The Effectiveness of Processing Instruction

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Summary

Within the field of SLA, grammar instruction is an interesting subject. Researchers have debated over whether grammar instruction has a positive effect on SLA. Recently this has shifted to finding out what kind of grammar instruction is effective in SLA. This thesis focuses on a specific type of grammar instruction, namely Processing Instruction (PI). Processing Instruction is pedagogical intervention that tries to alter the processing strategies of the learners so that they will make more and better form-meaning connections. The goal of this thesis was to find out whether Processing Instruction is an effective method for teaching grammar. The main research question was: Is Processing Instruction effective as a method of teaching grammar? In this thesis Processing Instruction was compared to two other methods for teaching grammar: traditional instruction (TI) and meaning-based output instruction (MOI). The sub-questions were: 1) Is PI more effective than TI on sentence-level interpretation and production tasks? 2) Is PI more effective than MOI on sentence-level interpretation and production tasks? 3) Does PI have an effect on interpretation and production in discourse tasks? The finding indicate that Processing Instruction is an effective method for grammar instruction. PI is more effective than TI and MOI on sentence-level interpretation tasks and that PI is equally effective as TI and MOI on sentence-level production tasks. Also, PI has a positive effect on discourse interpretation and production tasks. These findings suggest that PI is a relevant addition to SLA teaching material.

Keywords: Processing Instruction, grammar instruction in SLA.

1. Introduction

Research on second language acquisition (SLA) can be beneficial to teachers in the classroom and to the development of teaching material. However, according to Lightbown (1985) there seems to be a gap between teachers and researchers (cited in VanPatten & Benati, 2010:6). This is pitiful since the more is understood about the nature of the object of one's profession, the better choices can be made and time and effort can be better utilized. With this thesis I hope to bridge the gap between research on SLA and the classroom. In order to bridge the gap it is necessary to first understand second language acquisition. Unfortunately, there is no all-compassing theory on second language acquisition. Therefore, researchers on SLA are like four blind men who encounter an elephant for the first time: One of them will find the tail and conclude that the elephant is much like a rope. Another will touch the trunk and say that the elephant is like a snake. Yet another feels along the side of the elephant's body and compare it to a wall. The fourth will wrap his arms around one of the legs and think the elephant to be like a tree. Just like the blind men touching different parts of the elephant so are researchers on SLA touching on different parts of language acquisition (adapted from VanPatten and Williams 2007:vii – viii). In this thesis the focus will be on grammar instruction in SLA. Several methods of grammar instruction have been proposed so far. For instance, traditional instruction (TI) focuses on output practice with mostly mechanical drills. Another method, meaning-based output instruction (MOI) also employs output activities for practice, but these activities are more meaningful than the drills in traditional instruction. In this thesis I will examine a specific type of grammar instruction that has recently been developed, namely Processing Instruction, and discuss to which extend this method is effective. Processing Instruction is a pedagogical intervention that tries to alter the processing strategies of the learners so that they will make more and better form-meaning connections. Benati has stated that “From an empirical perspective, classroom research on the effects of explicit instruction on second language acquisition has principally focused on one main issue: whether grammar instruction *per se* makes a positive impact in SLA. The question as to how we should teach grammar and particularly whether there is one type of grammar instruction that is more effective than others has been somewhat neglected” (2001:96). The goal of this thesis is to assess the effectiveness of Processing Instruction. The main research question is: Is Processing Instruction effective as a method of teaching grammar? Sections 2.4 to 2.8 of the Theoretical Framework will further elaborate on the nature of Processing Instruction.

Processing Instruction will be compared to the above mentioned methods of grammar instruction: TI and MOI. In section 2.9 I will further elaborate on the main research question concerning the effectiveness of Processing Instruction and present the sub-questions that concern the relative effectiveness of PI and TI and MOI. I will answer these research questions by giving a review of existing literature and research on the effect of Processing Instruction and by giving commentary on these results. Most of the research that will be discussed consists of a comparison of Processing Instruction (PI) and traditional instruction (TI) and/or meaning-based output instruction (MOI). The reason why I will be examining Processing Instruction is that it is a rather recent proposal for teaching grammar and has not yet been incorporated widely in teaching material. Thus, the reason why I will be researching the effectiveness of PI is that once the effectiveness has been ascertained, this method could be incorporated in teaching material as an improvement. In the following chapter I will first discuss language teaching in general and discuss some existing methods of grammar instruction. This will be followed by an explanation of the nature of Processing Instruction and the theory that led to the proposal of this method. After that I will present the method of research in chapter 3. The research on the effectiveness of PI will be presented in chapter 4 and will be discussed in chapter 5. A conclusion will be given in chapter 6.

2. Theoretical Framework

2.1 Language teaching and the role of grammar instruction

Major changes have been made in language teaching over the last fifty years. The grammar translation approach used very explicit teaching of grammatical rules. Later on, the Direct Method said that grammar should be learned by interpreting contextual clues, rather than explicit explanations. In the 1950s the Audio-lingual method was introduced, which argued that language habits are learned through repetition, imitation and reinforcement. In contrast, the Cognitive Code Method sustained that second language learners need to understand and analyze grammar. Later on, as communicative language teaching became more present, the role of grammar diminished. For example, “Formal instruction was relegated to a fragile and peripheral role in Krashen's theory, according to which formal grammar instruction permits the learners to monitor their L2 production but does not have any effects on second language learners' competence” (Lee & Benati 2009:68). In light of this development, Long (1983) reviewed the results of studies that examined the effect of formal instruction on SLA to ascertain whether instruction may have a positive role on SLA. According to this researcher there is enough evidence that instruction is beneficial to second language acquisition (cited in Lee & Benati, 2009:69). This is also what other researchers came to conclude (Savignon, 1972; Spada, 1987, cited in Lee & Benati, 2009:69). However, even though empirical evidence has shown that grammar instruction promotes more rapid SLA and contributes to higher levels of ultimate achievement, the role of grammar instruction in SLA is still much debated. As stated in the introduction: “The important question seems to be, not whether grammar instruction 'per se' makes a difference but whether certain types of grammar instruction are more effective than others in SLA” (Lee & Benati 2009:70). The language classroom has become a more communicative place over the last fifty years, but the way of teaching grammar is not much different from what it was. So as Lee and VanPatten (1995) argue, we need not ask ourselves whether we should teach grammar, but we need to find a way to integrate grammar in a communicative framework. The question is what the effect is of Processing Instruction as a method incorporated in a communicative language teaching program. This question will be addressed by comparing PI to other methods of grammar teaching (traditional instruction and meaning-based output instruction). First, the methods for grammar teaching that will be compared to Processing Instruction in this thesis will be

briefly explained in the next section. After that Processing Instruction will be discussed in detail.

2.2 Suggested methods of grammar teaching

According to Lee and Benati these theoretical views discussed above

> have challenged the way grammar is taught and practiced. There has been a dramatic shift from traditional grammar-oriented to more communicative grammar approaches. This shift has meant a change in the way grammar is taught and practiced in the language classroom. (2009:71)

Below some of the methods of grammar teaching will be discussed, specifically those relevant to the research in this thesis.

Traditional instruction (TI)

Traditional instruction methods provide grammar through lengthy and detailed explanations of the target language's grammatical rules. Students are provided with paradigms of these grammatical rules and this is followed by output-based practice. The main focus of these exercises (written and oral) is to practice the grammatical rules to attain accuracy. Usually, the practice drills go from mechanical to more communicative.

Meaning-based output instruction (MOI)

Meaning-based output instruction consists of explicit information about the target item followed by Structured Output activities. Structured Output activities “require the learners to access a particular form or structure in order to express meaning” (Lee & VanPatten, 1995:121). The difference with traditional output-oriented instruction is that in MOI there is no mechanical component. MOI activities require L2 learners to use both meaning and form at some level during production. So the target forms are not just produced for practicing, but to communicate opinions and beliefs.

Enriched Input/Input Enhancement (EnrI)

Enriched input can be achieved in two different ways: input flood and textual enhancement. In input flood the input is modified so that many instances of the same form/structure are included. The learner must do something meaningful with that input. With textual enhancement the reader's attention is drawn to a particular form due to visual alterations in the appearance (such as bolding, italicisation, underlining or highlighting).

Processing Instruction (PI)

Another approach suggested for grammar teaching is Processing Instruction. Since this is the main method researched in this thesis, it will be discussed elaborately in sections 2.3 to 2.8.

2.3 Input as motivation for Processing Instruction

The goal of this thesis is to assess the effectiveness of a new pedagogical intervention called Processing Instruction and advise on possible future directions for teaching material with regards to PI. Teaching material generally tries to draw the attention of the L2 learners to the grammatical forms that have to be acquired. Wong states: "When considering options for drawing learners' attention to form, it is important to keep in mind that all contemporary approaches to second language acquisition theory and instructed second language acquisition posit a primary role for input" (2002:237). SLA can be looked at from different perspectives. Therefore, VanPatten compares SLA to constructing a building:

> In a sense, understanding SLA is like understanding how a building works. There is the electrical system, the plumbing, the foundation, the frame, the heat and air system and so on. All are necessary; one alone is insufficient. But like those who work in house construction and are electrical contractors or plumbing contractors, in SLA some of us are interested in matters dealing with input. Others are interested in output. (2004:27)

In this thesis the perspective will be input and the theory of VanPatten on Input Processing (IP). From this theory on Input Processing a pedagogical intervention called Processing Instruction (PI) has been developed. The effectiveness of PI on second language learning, specifically the acquisition of grammatical features, will be the focus of this thesis. As mentioned by Wong above, input is very important for successful second language acquisition. Several well-known researchers have commented on the role of input in acquisition (all cited in VanPatten, 1996:5).

> The Input Hypothesis claims that humans acquire language in only one way –by understanding messages, or by receiving 'comprehensible input'. (Krashen,1985:2)

> All cases of successful first and second language acquisition are characterized by

> the availability of comprehensible input. (Larsen-Freeman & Long 1991:142)

> It is self-evident that L2 acquisition can only take place when the learner has access to input in the L2. This input may come in written or spoken form. In the case of spoken input, it may occur in the context of interaction (i.e., the learner's attempts to converse with a native speaker, a teacher or another learner) or in the context of non-reciprocal discourse (for example, listening to the radio or watching a film). (Ellis, 1994:26)

> For the knowledge system of a particular language to grow, the acquirer must have exposure to instances or exemplars of that particular language. Without such exposure language development will not take place. (Schwarts, 1993:148)

> The L2 learner's task bears a strong resemblance to that of the L1 learner. L2 learners are also faced with the problem of making sense of input data, of coming up with a system which will account for that data, and which will allow them to understand and produce structures of the L2. (White, 1989:37)

These researchers have different opinions on second language acquisition, but all agree that meaning-bearing input is essential to second language acquisition. The essential role for input led VanPatten to rethink traditional approaches to grammar instruction (1996:5). As mentioned above traditional approaches to grammar instruction consist of an explanation followed by output practice. This means that in traditional instruction L2 learners mainly practice a structure or form, but these learners do not receive the necessary input to construct a mental representation of this structure (VanPatten 1996:6). There is, according to VanPatten “a mismatch between the widely accepted role of input in second language acquisition and the output-based and often mechanical nature of grammar instruction and practice in much of language teaching” (1996:59). This led VanPatten and colleagues to rethink the processes involved in acquisition:

> [I]f a traditional output-based approach to grammar instruction is incongruent with current theory about SLA, then would an input-based approach to grammar instruction be better..... yes, but only if the instruction takes into consideration the nature of Input Processing. (VanPatten 1996: 59)

In the next sections the nature of Input Processing (2.4) and the principles that go along

with it will be discussed (2.5).The pedagogical intervention that is based on IP, Processing Instruction, will be explained in section 2.6 and the guidelines for the creation of the core activities of this method (Structured Input activities) will be given in section 2.7. Lastly, the relationship between Processing Instruction and output will be discussed in section 2.8.

2.4 Input Processing

Before discussing the outline of PI, the theory of Input Processing (IP)will first be discussed, along with the principles that go with it. VanPatten states: “From a purely psycholinguistic perspective, we note that what language learners hear and see may not be what gets processed. Input does not simply enter the brain as the learner is exposed to it” (1996:7). According to VanPatten and Cadierno (1993) – and this is a widely accepted view of the processes in SLA – acquisition consists of three distinguishable sets of processes. The first set of processes regards what learners do with input during comprehension. The second set of processes is the incorporation of intake into the developing system and the third are the processes that the learner uses when accessing the developing system to create output. This is illustrated in Figure 1.1.

	I		II		III	
input	→	intake	→	developing system	→	output

Figure 1.1

Input Processing concerns the first set of processes that extracts intake from the input (I) by making a connection between form and meaning. That happens when a learner notices a form and determines the meaning at the same time (VanPatten 2004:6). Intake is thus the “subset of the input that has been processed in working memory and made available for further processing” (VanPatten, 2004:7). From this model it can be derived that acquisition depends on intake and intake depends on input. Input Processing provides intake for the other mechanisms and processors (f.i. UG) that organize and store the data (VanPatten, 2007:116). Therefore, the first set of processes, the Input Processing, must play a part in the development of the linguistic system of the learner (VanPatten, 1996:7).

There are three fundamental questions underlying Input Processing and they concern the assumption that making form-meaning connections is an essential part of language acquisition:

- Under what conditions do learners make initial form-meaning connections?
- Why, at a given moment in time, do they make some form-meaning connections and not others?
- What internal strategies do learners use in comprehending sentences and how might [these strategies] affect acquisition? (VanPatten, 2007:116)

Lee and Benati add to these fundamental questions some umbrella questions that the theory of IP answers:

- What linguistic data do learners attend to during comprehension? Why?
- What linguistic data do learners not attend to? Why?
- How does a formal feature's position in the utterance influence whether it gets processed?
- What grammatical roles do learners assign to nouns based on their position in an utterance? (2009:3)

It is important to note that Input Processing does not claim to be a theory that describes everything that is going on in SLA, but it highlights a part of it that should not be overlooked, especially in grammar instruction. As VanPatten states: “IP is not a comprehensive theory or model of language acquisition, instead IP claims to be a model of what happens during comprehension that may subsequently affect or interact with other processes” (VanPatten, 2007:115). Thus, Input Processing concerns the strategies and mechanisms learners use to link linguistic form with meaning and/or function. These strategies and mechanisms can be described as processing principles. These will be discussed in the next section.

