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Processing Instruction and the Subjunctive

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Abstract: Research is uncovering developmental factors (e.g., interactions between syntactic and morphological development) that account for the fact that foreign-language learners of Spanish completing the intermediate level seem to benefit little from subjunctive instruction (cf. Leow 1993, 1995; Terrell et al. 1987; Collentine 1995, 1997a, 1997b). Yet, little is known about how different methodological approaches to grammar instruction affect subjunctive acquisition. Recently, investigators (e.g., Cadierno 1995; VanPatten and Cadierno 1993) have presented evidence that *Processing Instruction*, an input-oriented approach to grammar instruction promoting the intake of grammatical properties, may be more effective than traditional, output-oriented approaches in facilitating the acquisition of grammar. An experiment comparing the two approaches with the subjunctive indicates that, while Processing Instruction is indeed effective at fostering learners' subjunctive abilities, output-oriented instruction is equally effective in tasks where the subjunctive has communicative value.

Key Words: adjective, communicative value, grammar instruction, input, intake, output, Processing Instruction, subjunctive

Background

Terrell, Baycroft, and Perrone (1987) note that, historically, the subjunctive has been one of the most challenging structures for learners to acquire. Of course, two decades of research on second-language acquisition (SLA) and foreign-language (FL) acquisition have inspired the integration of communicative principles into classroom materials and tasks. One might then expect that today's contextualized, context-rich environment (cf. Whitley 1993) should facilitate the acquisition of the subjunctive, since students have more opportunities than ever to explore its pragmatic and semantic functions. Collentine (1995), however, reports that, at the intermediate level of university instruction, students still have substantial difficulties in communicative tasks requiring the subjunctive. There are two explanations for students' and teachers' frustrations: (1) developmental factors impede learners from acquiring the subjunctive within the typical four-semester sequence; (2) the methodology of subjunctive instruction requires some "modernization."

While this article briefly investigates the first of these issues, it focuses on the second, presenting the results of the first known experiment that explores the efficacy of VanPatten's *Processing Instruction* methodology with the subjunctive.

Developmentally speaking, within the typical four-semester university sequence, learners seem to acquire only fundamental aspects of the subjunctive. Terrell et al. (1987) examined students' subjunctive abilities at the end of the second semester, concluding that they had "learned" rather than "acquired" the subjunctive; in meaningful speaking tasks, the learners could not employ the structure. Furthermore, learners completing the fourth semester may not be ready to acquire the subjunctive because they have not yet developed certain prerequisite abilities. Collentine (1995) shows that these learners struggle in speech with the generation of the complex syntax that almost invariably embeds the subjunctive (e.g., *Quiero [que [me hagas un favor]]*). Moreover, Collentine (1997a) reports that these learners labor to generate subordinate clauses when the situations that they

are to report involve certain epistemic—i.e., logical—relationships (e.g., doubt, denial). Finally, Leow's work (1993, 1995) reveals that intermediate-level learners depend very little on verbal suffixes to interpret sentences they read and hear, which may indicate that these learners do not have the morphological abilities to benefit significantly from subjunctive instruction. However, with the exception of Leow's work, these investigations have not examined the effects of different methodologies of grammar instruction on students' subjunctive abilities.

Spanish educators have traditionally attempted to increase students' retention of lessons on the subjunctive by improving the pedagogical grammar of the subjunctive (e.g., Bull 1965; Klein-Andreu 1995). They have provided subjunctive explanations with greater generalizability, presumably giving students greater predictability of its use. Yet, FL methodology today is informed more by psycholinguistic accounts of SLA than by linguistic insights into the target language (Shrum and Glisan 1994; Whitley 1993). For instance, reading tasks regularly consider the roles of certain schemata (e.g., background knowledge) and memory limitations on comprehension. However, this fundamental shift in our primary perspective on the learning process has affected grammar instruction minimally.

