

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

ILKAY CELIK-YAZICI  
CUKUROVA UNIVERSITY, TURKEY  
[ilkay\\_celik@yahoo.com](mailto:ilkay_celik@yahoo.com)

**Resumen:** *This is a comparative study on the effectiveness of processing instruction (PI) and traditional instruction (TI) on L2 acquisition of the English wh-questions by Turkish EFL learners. Specifically, we examined whether processing instruction and traditional instruction would bring about improved performance on sentence-level tasks involving the interpretation and production of the English wh-questions, which 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. Therefore, it is assumed that processing instruction may help them to acquire this structure more easily. So, the central question addressed here is: Can PI facilitate second language development? The study employed a pretest-posttest research design. The participants from YADIM (Foreign Language Center at Cukurova University) were randomly designated as processing instruction group (PI, n=28) and a traditional instruction group (TI, n=28). The data in this study were collected through four tasks: Grammaticality Judgment Task (GJT), Picture-Cued Task (PCT), a written translation task (TT).*

**Key Words:** Processing Instruction, Traditional Grammar Instruction, Wh-questions.

**Abstract:** *Esto es un estudio comparativo en la eficacia de la instrucción de proceso (PI) y de la instrucción tradicional (TI) en la adquisición L2 de las wh-preguntas del inglés de los principiantes Turcos EFL. Específicamente, examinamos si el proceso de la instrucción y de la instrucción tradicional traería funcionamiento alrededor mejorado en las tareas del sentence-nivel que implican la interpretación y la producción de las wh-preguntas inglesas, que son estructuras difíciles para que los principiantes turcos de EFL adquieran puesto que en su L1 no hay movimiento obligatorio del wh-elemento a una posición específica dentro de la estructura de la pregunta. Por lo tanto, se asume que el proceso de la instrucción puede ayudarles a adquirir esta estructura más fácilmente. Así pues, la pregunta central tratada aquí es: ¿Puede el PI facilitar el segundo desarrollo de la lengua? El estudio empleó un diseño de la investigación de la preprueba-posttest. Señalaron a los participantes de YADIM (centro del idioma extranjero en la universidad de Cukurova) aleatoriamente como proceso del grupo de la instrucción (PI, n=28) y de un grupo tradicional de la instrucción (TI, n=28). Los datos en este estudio fueron recogidos con cuatro tareas: Tarea del juicio de la gramaticalidad (GJT), tarea Cuadro-Contada (el PCT), una tarea escrita de la traducción (TT).*

**Palabras claves:** Proceso de la Instrucción, Instrucción Tradicional de la Gramática, Wh-preguntas.

## 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 L2 classrooms. Indeed, as Norris and Ortega (2000: 418) 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". 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 second or foreign language learning in formal contexts.

Within the last few years, a significant amount of research has focused on the relative effects of two different types of explicit grammar instruction (EGI): that which focuses on the learners' processing strategies followed by input-based practice and that which focuses on traditional grammar explanation followed by output-based practice.

VanPatten and Cadierno (1993) 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 (1993) 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. The fact that the PI group performed just as well on the production task helps to solidify the claim that altering a learner's processing strategies can affect their developing system.

Following VanPatten and Cadierno (1993), several PI studies have been conducted in order to compare the relative effects of mostly PI and TI (e.g. Cadierno, 1995; Cheng, 2002; VanPatten & Oikkenon, 1996; DeKeyser & Sokalski, 1996; Tanaka, 1996; Salaberry, 1997, cited in Allen, 2000; Benati, 2001; Cantürk, 2001; Farley, 2001). These studies except DeKeyser and Sokalski, Salaberry, Allen, and Cantürk found similar results to the original VanPatten and Cadierno (1993) study.

Cadierno (1995), for instance, investigated the effects of processing instruction on the acquisition of the preterit tense in Spanish. Her study was based on the processing principle 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.

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 Oikkenon (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.

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. Cantürk's 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.

## 2. Methodology

### 2.1. Target Form

In both first and second language acquisition, many researchers have investigated how learners acquire wh-questions. Among these prior research studies, 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, 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. Since studies have proved that learners in stage 2 can benefit from instruction on subject-auxiliary inversion but that learners in stage 1 cannot. These stages are illustrated by Doughty (1998) as in the following figure:

Table 2.1. Developmental Order Of The Acquisition Of English Wh- Questions

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

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 *who*?) (Who did the teacher advise?) (Who does the student think the teacher advised?)