2.5 Processing Principles

While certainly not everything is known about Input Processing, there is literature on how learners process input. On the basis of this literature VanPatten has formulated principles that form the nucleus of a model on Input Processing: how learners derive intake from input. These principles have developed over the years. In developing these principles VanPatten, according to Lee and Benati, “relied on a wide range of research and theorizing” (2009:6). In this section the most recent version of the principles will be discussed with some reference to the research that supports the principles. There are two overarching main principles:

P1. Primacy of Meaning Principle: learners process input for meaning before they process it for form.

P2. First Noun Principle: learners tend to process the first noun or pronoun they encounter in a sentence as the subject.

According to VanPatten "Learners are driven to look for the message in the input before looking for how that message is encoded" (1996:17). The fact that learners process input for meaning before they process the input for form poses the question of what exactly it is that learners process in the input, specifically in the early stage of acquisition? (VanPatten, 2004:7) Therefore the first main principle has six sub principles. The first referring to the fact that learners process content words in the input before they process anything else:

P1a: Primacy of Content Words Principle: Learners process content words in the input before anything else.

This principle is supported by research showing that learners in "input-rich environments tend to pick out and start using single words or whole unanalyzed chunks of language in the early stages and then combine these to form utterances" (VanPatten, 1996:18). Klein (1986) conducted research on adults acquiring German as a second language (cited in Lee & Benati, 2009). Language learners were asked to repeat stimulus sentences instantly after hearing them. Subjects were found to have a tendency to pick out and repeat content words, supporting P1a. Other experiments by Mangubhai (1991, cited in Lee & Benati, 2009) and VanPatten (1990, cited in Lee & Benati, 2009) also show that learners focus on lexical words to get meaning. This principle entails that when semantic information is coded by both a grammatical feature and a lexical item, learners will prefer to abstract the meaning from the lexical item:

P1b: Lexical Preference Principle: Learners will tend to rely on lexical items as opposed to grammatical form to get meaning when both encode the same semantic information.

Second language literature reports second language learners marking time through lexical items at the beginning of acquisition (Bardovi-Harlig, 1992, cited in Lee & Benati, 2009). This is also true for the acquisition of plurality, which learners first mark lexically (*two dog, many problem*). Also, research by Cadierno et. al. (1991, cited in Lee & Benati, 2009) shows that when asked to identify whether the events took place in the past, present or future, learners who heard a passage containing a temporal adverbial performed better than participants who heard the passage in which the temporal adverbials were absent. When asked how they determined the time the event took place in, the participants said to rely on

the lexical information. Musumeci (1989,cited in VanPatten, 1996) conducted a similar research and her results "clearly demonstrate that the presence or absence of a temporal adverbial was the significant factor determining correct tense assignment" (VanPatten 1996:23). These findings support that during Input Processing there is primacy of lexical items (VanPatten 1996:23).

> *P1c The Preference for Non-redundancy Principle:* Learners are more likely to process non-redundant meaningful grammatical form before they process redundant meaningful forms.

This principle has been extrapolated from the morpheme order studies that found that the morpheme *-ing* was acquired before third person singular -s. This principle works in the same way as P1b, because other elements in the sentence might make a grammatical marker non-redundant. There are also morphemes that do not have any meaning, that do not express semantic information about the real world. The principle about these morphemes is:

> *P1d The Meaning-before-Non-meaning Principle.* Learners are more likely to process meaningful grammatical forms before non-meaningful forms irrespective of redundancy.

For instance, Italian adjectives. The form of Italian adjectives is determined by the gender of the noun and therefore this form does not add meaning, it is only a functional morpheme. When, however, the learner's attention is drawn to these meaningful but redundant forms or to non-meaningful grammatical forms comprehension of the sentence tends to decrease. (VanPatten (1990), Bransdorfer (1991), cited in Lee & Benati, 2009). This is captured in the next principle:

> *P1e The Availability of Resources Principle.* For learners to process either redundant meaningful grammatical forms or non-meaningful forms, the processing of overall sentential meaning must not drain available processing resources.

Lee (1999) has shown how effortful comprehension is by using a think aloud protocol (cited in Lee & Benati, 2009). In his study this effort in comprehension led to miscomprehension of the past tense (a meaningful non-redundant grammatical form). Related to the availability of processing resources is the last sub-principle:

> *P1f The Sentence Location Principle.* Learners tend to process items in sentence initial position before those in final position and the latter in turn before those in medial position.

Evidence for this principle can be found in a study by Barcroft and VanPatten (1997) and

one by Rosa and O'Neill (1998). In these studies, target elements were presented in various positions in the sentence: initial, medial, final. Learners were asked to repeat the sentences and for each position it was examined how successful the target items were repeated (cited in Lee & Benati, 2009). Both studies show that items were repeated most successfully in sentence initial position.

The second main principle: the First Noun Principle, regards semantic relationships in sentences. This principle states that learners "tend to miss-assign the grammatical role of subject or semantic role of agent to the first noun or pronoun they encounter in a sentence" (Lee & Benati, 2009:20). Several studies show this processing strategy in adult second language acquisition (VanPatten 1985; Lee 1987; LoCoco 1987, cited in Lee & Benati, 2009). However, learners do not always use only the first noun strategy to assign grammatical and semantic roles. They also rely on lexical semantics, event probabilities and the context. This is captured in the following three sub-principles:

> *P2a The Lexical Semantics Principle*: learners may rely on lexical semantics, where possible, instead of the First Noun Principle to interpret sentences.

LoCoco (1987) has shown that for instance in sentences with the verbs *bring* and *give* (that do not allow inanimate subjects), the first noun strategy is abandoned when an inanimate noun was the first noun of the sentence (cited in Lee & Benati, 2009).

> *P2b The Event Probabilities Principle*: learners may rely on event probabilities, where possible, instead of the First Noun Principle to interpret sentences.

Event probabilities are related to real world knowledge of the learners. Learners use this real world knowledge about what is likely to happen when they interpret sentences. Houston (1997) has shown that learners use their real world knowledge (cited in Lee & Benati, 2009). He asked learners to interpret two sets of OVS sentences. In one of the sets he used random names and in the other he used the names of the characters of a video series the learners were watching in class. Marlovrh (2006) obtained similar results using OVS strings referring to characters from the Simpsons (cited in Lee & Benati, 2009).

> *P2c The Contextual Constraint Principle*: learners may rely less on the First Noun Principle if preceding context constrains the possible interpretation of a clause or sentence.

VanPatten and Houston (1998) have demonstrated that sentence interpretation is influenced by context (cited in Lee & Benati, 2009). They used OVS sentences that were preceded by a clause that provided contextual information. When no context was given in

the preceding clause, the grammatical role of subject was given to the object pronoun 84% of the time. However, when a context was given, this happened only 59% of the time. So, contextual information can push learners away from a wrong interpretation caused by the first noun principle.

All these principles interact with each other and some can take precedence over other principles. So, to determine why a form may be difficult to process in the input "one must look at a variety of factors that influence processing rather than at one single principle" (VanPatten 2004:19).

2.6 The nature of Processing Instruction

As stated in section 2.2, traditional instruction does not take into consideration that input is necessary in the acquisition of language. "The development of an internal system is input dependent; it happens when learners receive and process meaning-bearing input" (Lee & VanPatten, 1995). "While practice with output may help with fluency and accuracy in production, it is not "responsible" for getting the grammar into the learner's head to begin with" (Lee & VanPatten,1995). Processing Instruction is the pedagogical intervention that draws insights from a model of Input Processing. The basic idea is that when we know something about Input Processing, this information might be used to structure activities to improve processing. According to VanPatten "The goal of Processing Instruction is to alter the processing strategies that learners take to the task of comprehension and to encourage them to make better form-meaning connections than they would if left to their own devices" (1996:60). In other words, Wong states: "the goal of PI is to help L2 learners derive richer intake from input by having them engage in Structured Input activities that push them away from the strategies they normally use to make form-meaning connections" (2004b:33). Processing Instruction is therefore profitable when a less than optimal or incorrect processing strategy is identified and input activities are developed that help to evade this strategy (VanPatten, 1996:8). Changing the ways in which learners focus on input data, which is the purpose of PI, is necessary because the Input Processing that is triggered by simple classroom exposure is insufficient to bring about accurate acquisition (VanPatten 2002).

> To sum up, Processing Instruction is an input-based, psycho-linguistically motivated approach to focus on form. Unlike traditional instruction with an emphasis on rule learning and rule application during output activities, the purpose of Processing

> Instruction is to alter how learners process input and to encourage better form-meaning mapping that results in grammatically richer intake. This in turn should have a positive effect on the nature of the developing system. (VanPatten 1996:8)

Processing Instruction has three characteristics (Wong, 2004:35). The first two are the Explicit Information part of PI, this includes information to the learner about what to attend to in the input:

1. *Explanation:* information about how the linguistic structure works: "explanation of the relationship between a given form and the meaning it can convey" (VanPatten 1996:60).
2. *Informing of processing strategies:* inform learners about natural Input Processing strategy that causes incorrect processing

The third characteristic concerns specific activities that help the learner to make the right form-meaning connections:

3. *Structured input activities*: input that has been manipulated so that learners are prevented from using the wrong Input Processing strategy.

"Underlying all Structured Input activities is the push to get learners to make form-meaning mappings in order to create grammatically richer intake" (VanPatten 1996:55). Structured Input activities encourage the learner to make form-meaning mappings they might not make when exposed to non-structured or spontaneous input. Learners must use form to comprehend meaning of the sentence (VanPatten 1996:86).

An SI activity has the following key characteristics:

- The activity requires that the learner attends to the grammatical item in the input sentences while focused on meaning (Lee and VanPatten 1995:102).
- Learners are asked not to produce the grammatical item, only to process it in the input (Lee and VanPatten 1995:102)

There are two types of SI activities:

- *Referential:* learners have to pay attention to the form to get meaning and the learners give a right or wrong answer in order for the instructor to check if the learner has made the right form-meaning connection.
- *Affective:* do not have a right or wrong answer. The learners have to formulate a belief, opinion or some other affective response since they are employed in processing real world information (Wong 2004b:42).

In the next section I will further elaborate on how to develop Structured Input activities.

2.7 How to develop Structured Input activities

Because the nature of the Structured Input activities is crucial to PI and because the validity of the research on PI depends on the nature of the SI activities this section will further elaborate on how to develop SI activities. These guidelines are adapted from VanPatten and Lee (1995).

The first step in developing SI activities is always to

Identify the processing problem or strategy. Which of the principles is causing the learners to process the input incorrectly or ineffectively. “Remember that the goal of PI is to push learners away from their less than optimal strategies for processing input. If the processing problem or strategy is not identified, we will not be able to create SI activities to help reach this goal” (Wong, 2004:37).

After this first step, the second step is to follow the guidelines for developing SI activities:

1. Present one thing at a time: when only one function and form are the focus there is less to pay attention to for the learner. Therefore it is easier to pay attention to that form. Also, the explicit information on the grammatical structure can be kept to a minimum.

2. Keep meaning in focus: Learners should pay attention to how grammar “assists in the 'delivery' of the message” (Lee & VanPatten, 1995:104). So in order to answer the question the sentences should be designed so that the learner “must know what the sentence means and how the grammar encodes meaning in each” (Lee & VanPatten, 1995:105).

3. Move from sentences to connected discourse: “Short, isolated sentences give learners processing time, whereas in longer stretches of speech, grammatical form can get lost if the demands to process meaning overwhelm the learner” (Lee & VanPatten, 1995:106).

4. Use both oral and written input: Not just some activities oral and some written, but also activities that have both oral and written input. “While all learners need oral input, some learners benefit from 'seeing' the language and even claim they need to see it in order to learn it” (Lee & VanPatten, 1995:107).

5. Have the learner do something with the input: “The learner must be actively engaged in attending to the input to encourage the processing of grammar” (Lee &VanPatten,1995:107). “[I]n order to provide the requested information, they needed to process the verb forms in each sentence” (Lee & VanPatten, 1995:108).

6. Keep the learner's processing strategies in mind: make sure that learners focus in the relevant grammatical items instead of other elements of the sentence.

Appendix 1 shows a sample Processing Instruction lesson with Structured Input activities.

2.8 IP/PI and output

Lastly, it should be noted that VanPatten and other researchers that study IP and PI continually emphasize that Input Processing and grammar instruction through Processing Instruction is only a part of SLA and that there are many more facets to consider. As stated before in the comparison of the elephant and the building, input is only a part of the second language acquisition process. VanPatten and Cadierno argue that "it is clear that learners need to develop their abilities in accessing the developing system for fluent and accurate production" (1993:239). They see these output activities following an instruction with the focus on input. VanPatten further mentions: "How learners come to be able to produce language for communicative purposes also falls outside the domain of Input Processing, as do whatever factors or mechanisms that are involved in the acquisition of fluency and accuracy in output" (2004:5). VanPatten does, however, come back to the fundamental role of input by saying: "I argue that input and output play complementary roles but that we cannot get around the basic fact that the fundamental source of linguistic data for acquisition is the input the learner received" (2004:6).