It is fair to say that most instruction in the grammar of a second language is structurally and not psycholinguistically motivated (Garrett 1986). This is particularly true of instruction in foreign language classrooms in the United States. Features of grammar are taught and practiced in a sequence inherited from Latin grammarians of the Roman Empire. In terms of practice, emphasis is placed on manipulation of forms and structure in learner output. At no point in explicit grammar instruction do practices seem to reflect understanding of language processing. (VanPatten 1997, 12)

Psycholinguistic accounts of SLA probably do not inform grammar instruction because many educators surmise that explicit grammar instruction cannot effectively foment the acquisition of grammar (Ellis 1990). Moreover, even though Krashen's Input Hypothesis stipulates that

comprehensible input is a necessary condition for acquisition, a popular interpretation of Krashen and Terrell (1983) is that comprehensible input is both necessary and sufficient. Most importantly, however, there simply is not enough research on how to incorporate psycholinguistic principles into grammar instruction (cf. VanPatten 1993). Recently, research has confirmed that many structures cannot be acquired incidentally, or by merely exposing the learner to a structure in comprehensible input (Schmidt 1990). Furthermore, explicit grammar instruction may be necessary for attaining advanced levels of acquisition (Ellis 1990; Terrell 1991; VanPatten 1993). In response to such findings, researchers are outlining methodologies that take into account how cognitive phenomena such as attention and memory affect acquisition (cf. Ellis 1995; VanPatten 1993).

VanPatten and others (cf. Cadierno 1995; VanPatten and Cadierno 1993; VanPatten and Oikkenon 1996) have confirmed the efficacy of an input-oriented approach to grammar instruction termed *Processing Instruction*. This methodology applies recent insights into the acquisition of grammar in formal and informal settings as well as advances in the field of cognition (VanPatten 1995). Processing Instruction reaffirms that there are no documented cases of successful language acquisition without exposure to comprehensible input (Krashen 1982; Larsen-Freeman and Long 1991). Still, this methodology assumes that comprehensible input alone does not promote adequate grammatical development because exposing learners to a grammatical structure does not necessarily encourage them to *intake* the structure.

Figure 1
A Model of Second Language Acquisition and Use (VanPatten 1993, 1995)

Input → **Intake** → **Developing System**
→ **Output**

Briefly, the "developing system" is the core grammatical system, cognitively analogous

to the native speaker's linguistic competence. To provide the data necessary to feed the developing grammatical system, Processing Instruction facilitates intake by encouraging learners to "notice" the structure and its meaning in the input (cf. Tomlin and Villa 1994). Output (i.e., production) is viewed as a product of this process, not an agent.

Why would Processing Instruction be more effective at promoting the acquisition of grammatical knowledge than traditional approaches? Traditional approaches encourage grammatical development through output-oriented activities, such as speaking tasks. However, during production, attentional and memory resources are concerned with more than just the integration of new structures into the core grammatical system. Students allocate many of these limited resources to monitoring and to the management of working memory (Levelt 1989); they even access the L1 as a type of reference (Tarone 1988). VanPatten (1995) suggests that output-oriented grammar instruction generally interferes with the ultimate goal of instruction: providing data to the developing system.

Processing Instruction entails "structured input" tasks involving listening and reading. These tasks encourage students to make form-meaning associations—such as between the notion of past and (preterit) suffixes such as *-é, -í, -aste, -iste, -ó, -ió*—by raising a structure's *communicative value*, or its relative contribution to a sentence's overall message. A grammatical item's communicative value is high when the interpretation of a sentence depends on properly interpreting the meaning of that item. Normally, students whose task is to indicate whether *Juan visitó las pirámides de Tulum el año pasado* will occur in the future or whether it occurred in the past look to the redundant lexical marker of time *el año pasado* (Terrell 1991). A structured-input task, however, would omit the redundant marker (i.e., *Juan visitó las pirámides de Tulum*), compelling the learners to notice the verbal inflection and its meaning.

