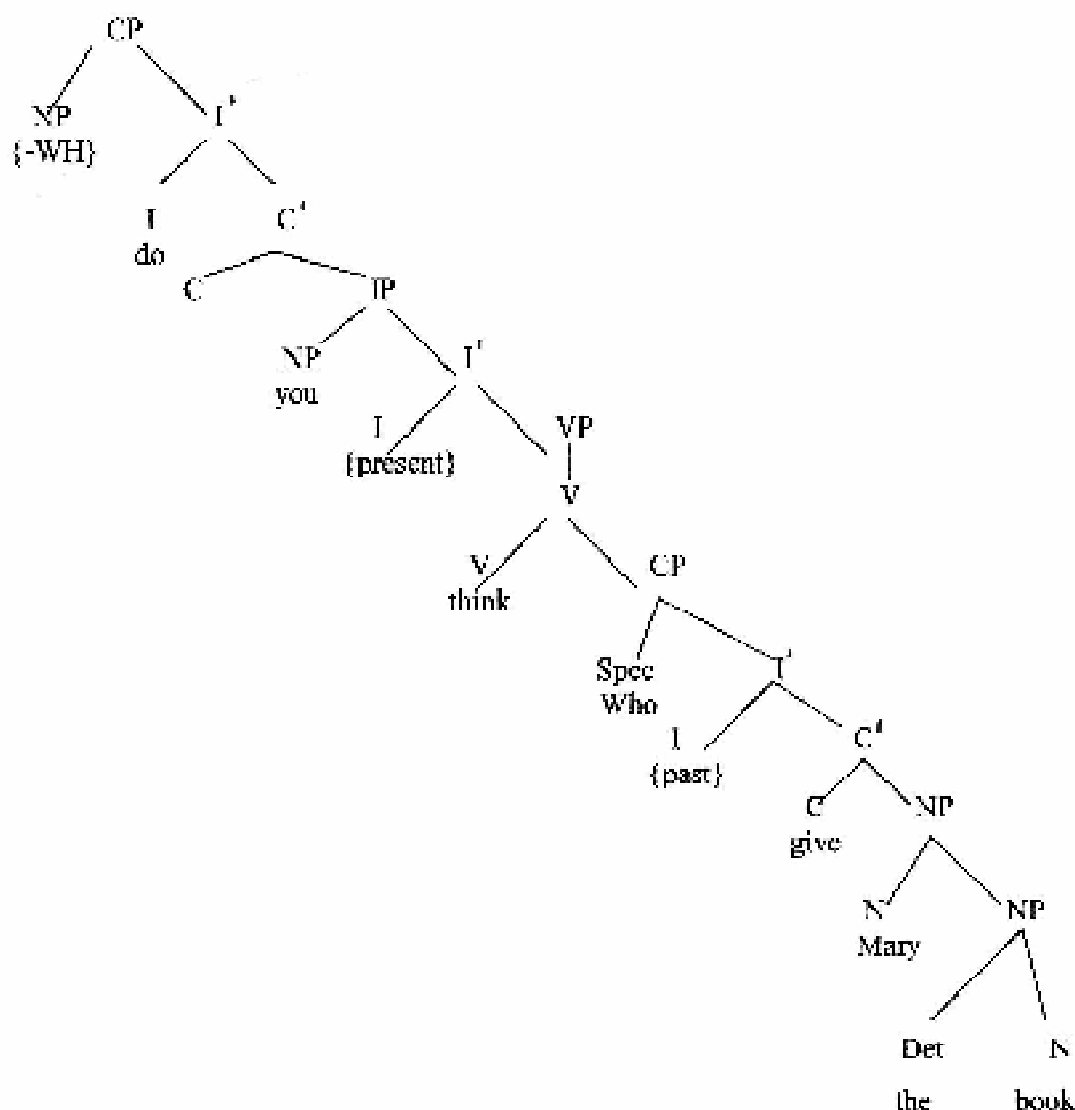
While making a long-distance question in English, a constituent of a noun clause has been questioned as it is shown in the following tree diagram:

TT 1: Who do you think Mary gave the book?



However, when we examine the sentences above which were produced by the participants, we see that the majority of the participants constructed the given sentences ungrammatically. The tree diagram of the participants' response for Item 1 is as follows:

*TT 1 Participants' Responses: *What do you think who did Mary/she give the book? (I=28)*



From the analysis of the tree diagram above and the participants' responses for the other long distance wh-question items (namely, 7, 13 and 15), it might be claimed that regarding the long-distance wh-question there are two types of errors in the sentences produced by the participants. These are: multiple wh-usage and inversion error. As can be seen from the diagram above, in the first part of the question the participants asked a simple question with "what" such as "What do you think/believe/know " and in the second part they made another question to ask the missing information.

4.2.2.2. TT as Posttest1

Apart from the pre-test, TT was administered to the groups as posttest1 immediately after the treatment in order to measure the immediate effect of the instruction type on the groups.

Table 4.25 below presents the results of the data obtained from the participants' translations of the sentences in TT involving subject/object wh-questions. According to Table 4.25, the items (namely 2, 6, 9 and 11) in this syntactic category are not statistically significant between the groups.

Table 4.25. Percentage and Frequency calculations of each subject/object wh-question

Item Number		TT n=28		PI n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
2	0	2	7.1	0	0	2	3.6	0.519	1	0.491!
	1	26	92.9	28	100	54	96.4			
6	0	-	-	-	-	-	-	-	-	-
	1	28	100	28	100	56	100			
9	0	10	35.7	6	21.4	16	28.6	0.788	1	0.375
	1	18	64.3	22	78.6	40	71.4			
11	0	0	0	1	3.6	1	1.8	0.000	1	1.000!
	1	28	100	27	96.4	55	98.2			

Chi-Square Yates , !Fisher Exact Test

As can be observed from the table above, the number of the correct responses of the TT and PI groups for Items 2, 6, 9 and 11 are very close to each other. It is also obvious from the table that the number of the incorrect responses is very low, which means the participants in both TT and PI groups were successful in translating the given Turkish interrogatives into English.

According to the findings in the table, the number of the incorrect responses is the highest for Item 9. The most frequent incorrect response produced by the participants for Item 9 in TT is:

TT 9: Çocuğu kim uyandırdı? (Who woke up the child?)

*Participants' Response: *Who did wake up the child? (n=14)*

The most frequent incorrect response for Item 9 above reveals that the participants in both groups tend to make the same mistakes that they had in their pre-test. In other words, the participants applied SAI to the subject wh-questions mostly because they overgeneralized this rule. However, different from their pre-test, the number of the incorrect answers has decreased in their posttest1 (see section 4.2.2.).

Another important issue regarding the students' written-production in TT for Item 9 is that the students did not transfer their L1 features to L2 while making subject wh-questions. In Turkish, there is no obligatory overt movement of the wh-word to S-initial position (Spec of COMP) as found in English. First, the most common position for a wh-word is the position that their answers would occupy in the corresponding affirmative sentences. In other words, wh-word appears in situ in subject-wh questions in Turkish as follows:

(a) **Kim** geldi?

Who came?

(b) [S [COMP **kim**] [NP] [adresimi sana ti verdi?]]

(c) **Kim** onlar-ı okul-dan kaç-ar-ken gör-müştü?

who they-ACC school-ABL run.away-AOR-CV see-EV/PF

Who saw them running away from school?

(Göksel & Kerslake, 2005, p. 304)

Another frequently used position for a wh-word is before the predicate (immediately to the left of the verb):

(d) [S [NP t] [VP adresimi sana **kim** verdi?]]

Who gave my address to you?

(e) Resimleri **kim** değerlendirecek?

Who will evaluate the paintings?

(f) Parti-de **kim**-ler var-dı?

Party-LOC who-PL existent-P.COP

Who was there at the party?

(Göksel & Kerslake, 2005, p. 297)

Although there is no obligatory overt movement of *wh*-word to S-initial position in Turkish, *wh*-words cannot freely occur in all positions. For instance, structures in which the question word appears in postverbal position are all ungrammatical as illustrated in the following example:

(g) * [S [NP_i I] [VP Nergis'e_t kızdı] kim I

(Göksel & Kerslake, 2005, p. 304)

When the participants' answers have been all examined, it is seen that in all answers *wh*-word appears in the initial position, which reveals the idea that the students did not transfer the properties of subject-*wh* question formation in Turkish to English.

The next syntactic structure studied in the TT is the embedded *wh*-questions. the following table displays the data obtained from each embedded *wh*-question in TT.

Table 4.26. Percentage and Frequency calculations of each embedded *wh*-question

Item Number	T1 n=28		P1 n=28		Total n=56		χ^2	df	p	
	f	%	f	%	f	%				
3	0	4	14.3	0	0	4	7.1	2.423	1	0.1111
	1	24	85.7	28	100	52	92.9			
5	0	2	7.1	1	3.6	3	5.4	0.000	1	1.0000
	1	26	92.9	27	96.4	53	94.6			
10	0	3	10.7	0	0	3	5.4	1.409	1	0.2361
	1	25	89.3	28	100	53	94.6			
16	0	3	10.7	0	0	3	5.4	1.409	1	0.2361
	1	25	89.3	28	100	53	94.6			

Fisher Exact Test

When the items (namely 3, 5, 10, and 16) are examined, it is seen that there is no statistical significance between the groups for these items. According to the results, the participants in both groups were successful in translating the embedded *wh*-questions. From the analysis of the sentences provided by the participants in T1 group, inversion errors are observed. The most frequent inversion errors are as follows:

IT 3: *Could you tell me where did Kate stay last night? (f=3)

IT 5: *Do you know where will Maria go for holiday? (f=2)

IT 10: *Could you tell how will this technology affect the social relations? (f=2)

IT 16: *Could you tell me how do people use English in your country? (f=3)

The last syntactic structure focused on in IT is the long-distance wh-questions. As mentioned before (see section 4.2.2.), in the pretest the participants were less successful in translating this type of questions than they were in translating the other syntactic forms (namely, subject wh-questions and embedded wh-questions). Similar to this finding, in the posttest1 in IT the number of the incorrect responses provided by the participants for long-distance questions was higher than that of the incorrect responses for the subject wh-questions and embedded wh-questions. This finding reveals the idea that the participants are still having problems in constructing long-distance wh-questions. The following table presents the frequency and percentage results of the data obtained from the responses of the sentences in IT involving long-distance questions:

Table 4.27. Percentage and Frequency calculations of each long-distance wh-question

Item Number		TI n=28		PI n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
1	0	9	32.1	6	21.4	15	26.8	0.364	1	0.546
	1	19	67.9	22	78.6	41	73.2			
7	0	7	25.0	7	25.0	14	25.0	0.000	1	1.000
	1	21	75.0	21	75.0	42	75.0			
13	0	9	32.1	7	25.0	16	28.6	0.088	1	0.767
	1	19	67.9	21	75.0	40	71.4			
15	0	17	60.7	13	46.4	30	53.6	0.646	1	0.421
	1	11	39.3	15	53.6	26	46.4			

Chi-Square Yates

As seen from the figures in Table 4.27, there is no statistical difference between the groups for Items 1, 7, 13 and 15 as the frequencies of the incorrect responses between the groups are very close to each other. Regarding the sentences produced by the participants, the following sentences can cited as examples:

TT 1: *What do you think who Mary gave the book? (f=8)

*Who do you think did Mary give the book? (f=5)

TT 7: *What do you think/believe what Mary will send to Sam? (f=6)

*Do you know what Mary will send to Sam? (f=4)

TT 13: *What do you think what Roger bought yesterday? (f=9)

*Do you think what Roger bought yesterday? (f=3)

TT 15: *What does Alec's mom/mother think where Alec stayed last night? (f=21)

*Where does Alec's mom/mother think/believe did Alec stay? (f=5)

These incorrect sentences presented above reveal that the number of the inversion errors regarding long-distance questions decreased a great deal. On the other hand, these incorrect responses also indicate that the participants went on using multiple *wh*-word in their questions. The underlying reason for the multiple *wh*-usage might be related to the participants' native language. To illustrate, in Turkish a constituent of a noun clause is questioned within their clauses. For example:

(k) Zehra [sen-in kim-i ara-dığ-m]-ı sanıyormuş?

You-GEN who-ACC look.for-VN-2SG:POSS-ACC

(Göksel & Kerlake, 2005, p. 307)

Therefore, the long-distance questions in which *wh*-word appears at the beginning of the sentence are considered ungrammatical in Turkish. That is, the movement of the *wh*-word out of an embedded clause is not acceptable:

(l) Ayşe [kim-in geldiğini] söyledi?

Who did Ayşe say came?

*Kim-in Ayşe [₄ geldiğini] söyledi?

(m) Ayşe [Mehmet'in ne-yi okuduğunu] söyledi?

What did Ayşe say Mehmet had read?

*Ney-i Ayşe [Mehmet'in ₄ okuduğunu] söyledi?

(n) Ayşe [Mehmet'in nereye gittiğini] söyledi?

Where did Ayşe say Mehmet had gone?

*Nereye Ayşe [Mehmet'in gittiğini] söyledi?

The presence of the translating the given sentences ungrammatically in the posttest1 brings the possibility of such an interpretation that learners are not able to reset the correct parameter of L2 due to the mismatch between the two languages. However, from pretest1 to posttest1, there is a great progress in both groups. When we compare the number of the incorrect responses of the groups in pretest and in posttest1 (see Tables 4.24 and 4.27), we see that there is a sharp decrease in the numbers, which reveals the idea that both T1 and P1 have a positive effect on the development of long distance wh-questions by Turkish EFL students.

4.2.2.3. TT as Posttest2

Four weeks after the posttest1, the posttest2 was administered in order to evaluate how much the participants retained the gained knowledge. The data obtained from the posttest2 will be presented in this section according to each syntactic structure in the TT.

The first syntactic structure in TT is the subject/object wh-questions. The following table displays the Chi-Square results of the data that include subject/object wh-questions.

Table 4.28. Percentage and Frequency calculations of each subject/object wh-question

Item Number		T1 n=28		P1 n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
2	0	6	21.4	0	0	6	10.7	4.667	1	0.023*!
	1	22	78.6	28	100	50	89.3			
6	0	16	57.1	2	7.1	18	32.1	13.836	1	0.000*
	1	12	42.9	26	92.9	38	67.9			
9	0	17	60.7	3	10.7	20	35.7	13.144	1	0.000*
	1	11	39.3	25	89.3	36	64.3			
11	0	0	0	0	0	0	0	-	-	-
	1	28	100	28	100	56	100			

Chi-Square Yates , !Fisher Exact Test, *p<0.05

According to Table 4.28, the results presented suggest that all items except Item 11 in TT yield statistical significance between the groups. Regarding Item 11, there is no incorrect response both in T1 and P1 groups. When the frequencies and the percentages of the incorrect responses of the items above are considered, it can be seen that the T1 group is not as successful in the production of the given interrogatives as P1 group is, leading us to conclude that P1 is more effective on the development of subject/object wh-questions.

When the following example sentences obtained from the participants in the T1 group are analyzed; it can be observed that the participants in T1 group could not make a distinction between the subject and object wh-questions while asking the agent in the sentence. These incorrect responses are as follows:

*Item 2: *Who you usually go to the cinema with? (f=3)*

**Who go to the cinema? (f=2)*

*Item 6: *Who Jeremy will call tonight? (f=7)*

**Who will call Jeremy? (f=6)*

*Item 9: *Who did wake up the child? (f=10)*

**Who did the child wake up? (f=5)*

Regarding the embedded wh-questions, the table below presents the results of the data from the participants' responses in the TT.