2.9 Research questions

As stated in the introduction, this thesis will answer the question of whether Processing Instruction has a positive effect on SLA, specifically on the acquisition of grammatical constructions. The main research question is: Is Processing Instruction effective as a method of teaching grammar? To answer this main question, this thesis will give an answer to the following sub-questions:

- Is Processing Instruction more effective than traditional instruction (TI) on sentence-level interpretation and production tasks?
- Is Processing Instruction more effective than meaning-based output instruction (MOI) on sentence-level interpretation and production tasks?
- Does Processing Instruction have an effect on interpretation and production in discourse tasks?

Each of these sub-questions will be answered in chapter 4 by discussing the effect of these methods as reported in a number of relevant papers. These results will be further discussed in chapter 5. First, the method by which the research literature has been reviewed will be presented in the next chapter.

3 – Method

In order to answer the main research question and sub-questions, I reviewed existing research on the effect of Processing Instruction on the acquisition of grammatical structures. I searched for articles on this subject in the main journals on SLA and searched for books in PiCarta. The main research question for this thesis is: Is Processing Instruction effective as a method of teaching grammar? After searching for studies on the effectiveness of Processing Instruction I sorted and compared the studies by sub-question. The sub-questions are: 1) Is PI more effective than traditional instruction (TI) on sentence-level interpretation and production tasks? 2) Is PI more effective than meaning-based output instruction (MOI) on sentence-level interpretation and production tasks? 3) Does PI have an effect on interpretation and production in discourse tasks?

In this thesis I will be answering the question of the effectiveness of Processing Instruction by comparing the relative effect to other grammar teaching methods on sentence-level interpretation and production tasks and by examining the effects of PI on discourse tasks. The first study on the effectiveness of Processing Instruction was done by VanPatten and Cadierno (1993). They compared the effectiveness of PI to the effectiveness of traditional instruction (TI). After this first research there have been other studies which also compared PI to TI or to another method called meaning-based output instruction (MOI). In order to be able to compare the results of these studies it is important to see whether the follow-up studies are replications of the original study by VanPatten and Cadierno (1993). In this field replication studies are important, because their results can be compared, which is what will be done in this thesis. VanPatten has also stated the importance of replication studies in this field: “As part of conceptual replication studies, those in which PI is contrasted with some other type of output-oriented instruction would be very useful” (VanPatten 2002:800). Polio and Gass state that there are two kinds of replication: virtual replications and conceptual replication. In virtual replications, the original research is copied closely. This is hard to realize in linguistics, because it is impossible to find identical subjects. Conceptual replications are, however, a good alternative for linguistic research. In the words of Polio and Gass:

> Conceptual replications alter various features of the original study and serve the purpose of confirming the generalizability or external validity of the research. Researchers will attempt replication to see if the results hold for a different

> population, in a different setting or for a different modality (1997:502).

These conceptual replications are exactly what most research on Processing Instruction is. The research discussed in the present thesis are conceptual replications of the first study done by VanPatten and Cadierno (1993). I will examine subsequent research to see whether they are conceptual replications (as defined by Polio and Gass above) of this study. In order to compare the different experiments, the research design must be similar. When the method of study is the same across different studies those studies can be compared. If in a series of studies that use the same method all but one study give the same results the results of that one study can be seen as spurious. Polio and Gass also emphasize that replication is important in order to "distinguish the spurious from the real" (1997:500). When the method of different studies is not similar those studies cannot be compared. Therefore, in assessing the potential value of a study for this thesis I examined:

- Whether Processing Instruction is applied as described by Lee and VanPatten (1995) and VanPatten and Cadierno (1993). This has been described in sections 2.6 and 2.7.
- Whether the study is a conceptual replication of the study by VanPatten and Cadierno (1993).

So, in chapter 4 ('Research on the effect of Processing Instruction') I will discuss the research on PI that can be considered a conceptual replication of VanPatten and Cadierno (1993). Polio and Gass emphasize that:

> If the results are not the same in the replication as those in the original one needs detailed information on the original study to determine why. Were the original results merely spurious or is there something in the methodology or subject population that differed significantly?" (1997:502)

The question as to why the results of some of the studies may be different from each other will be discussed in chapter 5 ('Discussion of results').

4. Research on the effect of Processing Instruction

Many classroom methodology has not been evaluated through research. Grammar instruction and focus on form, however, has been researched. Also the effects of Processing Instruction as a pedagogical intervention have been extensively examined. In this chapter I will present studies related to the research question: Is Processing Instruction effective as a method of teaching grammar? First, in section 4.1 I will present the research on the relative effects of PI versus TI to answer the first sub-question: Is PI more effective than TI on sentence-level interpretation and production tasks? Second, in section 4.2 I will present the research on the relative effects of PI versus MOI to answer the second sub-question: Is PI more effective than MOI on sentence-level interpretation and production tasks? Last, in section 4.3 I will present the research on the effect of PI on discourse tasks to answer the third sub-question: Does PI have an effect on interpretation and production in discourse tasks?

4.1 Is PI more effective than TI?

In this section the studies on the effectiveness of Processing Instruction compared to traditional instruction (TI) will be discussed. See Table 1 for an overview of the specifications of the studies that are presented in this section. The first study by VanPatten and Cadierno (1993) will be discussed in detail in order to give a clear picture of how this method works and in order to establish the criteria I will use throughout this thesis to assess the degree of effectiveness of PI.

In 1993, VanPatten and Cadierno first started testing the effectiveness of Processing Instruction. They started by comparing this method to traditional instruction. In their experiment they used the grammatical construction of the Spanish object pronouns and thereby tried to alter the First Noun strategy (P2) of the subjects: the strategy of assigning agent status to the first noun (phrase) of a string and object status to the second noun (phrase). Spanish has flexible word order and uses the case marker *a* to identify objects to prevent ambiguity. Word order is less flexible for clitic object pronouns: the object pronoun has to be in preverbal position when the verb is a simple finite verb. The subject may then be placed before or after the verb. So 'The man follows her' can be expressed in two ways: *El senor la sigue* (The man-SUBJ her-OBJ follows) or *La sigue el senor* (Her-Obj follows the man-SUBJ). Sentences of the second type are often misinterpreted as

meaning 'She follows the man'. The results of this interpretation on the developing system can be seen in some of the output of learners, because two kinds of sentences are produced by the developing system: those without an object pronoun and those with an object pronoun as a subject. Both types of sentences are ungrammatical. VanPatten and Cadierno asked the following questions:

1. Does altering the way in which learners process input have an effect on their developing system?
2. If there is an effect, is it limited to processing more input or does instruction in Input Processing also have an effect on output?
3. If there is an effect, is it the same effect that traditional instruction has (assuming an effect for the latter)? (1993:229)

The subjects for this study were 80 second-year university-level Spanish students with English as their native language. They had not yet received instruction on object pronouns and word order in their regular syllabus. In the study three different treatment groups were compared: a group that received traditional instruction, a group that received Processing Instruction and a group that received no instruction. The instructional package for traditional instruction presented learners with an explanation of the form and position of direct object pronouns in the sentence. After that subjects practiced how to make sentences with those pronouns. “At all times the traditional instruction focused the learners in producing the targeted items” (VanPatten and Cadierno, 1993:230). Material were based on a best-selling first-year college-level text- and workbook. In the instructional package for Processing Instruction subjects were taught how to interpret OVS strings. The fact that in Spanish the sequence pronoun-verb-subject can occur was emphasized. After that students had to respond to the content of OV strings (this were Structured Input (SI) activities as described in section 2.8 of this thesis). “At no point did Processing Instruction involve the production of the pronoun forms by the learners” (VanPatten and Cadierno, 1993:232). A pretest and three post-tests were administered. Both consisted of interpretation tasks and written production tasks. The interpretation task, a picture matching task, contained five distractor items of SVO word order and ten test items with OV strings. Subjects were asked to match each sentence with the appropriate picture. The production task was a sentence completion task in which accompanying pictures guided the subject to make a sentence with an object pronoun. The results of the pretest showed no differences between the groups before instruction. The results of the post-tests show that for the interpretation task the Processing Instruction group performed better than the

traditional instruction group and the traditional instruction group did not perform better than the control group. For the production task the Processing Instruction group and the traditional instruction group both performed better than the control group, but there was no significant difference between the Processing Instruction group and the traditional instruction group. See Table 2 for the elaborate results of this study and of the other studies that will be discussed in this section.

Cadierno (1995) has tested the effectiveness of Processing Instruction on the Spanish preterit tense, a grammatical structure that has another processing problem than the object pronouns tested by VanPatten and Cadierno (1993). Namely the lexical preference strategy (P1b): learners prefer processing lexical items before morphological items. This is often seen in the acquisition of the past tense: “when learners are confronted with utterances in which both adverbs and verbal morphology are present, they tend to rely on adverbs for temporal distinctions” (Cadierno, 1995:182). The aim of the study by Cadierno was therefore to “investigate the impact of attempting to alter learners' processing of past tense” (1995:182). The subjects were 61 students of a third-semester Spanish course. They all had English as a native language. They did have previous instruction on the past tense, but only the students that scored sufficiently low on the pretest were included. This was done to assure that the subjects could improve after instructional treatment. As in the study by VanPatten and Cadierno (1993), three treatment groups were used in this study: a group without any instruction, a group with Processing Instruction and a group with traditional instruction. The traditional instruction package presented past tense endings to the learners and after that focused on producing the target items at a sentence level. Materials were taken from an existing first-year textbook. The Processing Instruction package emphasized in the instruction that it was important that the subjects recognized the past tense verbs without relying on adverbs. This package taught the learners to comprehend and interpret the target items by having the subjects practice interpreting sentences containing a preterit tense. A pretest and three post-tests were administered, both consisting of an interpretation and a production task. For the interpretation task subjects were given a sentence that contained no temporal adverbs and they were asked to point out whether the action of the verb was past or present. In the production task subjects had to fill in the correct form of the verb in a sentence that expressed an event in the past. The results show that the PI group improved significantly for the interpretation task, whereas the TI group and the control group did not. For the production task both groups were superior to the control group and there was no

significant difference between the PI group and the TI group. For both groups the obtained results maintained over the three post-tests.

Allen (2000) also tried to investigate whether the results of VanPatten and Cadierno (1993) are generalizable to different grammatical structures by performing a conceptual replication of VanPatten and Cadierno's study (1993). “The French causative was chosen for investigation in this study because there is evidence indicating that native speakers of English also use the First Noun strategy [P2] when processing input containing the French causative” (Heilenman & McDonald 1993; McDonald & Heileman, 1992, cited in Allen 2000:73). So learners will interpret a sentence like *Jean fait promener le chien à Marie (*John makes Mary walk the dog) as something like 'John walks the dog for Mary', because *Jean* is the first noun in the sentence. The subjects were 179 fourth-semester French high-school students. The causative construction had not been introduced previously, but the verb *faire* had been studied by the students. There were three groups: traditional instruction, Processing Instruction and no instruction. The Processing Instruction packets were designed on the bases of the guidelines in Lee and VanPatten (1995, as described in section 2.7 and 2.8). Instruction for both groups started with a review of the 13 expressions with *faire.* After that the groups did two activities. Instruction continued in this fashion with ten sentences associated with household chores. All the time the processing group focused on the interpretation of sentences with the target form and the traditional group focused on producing sentences with the target form. One pretest and three post-tests were taken, both containing an interpretation task and a production task. The interpretation task consisted of 15 sentences that had to be combined with pairs of pictures, 10 sentences were causative, the others were distractors. The production task was an open-ended task in which students had to write five sentences in French describing what their parents or teachers have them do. Allen states about the results:

> For the interpretation task, no significant difference was found between how the processing-instruction group and the traditional group interpreted sentences containing the French causative. For the production task, learners in the traditional group performed significantly better than learners in the processing group. (2000:77)

This result is different from that of VanPatten and Cadierno (1993) and Cadierno (1995) which found the Processing Instruction group to have improved significantly more than the traditional instruction group on the interpretation task and equally on the production task.

Benati (2001) has investigated the effect of PI on a grammatical structure related to

the Lexical Preference Principle (P1b), namely the Italian Future tense. Generally, tenses can be expressed in two ways: lexically or through grammatical forms and learners prefer processing the lexical items before the grammatical items. “In the case of tense markers, Processing Instruction can make these redundant and non-salient grammatical meaning-form relationships more salient in the learner's input” (Benati, 2001:99). Thus, Benati's study (2001) targets the same principle as the study by Cadierno (1995) on the Spanish past tense. The participants were 39 second semester students of Italian with English as their native language. The students had had no exposure to the future tense before the experiment. One of the comments on the study by Cadierno was that “the activities in the Processing Instruction treatment were mostly communicative and focused on meaning, whereas the activities in the more traditional practice treatment were mostly mechanical and focused on form” (Benati, 2001:102). Therefore, in his study, Benati used more meaningful exercises for the output-based instruction. There were three groups: a PI group, a TI group and a control group. The future forms were presented in a paradigmatic way to the traditional instruction group. They were presented in a non-paradigmatic way to the Processing Instruction group. As in the other studies, the Processing Instruction group practiced processing input by using Structured Input activities, while the traditional instruction group practiced output. There was a pretest and a two post-tests, both containing an interpretation task and production task. The interpretation test consisted of twenty sentences (ten test items of future tense, ten present tense distractor sentences) without adverbial indications of time, so that the students had to focus on verb morphology to ascertain whether the event took place in the present or future. The production task consisted of two parts. First, a written completion task in which the students had to fill in the correct form of the verb. Second, an oral task in which the students had to produce sentences with a future tense that expressed the meaning of a picture. The results for the interpretation task show that “Processing instruction is significantly better than output-based instruction and no instruction. However, the results also showed that output-based instruction is significantly better than no instruction” (Benati 2001:110). For production there was no significant difference between processing and output-based groups on both tasks. Both groups were significantly better than the no instruction group.