In a typical structured-input activity, stu-

dents indicate that they have properly interpreted a sentence by checking boxes, completing surveys, or by expressing the affective (i.e., emotional) consequences of a sentence's main idea (cf. VanPatten 1993, 433–43). Students should intake the targeted grammatical item first in tasks involving isolated sentences and then in extended discourse, such as in stories or descriptions. Processing Instruction should also progress non-paradigmatically, breaking down students' exploration of the structure into steps (e.g., *por/para* first in locative and then in temporal phrases; cf. Guntermann 1992; Lafford and Ryan 1995).

Research has shown that Processing Instruction is more effective than traditional output-oriented approaches to instruction at helping learners to make form-meaning connections between direct-object pronouns and the [patient] case (VanPatten and Cadierno 1993) as well as between preterit endings and the notion of [past] (cf. Cadierno 1995). Can Processing Instruction more effectively help learners to assign abstract meanings such as [coercion], [doubt] or [-referentiality] to the subjunctive?

Testing the Effectiveness of Processing Instruction with the Subjunctive

Any methodology of grammar instruction should promote learners' *internalization of grammatical meaning*, or the association of semantic features with an inflectional process (e.g., the cognitive machinery that generates a subjunctive morpheme) and the binding (Terrell 1986) of semantic features to relevant forms (e.g., *tenga, coma, trabaje*). Therefore, this study examines whether Processing Instruction's input-oriented approach is more effective at promoting the internalization of the subjunctive's meaning than an output-oriented approach.

One cannot determine how a learner has represented a grammatical item in his or her developing grammatical system in isolation of performance factors (VanPatten and Cadierno 1993). The generation of a grammatical item utilizes psycholinguistic

processes that are distinct from those that interpret such items (Levelt 1989, 8–14), such that production and interpretation tasks can provide different views on the extent to which the internalization of grammatical meaning has occurred (cf. Tarone 1988). Thus, this study will compare the effects of Processing Instruction and output-oriented instruction by addressing two questions:

(1) Is Processing Instruction more effective than output-oriented instruction at promoting the development of learners' abilities to interpret the subjunctive?

(2) Is Processing Instruction more effective than output-oriented instruction at promoting the development of learners' abilities to produce the subjunctive where necessary?

Target Grammatical Structure: Subjunctive instruction generally begins with nominal clauses (e.g., *Quiere que me visites*); subsequently, focus turns to adjectival clauses (e.g., *Busco un restaurante que sirva comida española*) and adverbial clauses (e.g., *Cuando tenga tiempo, te llamaré*). However, in its current form, Processing Instruction may not be effective with the subjunctive in noun clauses (Collentine 1997b). Recall that structured input raises an item's communicative value. Yet, it is not possible to strip most sentences containing instances of the subjunctive in noun clauses of their redundant markers of modality.

- (1) *Que lo haga Juan.*
- (2) *Queremos que lo haga Juan.*
- (3) *Dudamos que lo haga Juan.*
- (4) *Nos sorprende que lo haga Juan.*

Notice that (1) could help learners to notice the subjunctive's coercive connotation. However, stripping sentences such as (3) and (4) of *Dudamos* and *Nos sorprende* cannot promote the association of doubt and emotional reactions with the subjunctive.

The subjunctive in adjectival (and adverbial) clauses can indeed play a decisive role in a sentence's interpretation.

Comprehension of the sentence in Figure 2 requires a student to notice that the subjunctive connotes a non-referential antecedent. Thus, the subjunctive in adjectival clauses was the study's target grammatical structure.