On the basis of such studies, it has been 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, I have observed in my foreign language classrooms that many Turkish learners have experienced difficulties in acquiring particularly three types of wh-questions. These are:

- (1) Simple Questions: Whom/Who are you calling? \*Who you are calling?  
 Who broke the window? \* Who did break the window?
- (2) Embedded Inversion: Do you know where the post office is?  
 \*Do you know where is the post-office?
- (3) Long-distance wh-questions: What do you think Joe bought yesterday?  
 \*What do you think what Joe bought yesterday?  
 \*What do you think what did Joe buy yesterday?

The sentences with the asterisk indicate the ungrammatical sentences produced by Turkish learners of English. These sentences imply that EFL learners do not develop fully in the acquisition of English wh-questions. Indeed, the word order variation in English and Turkish 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.

## 2.2. Research Design

The present study has examined the effects of processing instruction and traditional instruction on the learners' acquisition of English wh-questions. We 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 subjects in this study were divided into two experimental groups: (1) a group receiving processing instruction, and (2) a group receiving traditional instruction.

Interpretation and production tasks were developed and administered to both groups to measure the effects of the two treatments. For each task, there were three versions: one version as a pretest before treatment, a second version to measure the more immediate effect of treatment, a third version to measure the later effect of treatment.

During the treatment, we followed the timetable used at YADIM (Foreign Language Center at Cukurova University), so the time of the treatments and of pre- and posttests were arranged in line with this timetable.

Scores on the pretest and the first posttest were compared in order to examine the differential effects of PI and TI. Since the second posttest has not been administered yet, the scores on the first and second posttest will be compared later in order to examine the differential retentive effects of PI and TI.

### 2.3. Research Questions

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

- (1) Will there be any statistical differences among the interpretation 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 statistical 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

**Hypothesis 1:** The PI group which are given structured-input activities based on processing instruction will show more noticing of the target grammatical form, namely wh-questions, than the control group, which facilitates the acquisition of the linguistic form. That is, processing instruction leads to gains in the ability to comprehend the target structure.

**Hypothesis 2:** The processing group will outperform the traditional instruction group on production tasks.

### 2.4. Participants

A total of 56 Turkish students of English attending preparatory program at Foreign Languages Center (YADIM) at 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 YADIM at the beginning of the 2005-2006 academic year. As a result of this proficiency exam, two pre-intermediate level classes were randomly assigned as processing group (PG, n=28) and traditional group (TG, n=28).

### 2.5. Testing Instruments

#### 2.5.1. Instructional Packets

Separate instructional packets for the PI and TI groups were developed and balanced in terms of vocabulary, number of activities and practice time. As in VanPatten and Cadierno (1993), the first page of both packets contained explicit grammar instruction about English wh-questions. The processing group would also receive information about problems regarding inversion; however, the traditional group was not given this information. Activities followed the explicit information page. In the processing packet, the activities were composed of 'structured input' activities that consisted of both *referential* and *affective* activities (see Appendix). As for

the traditional pocket, the activities here followed the pattern of moving from mechanical to meaningful and to communicative practice.

### 2.5.2. Assessment Tasks

In order to assess the effects of instruction, three versions of the assessment tasks as the pretest, posttest1 and 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)

## 3. Results and Discussion

### 3.1. Scoring

For the statistical analyses, raw scores 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.

### 3.2. Analysis of Data

After all tasks (namely GJT, TT, and PCT) had been applied as pretest, the results were analyzed and the frequencies for each item in each task were found. The results are illustrated in Table 3.1 for GJT.

Table 3.1. Percentage, frequency calculations for each GJT item

Item Numbers NOT OKAY	Frequencies (f)		Percentage (%)		Item Numbers OKAY	Frequencies (f)		Percentage (%)	
	0	1	0	1		0	1	0	1
GJT1	22	34	39,3	60,7	GJT5	15	41	26.8	73.2
<b>GJT3</b>	<b>31</b>	<b>25</b>	<b>55.4</b>	<b>44.6</b>	GJT2	23	33	41.1	58,9
GJT4	14	42	25.0	75.0	<b>GJT8</b>	<b>51</b>	<b>5</b>	<b>91.1</b>	<b>8.9</b>
GJT7	22	34	39.3	60.7	GJT11	12	44	21.4	78.6
<b>GJT10</b>	<b>32</b>	<b>24</b>	<b>57.1</b>	<b>42.9</b>	<b>GJT16</b>	<b>43</b>	<b>13</b>	<b>76.8</b>	<b>23.2</b>
GJT12	27	29	48.2	51.8	GJT6	9	47	16.1	83.9
GJT13	28	28	50.0	50.0	<b>GJT15</b>	<b>43</b>	<b>13</b>	<b>76.8</b>	<b>23.2</b>
<b>GJT14</b>	<b>31</b>	<b>25</b>	<b>55.4</b>	<b>44.6</b>	GJT9	18	38	32.1	67.9