Cheng (2002) investigated the effects of PI on a different part of language, namely the acquisition of the copular verbs *ser* and *estar.* Cheng states: “Since learners tend to generalize the use of *ser* early on, it is the acquisition of *estar* that is of interest. Thus, Processing Instruction in this study aims at altering beginning learners' strategy of using

ser as a default copula" (Cheng 2002:310). The principle concerned here is the Preference for Non-redundancy principle (P1c). The subjects were 109 students of a fourth-semester Spanish course. All participants were English natives with no frequent exposure to Spanish at home. There were three groups: a Processing Instruction group, a traditional instruction group and a control group. "The explanation in the processing package deliberately directed the learner's attention to functions of *ser* and *estar*, reminding them not to overlook *ser* and *estar* because these verbs might provide clues as to sentence meaning" (Cheng 2002:311). After that Structured Input activities were given to push learners to "get meaning from target forms rather than using their existing strategy of assigning *ser* as the default during the act of comprehension" (311). The traditional instruction package involved explicit explanation of grammar and exercises that emphasized the production of the target forms. Materials came from the intermediate Spanish textbook *Pasajes.* Three types of tasks were administered: an oral interpretation task in which sentences had to be matched to pictures, a sentence production task in which students had to complete a sentence after reading a dialogue and a guided composition task. Cadierno states about the results: "Similar to findings of VanPatten and Cadierno's study (1993) for the production tasks, the results of this study of combined copula data show that the PI and TI groups performed equally well in the production post-tests. However, in contrast to the results of VanPatten and Cadierno's (1993) study, which found superior results for the PI group over the TI in all post-tests on the interpretation task, the PI group in the present study did not score significantly higher than the TI group on any interpretation post-tests" (314). However, since the main focus of the study was the acquisition of *estar* Cheng (2002) has also examined the data on *estar* only. For the *estar* only data the results on the interpretation task showed that PI was the only form of instruction that was superior to the control group. The data on the production task for *estar* only show that both the PI and the TI group improved significantly more than the control group. The results of the guided composition task will be discussed in section 4.3 on discourse tasks.

In response to Allen (2000) and the differing results of her study from those of VanPatten and Cadierno (1993), VanPatten and Wong (2004) also conducted an experiment on PI versus TI using the French causative thus trying to alter the First Noun Principle, P2. Their participants were 76 undergraduate students from two universities enrolled in a fourth quarter French course. The participants had not encountered the target structures in their regular course, but were familiar with the verb *faire*. There were three groups: Processing Instruction, traditional instruction and no instruction (a control group). Both

groups received explicit information about the causative construction. In addition the Processing Instruction group received information about the word order problem that occurs in the interpretation of the causative construction. Both groups did five activities after this. The PI group did Structured Input activities and the TI group did output activities going from mechanical to meaningful practice. There was an interpretation and a production task on the pre-test and both post-tests. For the interpretation task subjects had to listen to sentences and answer who was doing the action. 14 of those sentences contained a causative construction, the other seven were distractors. In the production task subjects had to finish a sentence to describe a picture. Five items were target items and the other were distractor items that also required the verb *faire.* These were included to check for a test-taking strategy, that is to find out whether the participants used the causative construction also with non-causative *faire*. The results for the interpretation task are that both the PI group and the TI group improved from pre- to post-test, but the PI group improved significantly more than the TI group. The results for the production task are that learners in the PI group and TI group perform equally well on the production test. The reason why these results are different from those of Allen (2000) will be discussed in the next chapter ('Discussion of results').

The studies discussed so far have investigated French, Italian and Spanish, all Roman languages and the subjects were always native English speakers. Benati (2005) conducted an experiment comparing Processing Instruction with traditional instruction and meaning-based output instruction using the English past tense as the target form. The processing principle addressed in this study is the Lexical Preference Principle (P1b). “The main purpose of PI in this study, then, is to push learners to process the past-tense marker that otherwise may not be processed as learners do not need to process it to assign pastness to the meaning of the sentence”(76). The participants to this study were Chinese and Greek school-age learners of English. There were three groups: a Processing Instruction group, a traditional instruction group and a meaning-based output instruction group. All groups received the same explicit information. After that the PI group and the MOI group received information about processing strategies, the TI group did not receive this information. Then the PI group did Structured Input (SI) activities, the TI group went from mechanical output activities to meaning-oriented output activities and the MOI group did Structured Output activities. There was an interpretation task where learners had to listen to sentences (without temporal adverbs) and choose whether it was a present of past tense action. The production task required learners to write down a sentence using the past tense for each of

the 10 pictures. For the interpretation task the results showed for both language groups that there was a significant difference between the PI group and the other two groups. For the production task the results for both the Chinese and the Greek learners was that the three groups (PI, TI and MOI) made equal gains from the pre-test tot the post-test. According to Benati:

> The evidence obtained in this study on the production task suggests that the effects of PI not only have an impact on the way that learners interpret sentences but also on the way that learners produce sentences. PI has clearly altered the way learners processed input and this had an effect on their developing system and subsequently on what the subjects could access for production. (2005:83).

Buck (2006) also investigated the effects of PI on the learning of an English grammatical structure: the progressive aspect. Again, the Lexical Preference Principle (P1b) is at work in this construction, because the learners process only the temporal adverbs and not the verb morphology. Three groups were compared: a Processing Instruction group, a traditional instruction group and a control group. The explicit instruction was the same for both groups, the mode of practice differed. The PI material were Structured Input activities designed to provide the practice of making the right form-meaning connections, whereas the TI material was practice in the production of the present progressive. For the interpretation task the students had to interpret 5 sentences by indicating whether it was a temporal or permanent action and they had to complete five sentences with the right adverbial. For the production task the students had to fill in the present progressive form in a sentence. The results for the interpretation task show that on the interpretation test both the Processing Instruction group and the traditional instruction group improved. Further analysis showed that both groups improved in interpreting temporary events in sentences with a the progressive verb form, but significantly more improvement was made by the processing group in interpreting permanent or habitual events in sentences with the simple verb form. For the production task the results show that both PI an TI group improved on the production task and both performed better than the control group. There was no significant difference between the two instructional groups.

In summary, all the above described research on the relative effects of PI versus TI showed a significant learning effect for PI on the tested structure. The effect of PI was that the learners improved on both sentence-level interpretation tasks and production tasks. The first sub-question was: Is PI more effective that traditional instruction on sentence-level

interpretation and production tasks? By comparing the use of different methods in a number of relevant studies, the answer to the first sub-question is positive: In almost all of the research the PI group performed significantly better than the TI group on the interpretation task and equally well on the production task. Only in the study by Allen (2000) did the TI group perform better than the PI group. The reason for this deviating result will be discussed in section 5.1. So, PI is more effective than TI on sentence-level interpretation and production tasks, because PI had an impact on how subject processed the input as well as on what could be accessed for production by the subjects. Table 1 and Table 2 on the next pages give an overview of the specifications and results of the above discussed research on the relative effectiveness of Processing Instruction and traditional instruction.

Table 1: Research on the effect of Processing Instruction versus traditional instruction

Authors	Year	Language and grammatical construction	Processing principle	Subjects/L1	Nr.	Design	Tests	Results
VanPatten & Cadierno	1993	Spanish object pronouns and word order	P1 – First noun principle	Intermediate English native	80	Pre-test Post-tests Immediate & delayed	Interpretation (aural) Production (written)	Int. → PI > (TI = Ctrl) Prod. → (PI = TI) > Ctrl
Cadierno	1995	Spanish reterite tense (verb inflections)	P1b – Lexical preference principle	Intermediate English native	60	Pre-test Post-tests Immediate & delayed	Interpretation (aural) Production (written)	Int. → PI > (TI = C) Prod. → (PI = TI) > C
Allen	2000	French causative	P2 – First Noun	Intermediate English native	141	Pre-test Post-tests Immediate & delayed	Interpretation (aural) Production (written)	Int. → PI = TI Prod. → TI > PI
Benati	2001	Italian Future tense	P1b – Lexical Preference	Beginners English native	39	Pre-test Post-tests Immediate & delayed	Interpretation (aural) Production (written and oral)	Int. → PI > TI > C Prod. → (PI = TI) > C
Cheng	2002	Spanish copula	P1c – Preference for Non-Redundancy	Intermediate English native	109	Pre-test Post-tests Immediate & delayed	Interpretation Production	Int. → PI > (TI = C) Prod. → (PI = TI) > C
VanPatten & Wong	2004	French causative	P2 – First noun	Intermediate English native	76	Pre-test Post-tests Immediate & delayed	Interpretation (aural) Production (written)	Int. → PI > TI > C Prod. → (PI = TI) > C
Benati	2005	English past simple tense	P1b – Lexical Preference	Chinese native Greek native	47 30	Pre-test Post-test	Interpretation Production	Int. Greek → PI > TI = MOI Int. Chinese → PI > MOI > TI Prod. Greek → PI = TI = MOI Prod. Chinese → PI = TI = MOI
Buck	2006	English progressive aspect	P1b – Lexical preference	Beginners Spanish native	41	Pre-test Post-tests Immediate & delayed	Interpretation Production	Int. → PI > (TI = C) Prod. → (PI = TI) > C

Int. = interpretation
Prod. = Production
C = Control

Table 2: results of studies comparing PI to TI

Study	Task	Treatment	Pre-test	Post-test 1	Post-test 2	Post-test 3	Improvement from Pretest to posttest 1	Improvement from Pretest to posttest 2	Improvement from pretest to posttest 3	Results
VanPatten & Cadierno, 1993	Interpretation	PI	1.7	8.0	7.1	7.4	63%	54%	57%	Int. → PI > (TI = C)
		TI	1.3	3.0	3.4	3.8	17%	21%	25%	
		C	1.1	1.4	2.2	2.2	3%	11%	11%	
	Production	PI	2.1	8.8	8.1	8.1	67%	60%	60%	Prod. → (PI= TI) > C
		TI	2.6	8.5	9.0	8.1	59%	64%	55%	
		C	1.5	3.4	3.4	4.5	19%	19%	30%	
Cadierno, 1995	Interpretation	PI	4.2	7.4	7.8	7.8	32%	36%	36%	Int. → PI > (TI = C)
		TI	3.8	5.0	5.2	5.1	12%	14%	13%	
		C	4.3	4.9	4.2	4.5	6%	-1%	2%	
	Production	PI	2.3	7.8	7.7	7.5	55%	54%	53%	Prod. → (PI = TI) > C
		TI	1.7	6.0	5.9	6.0	43%	4%	43%	
		C	2.3	3.6	3.2	3.2	13%	9%	9%	
Allen, 2000	Interpretation	PI	3	8.11	8.67	7.95	51%	57%	50%	Int. → (PI = TI) > C
		TI	3.02	8.46	8.87	7.98	54%	59%	50%	
		C	2.81	2.46	3.41	3.81	-4%	6%	10%	
	Production	PI	1.83	10.2	7.31	6.75	83%	55%	49%	Prod. → TI > PI > C
		TI	2.16	13.6	8.61	8.28	114%	65%	61%	
		C	1.93	2.33	2.17	2.41	4%	2%	5%	
Benati, 2001	Interpretation	PI	3.8	8.3	8.1		55%	43%		
		TI	4.1	5.8	5.6		17%	15%		Int. → PI > TI > C
		C	3.8	4	3.4		2%	-4%		
	Production (written)	PI	2.5	7.3	6.7		48%	42%		
		TI	2.3	7.7	7.5		54%	52%		Prod. → (PI = TI) > C written
		C	2.4	3.2	2.7		8%	3%		
	Production (oral)	PI	2.6	7.1	6.5		45%	39%		
		TI	2.9	7.6	7.2		47%	43%		Prod. → (PI = TI) > C oral
		C	2	2.7	2.3		7%	3%		
Cheng, 2002 (*estar* only)	Interpretation	PI	2.5	4.2	3.5		17%	10%		Int. → PI > (TI = C)
		TI	2.4	3.6	3.2		12%	8%		
		CI	2.3	3.1	3		8%	7%		
	Production	PI	1.4	3.3	3.2		19%	18%		Prod. → (PI = TI) > C
		TI	2	4	3.5		20%	15%		
		C	2.1	2.8	2.5		7%	4%		

Continuation of Table 2: results of studies comparing PI to TI

Study	Task	Treatment	Pre-test	Post-test 1	Post-test 2	Post-test 3	Improvement from Pretest to posttest 1	Improvement from Pretest to posttest 2	Improvement from pretest to posttest 3	Results
VanPatten & Wong, 2004	Interpretation UNI 1	PI	0.1	4.9			48%			Int. → PI > TI > C
		TI	0.9	2.7			26%			
		C	1	0.7			-3%			
	Interpretation UNI 2	PI	0	5			50%			Int. → PI > TI > C
		TI	0.2	3.4			32%			
		C	0.7	0.7			0%			
	Production UNI 1	PI	2	8.2			60%			Prod. → (PI = TI) > C
		TI	1.7	6.6			50%			
		C	2.3	2.7			4%			
	Production UNI 2	PI	0.4	8.3			79%			Prod. → (PI = TI) > C
		TI	0.4	6.8			64%			
		C	1.2	1.9			7%			
Benati, 2005	Interpretation (Chinese)	PI	1.6	7.6			60%			Int. → PI > (TI = MOI) Chinese
		TI	1.8	1.9			1%			
		MOI	1.6	2.5			9%			
	Interpretation (Greek)	PI	4.5	7.5			30%			Int. → PI > (TI = MOI) Greek
		TI	4.3	4.3			0%			
		MOI	4.3	4.8			5%			
	Production (Chinese)	PI	0.8	3			28%			Prod. → PI = TI = MOI Chinese
		TI	0.9	3			29%			
		MOI	0.9	3.4			25%			
	Production (Greek)	PI	2.4	5.1			27%			Prod. → PI = TI = MOI Greek
		TI	2.7	5.6			29%			
		MOI	2.6	5.5			29%			
Buck, 2006	Interpretation	PI	5.9	8.85	8.62	9.46	30%	27%	36%	Int. → PI > (TI = C)
		TI	7	7.5	7.83	7.83	5%	8%	8%	
		C	7.13	7.13	7.56	8.25	0%	4%	11% 0%	
	Production	PI	3.15	7.23	7.08	8.77	41%	39%	56%	Prod. → (PI = TI) >C
		TI	0.42	8.75	7	7.92	83%	66%	75%	
		C	6.25	5.75	6.94	7.88	-5%	7%	16%	

4.2 Is PI more effective than MOI?

The above review on the research on the relative effects of PI versus TI suggests that there is enough evidence to support the view that Processing Instruction is a better and more efficient approach to grammar teaching than traditional instruction. However, one of the questions that has been raised is whether the same results can be found when PI is compared to meaning-based output grammar teaching approach (Lee & Benati 2009:81). This section will discuss the research done on the relative effectiveness of PI and MOI. See Table 3 at the end of this section for an overview of the specifications of the studies that are presented in this section.