Table 4.29. Percentage and Frequency calculations of each embedded wh-question

Item Number		T1		P1		Total		χ^2	df	p
		n=28		n=28		n=56				
		f	%	f	%	f	%			
3	0	4	14.3	1	3.6	5	8.9	0.878	1	0.352!
	1	24	85.7	27	96.4	51	91.1			
5	0	7	25.0	2	7.1	9	16.1	2.118	1	0.143!
	1	21	75.0	26	92.9	47	83.9			
10	0	8	28.6	3	10.7	11	19.6	1.810	1	0.178
	1	20	71.4	25	89.3	45	80.4			
16	0	14	50.0	2	7.1	16	28.6	10.588	1	0.001*
	1	14	50.0	26	92.9	40	71.4			

Chi-Square Yates, !Fisher Exact Test, *p<0.05

As observed from Table 2.29, among the items only Item 16 has been found statistically significant between the groups. For Items 3, 5 and 10, the findings suggest that the numbers of incorrect responses in both groups are not very high and they are close to each other. However, for Item 16, there is a significant increase in the number of the incorrect productions of the participants in T1 group. The incorrect productions provided by the participants in T1 reveal that the participants in the T1 group had difficulty in understanding the embedded part of the question. Thus, the increase in the incorrect production of this item might result from the words given.

*Item 16: *Could you tell me how does your people use English in your country? (P=5)*

**Do you tell me why your country use English? (f=3)*

As for the long distance wh-questions in the TT, Table 4.30 displays the frequencies and percentages of each long distance wh-question in the TT.

Table 4.30. Percentage and Frequency calculations of each long distance wh-question

Item Number		T1 n=28		P1 n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
1	0	18	64.3	5	17.9	23	41.1	10.625	1	0.001*
	1	10	35.7	23	82.1	33	58.9			
7	0	13	46.4	5	17.9	18	32.1	4.012	1	0.045*
	1	15	53.6	23	82.1	38	67.9			
13	0	15	53.6	2	7.1	17	30.4	12.163	1	0.000*
	1	13	46.4	26	92.9	39	69.6			
15	0	25	89.3	8	28.6	33	58.9	18.888	1	0.000*
	1	3	10.7	20	71.4	23	41.1			

Chi-Square Yates , *p<0.05

As observed from the figures in Table 4.30, all the productions of long distance wh-questions in TT have been found statistically significant between the groups. The findings presented also suggest that the P1 group is more successful than the T1 group as there is a significant decrease in the number of incorrect responses, which means that P1 has a more positive effect on the development of long distance wh-questions.

When the sentences provided by the participants in the T1 group are considered, it is seen that the participants had difficulty in the construction of the items involving long distance wh-questions. For these items (namely, 1, 7, 13 and 15), the participants in T1 group have produced sentences as follows:

*Item 1: *What do you think who Mary gave the book? (f=8)*

**What do you think who did Mary give the book? (f=5)*

**Who do you think did Mary give the book? (f=4)*

*Item 7: *What do you believe what Mary sent/will send to Sam? (f=7)*

**What do you think did Mary send to Sam? (f=6)*

*Item 13: *What do you think did Roger buy? (f=6)*

**What do you think what Roger bought yesterday? (f=5)*

*Item 15: *What does Alec's mother believe Alec stayed (in) last night? (f=12)*

**What does Alec's mother believe where Alec stayed yesterday? (f=9)*

From the analysis of the incorrect responses above, it is clear that the number of the multiple wh-usage in posttest2 for P1 group is less than that of in the pretest and posttest2. This finding suggests that P1 is more effective than T1 on the development of long distance wh-questions by Turkish EFL students.

4.2.3. Analysis of the Data from Picture-Cued Task

The PCT is the other production task in the study. In the PCT, the participants were given 12 sentences. In these sentences, some words were underlined, and the participants were required to ask a question to these underlined parts. In order to facilitate participants' comprehension, some pictures were attached to the given sentences. Like the other tasks (namely GJT and TT), the items in the PCT were formed in two syntactic structures. The distribution of the sentences according to their syntactic structure is presented in the following table:

Table 4.31. The Distribution of the Items in PCT

Syntactic Structure	Item Numbers
Subject/object wh-questions	2, 6, 8, 11
Long distance wh-questions	1, 4, 7, 9, 10, 12

Different from the other two tasks in the study, the embedded wh-questions were not included in PCT as they are not suitable for the format of the TT. In addition, items 3 and 5 were excluded from the table above since they do not belong to any of the syntactic structure. They are taken into the PCT in order to prevent the participants to focus on only the target structure.

Similar to the administration of the GJT and TT, the PCT was administered to the participants for three times (pretest, posttest1 and posttest2). In the following part, the data from the PCT as pretest, posttest1 and posttest2 will be presented.

4.2.3.1. PCT as Pretest

At the beginning of the study, the PCT was administered as pretest before the treatment. The following tables present the data obtained from the PCT.

The first syntactic structure focused on in the study is the subject/object wh-questions. Regarding this syntactic structure, Table 4.32 displays the percentages and frequencies of each item in the PCT below:

Table 4.32. Percentage and Frequency calculations of each subject/object wh-question

Item Number		TI n=28		PI n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
2	0	15	53.6	10	35.7	25	44.6	1.156	1	0.282
	1	13	46.4	18	64.3	31	55.4			
6	0	8	28.6	4	14.3	12	21.4	0.955	1	0.329
	1	20	71.4	24	85.7	44	78.6			
8	0	20	71.4	18	64.3	38	67.9	0.082	1	0.775
	1	8	28.6	10	35.7	18	32.1			
11	0	18	64.3	16	57.1	34	60.7	0.075	1	0.784
	1	10	35.7	12	42.9	22	39.3			

Chi-Square Yates

As observed from the figures in Table 4.32, the numbers of the incorrect responses of the TI and PI groups in PCT are very close to each other; therefore, there is no statistical significance between the groups. When the following example sentences obtained from the participants are analyzed, it can be seen that the participants could not make a clear distinction between the subject and object wh-questions. For example, while making object wh-question, they did not apply SAI rule or they did not move the subject noun phrase and the auxiliary verb. In addition, while making subject wh-questions, they used inversion although it is ungrammatical in this type of interrogatives.

PCT 2: Joe plays tennis with Tina every Monday.

Expected Answer: Who does Joe play tennis with every Monday?

*Participants' Responses: *Who plays tennis with Joe every Monday? (f=10)*

**Who does play(s) tennis with Joe every Monday? (f=5)*

PCT 6: Mrs. James will visit Andy tonight.

Expected Answer: Who will Mrs. James visit tonight?

*Participants' Responses: *Who will visit Mrs. James tonight? (f=7)*

**Whose will Mrs. James visit tonight? (f=3)*

PCT 8: Alan broke the window a few minutes ago.

Expected Answer: Who broke the window a few minutes ago?

*Participants' Responses: *Who did break the window a few minutes ago? (f=30)*

PCT 11: Mr. Owen teaches math at the primary school.

Expected Answer: Who teaches math at the primary school?

*Participants' Responses: *Who does teach math at the primary school? (f=25)*

**Who does teaches math at the primary school? (f=5)*

When we examine the incorrect responses above, we see that the participants who failed to construct the subject/object wh-questions had applied SAI rule to their sentences, which is ungrammatical for subject wh-questions but grammatical for object wh-questions.

The other syntactic structure is the long distance wh-questions. As it was mentioned before, the long distance wh-questions are the structures in which the participants had the highest incorrect frequencies. One possible reason for this situation is that this syntactic form requires moving the wh-word out of an embedded clause's domain, which is different from the other question forms. The other possible reason might be related to the participants' native language. To illustrate, in Turkish the movement of the wh-word out of an embedded clause, which is grammatical in English, is not acceptable (see section 4.2.2.2).

The following table presents the data obtained from the participants regarding the long distance wh-questions:

Table 4.33. Percentage and Frequency calculations of each long distance wh-question

Item Number		T1 n=28		P1 n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
1	0	24	85.7	28	100	52	92.9	2.423	1	0.1111
	1	4	14.3	0	0	4	7.1			
4	0	26	92.9	25	89.3	51	91.1	0.000	1	1.000!
	1	2	7.1	3	10.7	5	8.9			
7	0	27	96.4	24	85.7	51	91.1	0.878	1	0.352!
	1	1	3.6	4	14.3	5	8.9			
9	0	27	96.4	27	96.4	54	96.4	0.000	1	1.000!
	1	1	3.6	1	3.6	2	3.6			
10	0	27	96.4	28	100	55	98.2	0.000	1	1.000!
	1	1	3.6	0	0	1	1.8			
12	0	26	92.9	26	92.9	52	92.9	0.000	1	1.000!
	1	2	7.1	2	7.1	4	7.1			

Fisher's Exact Test

As illustrated in Table 4.33 above, the differences between none of the items have been found statistically significant between the groups. The figures in the Table 4.33 show that the level of proficiency for long distance wh-questions between the groups is almost the same as the incorrect responses of the PI and TI groups for all items are very close (or even the same for Items 9 and 12) to each other.

When the sentences provided by the participants are considered, it is seen that the participants had difficulty in production of the items in this syntactic category. For these items, the participants have produced sentences as follows:

PCT 1: I think he has picked up the apples from this tree.

A: _____? B: From this tree.

Expected Answer: Where do you think he has picked up the apples?

Participants' Responses:

*What do you think where has he picked up the apples? (f=30)

*What do you think where he has picked up the apples? (f=10)

*Do you think where he has picked up the apples? (f=5)

PCT 4: I know Anthony is afraid of dog.

A: _____? B: Dog.

Expected Answer: What do you know Anthony is afraid of?

Participants' Responses: *What do you know what is Anthony afraid of? (f=35)

*Do you know what (is) Anthony is afraid of? (f=12)

PCT 7: Mike believes painting makes people relaxed.

A: _____? B: Painting.

Expected Answer: What does Mike believe makes people relaxed?

Participants' Responses: *What does Mike believe what does the people relax? (f=27)

*What does Mike believe what makes people relaxed?(f=10)

PCT 9: I think William is playing the guitar for his wife.

A: _____? B: His wife.

Expected Answer: Who do you think William is playing the guitar for?

Participants' Responses:

*What do you think who William is playing the guitar? (f=37)

*What do you think is William playing the guitar for whom? (f=12)

PCT 10: I was sure Carol saw a mouse on the floor.

A: _____? B: On the floor.

Expected Answer: Where were you sure Carol saw a mouse?

Participants' Responses: *Were you sure (about) where Carol saw a mouse? (f=34)

*Do you think where did Carol see a mouse? (f=13)

PCT 12: The doctors say Anna is going to stay at hospital for two days.

A: _____? B:

Expected Answer: How long do the doctors say Anna is going to stay at hospital?

Participants' Responses:

*What do the doctors say how long (is) Anna is going to stay at hospital? (f=39)

*How long is Anna going to stay? What did the doctors say about it? (f=7)

From the analysis of the sentences above, we can claim that the participants developed various strategies in order to avoid the long distance structure. They either preferred one simple sentence such as "where has he picked up the apples?" by ignoring the introductory clause or used multiple wh-words and inversions. For instance, they produced "what do the doctors say how long is Anna going to stay at hospital?"

4.2.3.2. PCT as Posttest1

Similar to the other two tasks (namely GJT and TT), the PCT was administered to the participants for the second time immediately after the treatment. The data obtained from this task will be presented in this section.

The first syntactic form focused on in PCT is the subject/object wh-questions. The following table indicates the frequencies and percentages regarding the subject/object wh-questions.

Table 4.34. Percentage and Frequency calculations of each subject/object wh-question

Item Number		T1 n=28		PI n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
2	0	3	10.7	3	10.7	6	10.7	0.000	1	1.000
	1	25	89.3	25	89.3	50	89.3			
6	0	1	3.6	0	0	1	1.8	0.000	1	1.000
	1	27	96.4	28	100	55	98.2			
8	0	7	25.0	6	21.4	13	23.2	0.000	1	1.000
	1	21	75.0	22	78.6	43	76.8			
11	0	9	32.1	4	14.3	13	23.2	1.603	1	0.205
	1	19	67.9	24	85.7	43	76.8			

Chi-Square Yates , Fisher's Exact Test

When we examine Table 4.34, we observe that there are no statistical significant differences between the groups for Items 2, 6, 8 and 11 as the frequencies of these items are very close to each other. The table above also depicts that different from the results in the pretest, the number of the incorrect responses for Items 2, 6, 8 and 11 decreased a great deal in both T1 and PI groups, which means that T1 and PI have a positive effect on the development of subject/object wh-questions.

Regarding this syntactic form, the most frequent incorrect responses produced by the participants in both groups are as follows:

*PCT 2: *Who Joe play(s) tennis with every Monday? (f=3)*

**Who does play(s) tennis with every Monday? (f=3)*

*PCT 6: *Who will visit Mr. James tonight? (f=1)*

*PCT 8: *Who did break the window a few minutes ago? (f=11)*

*PCT 11: *Who does teach math at the primary school? (f=12)*

Based on the sentences above, we can claim that the participants tend to use Inversion in subject wh-questions, which is ungrammatical in English. This finding suggests that the participants overgeneralized SAI rule in their interlanguage. In addition, the participants' responses reveal that they had difficulty in differentiating the subject and object pronoun because they constructed the object wh-questions in the same way as the subject wh-questions are constructed.

The other syntactic category in PCT is the long distance wh-questions. The following table displays the percentages and frequencies calculated for long distance wh-questions.

Table 4.35. Percentage and Frequency calculations of each long distance wh question

Item Number		TI n=28		PI n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
1	0	9	32.1	12	42.9	21	37.5	0.305	1	0.581
	1	19	67.9	16	57.1	32	62.5			
4	0	6	21.4	6	21.4	12	21.4	0.000	1	1.000
	1	22	78.6	22	78.6	44	78.6			
7	0	10	35.7	6	21.4	16	28.6	0.788	1	0.375
	1	18	64.3	22	78.6	40	71.4			
9	0	10	35.7	9	32.1	19	33.9	0.000	1	1.000
	1	18	64.3	19	67.9	37	66.1			
10	0	21	75.0	15	53.6	36	64.3	1.944	1	0.163
	1	7	25.0	13	46.4	20	35.7			
12	0	14	50.0	10	35.7	24	42.9	0.656	1	0.418
	1	14	50.0	18	64.3	32	57.1			

Chi-Square Yates

As can be observed from Table 4.35, the participants' incorrect responses have decreased in both groups. This is mostly due to the positive effect of the instructions. Moreover, the items in this syntactic category do not yield any significant differences between the groups as the numbers of the incorrect responses are close to each other. For these items, the participants have produced incorrect sentences as follows:

*PCT 1: *What do you think where he has picked up the apples? (f=18)*

**Do you think where has he picked up the apples? (f=2)*

*PCT 4: *Do you know what Anthony is afraid of? (f=5)*

**What is Anthony afraid of? (f=2)*

*PCT 7: *What does Mike believe what makes people relaxed? (f=9)*

**Does Mike believe what makes people relaxed? (f=6)*

*PCT 9: *What do you think who William is playing the guitar? (f=18)*

**Who is playing the guitar for? (f=4)*

*PCT 10: *What were you sure where Carol saw a mouse? (f=24)*

**Were you sure where Carol saw a mouse? (f=6)*

*PCT 12: *What do the doctors say how long Anna is going to stay at hospital? (f=22)*

While forming long distance wh-questions, the wh-movement transformation is carried out. According to this rule, the NP wh-word (which bears the [$\pm$ WH] feature) must be moved to CP position in the initial position of the phrase. The empty Spec of CP at the beginning of the embedded clause is used as a temporary landing site for the movement of the wh-word "what". As the wh-word moves through this empty Spec, it leaves behind a trace. Finally, it continues its journey until it reaches the matrix Spec of CP. Since the target sentence is a direct long-distance question (rather than an indirect question), an additional transformation is still needed. The subject-auxiliary inversion must apply to the sentences. By SAI, the subject and the auxiliary are inverted.

From the analysis of the long distance wh-questions provided by the participants, we can claim that the majority of the participants failed to put the NP wh-word to the CP position in the initial position of the phrase. Instead, they used two question words (e.g. What do the doctors say how long Anna is going to stay at hospital?). Different from the results obtained from the pretest (see section 4.2.3.1), it has been observed that the participants did not make the necessary inversions.

4.2.3.3. PCT as Posttest2

As the last task, the PCT was administered to the participants four weeks after the treatment in order to measure the long-term effects of the instructions.