Subjects: The subjects were enrolled in 3 sections of a second-semester Spanish course at an American university ($N = 54$). Their curriculum entailed contextualization, promoted functional abilities and offered explicit treatments of grammar (with both deductive and inductive tasks). Students were randomly assigned to one of three groups (i.e., during the study, a student was assigned to a group containing students who were and who were not classmates throughout the semester): a processing-instruction group ($n = 18$), an output-oriented instruction group ($n = 18$), and a control group ($n = 18$). A series of χ^2 tests compared the groups on sex, classification (e.g., number of freshmen, sophomores) and on the number of subjects having studied another foreign language (e.g., French). The groups differed only in that the output-oriented instruction group contained 33% sophomores whereas the other groups represented all four classifications uniformly. A multivariate analysis of variance (MANOVA) compared the groups on the average number of university semesters of Spanish study, high school semesters of Spanish, and weeks abroad ($\Lambda(6,84) = .91$; $p = .64$). All subjects were native English speakers, receiving no home exposure to Spanish. The groups were also compared on three linguistic factors: the subjects' performance on a proficiency test, which gauged listening, reading, and writing abilities; a vocabulary test of fifty high-count terms from the curriculum; an oral interview, assessing functional abilities through role playing—conducted and graded holistically by the researcher. No significant differences across the groups were found ($\Lambda(6,96) = .91$; $p = .60$).

Instructional Procedures: All told, the principal factor distinguishing the two ex-

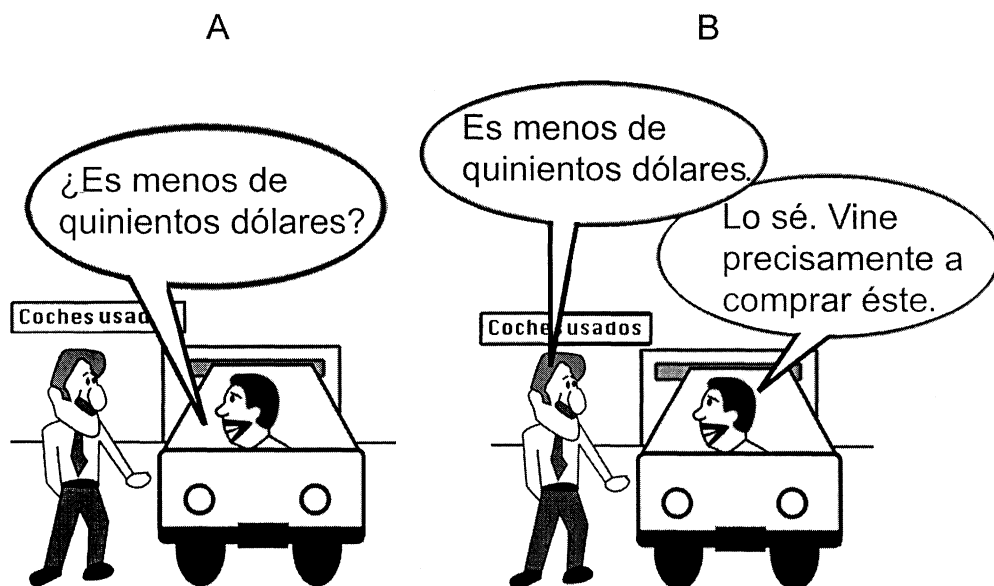


Fig. 2

perimental groups was processing mode: one group cultivated its subjunctive abilities through input (albeit a specific type of input) and the other through output. Thus, since Processing Instruction encourages learners to notice a grammatical structure's formal and semantic properties, the researcher did not engage the output-oriented group only in mechanical and meaningless production tasks. The output-oriented group utilized the subjunctive in tasks where its communicative value would be evident, such as one that provided a context for the production of *Quiere un coche que [cuesta, cueste] menos de quinientos dólares*.¹ Nonetheless, to the extent possible, the instructional procedures paralleled those of VanPatten and Cadierno (1993) and Cadierno (1995).

For the output-oriented instruction group, the materials were from the first-year Spanish text of Knorre, Dorwick, Glass, and Villarreal (1993) and its workbook (Arana and Arana 1993).² These materials were organized into student packets containing the following: (1) a review of the

subjunctive forms and a comparison of adjectives and adjectival clauses (e.g., *Tengo una casa grande*, *Tengo una casa que está en Guadalajara*); (2) an overview of the (present) indicative/subjunctive distinction in adjectival clauses; (3) practice activities. The activities moved from mechanical, form-oriented tasks to open-ended, communicative ones. Tasks involved fill-in-the-blank activities, "dehydrated" sentences, sentence completions, teacher-led question-and-answer activities, and conversational pair work. Students produced (i.e., speaking and writing) single verb forms, entire clauses, and complete sentences.