Farley (2001) was the first to conduct such a study. He used the Spanish subjunctive of doubt as the target feature. He states that "only a few features of Spanish language have been targeted thus far in studies investigating the effects of Processing Instruction, and these features have been linguistically and psychologically less complex in nature than the Spanish subjunctive" (Farley, 2001:290). The participants were 29 fourth semester Spanish students, all native speakers of English. There were two instructional groups: a PI group and an MOI group. Both groups received the same explicit information about how the subjunctive was formed, the place in the sentence, when it is used and how to process the subjunctive. After that the PI treatment consisted of activities requiring the subjects to interpret sentences with subjunctive forms and the MOI treatment consisted of activities that required the subjects to produce subjunctives or clauses that contained them. A pretest and two post-tests were administered. There was an interpretation task consisting of ten sentences without a main clause. The subjects had to choose from two main clauses which suited the rest of the sentence best. The production task consisted of a sentence completion task in with subjects had to fill in the correct verb form to complete the sentences. For the interpretation task the PI group improved significantly more than the MOI group from pre- to post-test. For the production task the PI and MOI group improved equally from pre- to post-test. See Table 4 for the elaborate results of this study and the other studies presented in this section.

Farley (2004a) conducted another study in which he also studied the effect of PI and MOI on the interpretation and production of irregular and novel subjunctive forms. The participants were 50 fourth semester university students in a Spanish grammar review course. All participants were native speakers of English. He compared a PI group and an MOI group. Two instructional packets were formed: the PI packet consisted of ten structured-input activities and the MOI packet of ten meaning-based output activities. Both

groups received the same handout with explicit information on the first day of instruction. The PI activities were structured so as to change the Lexical Preference Principle (P1b) strategy and the Sentence Location Principle (P1f) was taken into account. For assessment there was an interpretation test were participants heard a subordinate clause containing an indicative or subjunctive. The participants had to choose the main clause that fitted the subordinate clause. The production task was a sentence completion task in which the subjects were asked to fill in the correct form of the verb. For both the interpretation and production task the PI group as well as MOI group improved significantly and this effect was retained over time to the second post-test. There were no significant differences in improvement between the two groups on either one of the tasks.

As stated in the section on PI versus TI, Benati (2005) also compared PI to MOI and TI. This research was discussed in section 4.1. His results show for the interpretation task for both the Chinese and the Greek students that there was a significant difference between the PI group and the other two groups (TI and MOI). For the production task the results for both Chinese and Greek students show that the three groups (PI, TI and MOI) made equal gains from the pre-test tot the post-test.

Morgan-Short Bowden (2006) also did a comparison between MOBI (meaningful output based instruction. MOBI is the same as MOI, but delivered via computer) and PI with Spanish object pronouns as a target feature. By using this feature and using an adaptation of the material by VanPatten and Cadierno (1993) they maintained a strict treatment fidelity to PI. Their participants were 51 students of a first-semester Spanish course. Three groups were formed: a control group, a PI group and an MOBI group. MOBI matched PI in the explanation and meaningful activities, but differed in mode of practice: only Structured Input activities for PI and only Structured Output activities for MOBI. A pre-test and two post-tests were administered, containing an interpretation task and a production task. The interpretation task was a picture matching task. For the production task the subjects were asked to make a sentence that corresponded to two pictures related in a way that required the production of a direct pronoun to describe them. The results show the following “On the interpretation task, both PI and MOBI outperformed control, whereas on the production task, only MOBI outperformed control. Moreover, neither PI nor MOBI outperformed the other on either task. Thus, overall, it appears that MOBI performs at least as well as PI” (Morgan-Short & Bowden, 2006:52).

Thusfar, Farley's studies (2001, 2004a) and Morgan-Short and Bowden's study (2006) have shown MOI to have a similar effects as PI and Benati's study (2005) found

overall superior effects for PI for the interpretation task. Thus, Benati and Lee (2007) conducted a study to find out whether the structure investigated by Farley, the subjunctive, may be the cause of the differing results. They compared PI to MOI on a grammatical structure in two different languages: the Italian and French subjunctive. The processing problems for the subjunctive are the Sentence Location Principle (P1f) and the Lexical Preference Principle (P1b). The participants were 47 English native speaker students in a second semester intermediate course in Italian. Benati and Lee not only compared two different methods (PI and MOI), but also compared two different modes of delivery: classroom instruction versus computer delivery to see whether the incidental Structured Input provided by other students when MOI is given in a classroom plays a role the learning effect of the MOI group. So there were four groups: PI and classroom instruction, PI with computer terminal, MOI and classroom instruction and MOI via computer terminal. All groups were given the same explicit information before practice, so the nature of the practice and the delivery mode was the only difference between the groups. For PI the nature of practice were Structured Input activities and for MOI it were Structured Output activities. A pre- and post-test were administered, both containing an interpretation and production task. For the interpretation task the learners heard a dependent clause and had to determine whether certainty or doubt would be expressed by the independent clause. For the written production task subjects were expected to transform ten sentences in the subjunctive form. The results for the Italian subjunctive show that the two PI groups improved significantly from pre- to post-test, the MOI computer group did not improve and the MOI classroom group improved slightly. In the Italian subjunctive production task all four groups improved almost equally from pre- to post-test. The results for the interpretation task with the French subjunctive show the same pattern: the PI classroom and the computer groups' scores were significantly better than the MOI classroom and computer groups' score. The MOI classroom group's score, however, was not significantly better than that of the MOI computer group. The production task of the French subjunctive shows that, just as with the Italian subjunctive, all groups had almost equal improvement from pre- to post-test.

A criticism that arose after the first studies were done on the relative effect of PI and MOI was that MOI might cause incidental Structured Input to learners because of the output of other students being similar to Structured Input. To rule out the possible role of incidental input that could be the case with MOI, Keating and Farley (2008) conducted a research that compares PI and MOI to another output-approach: meaning-based drills

instruction (MDI). Their target feature is direct object pronouns in Spanish. MDI does not provide incidental exposure to Structured Input as MOI does. The drills in the MDI treatment did not result in OVS responses that could be incidental input to other students. Their participants were 87 students from a first-semester Spanish course and all the participants were English native speakers. There were three treatment groups: namely a PI group, an MOI group and an MDI group. They all received explicit information on the structure but the PI and MOI groups also received information about the processing strategies. The PI materials were Structured Input activities and almost similar to that used by VanPatten and Cadierno (1993). The MOI group received ten Structured Output activities and the MDI group did meaningful and communicative drills. There was a pre-test and three post-tests containing an interpretation and a production task. In the interpretation task learners had to combine sentences with one of two pictures. In the production task learners had to complete a sentence. The results of the interpretation task show that the PI group performed significantly better than MDI on the first and the third post-test. No other scores were significantly different from each other. On the production test the score of the MOI group as well as that of the MDI group was significantly better than that of the PI group on post-test one and two. On the third post-test there were no significant differences between the three groups.

In response to Keating and Farley (2008), VanPatten, Farmer and Clardy (2008) also conducted research that compared PI to MOI on Spanish object pronouns. They claim that Keating and Farley (2008) have not used MOI in its original nature by adding explicit information on processing problems to MOI. VanPatten, Farmer and Clardy (2008) replicated the study by Keating and Farley (2008) by using MOI that followed Farley's original definition: “Meaning-based output instruction (MOI) is similar to traditional approach in its focus on production, *not on the interpretation of input*” (Farley, 2002:75, cited in VanPatten et. al., 2008:119). The participants were 108 second-year university-level Spanish students. There were three groups: PI, MOI and Control. The treatment package for PI was material borrowed from VanPatten and Cadierno (1993) and the same as the Keating and Farley (2008) study. The learners in the PI group did not produce the target structure during the treatment. In contrast, the learners in the MOI group had to produce sentences containing object pronouns to communicate meaning. There was a pretest and two post-tests. VanPatten et al. adapted the material from Keating and Farley to remove the processing part of their MOI treatment. The interpretation task was borrowed from VanPatten and Cadierno (1993) and those were the same as used in the Keating and

Farley study. The production task was a sentence completion task were the subjects had to finish the sentence so that it matched the pictures. The results for the interpretation task show PI to be better than MOI and Control and MOI better than Control for the first post-test. For the second post-test the results were the same, except that MOI was not better than Control. The results for the production task show that PI scored the same as MOI and both were better than Control. The second post-test showed no significant differences between the three groups.

Farley and Aslan (2012) conducted research on the relative effect of PI versus MOI with respect to the English subjunctive. The subjects were 64 students in an intermediate level English class, who were all native speakers of Turkish. Three groups were compared: a PI group, an MOI group and a control group. The instructional packets for the PI and MOI group contained the same explicit information. The PI group did Structured Input activities after that, the MOI group did Structured Output activities. There was a pre-test and two post-tests consisting of an interpretation and a production task. The interpretation task consisted of multiple choice questions which sought the correct answer to certain situations. The target item answers contained the subjunctive form. The production task consisted of three parts: a sentence matching task were subjects had to match two lists of sentences. The second part was a sentence completion task with expressions provided and the third was an open-ended sentence completion task. On the interpretation task all three groups improved, the only significant difference was between the Control and MOI group: the latter performed better. On the production task MOI performed significantly better than control, and both PI and MOI performed better than the control group, which did not improve.

In summary, the PI group made significant gains on both the sentence-level interpretation task and sentence-level production task in all studies. The second sub-question is: Is PI more effective than MOI on a controlled interpretation and production task? In half of the studies the MOI group performed equally well on the interpretation task (Farley, 2004a; Morgan-Short & Bowden, 2006; Keating & Farley, 2008; Farley & Aslan, 2012). On the other studies the PI group outperformed the MOI group on the interpretation task (Farley, 2001; Benati, 2005; Lee & Benati, 2007; VanPatten et al, 2008). On the production task the PI and MOI group performed equally well on almost all of the studies except for the study by Farley and Aslan. So, several studies show PI to be more effective than MOI, whereas other studies show PI to be equally effective than MOI on sentence-level interpretation and production tasks. However, the fact that MOI results in

the same gains in some studies does not take away the fact that PI groups consistently improve significantly from pre- to post-tests in all of the above studies. This consistency is not shown for improvement of MOI groups on the interpretation tasks in the above studies. So, overall, PI seems to be more effective than MOI on sentence-level interpretation and production tasks. Table 3 and Table 4 on the next pages give an overview of the specifications and results of the studies described in this section.

Table 3: Research on the effects of Processing Instruction versus MOI

Authors	Year	Language and grammatical construction	Processing principle	Subjects/L1	Nr.	Design	Tests	Results
Farley	2001	Spanish subjunctive	Lexical preference Sentence location	Intermediate English native	29	Pre-test Post-tests Immediate & delayed	Interpretation (aural) Production (written)	Int. → PI > MOI Prod. → PI = MOI
Farley	2004	Spanish subjunctive	Lexical preference Senctence location	Intermediate English native	129	Pre-test Post-tests Immediate & delayed	Interpretation (aural) Production (written)	Int. → PI = MOI Prod. → PI = MOI
Benati	2005	English past simple tense	Lexical preference	Chinese Greek	47 30	Pre-test Post-test	Interpretation Production	Int. Gr. → PI > TI = MOI Int. Ch. →PI > MOI > TI Prod. Gr. → PI = TI = MOI Prod. Ch.→ PI = TI = MOI
Morgan-Short & Bowden	2006	Spanish object pronouns	First Noun	Intermediate English native	45	Pre-test Post-tests Immediate & delayed	Interpretation (aural) Production (written)	Int. →(PI = MOI) > C Prod. Post 1→ (MOI > (PI= C) Prod. Post 2 → (PI = MOI) > C
Lee & Benati	2007	Italian subjunctive	Sentence location	Intermediate English native	47	Pre-test Post-tests Immediate	Interpretation (aural) Production (written)	Int. → PI > MOI classroom PI > MOI computer Prod. → PI = MOI classroom PI = MOI computer
Lee & Benati	2007	French subjunctive	Sentence location	Beginners English native	61	Pre-test Post-tests Immediate	Interpretation (aural) Production (written)	Int. → PI > MOI classroom PI > MOI computer Prod. → PI = MOI classroom PI = MOI computer
Keating & Farley	2008	Spanish direct object pronouns	First Noun	Beginners English native	87	Pre-test Post-tests Immediate & delayed	Interpretation (aural) Production (written)	Int. → (PI = MOI) > MDI Pro. → MOI > (PI = MDI)
vanPatten et. al.	2008	Spanish clitic direct object prounouns	First Noun	Intermediate English native	108	Pre-test Post-tests Immediate & delayed	Interpretation (aural) Production (written)	Int. → PI > MOI = C Prod. → PI = MOI > C
Farley & Aslan	2012	English present subjunctive	Lexical preference	Intermediate Turkish native	64	Pre-test Post-test	Interpretation (aural) Production (written)	Int. →PI = MOI > C Prod. → = MOI > PI > C