The first syntactic group studied in the PCT is the subject/object wh-questions. The following table presents the corresponding data obtained from the participants.

Table 4.36. Percentage and Frequency calculations of each subject/object wh-question

Item Number		TI n=28		PI n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
2	0	11	39.3	3	10.7	14	25.0	4.667	1	0.031*
	1	17	60.7	25	89.3	42	75.0			
6	0	2	7.1	1	3.6	3	5.4	0.000	1	1.000!
	1	26	92.9	27	96.4	53	94.6			
8	0	10	35.7	2	7.1	12	21.4	5.197	1	0.023*
	1	18	64.3	26	92.9	44	78.6			
11	0	9	32.1	2	7.1	11	19.6	4.073	1	0.044*
	1	19	67.9	26	92.9	45	80.4			

Chi-Square Yates , Fisher's Exact Test, *p<0.05

Items 2 and 6 are object wh-questions. Table 4.36 displays that only Item 2 yield a statistical significance between the groups regarding the object wh-questions. When we compare these results with the results obtained from the posttest1 (see section 4.2.3.2), we see that there is a sharp increase in the number of incorrect answers for Item 2 in T1 group whereas the number of the incorrect answers for Item 2 is almost the same in P1 group (3 incorrect answer for Item 2 in the posttest1 and 3 in the posttest2). As for the subject wh items (namely, 8 and 11), Table 4.36 presents that there is a statistical significance for these items. As observed from the figures in the table above, the number of the incorrect answers for Items 8 and 11 increased slightly in T1 group while the number of incorrect answers for these items decreased in P1 group, which caused the statistical significance between the groups

Regarding the incorrect sentences produced by the participants in T1 group, it is observed that T1 group had difficulty in producing subject wh-questions and produced sentences as follows:

*PCT 2: *Who does play tennis with Joe? (f=8)*

**Who Joe plays tennis with every Monday? (f=3)*

*PCT 6: *Who will visit Mr. James tonight? (f=2)*

*PCT 8: *Who did break the window? (f=9)*

*PCT 11: *Who does teach math at the primary school? (f=8)*

The incorrect sentences above reveal that the participants have had inversion error and failed to make a distinction between the subject and object wh-questions.

The second syntactic form focused in the PCT is the long-distance wh-questions. Table 4.37 below displays the results of the data obtained from the participants' answers of the items regarding the long-distance form in the PCT.

Table 4.37. Percentage and Frequency calculations of each long distance wh-question

Item Number		TI n=28		PI n=28		Total n=56		χ^2	df	p
		f	%	f	%	f	%			
1	0	24	85.7	3	10.7	27	48.2	28.608	1	0.000*
	1	4	14.3	25	89.3	29	51.8			
4	0	19	67.9	3	10.7	22	39.3	16.845	1	1.000
	1	9	32.1	25	89.3	34	60.7			
7	0	23	82.1	3	10.7	26	46.4	25.918	1	0.000*
	1	5	17.9	25	89.3	30	53.6			
9	0	24	85.7	1	3.6	25	44.6	34.973	1	0.000*
	1	4	14.3	27	96.4	31	55.4			
10	0	21	75.0	2	7.1	23	41.1	23.905	1	0.000*
	1	7	25.0	26	92.9	33	58.9			
12	0	23	82.1	3	10.7	26	46.4	25.918	1	0.000*
	1	5	17.9	25	89.3	30	53.6			

Chi-Square Yates ,*p<0.05

When the items are examined, it is seen that all items except 4 yield statistical significance between the groups. According to the results, the participants in the TI group are not as successful as the participants in the PI group. As a result, the number of the incorrect answers increased a great deal in TI group. When we analyze the sentences provided by the participants in TI group, we see that the most frequent error is the multiple wh-usage. The following sentences can be cited as examples:

PCT 1: What do you think where has he picked up the apples?

PCT 4: What do you know which/what animal Anthony is afraid of?

PCT 7: What does Mike believe what makes people relaxed?

PCT 9: What do you think who (is William) William is playing the guitar for?

Related to the long distance wh-questions, the majority of the participants in TI group were unable to construct the questions, which reveals the idea that PI has more positive effects on the development of long distance wh-questions.

4.2.4. Summary of the Quantitative Data

After the data obtained for pretest had been examined, instruction was given to both processing and traditional groups for a period of one week. Then, posttest1 was administered to evaluate the immediate effect of the instruction. In order to assess the retention, we administered the posttest2 four weeks later.

Table 4.38. Number of Subjects, Means, Standard Deviations, Minimum and Maximum Scores, and Score Ranges For Pretest, Posttest1, and Posttest2

Task	Test	Instruction type	N	Mean	SD	Min	Max	Range
GJT	<i>Pre test</i>	TI	28	7.57	2.99	3	14	11
		PI	28	8.57	2.15	3	11	8
	<i>Post test 1</i>	TI	28	10.71	1.69	7	14	7
		PI	28	12.93	1.44	10	15	5
	<i>Post test 2</i>	TI	28	8.50	2.05	12	7	5
		PI	28	12.39	1.39	10	15	5
TT	<i>Pre test</i>	TI	28	7.57	2.57	4	16	12
		PI	28	8.29	1.94	4	12	8
	<i>Post test 1</i>	TI	28	13.61	2.25	9	16	7
		PI	28	14.50	1.43	12	16	4
	<i>Post test 2</i>	TI	28	10.71	2.71	5	16	11
		PI	28	14.79	1.64	11	16	5
PCT	<i>Pre test</i>	TI	28	4.04	1.89	2	10	8
		PI	28	4.61	1.45	2	7	5
	<i>Post test 1</i>	TI	28	8.79	2.48	3	12	9
		PI	28	9.46	2.30	6	12	6
	<i>Post test 2</i>	TI	28	5.96	2.67	3	12	9
		PI	28	11.18	0.98	9	12	3

Table 4.5 summarizes the performance of both groups on all tasks. First of all, the TI group during the pretest seems to perform similar on GJT and TT tasks ($\bar{X}=7.57$ for both tasks); however, as for the PCT task, their performance decreases ($\bar{X}=4.04$), which we believe

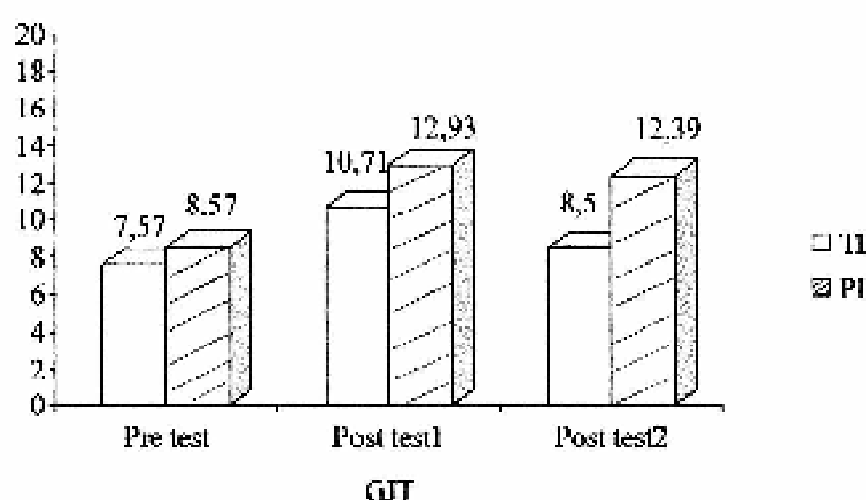
is due to their production capacity since the other two tasks require recognition not production. The students in the TI group seem to have gained some mastery on the wh-questions at the recognition and production levels as the results of the posttest1 indicate. The highest improvement is at the production level since the mean of the pretest for PCT ($\bar{X}=4.04$) increased to 8.79 in the posttest though we observe a decrease in the posttest2 ($\bar{X}=5.96$), which means that they had difficulty in sustaining the acquired knowledge. However, if we keep in mind the difference between the mean of the pretest and that of the posttest2, we see that the instruction we gave in the class caused some progress in their language proficiency.

Regarding the PI group, Table 4.5 indicates that the PI group during the pretest seems to perform similar on both GJT and TT tasks (for GJT, $\bar{X}=8.57$; for TT, $\bar{X}=8.29$). Different from these two tasks, there is a sharp decrease in their performance on PCT ($\bar{X}=4.61$), which gives the idea that the participants in the PI group successfully recognize the structure but they do not produce it. According to the result of the posttest1, the PI group seem to result in some kind of knowledge gain at the recognition and production levels due to the treatment. The highest improvement is at the production level since the mean of the pretest for PCT ($\bar{X}=4.61$) increased to 9.46 in the posttest1. As for the posttest2 for the PI group, the mean score of the PI group for GJT slightly decreases from 12.93 to 12.39. In TT and PCT, however, there is an increase between the mean of the posttest1 and posttest2 (for TT, $\bar{X}$ =from 14.50 to 14.79; for PCT, $\bar{X}$ =from 9.46 to 11.18), which is due to the positive effects of the instruction we gave in the class.

To sum up, Table 4.5 shows that for the interpretation data (namely GJT), both the PI and TI groups improved from pretest to posttest1 (PI→ from 8.57 to 12.93; TI→ from 7.57 to 10.71). While this improvement was maintained from posttest1 to posttest2 for PI group, it decreased for TI group (from 10.71 to 8.50). The standard deviations did not differ dramatically on any of the tests for either group. Similarly, looking at the production data, namely TT, in table 4.5, the PI and TI groups' mean scores increased a great deal (PI→ 8.29-14.50; TI→ 7.57-13.61). However, with regard to the results of posttest2, it can be said from the table that while the PI group's mean score continued to improve slightly (from 14.50 to 14.79), the TI group's mean score decreased to some extent (from 13.61 to 10.71). As for the other production task, namely PCT, Table 4.5 shows that the lower means on the pretest together with the higher means on posttest1 indicate great improvement for both PI and TI

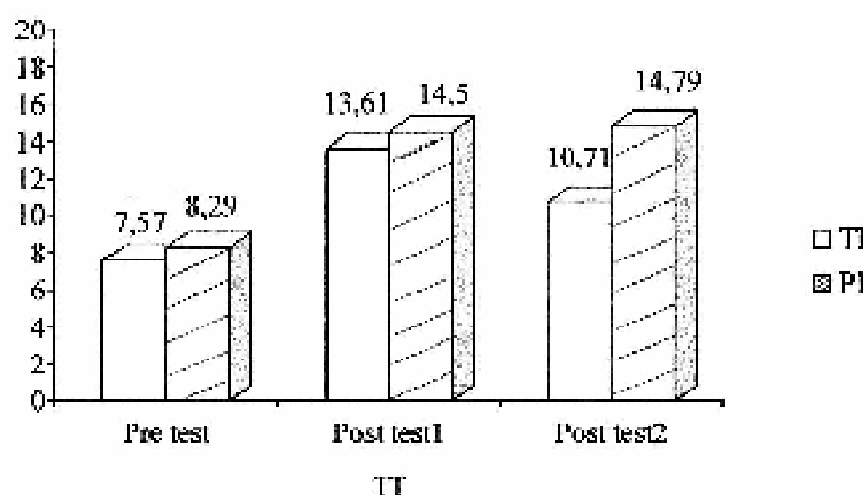
groups (PI→ 4.61-9.46; TI→ 4.04-8.79). On the other hand, Table 4.5 also presents that there was a great decrease for TI in posttest2 (from 8.79 to 5.96) while the PI group sustained the improvement gained in posttest1 (from 9.46 to 11.18).

As a result, the findings in Table 4.5 indicate that both instruction types have positive effects on the learners interpretation and productions of the English wh-questions, but these effects proved to be durable over a four-week period only for PI group. That is, even after an additional four weeks, only PI had significant impacts on the learner performance on both the interpretation (GJT) and the production tasks (IT and PCT).



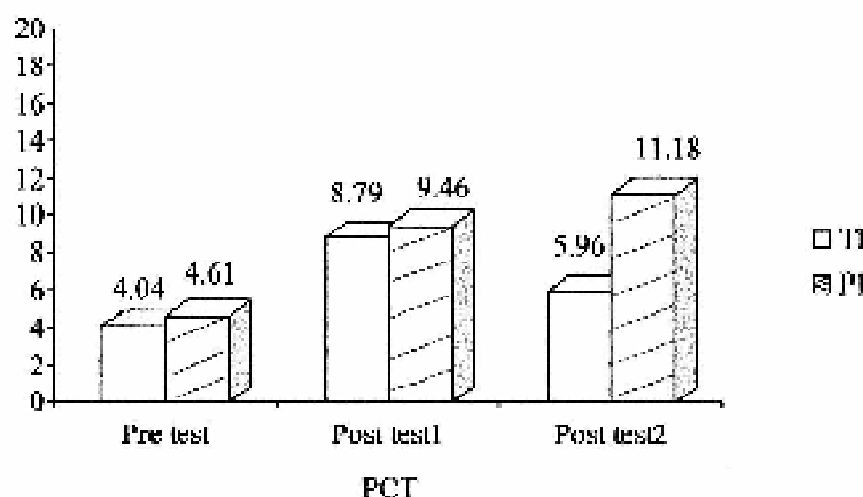
Graph 4.1. Mean scores of GJT in TI and PI groups

As depicted above, the graph provides a visual representation of the gains made by both groups on the interpretation task (GJT). As the scores displayed in Graph 4.1 are considered, it is inferred that for GJT, both PI and TI groups improved from the pretest to posttest1 (TI: 7.57-10.71; PI: 8.57-12.93). The mean score decreased only slightly from posttest1 to posttest2 for the PI group (12.93-12.39) while the TI group's mean score decreased a great deal (10.71-8.5).



Graph 4.2. Mean scores of TT in TI and PI groups

For TT data in Graph 4.2, we see that both PI and TI groups significantly improve in their responses from the pretest to posttest1 (TI: 7,57-13,61; PI: 8,29-14,50). Indeed, the TI group improved more from pretest to posttest1. However then, the TI group's mean score decreased sharply from posttest1 to posttest2 (13,61-10,71), whereas the PI group's mean score increased slightly from the posttest1 to posttest2 (14,5-14,79).



Graph 4.3. Mean scores of PCT in TI and PI groups

Regarding PCT, it is obvious in Graph 4.3 that there is a significant improvement from the pretest to posttest1 for both TI and PI groups (TI: 4.04-8.79; PI: 4.61-9.46). However, it is also clear from the graph above that while PI group sustained that improvement from posttest1 to posttest2 (9.46-11.18), TI group did not (8.79-5.96).

As can be inferred from the results obtained from three different tasks, the percentages of the correct responses increase in both groups from pretest to posttest1. However, four weeks after the treatment, we observed decreasing percentages of the correct responses. The participants in TI group continued to make the mistakes that they had in their pretest. The fluctuation in their performances might stem from the instruction type.

In order to determine whether the difference between the mean scores of both groups was statistically significant or not, the mean scores of PI and TI groups were compared by using Mann Whitney U Test (see Table 4.6), a suitable test for the studies in which the number of the participants is under 30.

Table 4.39. Comparisons of mean scores

TASK		GROUPS		
		TI Mean	PI Mean	P
GJT	Pretest	7.57	8.57	0.086
	Posttest 1	10.71	12.93	0.000*
	Posttest 2	8.50	12.39	0.000*
TT	Pretest	7.57	8.29	0.082
	Posttest 1	13.61	14.50	0.196
	Posttest 2	10.71	14.78	0.000*
PCT	Pretest	4.04	4.61	0.069
	Posttest 1	8.79	9.46	0.374
	Posttest 2	5.96	11.18	0.000*

Mann Whitney U Test

Regarding the interpretation data, GJT, the results shown in Table 4.6 reveal a significant effect for posttest1 and posttest2 between the two groups. This indicates that though in posttest1 both instruction types had a significant effect on how learners interpret the English wh-questions, the improvement of the PI group was greater than that of the TI group. As for posttest2, the findings in the table above show that there was a significant difference between the posttest2 results of PI and TI groups ($p=0.000$). This significant difference was caused by the decrease that the TI group showed. This result suggests that the effects of PI were retained over time, whereas the effects of TI were not.