According to the table above, judgments made in relation to the Not Okay items 3, 10, and 14 indicate that the number of the participants who made incorrect decisions related to the grammaticality of the given sentence is more than those who made correct decisions. These ungrammatical sentences are:

Gjt3: \*Who did help the boy?

Gjt10: \*What did Sue believe Mary had sent a letter to Jim?

Gjt14: \*Do you know where is the bank?

When the Okay counterparts of these sentences are considered, it is observed that only for item 15 the situation is the same.

Table 3.2. Percentage, frequency calculations for each TT item

Question No	Frequencies (f)		Percentage (%)	
	0	1	0	1
<b>Tt1</b>	<b>50</b>	<b>6</b>	<b>89,3</b>	<b>10,7</b>
Tt2	19	37	33,9	66,1
Tt3	30	26	53,6	46,4
Tt4	9	47	16,1	83,9
Tt5	27	29	48,2	51,8
Tt6	16	40	28,6	71,4
<b>Tt7</b>	<b>48</b>	<b>8</b>	<b>85,7</b>	<b>14,3</b>
Tt8	6	50	10,7	89,3
<b>Tt9</b>	<b>37</b>	<b>19</b>	<b>66,1</b>	<b>33,9</b>
<b>Tt10</b>	<b>40</b>	<b>16</b>	<b>71,4</b>	<b>28,6</b>
Tt11	4	52	7,1	92,9
Tt12	2	54	3,6	96,4
<b>Tt13</b>	<b>50</b>	<b>6</b>	<b>89,3</b>	<b>10,7</b>
Tt14	5	51	8,9	91,1
<b>Tt15</b>	<b>50</b>	<b>6</b>	<b>89,3</b>	<b>10,7</b>
<b>Tt16</b>	<b>36</b>	<b>20</b>	<b>64,3</b>	<b>35,7</b>

Table 3.2. displays the percentages and frequencies calculated for TT items. As can be seen in Table 3.2., the number of the participants who could not translate the given Turkish sentences into English is higher for items 1, 7, 9, 10, 13, 15, and 16. These sentences in TT are as follows:

Tt1: Mary'nin kitabı kime verdiğini düşünüyorsun?

(Who/Whom do you think Mary gave the book?)

Tt7: Mary'nin Sam'e ne göndereceğine inanıyorsun?

(What do you think Mary will send to Sam?)

Tt9: Çocuğu kim uyandırdı?

(Who woke up the child?)

Tt10: Bu teknolojinin sosyal ilişkileri nasıl etkileyeceğini anlatır mısınız?

(Could you tell how this technology will affect the social relations?)

Tt13: Roger'in dün ne aldığını düşünüyorsun?

(What do you think Roger bought yesterday?)

Tt15: Annesi, Alec'in dün nerede kaldığına inanıyor?

(Where does Alec's mother think Alex stayed last night?)

Tt16: Ülkenizde insanlar İngilizce'yi nasıl kullanıyor anlatır mısınız?

(Could you tell how people use English in your country?)

Table 3.3. Percentage, frequency calculations of each PCT item

Question No	Frequencies (f)		Percentage (%)	
	0	1	0	1
<b>Pct1</b>	<b>52</b>	<b>4</b>	<b>92,9</b>	<b>7,1</b>
Pct2	25	31	44,6	55,4
Pct3	2	54	3,6	96,4
<b>Pct4</b>	<b>51</b>	<b>5</b>	<b>91,1</b>	<b>8,9</b>
Pct5	4	52	7,1	92,9
Pct6	12	44	21,4	78,6
<b>Pct7</b>	<b>51</b>	<b>5</b>	<b>91,1</b>	<b>8,9</b>
<b>Pct8</b>	<b>38</b>	<b>18</b>	<b>67,9</b>	<b>32,1</b>
<b>Pct9</b>	<b>54</b>	<b>2</b>	<b>96,4</b>	<b>3,6</b>
<b>Pct10</b>	<b>55</b>	<b>1</b>	<b>98,2</b>	<b>1,8</b>
<b>Pct11</b>	<b>34</b>	<b>22</b>	<b>60,7</b>	<b>39,3</b>
<b>Pct12</b>	<b>52</b>	<b>4</b>	<b>92,9</b>	<b>7,1</b>

As for PCT, in Table 3.3. which presents the frequencies and percentages of each item in PCT, we observe that participants have difficulty in making long-distance wh-questions for the underlined parts as in the following items:

Pct1: I think he has picked up the apples from this tree.