Table 4: results of studies comparing PI to MOI

Study	Task	Treatment	Pre-test	Post-test 1	Post-test 2	Improvement from Pretest to posttest 1	Improvement from Pretest to posttest 2	Results
Farley, 2001	Interpretation	PI	3.1	6.8	6.6	37%	35%	Int. → PI > MOI
		MOI	2.8	5.5	3.9	27%	11%	
	Production	PI	2.1	8.8	8.;1	67%	60%	Prod. → PI = MOI
		MOI	2.6	8.5	9	59%	64%	
Farley, 2004	Interpretation	PI	3.2	6.5	6.8	33%	36%	Int. → PI = MOI
		MOI	3.5	7	6.6	35%	31%	
	Production	PI	0.1	4.2	3.6	41%	35%	Prod. → PI = MOI
		MOI	0.3	4.1	3.8	38%	35%	
Benati, 2005	Interpretation (Chinese)	PI	1.6	7.6		60%		Int. → PI > (TI = MOI) Chinese
		TI	1.8	1.9		1%		
		MOI	1.6	2.5		9%		
	Interpretation (Greek)	PI	4.5	7.5		30%		Int. → PI > (TI = MOI) Greek
		TI	4.3	4.3		0%		
		MOI	4.3	4.8		5%		
	Production (Chinese)	PI	0.8	3		28%		Prod. → PI = TI = MOI Chinese
		TI	0.9	3		29%		
		MOI	0.9	3.4		25%		
	Production (Greek)	PI	2.4	5.1		27%		Prod. → PI = TI = MOI Greek
		TI	2.7	5.6		29%		
		MOI	2.6	5.5		29%		
Morgan-Short and Bowden, 2006	Interpretation	PI	7.6%	67.3%	62.2%	59.7%	54.6%	Int. → (PI = MOI) > C
		MOI	8.1%	71.2%	46.4%	63.1%	34.7%	
		C	9.9%	13.6%	35.7%	3.7%	25.8%	
	Production	PI	1.9%	30.8%	26.3%	28.9%	24.4%	Prod. → Post 1 (MOI > (PI= C)
		MOI	0.5%	69.9%	31.5%	64.9%	26%	Post 2 (PI = MOI) > C
		C	2.4%	13.1%	15.8%	10.7%	13.4%	

Continuation of Table 4: results of studies comparing PI to MOI

Study	Task	Treatment	Pre-test	Post-test 1	Post-test 2	Post-test 3	Improvement from Pretest to posttest 1	Improvement from Pretest to posttest 2	Improvement from pretest to posttest 3	Results
Keating& Farley, 2008	Interpretation	PI	1.64	5.78	4.83	5.39	41%	32%	38%	Int. →(PI = MOI) > MDI
		MOI	1.12	4.12	4.28	3.8	30%	32%	27%	
		MDI	1	2.62	3.04	3.31	16%	20%	23%	
	Production	PI	0.17	4.11	2.61	3.97	39%	24%	38%	Prod. → MOI > (PI = MDI)
		MOI	0.32	7.36	6.28	6.2	70%	60%	59%	
		MDI	0.15	6.5	5.96	5.88	64%	58%	57%	
Lee & Benati, 2007	Interpretation (Italian)	PI comp	2.3	8.1			58%			Int. → PI > MOI classroom
		PI class	2.6	8			54%			Italian PI > MOI computer
		MOI comp	3.1	3.6			5%			
		MOI class	2.3	5.6			33%			
	Interpretation (French)	PI comp	1.3	7.2			59%			Int. → PI > MOI classroom
		PI class	1.1	7.8			67%			French PI > MOI computer
		MOI comp	1.1	1.7			6%			
		MOI class	1.1	2.9			18%			
	Production (Italian)	PI comp	2.2	7.8			56%			Prod. → PI = MOI classroom
		PI class	1.6	7.9			63%			Italian PI = MOI computer
		MOI comp	2.1	7.5			54%			
		MOI class	1.7	7.5			58%			
	Production (French)	PI comp	1	5.9			49%			Prod. → PI = MOI classroom
		PI class	0.6	6.4			58%			French PI = MOI computer
		MOI comp	1.4	6.5			51%			
		MOI class	0.7	6.7			60%			
VanPatten et al, 2008	Interpretation	PI	10	75	48.68		65%	39%		Int. → PI > (MOI = C)
		MOI	10.83	26.11	23.61		15%	13%		
		C	8.84	11.16	18.61		2%	10%		
	Production	PI	2.11	36.06	17.9		34%	16%		Prod. → (PI = MOI) > C
		MOI	6.39	47.5	20.56		41%	14%		
		C	6.05	14.19	8.14		8%	2%		
Farley & Aslan, 2012	Interpretation	PI	2.9	6.47	5.11		36%	22%		Int. → (PI = MOI) > C
		MOI	3.44	7.3	6.13		39%	27%		
		C	4.32	5.18	5.36		9%	10%		
	Production	PI	0.9	5.47	3.47		46%	26%		Pro. → MOI > PI > C
		MOI	0.91	8.22	6.57		73%	57%		
		C	1.5	1.41	0.82		-1%	-7%		

4.3 What is the effect of PI on discourse tasks?

In the research described in the previous two sections most of the test tasks were controlled sentence-level interpretation and production tasks. This raises the question of what the effect of PI is on the ability to use the target grammar in discourse. VanPatten argued that "Because of these assessment limitations, it is easy to dismiss the observed beneficial results of Processing Instruction described in the previous studies" (VanPatten 1996:103). Several studies have been done on this subject and these will be discussed in this section. An overview of the specifications of these studies can be found in Table 5 at the end of this section.

The first study that included discourse tasks as a test was by VanPatten and Sanz (1996). They conducted a partial replication of VanPatten and Cadierno's study (1993) with only a control group and a Processing Instruction group. The target structure was the same as in the VanPatten and Cadierno study: Spanish object pronouns and word order. The subjects were 44 second-year students of Spanish. The PI group received exactly the same treatment as the PI group in the VanPatten and Cadierno study (1993). The control group continued with their regular classroom activities. They examined the effect of instruction on a sentence-level interpretation task and three different output-tasks: the sentence-level task as utilized by VanPatten and Cadierno, a structured question-answer interview and a video narration task. There was a written and an oral version of each of the output-tasks. The results of the interpretation task show that the control group did not improve whereas the Processing Instruction group did improve significantly. The results of the production tasks reveal that on all three tasks the PI group improved significantly and the control group did not. The question-answer task was eliminated from further analysis, because subjects mainly repeated the full nouns in their answers instead of using the object pronoun. For the sentence-level test the subjects made significant gains in both the written and the oral mode. For the video narration task there was a difference between the written and oral mode: the subjects made significant gains in the written mode, but not in the oral mode. A full overview of the results of this study and the other studies in this section is given in Table 6 at the end of this section.

Cheng (2002; 2004) also included a discourse task in the study on the effects of Processing Instruction on the acquisition of *ser* and *estar*, namely a guided composition task. The participants were 109 fourth-semester Spanish students. A PI group, a TI group and a control group were compared. The TI group received instruction derived from the Spanish textbook *Pasajes* and the PI group received instructional material based on the

guidelines by Lee and VanPatten (1995). The PI group received specific explanation about the functions of *ser* and *estar*, telling them not to overlook these verbs because they might contain information about sentence meaning. After that Structured Input activities were given that pushed the learners to use the meaning of the target forms to obtain the meaning of the sentence. There were three assessment tasks: an interpretation task, a production task and a guided composition task. The results of the interpretation task and sentence level production task have been discussed in section 4.1 (Cheng, 2002). In the guided composition task the students had to describe drawings that told a story. Key words were given to control for the use of target structures in the student's stories. With the data on *ser* and *estar* taken into account there were no significant differences in the performance on the guided composition task between the TI and the PI group. However, the performance on *ser* test items might have masked the effects of instruction on the acquisition of *estar*. Therefore, Cheng also examined the *estar* data only and found that for the guided composition task there was still no significant difference between the PI and TI group, which both performed significantly better than the control group.

McNulty (2010) also conducted research on the effect of PI on discourse tasks. The target structure was the Spanish subjunctive after the adverb *cuando*. Two processing principles are involved: Lexical Preference Principle (P1b) and the Sentence Location Principle (P1f). The participants were first semester students of an intermediate Spanish class in Sydney. The group consisted of 15 native English participants who studied no other language than Spanish, 14 native English participants who had also studied other languages and 7 whose native language was not English. The use of the indicative or subjunctive after *cuando* had not been presented previously to the students. There was no control group, all participants received Processing Instruction a the format of a lecture. After the explicit information was given and processing strategies were explained the students did Structured Input activities that followed the guidelines set by Lee and VanPatten (1995). There was a pre-test and a post-test that each consisted of three assessment tasks: an interpretation task, a form production task and a guided composition task. In the guided composition task the students had to create two short stories, one about what they might do and one about what their friend might do in the future. For the guided composition task the number of correct items of the subjunctive with *cuando* were scored as well as the contexts that required *cuando* that were created. The results show that the participants improved significantly on the interpretation and production task. Also the participants “produced a significantly greater number of correct subjunctive forms after

cuando than they did prior to treatment" (McNulty, 2010:122). As for the number of contexts created there was a difference between the language groups: "the nonnative speakers of English generated more contexts for using the subjunctive after *cuando* than did the other two groups" (McNulty, 2010:122). Overall "all the learners generated a significantly greater number of contexts for using subjunctive forms after *cuando* than they did prior to the treatment" (McNulty, 2010:123). The number of context increased from an average of 4.72 contexts to an average of 9.28 contexts.

Hikima (2010) also added to the research on the effect of PI on discourse level tasks. The target structure was the Japanese passive construction. This grammatical structure is affected by the First Noun Principle (P2). There were 10 subjects, who were all intermediate-level learners of Japanese and English native speakers. There were two groups, a control group of three participants and a PI group of seven participants. The PI materials were developed by following the guidelines for Structured Input activities (Lee & VanPatten, 1995). The control group did not receive any instruction on the target structure, but was exposed to the target language. There was a pre-test and a post-test at which four tests were administered: a sentence level interpretation test, a sentence level production test and two discourse level interpretation tests. For the first discourse interpretation test participants listened to a dialogue that was segmented in four parts. After each part they had to answer questions about what happened in the dialogue by choosing the picture that matched the situation in the dialogue or story best. Five target items were scored. The second discourse interpretation task was similar, but instead of a dialogue the participants listened to a story that was presented in five segments and answer questions about the story. There were ten target passive constructions that were scored. The results show that for the sentence level interpretation and productions task the PI group improved significantly from pre- to post-test and the control group did not. For the dialogue based and story based discourse level tasks the PI group made significant gains from pre- to post-test and the control group did not.

Benati and Lee (2010) have also explored the effects of PI on discourse-level interpretation tasks. Their target structure was the English past tense, which is affected by the Lexical Preference Principle (P1b). The participants were 29 native speakers of Chinese from a Chinese primary school who were learning English. They were randomly distributed across three groups: a PI group, a TI group and a control group. The TI group received a paradigmatic explanation of the target feature. After that a mixture of mechanical and meaningful output activities were given. The PI group received

information about the target feature and also about the processing problem that affects this feature. After that there were Structured Input activities: six referential and four affective. These activities were constructed according to the guidelines by Lee and VanPatten (1995). There was a pre-test and a post-test which both consisted of two tests: a sentence level interpretation test and a discourse level interpretation test. According to Benati and Lee "the discourse-level interpretation test required learners to interpret past tense markers for verbs that were embedded in discourse" (2010:190). The results for the sentence level interpretation task show that the PI group improved, but the TI and the control group did not. The results of the discourse-level interpretation test show that the performance of the PI group was statistically higher than the performance of the TI group.

In summary, PI resulted in significant gains for both the discourse production tasks as well as the discourse interpretation tasks in the above discussed research. The third sub-question was: Does PI have and effect on interpretation and production in discourse tasks? The research by VanPatten and Sanz (1996) showed that the gains were greater in the written mode. The research by Cheng (2004) showed that the TI group improved equally on the discourse production task. The research by Benati and Lee (2010) showed that the PI group made greater gains than the TI group on the discourse-level interpretation task. The research by Hikima (2010) showed that PI resulted in significant gains on both a dialogue discourse interpretation test as well as on a story discourse interpretation test. All in all the answer to the third sub-question of whether PI has a positive effect on discourse tasks seems to be positive. These are however only three studies on the effect of discourse production and only two studies on the effect on discourse interpretation. So caution needs to be executed in concluding anything definitive.