Similarly, with regard to the production data in Table 4.6, there was no significant difference between the posttest1 performance of the two groups on the TT ($p=0.196$). This result indicates that both groups exhibited similar improvement in TT. However, the result of posttest2 between these two groups showed a significant difference ($p=0.000$). Like in GJT, in TT the mean score of TI group in posttest2 decreased a great deal, causing this significant difference between the groups.

Analyzing the comparison of PCT performance in Table 4.6, it can be seen that the results of posttest1 between the two groups did not yield a significant difference ($p=0.374$). That is, the lower means on the pretest together with the higher means on posttest1 indicate similar improvement for both PI and TI groups. However, there was a significant difference between the posttest2 scores of these two groups. For TI group, Table 4.6 shows that there was a sharp decrease from posttest1 to posttest2. This decrease caused a statistical difference between the performances of the groups on posttest2 ($p=0.000$). This finding indicates that the effects of PI proved durable over a four-week period, whereas the effects of TI became weaker over a four-week period.

As can be seen from the table, the lowest mean score is obtained from PCT because it is a kind of production task. The participants might be successful in comprehension tasks but not in production ones because comprehension comes prior to the production in language acquisition process.

After all the tests had been applied, T- test was performed in order to determine whether there is a statistical significance between pretest and posttest1; pretest and posttest2; posttest1 and posttest2 for GJT, TT, and PCT in each group separately. In this case, to declare

$p < 0.05$, we looked for $p < 0.05/3$ (the number of the test) = 0.008⁴. Table 4.7 and 4.8 show the results as follows:

Table 4.40. Summary table of t-test results for TI group

TASK	GROUP		P
GJT	TI	Pretest-posttest1	0,000*
		Pretest-posttest2	0,109
		Post test1-post test2	0,000*
TT		Pretest-posttest1	0,000*
		Pretest-posttest2	0,000*
		Post test1-post test2	0,000*
PCT		Pretest-posttest1	0,000*
		Pretest-posttest2	0,001*
		Post test1-post test2	0,000*

* Statistically significant $p < 0.05$

The results shown in Table 4.7 suggest that both in interpretation (GJT) and production tasks (TT and PCT) there was a significant difference between pretest and posttest1 (for GJT, $p = 0.000$; for TT, $p = 0.000$; for PCT, $p = 0.000$). This means that TI had a significant positive effect on the task performance. In addition, Table 4.7 also indicates that in all task types utilized in this study (GJT, TT, PCT), there was a significant difference between the posttest1 and the posttest2 (for GJT, $p = 0.000$; for TT, $p = 0.000$; for PCT, $p = 0.000$). However, this significant difference was caused by the decrease in the performance of TI group in the posttest2 of all tasks. This conclusion means that the effects of TI were not retained over a four-week period.

Table 4.41. Summary table of T-test results for PI group

TASK	GROUP		p
GJT	PI	Pretest-posttest1	0,000*
		Pretest-posttest2	0,000*
		Post test1-post test2	0,045*
TT		Pretest-posttest1	0,000*
		Pretest-posttest2	0,000*
		Post test1-post test2	0,045*
PCT		Pretest-posttest1	0,000*
		Pretest-posttest2	0,000*
		Post test1-post test2	0,000*

*Statistically significant $p < 0,05$

Similar to the results in TI group, Table 4.8 shows that both in interpretation (GJT) and production tasks (TT and PCT) there was a significant difference between pretest and posttest1 (for GJT, $p=0,000$; for TT, $p=0,000$; for PCT, $p=0,000$). This result indicates that PI group improved from pretest to posttest1 and PI had a positive effect on task performance. Similar to the results obtained in TI group, the difference between posttest1 and posttest2 in PI group yielded a statistical significance both in GJT ($p=0,045$) and in TT ($p=0,045$). As for the result of PCT, the table above illustrates that there was a significant difference between posttest1 and posttest2, which means that the performance of PI group improved greatly from posttest1 to posttest2.

When the results of this study are compared with those of the VanPatten and Cadierno's (1993) study, it is seen that these two studies have similar findings. In their study, VanPatten and Cadierno (1993) indicated that there was a significant difference between PI and TI in posttest1 and 2 for interpretation. Likewise, in this study, we have found that there was a significant difference both immediately after treatment and later on a delayed posttest for interpretation, namely GJT. As for the production task, VanPatten and Cadierno (1993) stated that there was no significant difference between the groups both in posttest1 and posttest2. Similar to this result, in this study we have found no significance between the PI and TI groups in posttest1 for production; however, different from VanPatten and Cadierno's study, it was found that there was a significant difference between the groups in posttest2.

Even though Cheng (1995) has conducted a PI study on a target structure in a different language (Spanish) from the language chosen for this study, her results are also similar to those of this study. She compared the effects of TI and PI on subjects' performance on three tasks: interpretation, sentence completion, and composition. Similar to the results obtained in this study, her results show that on the interpretation task, both the PI and TI groups made significant gains from the application as illustrated by the difference between the pretest and the posttest, with the processing group making greater gains on the first of two posttests. However, there was no significant difference between the PI and TI groups on the interpretation task of the second posttest in Cheng's study. On both the sentence production task and composition task, there was significant improvement from pretest to posttest for both groups, and their performance remained about the same for the second posttest. Regarding the results of the production tasks, Cheng's study is different from the present study in that there was a significant difference between the PI and TI groups in posttest2 in this study.

The results of the present study differ from Allen's (2000) and Cantürk's (2001) studies in which they found no significant difference between PI and TI groups on interpretation and production tasks. For instance, Allen (2000) claimed that there was no significant difference between PI and TI on her interpretation task both immediately after treatment and later on a delayed posttest. As for the production task, she has recorded an initial superior post treatment performance for the TI that disappeared on the second posttest but then reasserted itself on the third posttest.

Another study the result of which is compared with this study is conducted by Karacaer (2003). The results of the analysis of the interpretation data in Karacaer's (2003) study indicate that both the PI and TI groups resulted in some kind of knowledge gain due to treatments. That is, similar to the findings of this study, in Karacaer's study both PI and TI had a positive effect on how learners interpreted the target structure, namely English causatives. However, as far as posttest2 is concerned, it can be said that this study differs from Karacaer's (2003) study in that Karacaer has found there was no significant difference between PI and TI groups in posttest2. Regarding the production data, Karacaer (2003) stated that both the PI and TI groups improved from pretest to posttest1 and that there was no significant difference between the groups. Related to the posttest2, she indicated that the effect of instruction for the PI group decreased slightly, but the decrease on the TI group's

scores was bigger. At this point, the results of the present study and Karacuer's study are similar.

CHAPTER 5

CONCLUSION

5.1. Introduction

The purpose of this chapter is to discuss the results of the experiment conducted to investigate whether processing instruction and traditional instruction have any impact on the acquisition of the English wh-questions and whether these two instruction types result in differential effects. In the first section of this chapter, the results of the experiment are discussed within the context of the research questions posed in Chapter 1. In the second section, some conclusions are made regarding the results of the experiment and its pedagogical implications are discussed. The final section discusses some limitations of the present experiment and provides some suggestions for future research.

5.2. Evaluation of the Hypotheses

The present experiment investigated the effects of processing instruction (PI) and traditional instruction (TI) on the acquisition of the English wh-questions. Specifically, the research design examined whether PI and TI would bring about improved performance on sentence-level tasks involving the comprehension and production of the English wh-questions. In order to test each hypothesis, the interpretation and production tasks were administered as a pretest, a posttest, and a second posttest. The purpose of the first posttest was to measure the learners' gain in performance immediately after the instruction. The purpose of the second posttest was to determine the level of retention maintained four weeks after the instruction. The comprehension task (GJT) was designed to measure subjects' ability to judge utterances containing the English wh-questions (Hypothesis 1). The production task was designed to measure subjects' ability to produce English wh-questions forms (Hypothesis 2).

The results of the analysis of the comprehension data indicate that both the PI and TI groups resulted in some kind of knowledge gain due to the treatments. Both the PI and TI had a positive effect on how learners comprehended English wh-questions. However, the improvement of the PI group on the comprehension task was greater than the TI group. The results of the posttest1 in this study support Hypothesis 1, which stated there would be a statistical difference between the comprehension of the English wh-questions by the PI group.

That is, the results suggest that the group that received PI was able to perform better on the comprehension task after treatment and their improved performance was held through the second posttest (PI>T1).

The results of the analysis of the production data indicate that both the PI and T1 groups resulted in some kind of knowledge gain due to the treatments. Both the PI and T1 had a positive effect on how learners produced the English wh-questions. Furthermore, the results of the posttest1 in the present study reveal no significant difference in improvement after treatment between the PI and T1 groups on the production tasks (IT and PCT). Therefore, the answer to the second research question about the statistical differences between the PI and T1 groups on the production tasks is negative. That is, no significant results were found to support Hypothesis 2 (PI=T1).

Regarding Hypothesis 3, the results of the present study support Hypothesis 3 only for PI group. As mentioned earlier, both the PI and T1 had a positive effect on the comprehension task. However, according to the results obtained from posttest2, both PI and T1 groups could not continue the same improvement on posttest2. However, the drop in the T1 group's scores was greater than the drop in the PI group's scores. This finding suggests that only the effects of PI were retained over time (PI>T1).

Related to Hypothesis 4, which stated that the possible effects for instruction on the production task would be retained equally over time by two instructional groups, the results of the present study do support Hypothesis 4 only for PI. As stated above, in posttest1 there was no statistical difference between the PI and T1 groups. However, in the posttest2, the mean of PI group was better than that of T1 group, causing a statistical difference between the groups. This result means that the T1 group was unable to retain the proficiency gains across the posttest1 and posttest2 while the PI group's scores were durable (PI>T1).

To summarize, the statistical analyses for the interpretation task (GIT) for both the posttest1 and posttest2 do reveal a significant difference between the PI group and T1 group. However, for the production tasks (IT and PCT) the statistical analyses for posttest1 do not yield a significant difference between these two groups. One possible explanation for this result can be that T1 is not an instruction type that is entirely input-free. In other words, when learners responded during the follow-up phase to each activity, their utterances served as

input for their classmates. Not only did these utterances provide incidental input, but they provided input that made the wh-questions more salient than it would be with unfocused input. Because TI group's oral responses contained the wh-questions, each response (when correct) functioned as focused input for those who were listening. In short, the equal performance of the TI and PI groups may be due to the nature of TI in that it contains one of the key elements of PI- input in which the target form is more salient and more likely to be processed. Although the input was incidental, it was focused input nonetheless.

Another possibility for why the TI group performed as well as the PI group is the explicit information that the TI group received. Although the PI group received an identical handout, previous research on PI (namely, VanPatten and Oikarinen, 1996) suggests that explicit information does not account for the positive effects of PI. No such argument can be made for the TI group, because the TI group received a handout containing explicit information about the wh-questions, one can never be sure what effect this information might have had on how the TI learners performed on the production tasks. Both the information about processing together with the output practice may have produced the effects rather than the TI alone.

Regarding the results of the analysis of posttest2 for production tasks, it is found that the effects of PI were durable over time whereas the effects of TI were not. While interpreting this result, we should also consider the individual differences between these two groups. Firstly, we should also take into account whether or not the subjects really wanted to participate in this study. Their intention to learn the structures should be considered. According to the results obtained from the reflection sheets, the experimental group (PI) seems to really want to participate in this study. This may have caused the increase in their performance on the interpretation and production tasks across the pretest, posttest1 and posttest2. Secondly, "individual differences in working memory capacity for both input and output processing should be taken into account" (VanPatten, 2003, p. 96). There may have been some students who had limited working memory in each group. These students may have had trouble with comprehension and production of English wh-questions. The findings of the present study show that the experimental group (PI) seems to have more room in working memory. As a result of this, they were more successful in remembering the items in all tasks.

5.3. Pedagogical Implications of the Study

The results of this experiment carry some pedagogical implications. Firstly, the results of this study emphasize the important role of input in second language acquisition. With PI, the implication that grammar instruction should be meaning-based and tied to input has gained importance (VanPatten, 2003, p. 110). In addition, noticing becomes important as learners have difficulty with many of the grammatical features due to the following: a) these features may be non-salient or hard to notice; b) they may be infrequent in the input; and c) they may be unnecessary for successful comprehension (Heilenmann, 1995). With the help of structured input activities, we can have our students notice grammatical features that are considered problematic.

According to Wong (2001b, p.2), "the more we understand how learners attend to input, the better equipped we will be at helping them process language". As Glass and VanPatten (cited in Doughty & Williams, 1998, p. 249) point out, input that is not converted to intake is then lost and consequently is no longer available to any subsequent language acquisition process. Therefore, the important pedagogical issue is whether learners pay attention to form and how to get the attentional allocation increased, since the more one attends, the more he or she learns. In order to increase attentional capacity, information may be presented in varying modalities.

When learners develop a false processing strategy or show no sign of comprehending a grammatical form, the focus should be converted to meaning. In IP, learners' false processing strategies are manipulated while metalinguistic information is kept to a minimum. If learners have some grasp of the meaning, more attention to form is possible. VanPatten proposes beginning with activities that require learners to process only input, as input shapes the necessary elements for the developing system. This helps learners to notice features of the input and to establish form-meaning connections. According to VanPatten, after these forms have been incorporated into developing system, we can include output. The main purpose of this output is automatization and the development of fluency (VanPatten, 1996).

When it comes to curriculum development based on PI, it is certain that PI requires a structural syllabus taught by means of structured input activities. For Ellis, (1999), this syllabus should be used in parallel with a communicative syllabus. Regarding the usage of PI in curriculum development, VanPatten (1996) raises the following questions:

Can and should processing instruction occur outside of the classroom, say, as homework? Does it need to be brought into the classroom? Because processing instruction is input-based, can computers deliver effective processing instruction? Pursuing questions such as these will help instructors and curriculum developers maximize communicative language use during the rather minimum amount of time that language students spend in the classroom. (p. 158)

PI is entirely input-based and the structural input is presented in both written and oral form. Therefore, as indicated by Farley (2000), it is quite plausible for PI to function as precursor to classroom contact hours. With the current emphasis on computer-assisted language learning, interactive multimedia materials such as web-based workbooks and CD-ROM/DVD-ROM programs are becoming more readily available. These materials, typically textbook supplements, are completed outside of normal classroom time. Processing instruction could be delivered easily using this medium, providing both written structured input activities and opportunities to interpret oral input recorded and played as audio files. Some researchers (Lee, VanPatten, and Ballman, 2000) have already begun to incorporate structured input activities into multimedia publications.

5.4. Suggestions for Further Research

In this study, the effects of PI and TI on the acquisition of English wh-questions were compared. Further research should be carried out to compare the effects of PI and TI on the acquisition of different linguistic features in English, specifically the parametric variations between Turkish and English.

Long-term effects of PI and TI should be re-examined since the long-lasting effects of instruction in this study were measured only over a period of four weeks.

Further research is also needed to fully understand what factors may have caused the TI group to perform as well as the PI group on the production tasks in posttest 1.

Input in this study was controlled (structured). So, the results in no way provide implications for spontaneous language production. In other words, we cannot conclude from this study that PI would result in improved performance during real-time language production. Hence, further experimentation with different means of assessment is needed.

Although Vanlatten and Sanz (1994) found that PI had positive effects on the way in which learners produced oral language containing direct object pronouns in Spanish, it is impossible to make an overgeneralization of the result for other grammatical structures. Therefore, this issue remains to be examined by future research.

As Larsen-Freeman (2003, p. 134) states that “the idea that grammar has to do only with sentence level and subsentence level phenomena is a myth and that it would be a mistake to teach students grammar only at the sentence and subsentence levels”. However, this study was at sentence level. Thus, further studies may involve English *wh*-questions at discourse level and explore that phenomenon.

In conclusion, the results of this dissertation are encouraging for both second language research and foreign language instruction. The results indicate that both PI and TI had positive effects on how learners interpret and produce the English *wh*-questions. However, in terms of durability, PI is more effective for learners in remembering the target form on both interpretation and production tasks.