The following sentence completion task exemplifies a production activity that compelled learners to contemplate the subjunctive's meaning.

Elena tiene unos zapatos que _____ (ser / bonito) pero que _____ (hacerle) daño a los pies. Por eso está buscando unos que _____ (ser / cómodo), que _____ (estar / moda) y que _____ (ir bien / falda / rosado).

(Arana and Arana 1993, 200)

Divorced from its context, the antecedent *unos* within ...*está buscando unos que...* would be ambiguous, since it might or might not be referential. For this (mini) discourse to cohere, a student must use *sean*, *estén*, and *vayan* in the second sentence to clarify the antecedent's referentiality.

A pair-work task might require students to interview a partner about where he or she wanted to live (cf. Knorre et al. 1993, 448). Structurally speaking, most answers were to be of the type *Deseo vivir en un apartamento que tenga dos baños*. The communicative value of the subordinate clause's mood lies in the potential acceptability of *Deseo vivir en un apartamento que tiene dos baños*, given the right context (e.g., the speaker is referring to a particular apartment complex).

For the processing-instruction group, the researcher created most of the materials, although some were from VanPatten, Lee, and Ballman (1996) and its workbook (VanPatten, Glass, and Binkowski 1996). Following VanPatten's stipulation of non-paradigmatic instruction, these student packets had five sections: (1) a review of the subjunctive forms and a comparison of adjectives and adjectival clauses; (2) an introduction to the indicative/subjunctive distinction in adjectival clauses in declarative sentences (e.g., *Necesito un coche que vaya rápido*) and (3) relevant activities; (4) an introduction to the indicative/subjunctive distinction in adjectival clauses in interrogative sentences (e.g., *¿Está aquí una muchacha que se llama Margarita?*) and (5) relevant activities. Three types of structured-input activities purported to elevate the subjunctive's communicative value, thus encouraging its intake.

(1) Students received input at the sentential level and were to determine whether an antecedent was referential/existent or not. For instance:

Consider the following two situations:

(a) Paco está en un almacén porque necesita comprar una corbata nueva. "Debe quedar bien con mi traje nuevo," dice Paco.

(b) Paco está en un almacén para recoger la corbata que compró la semana pasada. "Debe quedar bien con mi traje nuevo," dice Paco.

Write on the line next to the sentence below whether the sentence BEST depicts situation (a) or situation (b):

_____ Paco busca una corbata que quede bien con su traje nuevo.

(2) Students received input at the sentential and discourse levels, subsequently performing some task based on the input.

Tu amigo Andrés te ha llamado porque quiere salir contigo esta noche. Quieres hacerle preguntas antes de aceptar su invitación.

Andrés: "Voy a una fiesta que está cerca de la residencia."

Tú:

¿_____?
¿_____?

Otra amiga, Angélica, te ha llamado para salir contigo esta noche. Quieres hacerle preguntas a ella también antes de aceptar su invitación.

Angélica: "¿Por qué no vamos a una discoteca que esté cerca de la residencia?"

Tú:

¿_____?
¿_____?

For the first situation a question such as *¿Quién vive allí?* would be appropriate. For the second situation a response such as *¿Quisieras ir al Gato Negro?* would be appropriate whereas *¿Cómo se llama?* would not. And, while such activities encourage production, their completion depends on properly interpreting the subordinate clause's mood.

(3) Activities in which students determined the appropriateness of a sentence, given a cartoon contextualizer (or a pair of cartoons) containing both visual and either written or aural dialogue (as in Figure 2).