Table 5: Research on the effects of Processing Instruction on discourse tasks

Authors	Year	Language and grammatical construction	Processing principle	Subjects/L1	Nr.	Design	Tests	Results
VanPatten & Sanz	1995	Spanish object pronouns	P1 first noun principle	Intermediate English native	44	Pretest Post-test	Sentence level production Question-answer Video narration	PI writ. > PI oral > (Cwr = Cor) PI writ. > PI oral > (Cw = Cor) (PI writ. = PI oral) > (Cw = Cor)
Cheng	2002/ 2004	Spanish copula	Preference for Nonredundancy	Intermediate English native	109	Pre-test Post-tests Immediate & delayed	Guided composition	(PI = TI) > C
McNulty	2010	Spanish subjunctive after *cuando*	P Lexical Preference P.. Sentence Location Principle	Intermediate English native and non-native	36	Pre-test Post-test	Interpretation Sentence-level production Guided composition correct Guided composition contexts	PI improved significantly on all tasks
Hikima	2010	Japanese passive construction	P1 First noun principle	Intermediate English native	10	Pre-test Post-test	Interpretation Sentence-level production Dialogue interpretation Story interpretation	PI > C PI > C PI > C PI > C
Benati & Lee	2010	English past tense	Lexical Preference Principle	Beginners Chinese native	29	Pre-test Post-test	Sentence-level interpretion Discourse-level interpretation	PI > (TI = C) PI > (TI = C)

Table 6: results of studies on the effect of PI on discourse tasks

Study	Task	Treatment	Pre-test	Post-test 1	Post-test 2	Results
VanPatten & Sanz, 1995	Sentence-level production	PI – oral	0.25	1.25		PI writ. > PI oral > (Cwr = Cor)
		PI – written	0.6	1.25		
		Control – oral	0.25	0.2		
		Control – written	0.5	0.4		
	Question-answer	PI – oral	0.22	0.6		PI writ. > PI oral > (Cw = Cor)
		PI – written	0.26	1.1		
		Control – oral	0.13	0.14		
		Control – written	0.26	0.25		
	Video narration	PI – oral	0	0.25		(PI writ. = PI oral) > (Cw = Cor)
		PI – written	0	0.4		
		Control – oral	0	0		
		Control – written	0	0		
Cheng, 2004	Guided composition (use of *estar*)	PI	24.2	50	52.4	(PI = TI) > C
		TI	26.5	53.3	46.9	
		Control	22.3	28.8	32.5	
McNulty, 2010	Interpretation	English	2.13	5.13		
		English+	2	4.93		
		Other	1.71	4.86		
		Total	2	5		
	Sentence-level production	English	0.07	5.07		
		English+	0	4.57		
		Other	0.14	5.29		
		Total	0.06	4.92		
	Guided composition correc					
		English	0	7.07		
		English+	0.07	8.29		
		Other	0	9.86		
		Total	0.03	8.1%		
	Guided composition contex	English	4.2	8.87		
		English+	4.21	9.00		
		Other	6.86	10.71		
		Total	4.72	9.28		

Continuation of Table 6: results of studies on the effect of PI on discourse tasks

Study	Task	Treatment	Pre-test	Post-test 1	Post-test 2	Results
Hikima,2010	Sentence-level interpretation	PI Control	1.14 0	9.42 1.66		PI > C
	Sentence-level production	PI Control	0.571 0	8 2.33		PI > C
	Dialogue interpretation	PI Control	1 0.066	4.14 0.333		PI > C
	Story Interpretation	PI Control	2.14 1	9.14 0.666		PI > C
Benati & Lee, 2010	Sentence-level interpretation	PI TI Control	1 0.66 0.6	5.3 1.1 0.6		PI > (TI =C)
	Discourse-level interpretation	PI TI Control	2.8 2.1 1.8	8.1 2.3 1.8		PI > (TI =C)

5. Discussion of results

The main goal of this thesis was to explore the effectiveness of Processing Instruction on sentence-level interpretation tasks and sentence-level production-tasks, as well as find out whether PI would also be effective on the interpretation and production of discourse tasks. The results of this study show that overall PI was more effective than TI and at least as effective as MOI for sentence-level interpretation and sentence-level production tasks. Other studies have shown that PI is also effective when discourse tasks are included.

In the following sections, the findings of the research on the effectiveness of PI that was presented in chapter 4 will be discussed. First, the results for the three sub-questions will be discussed in section 5.1, 5.2 and 5.3. Second, the relevance of these results to teaching practice will be presented in section 5.4. Finally, several open issues about the effectiveness of PI will be presented in section 5.5.

5.1 Discussing the results of the studies on the effect of PI and TI

The first sub-question was: is PI more effective than traditional instruction (TI) on sentence-level interpretation and production tasks? The majority of the studies on the relative effectiveness of TI and PI showed similar results: the PI group outperformed the TI group on the interpretation task and performed as well as the TI group on the production task. However the study by Allen (2000) that was presented in section 4.1 produced a conflicting result. Allen (2000) describes her study as a partial replication of VanPatten and Cadierno (1993). It is an attempt to replicate the results of earlier PI studies with a different target structure, namely the French causative construction. The results are different from the results of the original study by VanPatten and Cadierno and of previous PI studies: in Allen's study the PI group was not superior to the TI group. Polio and Gass comment on such situations:

> A problem may arise in the interpretation of the results: If the results are not the same in the replication as those in the original, one needs detailed information on the original study to determine why. Were the original results merely spurious or is there something in the methodology or subject population that differed significantly. (1997:502)

VanPatten and Wong (2004) looked closely at the methodology in Allen's study (2000) and found some factors that may have contributed to the differing results. They give three

reasons: First, during the test Allen did not consider the fact that lexical semantics and event probabilities could aid the learners in interpreting the causative constructions. Second, Allen included first-person singular object pronouns in the production test, whereas only third-person singular sentences were used in the interpretation test. Therefore, these two tests cannot be directly compared. Third, during the initial phase of instruction of the TI group the learners were processing strings of input in a similar way as the processing group.

As described in section 4.1 the results of the study by VanPatten and Wong (2004) on the same target structure show the PI group to be superior to the TI group. Also, they included test-items with non-causative *faire.* It turned out that five of the participants in the TI group and one from the PI group also used the causative construction on these occasions. These participants thus completed all sentences in the test, whether they were causative or not, with a causative construction. This showed that these participants did not learn the distinction between causative *faire* and non-causative *faire*, but used something that can be called a test-taking strategy. It could be the case that this test-taking strategy was used by participants in the experiment of Allen. This cannot be ascertained because Allen did not include items with non-causative *faire* in the study. Apparently some learners in the study by VanPatten and Wong did the activity without understanding the content and meaning of the sentence and therefore applied the structure to all sentences even the ones to which it did not apply. The fact that there were five TI students and only one PI student shows that PI is better at conveying the meaning of the target structure and the contrast to other similar structures.

5.2 Discussing the results of the studies on the effect of PI and MOI

The second research question was: is PI more effective than meaning-based output instruction (MOI) on sentence-level interpretation and production tasks? The studies done on the relative effectiveness of PI and MOI the comparison of the results are somewhat less straight-forward. In half of the studies the PI group is shown to be better at the interpretation task than the MOI group (Farley, 2001; Benati, 2005; Lee and Benati 2007; VanPatten et al, 2008). The other half of the studies show similar results for both groups on the interpretation task (Farley, 2004a; Morgan-Short & Bowden, 2006; Keating & Farley, 2008; Farley & Aslan, 2012). One of the explanations that has been suggested for the good results of some of the MOI groups is that in the MOI group students receive incidental input (Farley, 2004:163). The incidental input would come from the students practicing

Structured Output activities, were the correct output given by students is similar to the input given in Structured Input activities. Something that confirms this idea can be found in the study by Lee and Benati (2007). They compared two modes in their study: a classroom mode, were the students would receive incidental input, and a computer mode, were the students would not receive such input. In both modes the PI group improved significantly more than the MOI groups. When, however, the MOI groups in the different modes are compared, the MOI classroom groups improved more than the MOI computer groups on the interpretation task in both the French and the Italian experiment. Keating and Farley (2008) also tried to examine whether incidental input plays a role by adding a group of students who received MDI. MDI is a form of output instruction where no incidental input is present, because the output of the students does not result in sentences that are like the Structured Input of the PI group. Their research showed that the MOI group performed as well as the PI group on the interpretation task and the MDI group did not. This again points to incidental input being the reason for the good performance of the MOI groups on the interpretation task. So, it might well be that incidental input is the reason for the improvements of the MOI groups in the experiments on the interpretations tasks.

For the production task almost all studies show that PI group performs as well as the MOI group. Only three studies (Morgan-Short & Bowden, 2006; Keating and Farley, 2008; Farley and Aslan, 2012) show the MOI group to perform better than the PI group on the production task. As discussed above, in these studies the MOI group probably profited from incidental input which made the treatment a combination of Structured Input and Structured Output activities instead of strictly output activities. This might suggest that a combination of both activities results in the greatest gains. On the six other studies the PI group performed as well as the MOI group on the production task without any output activities and in the study by Morgan-Short and Bowden (2006) the two groups performed equally well on the second post-test. So, the majority of studies suggests that output-activity does not result in greater improvement than Processing Instruction on production tasks.

All in all, PI always yielded significant improvement on both sentence-level interpretation and production tasks. The fact that MOI gives similar results to PI in some studies does not obviate that PI has consistently resulted in significant gains in interpretation as well as production tasks. This cannot be said for MOI in all of the studies examined in this thesis.

5.3 Discussing the results of the studies on the effect of PI on discourse tasks

The results of the above discussed studies on the relative effect of PI and TI and PI and MOI show an overall positive effect for PI on sentence-level interpretation and production tasks. The third research question was: does PI have an effect on interpretation and production in discourse tasks? In section 4.3 several studies have been presented that were done to find out whether the same positive effect of PI could be obtained with discourse tasks. The results of the studies done on this subjects all show that this is the case. Two of the studies found that students could also interpret the target structure when embedded in discourse (Hikima, 2010; Benati & Lee, 2010). Three other studies showed that students could also produce the target structure in a discourse task such as guided composition or video-telling (VanPatten & Sanz, 1996; Cheng, 2004; McNulty, 2010). These studies show that PI has a positive effect for discourse interpretation and production tasks.

However, there is the question of monitoring during the discourse production tasks. In VanPatten and Sanz' study (1996) the participants showed a significantly better performance on the written discourse task than on the oral discourse task. This could suggest that there is monitoring, because in a real time oral task there would be no time to monitor, while in a written task there would be. VanPatten and Sanz suggest another explanation for the difference in results in the oral and written mode: “In the story telling-video narration task, for example, not only did subjects have to access their developing systems for word order and object pronouns, they also had to put together entire sentences using correct vocabulary, tense, and so on” (1996:112). Both of the studies by McNulty (2010) and Cheng (2002) that examined the effect of PI on discourse production included only a written task. So, in these studies the students could also have been monitoring their output.

All in all, the results of the studies on discourse point to the fact that PI also has an effect on discourse tasks. However, more replication studies are necessary to find out whether this is the case for different target structures and languages. Also, more research on oral discourse production tasks is needed to rule out the possibility of monitoring. Ultimately the question is whether students comprehension and use of the target structure is increased in their spontaneous speech and encounters with the target language. This has not been researched yet.

5.4 Answer to the research questions and practical implications

The main research question of this thesis was: Is Processing Instruction effective as a method of teaching grammar? Studies comparing Processing Instruction to traditional instruction and meaning-based output instruction as well as studies on the effect of PI on discourse tasks were reviewed to answer this question. These studies suggest that PI is an effective method for teaching grammar, because in all experiments the PI group improved significantly on sentence-level interpretation and production tasks as well as on discourse tasks in other experiments. Also, PI is more effective than TI and MOI on sentence-level interpretation tasks and equally effective as TI and MOI on sentence-level production task. In all of the discussed experiments the method of research was the same as in the first experiment done by VanPatten and Cadierno (1993), therefore the results of the studies could be compared to each other. Since so many studies have found similar results on the effectiveness of Processing Instruction there is a solid empirical base to conclude that PI is an effective method for teaching grammar.

As for the studies comparing PI to TI and MOI, the TI and MOI materials have mostly been taken from actual teaching methods, so these studies have a great ecological validity because PI has been compared to actual teaching material and has proven to be more effective. VanPatten argues that in the past "curriculum developers and instructors have tended to shy away from theory since little direct connection seems to be made between theory and actual practice, at least in terms of grammar instruction" (1996:53). The theory of Input Processing and the pedagogical application of this theory in Processing Instruction is a perfect example of how theory can be applied to the teaching practice.

Also, the research on Processing Instruction covers many different target structures (f.i. object pronouns, past, simple and future tense, subjunctive, copula, verb inflections, causative construction) and target languages (f.i. Spanish, English, Italian, French, Japanese) as well as different native speaker groups (f.i. English, Greek, Chinese, Turkish, Spanish). Because of the fact that the studies have been done on many different grammatical structures and languages it can be assumed that PI can be used effectively with any structure or form.

The reason of this thesis study was to examine whether PI was an effective method for teaching grammar, in order to find out whether it would be a good addition to teaching methods. The results of the study show PI to be a very effective method for teaching grammar. It would therefore be advisable to accept this method as a relevant teaching methodology and to start including this method in the SLA syllabus.

5.5 Open issues about the effectiveness of PI

The main research question of this thesis is: Is Processing Instruction effective as a method of teaching grammar? On the basis of the studies reviewed in chapter 4 of these thesis, several things about the effectiveness of PI need closer examination. First, there have hardly been any studies that compare PI to other input-based methods. It could be the case that the emphasis on teaching students to make form-meaning connections, which is present in PI, is not necessary for learning and that other methods based on input are just as effective. The only study that compared PI to another input-based method is by Marsden (2006). With the study Marsden tries to find out whether it is necessary to force learners to make form-meaning connections or whether learners can benefit as much from another input-method that does not force learners to do so: Enriched Input (EnrI). She did two experiments with two groups of students with a difference in proficiency. The results show that the EnrI did not have a significant effect for the EnrI-group with low proficiency, whereas the PI did for the PI-group with low proficiency. For the groups with a higher proficiency the results for interpretation show only significant gains for the PI-group. The results for production for the groups with higher proficiency were unclear, because the group that did not receive any instruction improved equally well on the production tasks. Marsden's results do seem to suggest that it is necessary that learners are forced to make form-meaning connections when presented with input, as is the case with PI. However, such conclusions cannot be drawn from one experiment. Therefore, further research should examine the relative effects of PI versus other input-based teaching methods.

Second, soon after the first studies were done on PI, criticism was raised as to what part of PI makes it effective. Some have argued that it is the difference in explicit information that causes the difference in results for PI and TI or MOI groups instead of the difference in practice (structural input (SI) versus output based exercises). The answer to this question is beyond the scope of this thesis, but research has been done on this subject. Most research shows that SI activities alone have as much effect as a full PI treatment (VanPatten and Oikenon, 1996; Benati, 2004a, b; Wong, 2004a). Other experiments have shown explicit information to have an effect on the time it took learners to learn a particular construction and on their reaction time and accuracy (Farley, 2004b; Fernández, 2009, Henry et al, 2008). An analysis of the research done on the different parts of PI would be an interesting follow-up to this thesis.