REFERENCES

- Akar, D. (1999), "Wh- questions in Turkish", *Unpublished master thesis*, Boğaziçi University.
- Al-Hejin, B. (2004), "Attention and Awareness: Evidence from cognitive and second language acquisition research", *Columbia University Working Papers in TESOL and Applied Linguistics*, 4/1, 1-22.
- Allen, L. Q. (2000), "Form-meaning Connections and the French Causative", *Studies in Second Language Acquisition*, 22, 69-84.
- Allport, A. (1988), What concept of consciousness? In A. J. Marcel and E. Bisiach (Eds), *Consciousness in Contemporary Science*, pp. 159-182, London: Clarendon Press.
- Allwright, D. & Bailey, K. M. (1991), *Focus on the Language Classroom*, Cambridge: CUP.
- Anderson, J. (1983), *The Architecture of Cognition*, Cambridge, MA: Harvard University Press.
- Anderson, J. (1993), *Rules of the Mind*, Hillsdale, NJ: Erlbaum.
- Benati, A. (2001), "A comparative study of the effects of processing instruction and output-based instruction on the acquisition of the Italian future tense", *Language Teaching Research*, 5, 95-127.
- Benati, A. (2005), "The effects of processing instruction, traditional instruction and meaningful-based output instruction on the acquisition of English past tense", *Language Teaching Research*, 9, 67-93.
- Berent, G.P. (1996), "Learnability constraints on deaf learners' acquisition of English wh-questions", *Journal of Speech and Hearing Research*, 39, 625-642.
- Bulut, T. (2000), "İngilizce'nin İkinci Dil Olarak Edinimi ve ED'ye Erişim: Yapı Bağımsallığı ve Altlık", *14. Dilbilim Kurultayı Bildirileri, Çukurova Üniversitesi, Adana*.
- Bulut, T. & Can, C. (2001), "Çoklu Ne-Sorularının Edinimi: Kim Niçin Geldi?", *15. Ulusal Dilbilim Kurultayı Bildirileri, Yıldız Teknik Üniversitesi, İstanbul*.
- Cadierno, T. (1995), "Formal Instruction from a Processing Perspective: An Investigation into the Spanish Past Tense", *The Modern Language Journal*, 79, 179-193.
- Cantürk, B. (2001), "Explicit Grammar Instruction: A Comparison of Comprehension-based and Production-based Instruction for EFL Learners", *T.C. Anadolu Üniversitesi Yayınları, No: 1276. Yabancı Diller Yüksekokulu yayınları, No: 01, Eskişehir*.

- Carr, T. & Curran, T. (1994), "Cognitive factors in learning about structured sequences: Applications to syntax", *Studies in Second Language Acquisition*, 16, 205-230.
- Celce-Murcia, M., Dörnyei, M. & Thurrell, S. (1997), "Direct approaches in L2 instruction: A turning point in communicative language teaching?", *TESOL Quarterly*, 31/1, 141-152.
- Celce-Murcia, M. (1991), "Grammar Pedagogy in Second and Foreign Language Teaching", *TESOL Quarterly*, 25, 459-480.
- Cheng, X. (2002), Chinese EFL students' cultures of learning. In C. Lee and W. Littlewood (Eds.), *Culture, Communication and Language Pedagogy*, pp. 103-116, Language Centre, Hong Kong Baptist University.
- Chomsky, N. (1973), 'Conditions on Transformations'. In S.R. Anderson and P. Kiparsky (Eds) *A Festschrift for Morris Halle*, New York: Holt, Rinehart & Winston.
- Collentine, J. G. (1998), "Processing Instruction and the Subjunctive", *Hispania*, 81, 576-587.
- Cook, V. (1991), *Second Language Learning and Language Teaching*, New York: Edward Arnold.
- Cook, V. and M. Newson (1996), *Chomsky's Universal Grammar*. Oxford: Blackwell.
- Corder, S.P. (1967), "The significance of learner's errors", *International Review of Applied Linguistics*, 5/4, 162-170.
- Crain, S. & Lillo-Martin, D. (1999), *An Introduction to Linguistic Theory and Language Acquisition*, Blackwell: USA.
- Curran, T. & Keele, S. W. (1993), "Attentional and nonattentional forms of sequence learning", *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 19, 189-202.
- DeKeyser, R. M. (2001), Automaticity and automatization. In P. Robinson (Eds.) *Cognition And Second Language Instruction*. Cambridge: CUP.
- DeKeyser, R. & Sokalski, K. (1996), "The differential role of comprehension and production practice", *Language Learning*, 46, 613-642.
- Dooley, J. & Varela, F. (1999), *Grammarway 3: English Grammar Book*. Swansea: Express Publishing.
- Dörnyei, Z. & Thurrell, S. (1991), "Strategic competence and how to teach it", *ELT Journal*, 45/1, 16-23.

Dörnyei, Z. & Thurrell, S. (1992), *Conversation and Dialogues in Action*, Hemel Hempstead, England: Prentice Hall.

Doughty, C. (1998), *Learning Foreign and Second Languages*, Ed. Hiedi Byrnes. NY: MLA, 128-156.

Doughty, C. (1991), "Second language instruction does make a difference: Evidence from an empirical study of SL relativization", *Studies in Second Language Acquisition*, 13, 431-469.

Doughty, C. & Williams, J. (1998), Pedagogical Choices in Focus on Form. In C. Doughty & J. Williams (Ed.), *Focus on Form in Classroom Second Language Acquisition*. Cambridge: CUP.

Dulany, D. E. (1991), Conscious representation and thought systems. In R.S. Wyer & T.K. Srull (Eds.), *Advances in social cognition*, pp. 91-120. Hillsdale, NJ: Erlbaum.

Dulay, H. & Burt, M. (1974), "Natural sequences in child second language acquisition", *Language Learning*, 24, 37-53.

Eastwood, J. (1992), *Oxford Practice Grammar with Answers*, Oxford: OUP.

Ellis, R. (1990), *Instructed Second Language Acquisition*, Oxford: Basil Blackwell.

Ellis, R. (1997), *SLA Research and Language Teaching*, Oxford: OUP.

Ellis, R. (1998), "Teaching and research: Options in grammar teaching", *TESOL Quarterly*, 29, 39-60.

Ellis, R. (1999), "Input-based approaches to teaching grammar :A Review of classroom-oriented research", *Annual Review of Applied Linguistics*, 19, 64-80.

Ellis, R. (2002), The place of grammar instruction in the second/ foreign language curriculum. In E. Hinkel & S. Fotos (Eds.), *New perspectives on grammar teaching in second language classrooms*, pp. 17-34. Mahwah, N.J.: Lawrence Erlbaum.

Ellis, R. (2004), "The definition and measurement of explicit knowledge", *Language Learning*, 54, 227-275.

Erlam, R. (2003), "Evaluating the relative effectiveness of structured-input and output-based instruction in foreign language learning", *Studies in Second Language Acquisition*, 25, 559-582.

Farley, A. (2000), "The relative effects of processing instruction and meaning-based output instruction on LS acquisition of the Spanish subjunctive", *Ph.D. Dissertation*, University of Illinois at Urbana-Champaign.

- Farley, A. (2001a), "Authentic processing instruction and the Spanish subjunctive", *Hispania*, 84, 289-299.
- Farley, A. (2001b), "The effects of processing instruction and meaning-based output instruction", *Spanish Applied Linguistics*, 5, 57-94.
- Felix, S. (1981), "The effect of formal instruction on second language acquisition", *Language Learning*, 31, 87-112.
- Fotos, S. (1998), "Shifting the focus from forms to form in the EFL classroom", *ELT Journal*, 52, 301-307.
- Fuchs, M. (2000), *Focus On Grammar*. Pearson: New York.
- Gary, J. (1978), Why speak if you don't need to? The case for a listening approach to beginning foreign language learning. In W. Ritchie (Ed.), *Second language acquisition research*, 185-199, New York: Academic Press.
- Goldschneider, J.M., & DeKeyser, R.M. (2001), "Explaining the "natural order of L2 morpheme acquisition" in English: A meta-analysis of multiple determinants", *Language Learning*, 51 (1), 1-50
- Göksel, A. & Celia, K. (2005), *Turkish: A Comprehensive Grammar*, Routledge: NY.
- Hakuta, K. (1976). "A case study of a Japanese child second language acquisition", *Language Learning*, 24, 37-53.
- Henrichsen, L. E. (1984), "Sandhi-variation: A filter of input for learners of ESL", *Language Learning*, 34, 103-126.
- Hinkel, E. & Fotos, S. (2002), *New Perspectives on Grammar Teaching in Second Language Classrooms*. Mahwah, NJ: Erlbaum.
- Ino, Y. (2001), "Effect of reduced forms on ESL learners input-intake process", *Second Language Studies*, 20 (1), 99-124.
- Karacacir, Z. (2003), "The Role of Processing Instruction: A Study on English Causatives", *Unpublished Doctorial Dissertation*, Anadolu University, Eskişehir.
- Kim, H. (1995), Intake from the speech stream: Speech elements that L2 learners attend to. In R. Schmidt (Ed.) *Attention and awareness in foreign language learning*, pp. 65-83. Honolulu: Second Language Teaching and Curriculum Center, University of Hawaii.
- Krashen, S. (1980), The Input Hypothesis. In Alatis, J. (Ed.), *Current Issues in Bilingual Education*, 168-180. Washington, D.C.: Georgetown University Press.
- _____. (1981). Bilingual education and second language acquisition theory. In *Schooling and Language Minority Students: A theoretical framework*, pp.51-79. California State Department of Education.

- _____. (1982), *Principles and Practice in Second Language Acquisition*. Oxford: Pergamon Press.
- _____. (1985), *The input hypothesis: Issues and implications*. New York, Longman.
- Kumaravadivelu, B. (1993), "Maximizing learning potential in the communicative classroom", *ELT Journal*, 47, 12-21.
- Kumaravadivelu, B. (1994), "The postmethod condition: (E)merging strategies for second/foreign language teaching", *TESOL Quarterly*, 28, 27-48.
- Lapkin, S., Hart, D., & Swain, M. (1991), "Early and Middle French immersion programs: French language outcomes". *Canadian Modern Language Review*, 48, 11-40.
- Larsen-Freeman, D. (1990), On the need for a theory of language teaching. In J. E. Alatis (Ed.) *Georgetown University Round Table on Language and Linguistics 1990*, pp. 261-270. Washington DC.: Georgetown University Press.
- Larsen-Freeman, D. (2003), *Teaching Language: From grammar to grammaring*. Boston: Heinle & Heinle.
- Larsen-Freeman, D. & Long, M. (1991), *An Introduction to Second Language Acquisition Research*, London: Longman.
- Lee, J. & VanPatten, B. (1995), *Making communicative language teaching happen*, New York: McGraw Hill.
- Lee, J., VanPatten, B. & Ballman, T. (2000), *Electronic (online) version of the Manual que acompaña Sabías que...?*, Third edition, New York: McGraw-Hill.
- Leow, R. P. (2000), "A study of the role of awareness in foreign language behavior: Aware vs. unaware learners", *Studies in Second Language Acquisition*, 22, 557-584.
- Lightbown, P. M. (2000), "Anniversary Article: Classroom SLA Research and Second Language Teaching", *Applied Linguistics*, 21/4, 431-462.
- Lightbown, P. & Spada, N. (1990), "Focus on form and corrective feedback in communicative language teaching", *Studies in Second Language Acquisition*, 12, 429-448.
- Lightbown, P. & Spada, N. (1993), *How Languages are Learned*. Oxford: OUP.
- Long, M. (1983), "Does Second Language Instruction make a Difference? A Review of Research", *TESOL Quarterly*, 17/3, 359-382.
- Long, M. (1991), Focus on Form: A Design Feature in Second Language Teaching. In K. deBot, R. B. Ginsberg & C. Kramsch (Eds.), *Foreign Language Research in Cross-cultural Perspective*, Clevedon, U. K.: Multilingual Matters, 123-167.

Morgan-Short, K. & Bowden, H. W. (2006), "Processing Instruction and Meaningful output-based instruction". *SSLA*, 28, 31-65.

Muranoi, H. (2000), "Focus on Form through interaction enhancement: integrating formal instruction into a communicative task in EFL classrooms", *Language Learning*, 50:4, 617-673.

Nassaji, H. & Fotos, S. (2004), "Current developments in research on the teaching of grammar", *Annual Review of Applied Linguistics*, 24, 126-145.

Norris & Ortega (2000), "Effectiveness of L2 Instruction: A Research Synthesis and Quantitative Meta-analysis", *Language Learning*, 50:3, 417-528.

Oram, P. & Harrington, M. (2002), Focus on Form and Corrective Feedback, SLAT6805 Second Language Acquisition Semester 2. Available online at

Park, G. (1995), "Language learning strategies and beliefs about language learning of university students learning English in Korea", *Unpublished Doctorial Dissertation*, The university of Texas at Austin, TX.

Pica, T. (2000), "Tradition and transition in English language teaching methodology", *System*, 28, 1-18.

Pienemann, M. (1989), "Is language teachable?, Psychological experiments and hypotheses", *Applied Linguistics*, 10, 52-79.

Pienemann, M. (1998). *Language processing and second language development: Processability Theory*. Amsterdam: John Benjamins.

Pienemann, M., Brindley, G. & Johnston, M. (1988), Constructing an acquisition-based procedure for second language assessment, *Studies in Second Language Acquisition* 10, 217-43.

Posner, M. & Petersen, S. (1990), "The attention system of the human brain", *Annual Review of Neuroscience*, 13, 25-42.

Robinson, P. (1995), "Review Article: Attention, memory and the 'noticing' hypothesis", *Language Learning*, 45, 283-331.

Rosa, E. & O'Neill, M. D. (1999), "Explicitness, Intake, and the Issue of Awareness: Another Piece to the Puzzle". *Studies in Second Language Acquisition*, 21, 511-556.

Ross, J. R. (1967). "Constraints on variables in syntax", *PhD Dissertation*, MIT.

Rutherford, W. (1987), *Second Language Grammar: Learning and Teaching*, London: Longman.

Sanz, C. & VanPatten, B. (1998), On Input Processing, Processing Instruction, and the nature of replication tasks: A Response to Salaberry. *Canadian Modern Language Review*, 54, 263-273.

Schmidt, R. (1990), "The role of consciousness in second language learning", *Applied Linguistics*, 11, 129-158.

Schmidt, R. (1993), "Awareness and second language acquisition", *Annual Review of Applied Linguistics*, 13, 206-226.

Schmidt, R. (1994), "Deconstructing consciousness in search of useful definitions for applied linguistics", *ALLA Review*, 11, 11-26.

Schmidt, R. (1995), Consciousness and foreign language learning: A tutorial on the role of attention and awareness in learning. In R. Schmidt (Ed.), *Attention and awareness in foreign language learning*, pp: 1-63. Honolulu: University of Hawai'i Press.

Schmidt, R. (2001), *Cognition and Second Language Instruction*. Cambridge: CUP.

Schwartz, B. D. (1993), "On Explicit and negative data effecting and affecting competence and linguistic behavior", *Studies in Second Language Acquisition*, 15, 147-163.

Sharwood Smith, M. (1993), "Input enhancement in instructed SLA: Theoretical bases", *Studies in Second Language Acquisition*, 15, 165-179.

Skahan, P. (1998), *A Cognitive Approach to Language Learning*, Oxford: OUP.

Spada, N. (1997), "Form-focused instruction and second language acquisition: A review of classroom and laboratory research", *Language Teaching*, 30, 73-87.

Spada, N. & Lightbown, P. (1993), "Instruction and the development of questions in L2 classrooms". *Studies in Second Language Acquisition*, 15, 205-224.

Swain, M. (1985), Communicative Competence: Some roles of comprehensible input and comprehensible output in its development. In S. Gass & C. Madden (Eds.), *Input in Second Language Acquisition*, Cambridge, MA.: Newbury House, 235-253.