Pct4: I know Anthony is afraid of dog.

Pct7: Mike believes painting makes people relaxed.

Pct8: Alan broke the window a few minutes ago.

Pct9: I think William is playing for his wife.

Pct10: I was sure Carol saw a mouse on the floor.

Pct11: Mrs. Owen teaches math at the primary school.

Pct12: The doctors say Anna is going to stay at hospital for two days.

After the data obtained for pretest were examined, instruction was given to both processing and traditional groups. During the instruction in processing group, the points that were considered difficult for participants according to the result of pretest were focused. After the instruction, posttest1 was administered.

The results between pretest and posttest are illustrated in Table 3.4. for the interpretation task (GJT) and production tasks (TT and PCT). Table 3.4. illustrates the results of mean test scores, standard deviations, minimum and maximum scores, and range for the PG and TG. This table displays that for the interpretation data (that is, GJT), both PI and TI groups improved from the pretest to posttest (PI: 9,39-12,93; TI: 7,57-10,71). For TT in table 3.4., both PI and TI made a progress (PI: 9,11-14,50; TI: 7,57-13,61). Regarding PCT, it is obvious in table 3.4. that there is a great improvement from the pretest to posttest (PI: 4,61-9,46; TI: 4,04-8,79).

Table 3.4. Number of Subjects, Means, Standard Deviations, Minimum and Maximum Scores, and Score Ranges For Pretest and Posttest

TASK	TEST	INSTRUCTION	N	Mean	SD	Min.	Max.	Range
<b>GJT</b>	Pretest	PI	28	9,39	2,01	3	11	8
		TI	28	7,57	2,99	3	14	11
	Posttest	PI	28	12,93	1,44	10	15	5
		TI	28	10,71	1,69	7	14	7
<b>TT</b>	Pretest	PI	28	9,11	2,57	4	16	12
		TI	28	7,57	2,57	4	16	12
	Posttest	PI	28	14,50	1,43	12	16	4
		TI	28	13,61	2,25	9	16	7
<b>PCT</b>	Pretest	PI	28	4,61	1,45	2	7	5
		TI	28	4,04	1,89	2	10	8
	Posttest	PI	28	9,46	2,30	6	12	6
		TI	28	8,79	8,79	3	12	9

In order to determine the possible effects of instruction on the way in which participants interpret (GJT) and produce (TT and PCT) English wh-questions, raw scores of the pretest (gained from GJT, TT, and PCT) and posttest (gained from GJT, TT, and PCT) were tabulated and a two-way analysis of variance (ANOVA) was performed. According to this analysis, the result of ANOVA for each task is as in the following way: For GJT  $p=0,772$ ; for TT  $p=0,327$ ; for PCT  $p=0,810$ . In other words, in all tasks it is found  $p>,05$ .

This result reveals that both the PI and TI groups resulted in some kind of knowledge gain due to the treatments. Both the PI and TI groups had a positive effect on the acquisition of wh-questions. However, on all three tasks there was no significant difference between PI and TI groups, meaning that instruction did not have a significant effect on test performance.



When we compare the results of this study with the results of other studies carried out on this issue, we see that our results are similar to Collentine (1998), Allen (2000), and Cantürk (2001). Collentine (1998) found that PI and TI were equally effective in tasks involving the Spanish subjunctive. Also, Allen (2000) and Cantürk (2001) found no significant difference between PI and TI groups on interpretation and production tasks.

#### 4. Conclusion

This study attempts to examine the possible effects of two types of instruction: processing (PI) and traditional (TI) on the acquisition of English wh-questions by Turkish EFL students. The results of the analysis of the pretest and posttest indicated 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 interpreted and produced English wh-questions. However, when the scores of PI group was compared with the scores of TI group, it was found out that there was no statistical significance between these two groups. This finding indicated that the type of instruction did not have a significant effect on participants' performance on the tasks given in this study.