Third, these studies cannot answer the question of whether the effects of PI hold over time. There is some evidence that the effects hold over time from the studies that

included a delayed post-test after one month (VanPatten & Cadierno, 1993; Cadierno, 1995; Allen, 2000; Benati, 2001; Farley, 2001; Farley, 2004a, Keating and Farley, 2008). However, in one study by VanPatten et al (2008), which included a delayed post-test after six weeks, the gains were significantly less after six weeks, compared to the immediate post-test. On the other hand, Buck (2006) included a post-test after three months and did not find such a drop, but found instead the PI group performed better on the post-test after three months than on the immediate post-test. Future PI research should include delayed post-tests after three or even six months to determine whether the effects of PI hold over a longer period of time.

Fourth, on the role of output-practice in SLA another thesis could be written. As mentioned in section 5.1 it could be the case that output exercises result in a test-taking strategy for some learners, this has to be tested further in order to find out if this is more often the case. However, this thesis is not about the effect of output activities, but on the effect of Processing Instruction. It could well be that output activities help in the development of accuracy and fluency. It is important to also note that VanPatten does not rule out output-practice, but sees it as complementary to input practice in the form of Structured Input activities (VanPatten, 2002; Wong and VanPatten, 2003).

All the above points show that there are many aspects of PI that future research could explore to gain more insight in the effectiveness of Processing Instruction. These directions for future research will be presented in the Conclusion.

6. Conclusion

The purpose of this thesis was to assess the effectiveness of Processing Instruction, a pedagogical intervention based on the theory of Input Processing. The main research question was: Is Processing Instruction effective as a method of teaching grammar? The reason for researching the effectiveness of PI was to find out whether it could be a useful addition to teaching material. The effectiveness of PI has been researched in this thesis by looking at three sub-questions: 1. Is PI more effective than TI on a controlled interpretation and production task? 2. Is PI more effective than MOI on a controlled interpretation and production task? 3. Does PI have an effect on interpretation and production in discourse tasks? These questions have been answered by reviewing the literature on the effectiveness of Processing Instruction. The main findings indicate that PI is more effective than TI on sentence-level interpretation and production tasks. Also, that PI is more effective than MOI on sentence-level interpretation and production tasks. Furthermore, PI is effective on discourse interpretation and production tasks. In the research presented in this thesis Processing Instruction has been found effective for many different languages and target structures. Since Processing Instruction has been found effective it is advisable that it is implicated in future class material at least as an addition to the output-based materials. So, with this thesis I have shown that theories in SLA and research on the pedagogical implications of those theories can be of help in second language teaching.

Several limitations of this study need to be taken into account, some of which have also been laid out in section 5.4. First, this thesis did not examine which part of PI makes the method effective. Second, this thesis could not assess whether the effects of PI hold over time, because most of the research did not include delayed post-tests after one month. Third, in this thesis PI has not been compared to other input-based methods, because to date there has hardly been any research on that subject. Finally, several other subjects, such as transfer of training effects, the effect of individual differences and the use of computers in Processing Instruction have not been included in this thesis due to space constraints.

Further research on Processing Instruction might explore whether the effects of PI hold over time by including post-tests after three or even six months. This thesis has shown PI to be more effective than several output-based methods. It would also be interesting to compare PI to other input-based methods to see whether PI is also more effective than other input-based methods.

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Appendix 1 – sample PI lesson

Sample lesson taken from VanPatten (1996).

actually published in the VanPatten and Cadierno study. They do appear, however, in VanPatten, Lee, Glass, & Binkowski, 1992; Cadierno, 1992.)

Sample Lesson

The most difficult object pronoun system for students of Spanish is the set of third person object pronouns.

Subject	Object
Ella *besa a Juan.* (She kisses John.)	*Juan* la *besa.* (John kisses her.)
El *besa a María.* (He kisses Mary.)	*María* lo *besa.* (Mary kisses him.)
Ellos *observan a Marcos.* (They observe Mark.)	*Marcos* los *observa.* (Mark observes them.)
Ellas *observan a Carlitos.* (They observe Charlie.)	*Carlitos* las *observa.* (Charlie observes them.)

Keeping in mind that Spanish has flexible word order, what do you think the following sentence means?

Lo escucha Roberto.

Right. Roberto listens to him.

Un Vistazo: El arte de besar

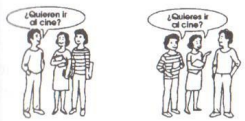
In the following cartoon, who is kissing whom?

____ *Lo besa la mujer.* ____ *La besa el hombre.*

Actividad A. Select the picture that best corresponds to the sentence. (Keep in mind that Spanish does not follow a rigid subject-verb-object word order and that object pronouns may go before a conjugated verb or at the end of an infinitive.)

❑a ❑b

1. *Sus padres lo llaman por teléfono.*



❑a ❑b

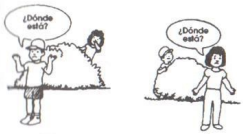
2. *Las invita Manuel al cine.*

❑a ❑b

3. *La abuela lo escucha.*

❑a ❑b

4. *Lo saluda la niña.*



❑a ❑b

5. *El chico la busca.*

Actividad B. Indicate whether or not each statement about your parents applies to you. Share your responses with a classmate.

Sí, me aplica	*No, no me aplica.*	
____	____	1. *Los llamo con frecuencia por teléfono.*
____	____	2. *Los visito los fines de semana.*
____	____	3. *Los visito una vez al mes.*
____	____	4. *Los abrazo cuando los veo.* (*abrazar* = to hug)
____	____	5. *Los comprendo muy bien.*
____	____	6. *Los ignoro completamente.*
____	____	7. *Los aprecio mucho.*

Did you notice that there are no explicit subject nouns or subject pronouns in each sentence? Because the *yo* form of the verb can only refer to *yo*, no subject pronoun is needed. All of the sentences are of the simple word order object pronoun-verb.

Actividad C. Select a female relative of yours (*madre, hermana, tía, abuela, prima,* etc.) and write her name below. Which of the statements describes how you feel about her?

Pariente: _____ *Nombre:* _____

____ 1. *La admiro.*
____ 2. *La respeto.*
____ 3. *La quiero mucho.*
____ 4. *Trato de imitarla.*
____ 5. *La detesto.*
____ 6. *La* _____?_____.

Now select a male relative and do the same!

____ 1. *Lo admiro.*
____ 2. *Lo respeto.*
____ 3. *Lo quiero mucho.*
____ 4. *Trato de imitarlo.*
____ 5. *Lo detesto.*
____ 6. *Lo* _____?_____.

Compare with two other people. Did you select the same relative(s)? Did you mark the same items?

Actividad D. Listen to each statement and select the appropriate picture.

1. ❑ a ❑ b

2. ❑ a ❑ b

3. ❑ a ❑ b

4. ❑ a ❑ b

5. ❑ a ❑ b

(For activity D, the instructor reads the following statements.
1. *Lo llama Juan por teléfono.*
2. *La escucha el señor.*
3. *La abraza la mamá.*
4. *Los saluda la mujer.*
5. *El niño la mira.*

Un vistazo: Una mala relación

An article *"El caso del hermano posesivo"* appeared in a magazine targeted for teenagers. Read the excerpt for general meaning. Some vocabulary is provided to help you out, but it's not necessary to read and understand every word. The activities that follow are based on this reading.

seguir (to follow)
asustarse (to become frightened)
aconsejarse (to advise)
soltar (to leave alone, release)
jurar (to swear)
el colmo (the last straw)
paz (peace)

DEBATE

Un drama familiar muy común: ella se siente dominada, perseguida por su hermano mayor (que puede ser menor, pero con aires de grandote) y no sabe cómo zafarse de él. Alicia y Manuel so el caso típico.

ALICIA CUENTA SU PARTE

"Manuel es muy posesivo. No me deja respirar. Cada vez que voy a salir, me pregunta con quién, a dónde voy, qué vamos a hacer... A veces me sigue. Lo juro. Cuando un chico viene a visitarme Manny lo interroga y él se asusta. El colmo: mis padres me dejaron ir con unas amigas a un concierto de Bon Jovi... y Manuel les aconsejó que uno de ellos fuera con nosotras, para supervisarnos. Por poco lo mato. De veras, mi hermano es peor que mis padres. Por eso peleamos mucho. Le he dicho más de mil veces que él no es mi papa y que me deje en paz. Pero Manuel no me suelta."

Actividad E. For each paso of this activity, work in pairs.

Paso 1. Find the following in the reading:
me dejaron ir
me pregunta
me sigue
no me suelta
viene a vistarme

In each instance, Alicia is saying that someone is doing something to her or for her. Can you identify the subject of each verb?

Paso 2. Find the following in the reading:
lo juro
lo mato
lo interroga

Who is the subject of each verb? Who or what does each *lo* refer to?

Un vistazo: Manny responde

In the following selection, Manuel responds to his sister's claims. Read it now for general meaning. Then do the activities that follow.

no queda más remedio	(no choice is left)
había visto	(had seen)
confiar	(to trust)
mentir	(to lie)

MANNY HACE UNA ACLARACION

"No quería decirlo, pero no me queda más remedio. Si vigilo a mi hermana, es porque me ha dado motivos para sospechar de ella. En varias ocasiones la sorprendí con un tal Sergio, que es uno de esos rebeldes sin causa con la reputación por el suelo. Una vez le dijo a mis padres que iba al cine con las amigas y después un buen amigo me contó que la había visto en el cine... pero con Sergio. ¿Cómo puedo confiar en mi hermana si miente a todos en la casa? Ella no conoce a los chicos. Ese tipo sólo busca una cosa. Y yo no quiero que a mi hermana le suceda nada 'feo.'"

Actividad F. For each paso in this activity, you should first work alone and then share your responses with someone else.

Paso 1. Find all the uses of a third person object pronoun. To whom or what do they correspond? What is the subject of each verb next to which you found each pronoun?

Paso 2. Which of the following best describes Manny's feelings for his sister?
____ *La quiere mucho.*
____ *La admira.*
____ *La detesta.*

Paso 3. Which of the following does Manny probably do on a Friday night if his sister goes out?
____ *La sigue para ver lo que hacer y con quién.*
____ *La deja en paz porque es una adulta.*
____ *La espera en casa.*

Recall that Spanish has the object marker *a*.

Los padres miran ***a*** *los hijos.*
Llamo ***a*** *mis padres.*

This object marker has no equivalent in English but is important in Spanish since it provides an extra clue as to who did what to whom. Since Spanish has flexible word order, the *a* reminds you that even though a noun appears before the verb it doesn't have to be the subject!

A María la llama Juan.
A María Juan la llama.
(John calls Mary.)

Note that when an object appears before the verb, the corresponding object pronouns must also be used. If you think that this is redundant, it is! But redundancy is a natural feature of languages, right? (Hint: Think about how we put tense endings on verbs when most of the time we also say "yesterday," "last night," and so on.) What does the following sentence mean? Who is doing what to whom?

A la chica la busca el chico.

Right. The boy is looking for the girl.

Actividad G. Select the English rendition of each sentence.

1. *A mi mamá la besa mucho mi papá.*
   a. My mother kisses my dad a lot.
   b. My father kisses my mom a lot.

2. *A mi papá no lo comprendo yo.*
   a. I don't understand my father.
   b. My father doesn't understand me.

3. *A la señora la saluda el señor.*
   a. The woman greets the man.
   b. The man greets the woman.

4. *A los chicos los sorprende la profesora.*
   a. The professor surprises the boys.
   b. The boys surprise the professor.

Actividad H. You will hear some sentences in Spanish. Select the correct picture for each.

1. ❑ a ❑ b

2. ❑ a ❑ b

3. ❑ a ❑ b

4. ❑ a ❑ b

(For Actividad H, the instructor should read the following sentences.)

1. *A la mujer no la cree el hombre.*
2. *Al hombre la mujer no lo cree.*
3. *Al chico lo sigue la chica.*
4. *El chico sigue a la chica.*

Actividad I. *Un talento especial*

Paso 1. Read the following passage to yourself. Then do the questions that follow.

Mis abuelos maternos son mexicanos y los quiero mucho. Viven en San José y cuando viajo a California, *siempre los visito.*

Mi abuela se llama Concepción y es una persona muy especial. Tiene una habilidad psíquica (puede <<ver>> eventos del futuro y del pasado) pero no la usa con mucha frecuencia. Dice que es un regalo de Dios y debe usarla con cuidado (care). *Todos en la familia la admiramos mucho.*

Una vez la policía la llamó para pedirle ayuda con un crimen (un asesinato). Mi abuela tocó un objeto personal de la víctima y tuvo una <<visión>> del homicidio. Vio muy claro al asesino (sus ojos, color de pelo, etc.) y pronto la policía lo capturó. Mi abuela se convirtió en una celebridad de noche a la mañana (overnight).

Paso 2. Select the title that best fits the passage.

a. *<<Mi abuela: víctima de un crimen>>*
b. *<<Por qué capturaron a mi abuela>>*
c. *<<Un talento especial>>*

Paso 3. Select the best response based on what you read in the passage.

1. *Mi abuela es una celebridad porque…*
   a. *la policía la investigó.*
   b. *un hombre la atacó pero ella pudo desarmarlo.*
   c. *ayudó a la policía.*

2. *Respeto de su poder psíquico…*
   a. *lo usa poco.*
   b. *no lo controla muy bien.*
   c. *no lo toma en serio.*

3. *¿Qué describe mejor mis sentimientos hacia mi abuela?*
   a. *La critico por su locura* (craziness).
   b. *La quiero y la estimo mucho.*
   c. *No tengo reacción porque nunca la veo ni la visito.*

Paso 4. Find the seven third person object pronouns that occur in the passage and underline them. Then tell to what they refer. The first is done for you.

1. …los *quiero mucho.* *"los"* refers to *mis abuelos*
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____