Swain, M. & Lapkin, S. (1989), "Canadian Immersion and Adult Second Language Teaching: What's the Connection?", *Modern Language Journal* 73/2, pp.150-159.

Terrell, T. (1991), "The role of grammar instruction in a communicative approach", *Modern Language Journal*, 75, 52-63.

Tomasello, M. (1998). Introduction: A cognitive-functional perspective on language structure. In M. Tomasello (Ed.), *The new psychology of language: Cognitive and functional approaches to language structure*, vii-xxiii. Mahwah, NJ: Erlbaum.

Tomlin, R. & Villa, V. (1994), "Attention in Cognitive Science and Second Language Acquisition", *Studies in Second Language Acquisition*, 16, 183-203.

- Truscott, J. (1998), "Noticing in second language acquisition: A Critical Review". *Second Language Research*, 14, 103-135.
- VanPatten, B. (1984), "Learner's comprehension of clitic pronouns: More evidence for a word order strategy", *Hispanic linguistics*, 1, 57-67.
- _____ (1985), Communicative value and information processing in second language acquisition. In F. Judd, P. Nelson & D. Messerschmitz (Eds.), *On TESOL '84: A brave new world*. Washington, DC: TESOL, 88-89.
- _____ (1990), "Attending to content and form in the input: An experiment in consciousness", *Studies in second language acquisition*, 12, 287-301.
- _____ (1992), *Second language acquisition research and foreign language teaching, Part 2. ADFL Bulletin*, 23, 23-27.
- _____ (1993), "Grammar Teaching for the Acquisition-Rich Classroom", *Foreign Language Annals*, 26, 435-450.
- _____ (1995), Cognitive aspects of input processing in second language acquisition. In P. Hashemipour, R. Maldonado & M. van Nieuwen (Eds.), *Studies in language acquisition and Spanish in honor of Tracy D. Terrell*, 170-183, New York: McGraw-Hill.
- _____ (1996), *Input Processing and Grammar Instruction in Second Language Acquisition*. Norwood, NJ: Ablex.
- _____ (2002), "Processing Instruction: An Update", *Language Learning*, 52/4, 755-803.
- _____ (2003), *From Input to Output: A Teacher's Guide to Second Language Acquisition*. Boston: McGraw Hill.
- _____ (2004), *Processing Instruction: Theory, Research and Commentary*, Lawrence Erlbaum Associates, NJ.
- VanPatten, B. & Cadierno, T. (1993a), "Explicit instruction and input processing", *Studies in Second Language Acquisition*, 15, 225-243.
- VanPatten, B. & Cadierno, T. (1993b), "Input processing and second language acquisition: A role for instruction", *Modern Language Journal*, 77, 45-57.
- VanPatten, B. & Oikkenon, S. (1996), "Explanation versus Structured Input in Processing Instruction", *Studies in Second Language Acquisition*, 18, 225-243.
- VanPatten, B. & Sanz, C. (1995), From input to output: Processing instruction and communicative tasks. In F. Eckman, D. Highland, P. Lee, J. Mileham & R. Rutkowski Wber (Eds.), *Second Language Acquisition Theory and Pedagogy*, 169-186, Mahwah, NJ: Erlbaum.

White, L. (1989), *Universal Grammar and Second Language Acquisition*, Amsterdam: Benjamins.

Winitz, H. (1981), *The Comprehension Approach To Foreign Language Instruction*, Rowley, MA: Newbury House.

Wong, W. (2001), "Modality and Attention to meaning and Form in the Input", *Studies in Second Language Acquisition*, 26/2, 345-368.

Wong, W. (2001a), "Modality and Attention to meaning and form in the input, *Studies in Second Language Acquisition*, 23, 345-368.

Wong, W. (2001b), "Form-meaning connections in second language learning and instruction" in 2001 Combined 801 Teacher Training Workshop. Available online at http://www.flc.ohio-state.edu/flc_pages/801/wong.html

Wong, W. & VanPatten, B. (2003), "The Evidence is IN: Drills are Out", *Foreign Language Annals*, 36:3, 403-423.

Yip, V. (1995), Grammatical consciousness-raising and learnability. In Odlin, T. (eds) *Perspectives on Pedagogical Grammar*. USA: CUP

Zobl, H. (1995), "Converging evidence for the acquisition/learning distinction", *Applied Linguistics*, 16, 35-57.

APPENDIX A

Thank you very much for participating in this study.

This is a general background questionnaire that asks you questions concerning your experience with learning English. I deeply appreciate your cooperation in filling out the questionnaire as accurately as possible. The information gathered through this survey will be critical to the analysis of the data I obtain from this study. Again, I thank you very much.

Researcher: İlkay ÇELİK-YAZICI, PhD Candidate, ELT Department, Faculty of Education, Çukurova University.

1. Name: _____
2. Age: _____
3. Sex: M _____ F _____
4. What is your native language? _____
5. How old were you when you started learning English? _____
6. How many years have you studied English? _____
7. Have you ever had the opportunity to live in a country in which English is spoken as the native language? Yes _____ No _____
8. If yes, where and how long was your stay, and how old were you?
 Length: From _____ To _____
 Place: City _____ Country _____
 When I was age _____ to age _____
9. Do you speak any other languages? If so please list them. _____
10. Do you have a chance to speak English outside class? _____

APPENDIX B

Instructional Materials
Processing Instruction

EXPLICIT INFORMATION USED IN THE INSTRUCTIONAL PACKETS

QUESTION FORMATION

■ SIMPLE WH-QUESTIONS

■ An English wh-question is used for seeking content information relating to persons, things, facts, time, place, reason, manner, etc. Question words are used when we look for specific information. These question words are:

Persons, things, facts: **who, what, whose, which**

Time, place, reason, and manner: **when, where, why, how**

■ QUESTION FORMATION

I) WH-word as object/adverb:

If the questioned position is any other position than subject of the main verb, then the word order of the wh-question will be different from a typical statement. A wh-word or phrase appears at the beginning of the question to the left of the subject, followed by a "helping verb."

The helping verb will be some form of "auxiliary verb" (AUX) such as **do (does, did, etc.)**, **be (is, are, was, etc.)**, or **have (has, had, etc.)**. Or it will be some form of "modal verb" (MODAL) such as **will, can, might, should, etc.** The subject of the question will then follow these elements.

In other words, the subject and auxiliary verb change places as in Yes/No questions.

Examples: WH-WORD+AUXILIARY/MODAL+SUBJECT+VERB+ ...

John is going to school.

Where is John going?

Peter bought a book.

What did Peter buy?

We will go on Friday.

When will we go to the movie?

II) WH-word as subject: BE CAREFUL!!!

As noted, a wh-question begins with a wh-word or phrase. If the wh-word or phrase is the subject of the main verb in the question, then the question has the same word order as an ordinary statement. In other words, there is no inversion; the subject is simply replaced by wh-word.

QUESTION WORD + VERB + OBJECT

In the following question and answer pair, who is the subject in the question, and **JOHN** is the subject in the answer. In both the question and the answer, the subject is followed by the verb **bought**, which is followed by the object phrase **a book**.

Q: Who bought a book?

A: John bought a book.

■ EMBEDDED WH-QUESTIONS

In addition to "direct" wh-questions that begin with a wh-word or wh-phrase, there are other wh-structures that can be embedded inside English sentences. The highlighted structures in the following sentences are embedded wh-questions:

Could you tell us who takes care of the children?

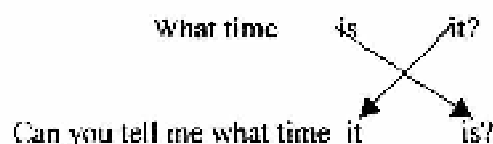
Does the supervisor know what the accountant said?

Could you tell me what time the concert starts?

Do you remember when your child started to talk?

BE CAREFUL!!

Embedded wh-questions also differ from direct wh-questions in word order. Statement word order is used for embedded questions.



Although an embedded question begins with a wh-word or phrase, there is no helping verb between the wh-word or phrase and the subject of the embedded question. Compare the presence of *does* in the direct question,

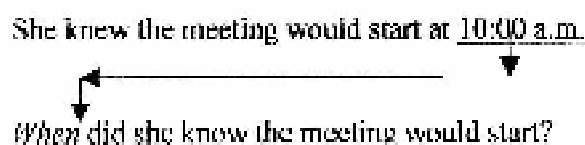
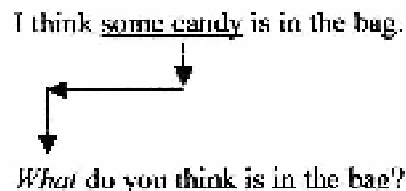
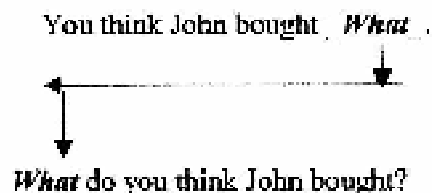
When does your business begin its fiscal year?

with the following embedded question, which contains no helping verb before the subject *your business*:

Could you tell me when your business begins its fiscal year?

■ LONG DISTANCE WH-QUESTIONS

If a **wh-word** is in an embedded clause, to form a direct question it **must** move all the way to the **matrix clause**. For example:



Examples:

• I believe Jeremy will win the race.

Who do you believe will win the race?

• The doctor said Sue had stayed in hospital for two days.

How long did the doctor say Sue had stayed in hospital?

(The following additional information is both for PI and TI groups)

One of the problems wh-questions pose is in embedded and long-distance types. It seems that students have difficulty in acquiring English wh-questions since in Turkish there is no obligatory movement of wh-element to a specific position within the question structure.

ACTIVITIES ON SIMPLE WH-QUESTIONS

ACTIVITY A

A lawyer is questioning a crime witness. Read the lawyer's questions below and choose the best choice to make grammatical questions. Circle *a* or *b*.

1. L: When _____? a) did you return home b) you returned home
W: I returned home just before midnight.
2. L: How _____? a) did you get home b) you got home
W: Someone gave me a ride.
3. L: Who _____? a) did you give a ride b) gave you a ride
W: A friend from work.
4. L: What _____? a) did happen next b) happened next
W: I opened my door and saw someone on my living room floor.
5. L: Who _____? a) did you see b) saw you
W: Deborah Collins.
6. L: What _____? a) did you do b) you did
W: I called the police.
7. L: How long _____ Mrs. Collins? a) have you known b) you have known
W: For two years.
8. L: When _____? a) did the police arrive b) the police arrived
W: In about ten minutes.

ACTIVITY B

Now read about Doug and his mother.

 **D**oug Winston, a night owl, hates to get up in the morning. On weekends and vacations, Doug goes to bed after 1:00 a.m. and gets up at noon. Unfortunately for Doug, school starts at 8:15, and Doug needs to get up early.

At 7:00 a.m. Doug's alarm rings. He wakes up, but he doesn't get up. He stays in bed and daydreams. He thinks about his friends, his schoolwork, and his soccer games. At 7:20 his mother comes in. She has a big smile on her face. She's cheerful and full of energy. She says, "Dougie, it's time to get up."



Elenore, Doug's mom, is an early bird. Even on vacations, Elenore is up at 6:00 a.m. When Elenore wakes Doug in the morning, he moans and groans. He's a grinch in the morning. He says, "Go away. Leave me alone. I'm tired. I need more sleep."

Finally, at about 7:30 Doug gets up. He jumps out of bed, showers, and gets dressed. At 7:50 he drinks a big glass of orange juice, takes a donut, and runs to the bus stop.

Now listen to the teacher and match the answers with the questions the teacher is going to read.

Question Number	Answers
_____	a. He doesn't want to be late.
_____	b. Doug.
_____	c. At 7:30.
_____	d. Elenore.
_____	e. At 7:00.
_____	f. A big glass of orange juice and a donut.

TEACHER'S SCRIPT:

Question Numbers:

3-a Why does Doug run to the bus stop?

5-b Who does Elenore wake up?

1-c When does Doug get up?

4-d Who likes to get up early?

6-e When does Doug first wake up?

2-f What does Doug have in his breakfast?

ACTIVITY C

Megan wrote a letter to her friend, Janice. The letter got wet, and now Janice can't read some parts of it. Your teacher is going to read some questions to get the missing information. Listen to the teacher and try to put the questions into the correct place in the letter.

Dear Janice,

Hi! I just moved to (1) . I left Chicago because (2) . (3) moved with me, and we are sharing an apartment. I got a job in a (4) . It started (5) . The people seem nice.

Our apartment is great. It has three rooms. One of the rooms came with carpeting, but two of them have beautiful wood floors. The rent isn't too high, either. We each pay \$50 a month. We need to buy some (6) . Ann's brother wants to visit her, so we really need an extra bed.

By the way, (7) called last Sunday. I also spoke to (8) . They want to visit us in (9) .

Would you like to come, too? Is that a good time for you? Write and let me know.

Love,

Megan

(Adapted from Fuchs, 2000)

TEACHER'S SCRIPT:

- | | |
|------------------------------------|-----------------------------|
| 1. Where did you get a job? | 6. Who did you speak to? |
| 2. Who called last Sunday? | 7. Who moved with you? |
| 3. Where did you move? | 8. When did it start? |
| 4. When do they want to visit you? | 9. What do you need to buy? |
| 5. Why did you leave Chicago? | |

ACTIVITY D

You are on the phone with a friend. There is a bad connection. Listen to the following sentences. Then listen again. Circle the letter of the question you need to ask in order to get the correct information.

- 1) a. Who did you see at the restaurant?
b. Who saw you at the restaurant?
- 2) a. Which car did the truck hit?
b. Which car hit the truck?
- 3) a. When did it happen?
b. Why did it happen?
- 4) a. Whose mother did you call?
b. Whose mother called you?
- 5) a. Who did you report it?
b. Who reported it?
- 6) a. How many people heard the shouts?
b. How many shouts did you hear?
- 7) a. Who saw the man?
b. Who did the man see?
- 8) a. Why do you have to hang up?
b. When do you have to hang up?

TEACHER'S SCRIPT:

- 1) I saw at the restaurant.
- 2) The car hit the truck.
- 3) It happened at
- 4) mother called me.
- 5) I reported it to
- 6) There were shouts.
- 7) saw the man.
- 8) I have to hang up now because

(Adapted from Fuchs, 2000)

ACTIVITY E

Your classmate has prepared the following questionnaire for you. Now read the questions below and answer them. Then, change your questionnaire with your partner and write a paragraph about his/her daily routine.

MY DAILY ROUTINE

1) Who do you live with?

2) What time do you get up?

3) Who wakes you in the morning?

4) How often do you have a shower?

5) What time do you have breakfast?

6) What do you eat in your breakfast?

7) When do you leave home for school?

8) How do you go to school?

9) What time do you arrive at school?

10) When do you leave school?

11) What do you do after school?

ACTIVITY F

Think of something exciting or interesting that you once saw and answer the following wh- questions. Then work in pairs and ask the same questions to your partner and share your stories.

1. What did you see? / Who did you see?
2. When did you see him/her/it?
3. Where did you see him/her/it?
4. Who else saw him/her/it?

ACTIVITIES ON EMBEDDED WH-QUESTIONS

ACTIVITY A

You are going to listen to ten embedded wh-questions. Listen to them and decide whether they are grammatically true or not. If it is true, write T, if it is false, write F.



TEACHER'S SCRIPT:

- 1) Do you know when does the plane to Chicago leave?
- 2) Could you please tell me who is solving the problem on the board?
- 3) Can you tell me when my car will be ready?
- 4) Can you tell me when did the First World War begin?
- 5) Do you have any idea how long Mr. And Mrs. Lane have been living here?
- 6) Do you by any chance know why I was fired?
- 7) Could you tell me why did Roger leave work early today?
- 8) Do you know how much this TV costs?
- 9) Do you by any chance know whose dog is this?
- 10) Could you please tell me where my mother went?

ACTIVITY B

Two foreign exchange students are visiting Washington, D.C. Look at their questions below and circle the right answer to make grammatically correct embedded questions.