The next step for this study will be to give a delayed posttest to the PI and TI groups and then measure the retention of the proficiency gained three months after the administration of the immediate posttest. This will show that whether the positive effects of both PI and TI are durable on both interpretation and production tasks.

#### Appendix

##### SAMPLE PI PRACTICE ACTIVITIES

###### ▪ Example for Referential Activities

Read the questions below and choose the best choice to make a grammatical question.

Circle *a* or *b*.

1. Where \_\_\_\_\_?  
a) he is  
b) is he
2. Do you know \_\_\_\_\_?  
a) what is John looking for  
b) what John is looking for

###### ▪ Example for Affective Activities

Your classmate has prepared the following questionnaire for you. Now read the 11 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?*

## SAMPLE TI PRACTICE ACTIVITIES

e.g. Use the words in parentheses to complete the sentences. Use any appropriate verb tenses.

- A: Where 1) \_\_\_\_\_? She's not in her room. (she, be)  
B: I don't know.
- A: John is searching every drawer. Do you know what 2) \_\_\_\_\_? (he, look for)  
B: I have no idea.
- A: The Lee Family are recent immigrants, aren't they? Do you have an idea how long 3) \_\_\_\_\_ in this country? (they, be)  
B: I have no idea. Let's ask them.

e.g. 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)

.....

## References

- ALLEN, L.Q., "Form-meaning Connections and the French Causative", *Studies in Second Language Acquisition*, 22, 2000, pp. 69-84.
- BENATİ, A., "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, 2001, pp. 95-127.
- BERENT, G.P., "Learnability constraints on deaf learners' acquisition of English wh-Questions", *Journal of Speech and Hearing Research*, 39, 1996, pp. 625-642.
- CADIerno, T., "Formal Instruction from a Processing Perspective: An Investigation into the Spanish Past tense", *The Modern Language Journal*, 79, 1995, pp. 179-193.
- CANTÜRK, B., *Explicit Grammar Instruction: A Comparison of Comprehension-based and Production-based Instruction for EFL Learners*, Eskişehir, T.C. Anadolu Universitesi Yayınları No:1, 2001.
- CHENG, A. C., "The Effects of processing instruction on the acquisition of *ser* and *estar*. *Hipania*, 85, 2002, pp. 308-323.
- DeKEYSER, R. & SOKALSKI, K., "The differential role of comprehension and production Practice", *Language Learning*, 46, 1996, pp. 613-642.
- DOUGHTY, C., "Learning Foreign and Second Languages", *Ed. Hiedi Byrnes. NY, MLA*, 1998, pp. 128-156.
- FARLEY, A. P., "The effects of processing instruction and meaning-based output Instruction", *Spanish Applied Linguistics*, 5, 2001, pp. 57-94.
- LIGHTBOWN, P. & SPADA, N., "Focus on form and corrective feedback in communicative language teaching", *Studies in Second Language Acquisition*, 12, 1990, pp. 429-448.
- LONG, M., "Does Second Language Instruction make a Difference? A Review of Research", *TESOL Quarterly*, 17/3, 1983, pp. 359-382.
- NORRIS, J. M. & L. ORTEGA, "Effectiveness of L2 Instruction: A Research Synthesis and Quantitative Meta-Analysis", *Language Learning*, 50:3, 2000, pp. 417-528.

- SALABERRY, M. R., "The role of input and output practice in second language acquisition", *Canadian Modern Language Journal*, 53, 1997, pp. 422-451.
- SPADA, N. & LIGHTBOWN, P., "Instruction and the development of questions in L2 Classrooms", *Studies in Second Language Acquisition*, 15, 1993, pp. 205-224.
- TANAKA, Y. , *The comprehension and acquisition of relative clauses by Japanese high school students through formal instruction*, Tokyo, Temple University, 1996.
- VANPATTEN, B. & CADIerno, T., "Explicit instruction and input processing", *Studies in Second Language Acquisition*, 15, 1993, pp. 225-243.
- VANPATTEN, B. & SANZ, C., "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*, Erlbaum, Mahwah NJ, 1995, pp. 169-186.
- VANPATTEN, B. & S. OIKKENON, "Explanation versus Structured Input in Processing Instruction", *Studies in Second Language Acquisition*, 18, 1996, pp. 225-243.
- VANPATTEN, B., "Input processing in second language acquisition", in VANPATTEN, B. (ed.), *Processing Instruction: Theory, research, and commentary*, Mahwah, NJ, Erlbaum, 2004, pp. 5-32.