1. Driver: Where do you want to go? Airport?

Martina: The Hotel Edison. Do you know a) where is it?

b) where it is?

Driver: Sure. Get in and I'll take you there.

Martina: (*whispering to Miuki*) Do you know a) how much should we tip the taxi driver?

b) how much we should tip the taxi driver?

2. Martina: There's so much to see in Washington. Do you have an idea

a) how we can go there?

b) how can we go there?

Miuki: We could take a bus tour of the city first, then decide.

Martina: Do you know a) how much does a bus tour cost?

b) how much a bus tour costs?

3. Martina: Can you tell me a) who did cook the meal?

b) who cooked the meal?

Miuki: I don't know, but it was delicious. It tasted like it had garlic and ginger. I'll ask the waiter.

4. Martina: Excuse me. Can you tell me a) where is the Smithsonian Museum?

b) where the Smithsonian Museum?

Officer: Sure. Just turn right at the corner and go straight.

5. Martina: Let's take the metro? Do you know a) how much does the metro cost?

b) how much the metro costs?

Miuki: It's not expensive, I think it depends on the distance. The further we go, the more expensive it gets.

(Adapted from Fuchs, 2000)

ACTIVITY C

You are given the following questions, which were asked during Claire Yang's interview. Some were asked by Claire, and some were asked by the manager, Pete Stollins. Read the questions and decide who asked each question.

	Claire	Pete
1. Can you tell me what my responsibilities will be?		
2. Could you tell me how job performance is rewarded?		
3. Could you tell me what your starting salary was at your last job?		
4. Why did you leave your last job?		
5. Can you tell me why you applied for this position?		
6. What type of training is available for the job?		
7. Could you tell me when you let me know your decision?		
8. Can you tell me what kind of experience you have?		

ACTIVITY D

Frank Cotter is a financial manager. Look at his schedule. Your teacher is going to read some questions and you are going to write answers for them by looking at the schedule below.

10 Wednesday	
9:00-10:00	meet with Ms. Jacobs
10:00-11:00	write financial reports
11:00-12:00	answer correspondence
12:00-1:00	eat lunch with Mr. Webb at Sol's Café
1:00-3:00	attend lecture at City University
3:00-4:00	discuss budget with Alan
4:00-5:00	return phone calls

Answers:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

TEACHER'S SCRIPT:

1. Can you tell me who Mr. Cotter met yesterday?
2. Do you know what kind of reports he wrote?
3. Could you please tell me who Mr. Cotter ate lunch with at Sol's Café?
4. Do you by any chance know where Mr. Cotter attended lecture?
5. Do you have any idea who visited Mr. Cotter at 3:00?
6. Do you know what they discussed?

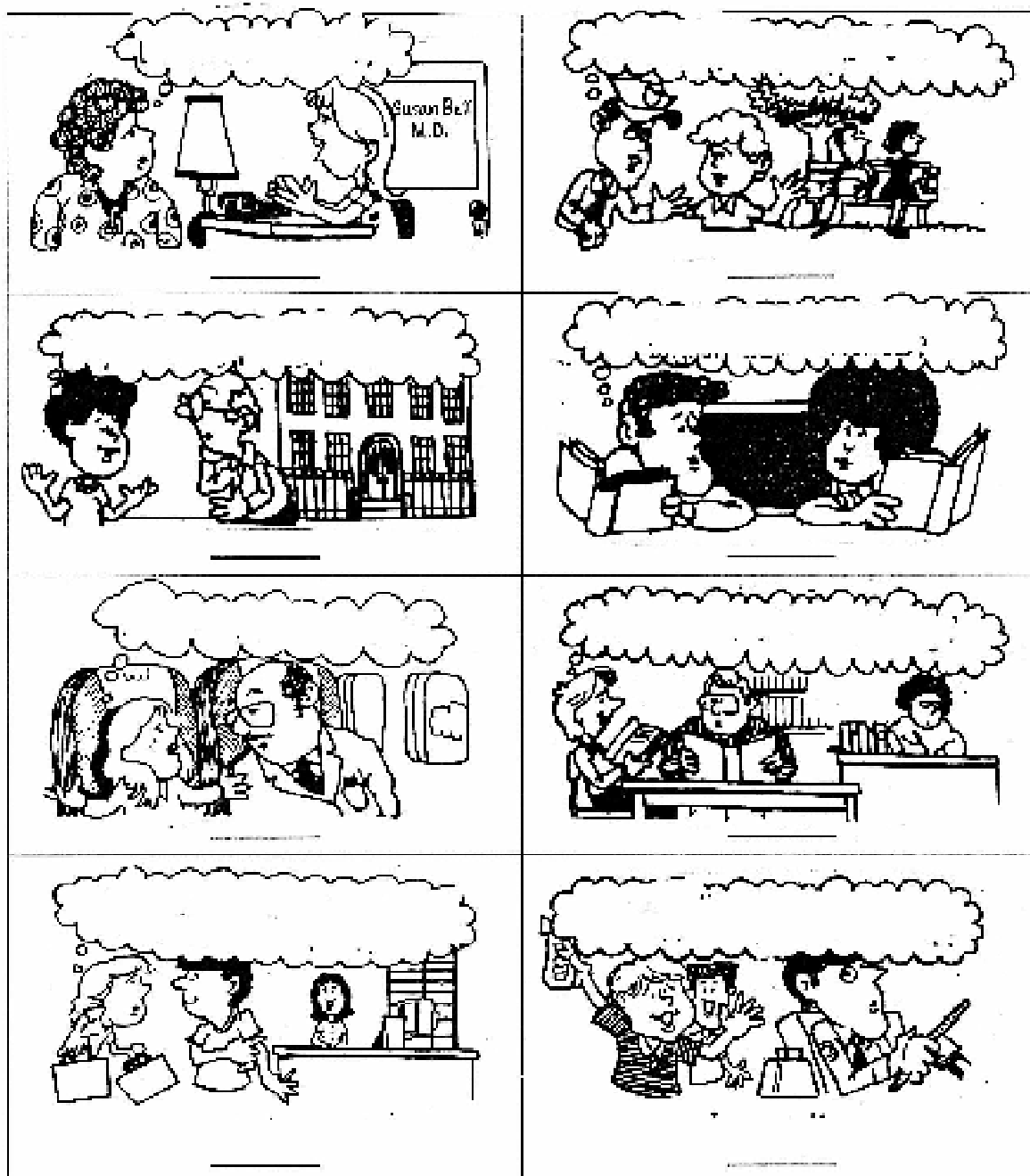
ACTIVITIES ON LONG-DISTANCE WH-QUESTIONS**ACTIVITY A**

You are given short conversations. Read the first part of these conversations and underline the right question form to make grammatical long-distance questions.

1. A: When do you think the movie starts / When do you think does the movie start?
B: At seven and nine o'clock.
2. A: What did Sam believe what John bought yesterday? / What did Sam believe John bought yesterday?
B: Sam believed John bought a pet yesterday.
3. A: What do you guess why the car doesn't start? / Why do you guess the car doesn't start?
B: I don't have an idea. Try once more. If it doesn't work, we'll call a taxi.
4. A: Who do you think Jason is singing for? / What do you think who Jason is singing for?
B: Of course for his girl friend.
5. A: How much do you think we should tip the driver? / How much do you think should we tip the driver?
B: Let's see. Fifteen percent of eight dollars. Tip her about a dollar and a half.
6. A: Who do you think did the teacher give the book? / Who do you think the teacher gave the book?
B: Ann.
7. A: Who do you know can help us to solve this problem? / Who do you know who can help us to solve this problem?
B: I am planning to ask my roommate for help.

ACTIVITY B

Look at the pictures below. You are going to listen to eight long-distance wh-questions. Listen to them and decide whether they are grammatically true or not. If it is true, write T, if it is false, write F.



TEACHER'S SCRIPT:

1. What do you guess has made me ill? (T)
2. Why do you guess does Mr. Hooper want to sell his flat? (F)
3. Where do you think the stewardess has gone? (T)
4. What do you think why is the woman looking at me? (T)
5. What do you suspect who took your bag? (F)
6. What do you think will happen at the end of the book? (T)
7. Who do you know can help us to find the right book? (I)
8. How long do you think the journey lasts? (T)

ACTIVITY C

Rosemary Smith's house was broken into last night while she was on a business trip. She's at the police station at the moment, and the policeman is asking some questions. Now, you are going to hear these questions. But, some of these questions are grammatically wrong. Listen to these questions and then decide whether it is true or false. Put a tick under the right column.

	TRUE	FALSE
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____
6.	_____	_____
7.	_____	_____

TEACHER'S SCRIPT:

- 1) Could you tell me where your house is? (T)
- 2) Do you remember when did you come back home that night? (F)
- 3) How do you think did the burglar come in? (F)
- 4) How often do you go on business trip? (T)
- 5) Who you live with? (F)
- 6) Who did call you to inform the burglary? (F)
- 7) What do you think the burglar took from your house? (T)

ACTIVITY E

The local Sports Center has distributed the questionnaire below. They are trying to find out how to improve sporting facilities. Complete the survey and then work in small groups. Compare your answers.

1. Can you tell us what kind of sports you play?	
2. How often do you play?	
3. How long do you think a person should play his/her particular sport?	
4. What do you think is most important for success in sport?	
5. Which sport do you think you are good at?	
6. How do you think you can improve yourself?	
7. Where do you think people should do sport?	
8. How often do you think a person should do sport?	
9. When do you think is the best time to do sport?(Morning/Afternoon/Evening)	

ACTIVITY F

People always have a role model in their lives. For example, a teacher might be a role model to his student. Think of your life and answer the questions below. Then work in small groups and compare your answers.

- Who do you think was your most important role model when you were growing up?
- Why do you think you picked this person?
- What ideas and actions do you guess you picked from this person?

APPENDIX C

Instructional Materials
Traditional Instruction

ACTIVITIES ON SIMPLE WH-QUESTIONS**ACTIVITY A**

A lawyer is questioning a crime witness. Complete his questions with the words given in parentheses.

1. L: When _____? (you / return home)

W: I returned home just before midnight.

2. L: How _____? (you / get home)

W: Someone gave me a ride.

3. L: Who _____? (you / give / a ride)

W: A friend from work.

4. L: What _____? (happen / next)

W: I opened my door and saw someone on my living room floor.

5. L: Who _____? (you / see)

W: Deborah Collins.

6. L: What _____? (you / do)

W: I called the police.

7. L: How long _____ Mrs. Collins? (you / know)

W: For two years.

8. L: When _____? (the police / arrive)

W: In about ten minutes.

ACTIVITY B

Read about Doug and then write questions for the given answers below.



Doug Winston, a night owl, hates to get up in the morning. On weekends and vacations, Doug goes to bed after 1:00 A.M. and gets up at noon. Unfortunately for Doug, school starts at 8:15, and Doug needs to get up early.

At 7:00 A.M. Doug's alarm rings. He wakes up, but he doesn't get up. He stays in bed and daydreams. He thinks about his friends, his schoolwork, and his soccer games. At 7:20 his mother comes in. She has a big smile on her face. She's cheerful and full of energy. She says, "Dougie, it's time to get up."



Elenore, Doug's mom, is an early bird. Even on vacations, Elenore is up at 6:00 A.M. When Elenore wakes Doug in the morning, he moans and groans. He's a grouch in the morning. He says, "Go away. Leave me alone. I'm tired. I need more sleep."

Finally, at about 7:30 Doug gets up. He jumps out of bed, showers, and gets dressed. At 7:50 he drinks a big glass of orange juice, takes a donut, and runs to the bus stop.

a. Q: _____?

A: At 7:00.

b. Q: _____?

A: Elenore.

c. Q: _____?

A: At 7:30.

d. Q: _____?

A: He doesn't want to be late.

e. Q: _____?

A: Elenore wakes up Doug.

f. Q: _____?

A: A big glass of orange juice and a donut.

ACTIVITY C

Megan wrote a letter to her friend, Janice. The letter got wet, and now Janice can't read some parts of it. What questions does Janice ask to get the missing information?

Dear Janice,

Hi! I just moved to (1) . I left Chicago because (2) . (3) moved with me, and we are sharing an apartment. I got a job in a (4) . It started (5) . The people seem nice.

Our apartment is great. It has three rooms. One of the rooms came with carpeting, but two of them have beautiful wood floors. The rent isn't too high, either. We each pay \$50 a month. We need to buy some (6) . Ann's brother wants to visit her, so we really need an extra bed.

By the way, (7) called last Sunday. I also spoke to (8) . They want to visit us in (9) .

Would you like to come, too? Is that a good time for you? Write and let me know.

Love,
Megan

1. _____?
2. _____?
3. _____?
4. _____?
5. _____?
6. _____?
7. _____?
8. _____?
9. _____?

ACTIVITY D

You are on the phone with a friend. There is a bad connection, so some parts of your friend's sentences are missing. Look at the following sentences and write questions for these blanks.

1) I saw at the restaurant.

Q: ?

2) The car hit the truck.

Q: ?

3) It happened at

Q: ?

4) mother called me.

Q: ?

5) I reported it to

Q: ?

6) There were shouts.

Q: ?

7) saw the man.

Q: ?

8) I have to hang up now because

Q: ?

ACTIVITY E

A Classmate's Daily routine: First make questions by using the following prompts. Then ask these questions to a classmate and write down his/her answers. Finally write a paragraph about his/her daily routine.

- live with? (person/people)
- get up? (time)
- wake you in the morning? (person)
- have a shower? (frequency)
- have breakfast? (time/food?)
- leave home for school? (time)
- go to school? (vehicle)
- arrive at school? (time)
- leave school?
- activities after school?
- go to bed? (time)
- *You may add some other questions*

My classmate's Daily Routine

She / He always gets up

.....

She usually goes to school

.....

After school,

.....

.....

ACTIVITY F

Two detectives are investigating a case. All the suspects work at the same office. The detectives interviewed Mary Rogers, the office manager, and wrote her answers on a board. Work in pairs (A and B). Student A, look at the Information Gap 1. Student B, look at the Information Gap 2. Ask your partner for the information you need to complete the chart. Answer your partner's questions.

Example: A: Who did you see at 8:00 p.m.?

B: Rick Simon. Where did she see him?

Information Gap 1

SUSPECT	TIME	LOCATION	OTHER WITNESSES
	8:00 p.m.	AP's Grill	
Alice May		Fifth Avenue	Bob May
Jake Bordon	6:30 p.m.		the janitor
	7:15 p.m.		some children
John Daniels	7:00 p.m.		

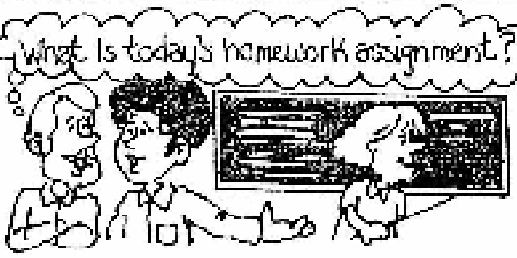
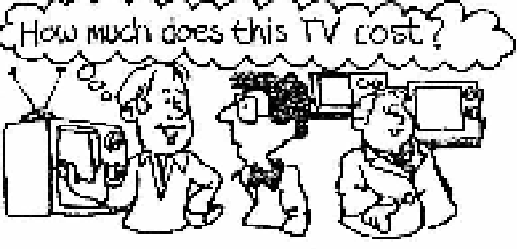
Information Gap 2

SUSPECT	TIME	LOCATION	OTHER WITNESSES
Rick Simon	8:00 p.m.		the waiter
Alice May	7:30 p.m.		
Jake Bordon	6:30 p.m.	The office	the janitor
Lilly Green	7:15 p.m.	in the park	some children
		Tony's Pizza	two customers

ACTIVITIES ON EMBEDDED WH-QUESTIONS

ACTIVITY A

Read the questions below. Then change them to embedded questions.

 When does the plane to Chicago leave? Do you know	 Why was I fired? Do you by any chance know
 What is today's homework assignment? Could you please tell me	 Why did Roger leave work early today? Do you by any chance know
 When will my car be ready? Can you tell me	 How much does this TV cost? Do you know
 When did the First World War begin? Can you tell me	 Whose dog is this? Do you know
 How long have Mr. and Mrs. Lane been living here? Do you have any idea	 Where did my mother go? Do you know

ACTIVITY B

Two foreign exchange students are visiting Washington, D.C. Complete the following conversations by changing the direct questions in parentheses to embedded questions.

I. Driver: Where do you want to go? Airport?

Martina: The Hotel Edison. Do you know _____?

1. (Where is it?)

Driver: Sure. Get in and I'll take you there.

Martina: (*whispering to Miuki*) Do you know _____?

2. (How much should we tip the taxi driver?)

II. Martina: There's so much to see in Washington. Do you have an idea _____?

3. (How can we go there?)

Miuki: We could take a bus tour of the city first, then decide.

Martina: Do you know _____?

4. (How much does a bus tour cost?)

III. Martina: Can you tell me _____?

5. (Who cooked the meal?)

Miuki: I don't know, but it was delicious. It tasted like it had garlic and ginger. I'll ask the waiter.

IV. Martina: Excuse me. Can you tell me _____?

6. (Where is the Smithsonian Museum?)

Officer: Sure. Just turn right at the corner and go straight.

V. Martina: Let's take the metro? Do you know _____?

7. (How much does the metro cost?)

Miuki: It's not expensive. I think it depends on the distance. The further we go, the more expensive it gets.

ACTIVITY C

You are given the following questions, which were asked during Claire Yang's interview. Some were asked by Claire, and some were asked by the manager, Pete Stollins. Read the questions and decide who asked each question. Then change them to embedded questions.

What will my responsibilities be?
 How is job performance rewarded?
 What was your starting salary at your last job?
 Why did you leave your last job?
 Why did you apply for this position?
 What type of training is available for the job?
 When do you let me know your decision?
 What kind of experience do you have?

	Claire	Pete
1. Can you tell me _____?		
2. Could you tell me _____?		
3. Could you tell me _____?		
4. Why did you leave your last job?		
5. Can you tell me _____?		
6. What type of training is available for the job?		
7. Could you tell me _____?		
8. Can you tell me _____?		

ACTIVITY D

Frank Cotter is a financial manager. Look at his schedule. You are given some answers. Read these answers and try to write questions for them by using the schedule below.

10 Wednesday	
9:00-10:00	meet with Ms. Jacobs
10:00-11:00	write financial reports
11:00-12:00	answer correspondence
12:00-1:00	eat lunch with Mr. Webb at Sol's Cafe
1:00-3:00	attend lecture at City University
3:00-4:00	discuss budget with Alan
4:00-5:00	return phone calls

1. A: Can you tell me _____?
B: Ms. Jacobs.
2. A: Do you know _____?
B: Financial reports.
3. A: Could you please tell me _____?
B: Mr. Webb.
4. A: Do you by any chance know _____?
B: At City University.
5. A: Do you have any idea _____?
B: Alan.
6. A: Do you know _____?
B: Budget.

ACTIVITY E

Work in pairs. Make embedded questions by using the given words below. Then discuss with your partner whether these questions are appropriate or not to ask someone you just met.

Could you tell me	Not	
	Appropriate	Appropriate
1. where/ come from		
2. how old		
3. where/live		
4. why/ have only one child		
5. how much/ earn		
6. what/your religion		
7. why/change your last job		
8. how long/be here		
9. what/ your husband (wife)/do		
10. where/be born		

ACTIVITY F

Your company has decided to prepare an international survey about TV and they asked you to prepare the questions (embedded questions) by using the prompts they have given. After writing your questions, work in small groups. Compare questions. Do you and your classmates have the similar questions? Then ask these questions to some of your friends.

Prompts	Your Question
1. how many channels/watch on TV in Turkey	
2. what programs/recommend what programs/not recommend	
3. who/the most popular TV personalities	
4. who/control the programs on TV in your country	
5. when/watch TV during the day	

ACTIVITIES ON LONG-DISTANCE WH-QUESTIONS**ACTIVITY A**

You are given short conversations. You see the scrambled questions below. Now read the scrambled words below and put them into the correct order to make grammatical long-distance wh-questions.

1. A: starts / do / when / you / think / the movie
B: At seven and nine o'clock.
2. A: what / Sam / did / believe / John / bought yesterday
B: Sam believed John bought a pet yesterday.
3. A: do / guess / the car / you / doesn't / why / start
B: I don't have an idea. Try once more. If it doesn't work, we'll call a taxi.
4. A: do / you / who / Jason / think / is singing for
B: Of course for his girl friend.
5. A: how much / tip / the driver / do / we / you / think / should
B: Let's see. Fifteen percent of eight dollars. Tip her about a dollar and a half.
6. A: do / the teacher / you / who / think / gave the book
B: Ann.
7. A: who / know / do / can / help us to solve this problem / you
B: I know my roommate can help us.

ACTIVITY B

You are given simple wh-questions. Read these questions and change them to long-distance wh-questions by using the verb given in parenthesis.

e.g. How much do they pay for this position? (THINK)

How much do you think they pay for this position?

1. What has made me ill? (GUESS)

.....

2. Why does Mr. Hooper want to sell his flat? (GUESS)

.....

3. Where has the stewardess gone? (THINK)

.....

4. Why is the woman looking at me? (THINK)

.....

5. Who took your bag? (SUSPECT)

.....

6. What will happen at the end of the book? (THINK)

.....

7. Who can help us to find the right book? (KNOW)

.....

8. How long does the journey last? (THINK)

.....

ACTIVITY C

Rosemary Smith's house was broken into last night while she was on a business trip. She's at the police station at the moment, and the policeman is asking some questions.

You see the scrambled questions below. Now read the scrambled words below and put them into the correct order to make grammatical questions.

1) where / you / could / is / house / your / me / tell

2) do / when / that night / remember / you / came back home / you

3) the burglar / do / think / how / you / came in

4) go on / how often / you / business trip / do

5) who / you / with / do / live

6) called / the burglary / you / to inform / who

7) the burglar / from / you / what / took / do / think / your house

ACTIVITY E

The local Sports Center has distributed the questionnaire below. They are trying to find out how to improve sporting facilities. Use the verbs given in parenthesis to make grammatically correct questions. Then complete the survey. Work in small groups and compare your answers.

1. Can you tell us what kind of sports _____? (you / play)
.....
2. How often _____? (you/play)
.....
3. How long _____ (you/ think) a person should play his/her particular sport?
.....
4. What _____ (you / think) is most important for success in sport?
.....
5. Which sport _____ (you / think) you are good at?
.....
6. How _____ (you / think) you can improve yourself?
.....
7. Where _____ (you / think) people should do sport?
.....
8. How often _____ (you / think) a person should do sport?
.....
9. When _____ (you / think) is the best time to do sport?
(Morning/Afternoon/Evening)
.....

ACTIVITY F

People always have a role model in their lives. For example, a teacher might be a role model to his student. Read the questions below and make them grammatically correct long-distance questions by using the given words. Then ask the questions to your partner and compare your answers.

- Who / think / your most important role model when you were growing up?

.....

- Why / think / you picked this person?

.....

- What ideas and actions / guess / you picked from this person?

.....

APPENDIX D

ASSESSMENT TASKS

ASSESSMENT TASKS

GRAMMATICALITY JUDGEMENT TASK

Please look at each sentence and then decide whether it is OK in English, not OK in English, or you are not sure. "OK" means that you think an English-speaking person might say the sentence on some occasion; "Not OK" means you think that an English-speaking person would never say the sentence in any circumstances; "Not Sure" means you do not know whether an English-speaking person might say the sentence or not.

Since this is a timed grammaticality judgement test, please do not turn over the pages on your own will and wait for the researcher to give you the directions.

- | | |
|---|---|
| 1. Could you tell me where can I find Linda? | 11. Who will John marry? |
| ☐ OK ☐ NOT OK ☐ NOT SURE | ☐ OK ☐ NOT OK ☐ NOT SURE |
| 2. Who called me yesterday? | 12. Do the students taking ELT-101 this semester talk about what after the class? |
| ☐ OK ☐ NOT OK ☐ NOT SURE | ☐ OK ☐ NOT OK ☐ NOT SURE |
| 3. Who did John say Bill saw last night? | 13. How long does the doctor believe Walter will stay in bed for five days? |
| ☐ OK ☐ NOT OK ☐ NOT SURE | ☐ OK ☐ NOT OK ☐ NOT SURE |
| 4. What will John think Fred could find in that box? | 14. Do you know where is the bank? |
| ☐ OK ☐ NOT OK ☐ NOT SURE | ☐ OK ☐ NOT OK ☐ NOT SURE |
| 5. Can you tell me where your parents live? | 15. Where do you think will the manager meet the clients today? |
| ☐ OK ☐ NOT OK ☐ NOT SURE | ☐ OK ☐ NOT OK ☐ NOT SURE |
| 6. Does Bruce do his homework regularly? | 16. Who do you think did Bill call yesterday? |
| ☐ OK ☐ NOT OK ☐ NOT SURE | ☐ OK ☐ NOT OK ☐ NOT SURE |
| 7. Who did Lee see that girl at the bus stop yesterday? | |
| ☐ OK ☐ NOT OK ☐ NOT SURE | |
| 8. Who did help the boy? | |
| ☐ OK ☐ NOT OK ☐ NOT SURE | |
| 9. Do you know who he is? | |
| ☐ OK ☐ NOT OK ☐ NOT SURE | |
| 10. What did Sue believe Mary had sent a letter to Jim? | |
| ☐ OK ☐ NOT OK ☐ NOT SURE | |

PICTURE-CUED TASK

Read the sentences below and then ask questions for the underlined parts of the sentences.

- 1) I think he has picked up the apples from this tree.

A: _____?

B: From this tree.

- 2) Joe plays tennis with Tina every Monday.

A: _____?

B: Tina.

- 3) Michael will come home at 23:45 at night.

A: _____?

B: At 23:45.

- 4) I know that Anthony is afraid of dog.

A: _____?

B: Dog.

- 5) Simon is crying because he has dropped his ice cream.

A: _____?

B: Because he has dropped his ice cream.

- 6) Mrs. James called Jeremy a few minutes ago.

A: _____?

B: Jeremy.

- 7) Mike believes that painting makes people relaxed.

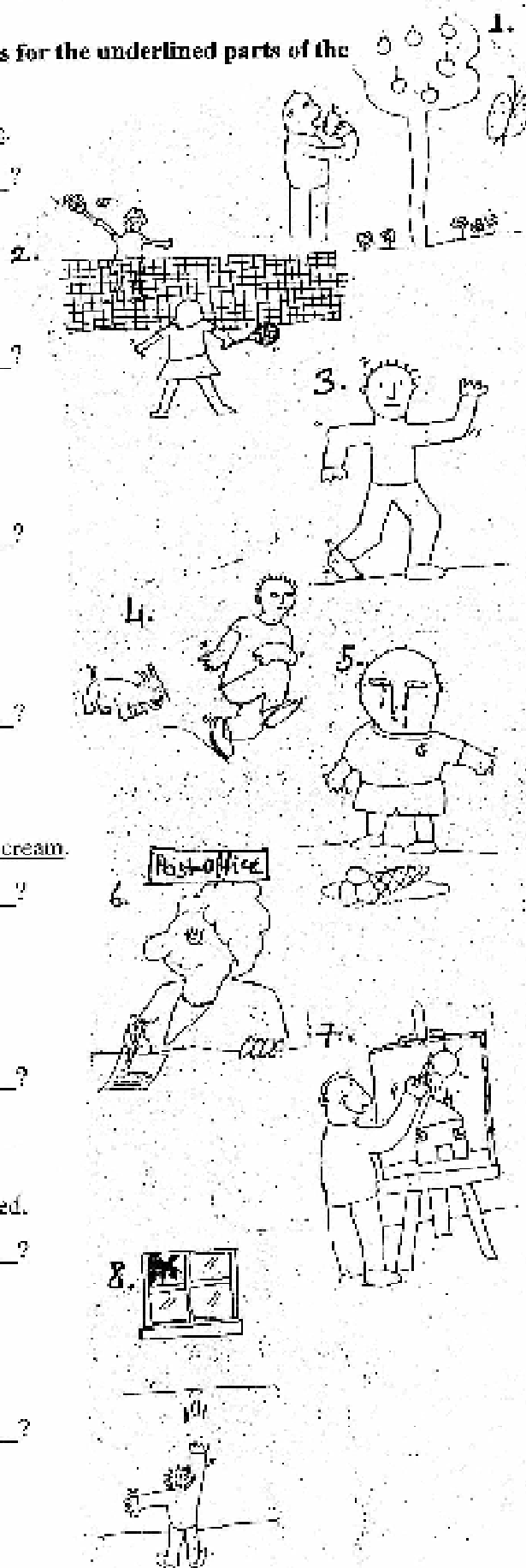
A: _____?

B: Painting.

- 8) Alan broke the window a few minutes ago.

A: _____?

B: Alan.



TRANSLATION TASK

Translate the Turkish sentences into English ones.

1) Mary'nin kitabı kime verdiğini düşünüyorsun?

2) Sinemaya genellikle kiminle birlikte gidersin?

3) Kate'in dün gece nerede kaldığını bunu söyler misin?

4) Okul ne zaman kapanacak?

5) Maria'nın tatil için nereye gideceğini biliyor musun?

6) Jeremy akşam kimi arayacak?

7) Mary'nin Sam'e ne göndereceğine inanıyorsun?

8) Ne kadar süre Paris'te kalacaksın?

9) Çocuğu kim uyandırdı?

10) Bu teknolojinin sosyal ilişkileri nasıl etkileyeceğini anlatabır mısınız?

11) Bahçede kim çalışıyor?

12) Polis bizi neden durdurdu?

13) Roger'ın dün ne aldığını düşünüyorsun?

14) Neden her gün okula geç kalıyorsun?

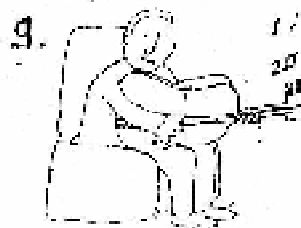
15) Annesi, Alec'in dün gece nerede kaldığına inanıyor?

16) Ülkenizde insanlar İngilizce'yi nasıl kullanıyor anlatabır mısınız?

9) I think William is playing the guitar for his wife.

A: _____?

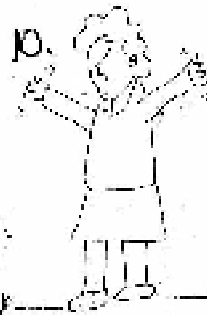
B: His wife.



10) I was sure that Carol saw a mouse on the floor.

A: _____?

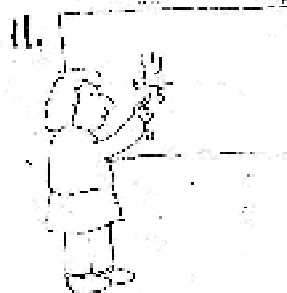
B: On the floor.



11) Mrs. Owen teaches math at the primary school.

A: _____?

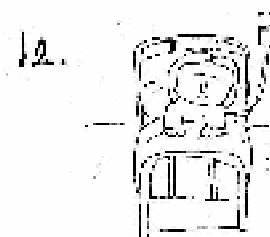
B: Mrs. Owen.



12) The doctors say Anna is going to stay at hospital for two days.

A: _____?

B: For two days.



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Bulut, T. & Çelik-Yazıcı, İ. (2004). Idiom Processing in L2: Through Rose-Colored Glasses. *The Reading Matrix*, 4 (2), 105-116.

PAPER PRESENTATIONS

Çelik-Yazıcı, İ. (2002). A Pain in the Neck: Idiom Teaching and Learning. 1st International Conference on Teaching and Learning, Marmara University, Istanbul.

Çelik-Yazıcı, İ. (2006). The Immediate Effects of PI on the Development of wh-questions by Turkish EFL Learners. XXI International Congress of the Young Linguists Association, La Rioja University, Spain. 26-28 April 2006.