The vocabulary of both instructional settings was similar, involving high-count nouns and verbs. The number of activities and time on task were also held constant. The researcher was the regular and the experimental instructor for all groups. Following VanPatten and Cadierno (1993) and Cadierno (1995), the treatments entailed two consecutive, fifty-minute classes. Although the researcher guided the experimental groups through the packets, he avoided demonstrating behaviors that might affect the experiment's outcome (e.g., demonstrating more or less enthusiasm during the experimental phase—towards any of the groups—than during the rest of the semester). While attempts to eliminate experimental bias may have reduced the potential for a Hawthorne effect, all three groups were aware of their participation in an experiment.

Concerning the control group, it met as a class during the experimental phase. These learners studied only the *por/para* distinction and *gustar*-like verbs. Their instruction entailed implicit and explicit approaches, and practice involved both input- and output-oriented tasks.

This experiment differed from VanPatten and Cadierno (1993) and Cadierno (1995) in an important way. These previous studies fomented the acquisition of two distinct aspects of grammar: (1) the assimilation of new inflectional processes and forms into the developing grammatical system; (2) the internalization of the grammatical meaning of these forms and processes. However, as Spanish verb paradigms go, the generation of subjunctive forms is non prototypical.³ Thus, it is reasonable to assume that, at some point, learners are not ready to make subjunctive form-meaning connections because they are still struggling with its inflectional processes. Accordingly, the subjects received

an introduction to the subjunctive before the experiment, giving them a "head start" of sorts in their inflectional abilities.⁴ To account for the introduction's effect on the treatments, the researcher measured how much each participant benefited from this introduction and factored the results into the overall statistical analysis.

Pretest, Posttest, Scoring Procedures, Analysis: A pretest/posttest procedure addressed the research questions, the pretest occurring three class days before the treatment and the posttest a day afterwards. Each test utilized a different version of the same instrument.⁵ A test consisted of an *interpretation task* followed by a *production task*, each involving twenty items. To reduce priming effects, a distracter activity—entailing open-ended written questions requiring no particular grammatical structure—was included between the tasks.

The interpretation task was similar to (though different from) that of Figure 2. A pilot study suggested that a task such as that in Figure 2 helped some subjects to "learn" the indicative/subjunctive distinction *during* the task. Thus, the researcher employed a task in which the subjects indicated whether a sentence appropriately depicted a single cartoon. For instance, the participants might have to indicate whether *El señor Pereda quiere un coche que cueste menos de quinientos dólares* appropriately depicts drawing A from Figure 2 (i.e., they would only see drawing A, not drawing B). Ten of the items entailed listening to sentences and the other ten reading sentences. The listening portion involved five sentences testing for recognition of the appropriate use of the subjunctive and five for the recognition of the indicative, as did the reading portion. The production task, measuring the learners' abilities to generate subjunctive forms in appropriate contexts, required the subjects to read a cartoon and complete a sentence based on the contextualizer. For instance, if the researcher had used drawing A in Figure 2, the subjects would have completed a sentence such as *El señor Pereda quiere un*

Table 1

Interpretation Task Means: Group by Test

<i>Instructional Group</i>	Pre-treatment Subjunctive Test	Pretest	Posttest	Adjusted Means
Processing	5.8 (s=2.3)	1.4 (s=1.3)	4.4 (s=2.3)	4.8
Output oriented	5.9 (s=1.7)	1.6 (s=2.0)	4.2 (s=2.6)	4.2
Control	6.0 (s=2.0)	1.4 (s=2.4)	2.1 (s=2.9)	2.1

Table 2

Production Task Means: Group by Test

<i>Instructional Group</i>	Pre-treatment Subjunctive Test	Pretest	Posttest	Adjusted Means
Processing	5.8 (s=2.3)	0.6 (s=0.9)	4.1 (s=2.8)	4.1
Output oriented	5.9 (s=1.7)	0.8 (s=1.2)	5.4 (s=2.1)	5.4
Control	6.0 (s=2.0)	0.6 (s=2.4)	1.1 (s=2.9)	1.1

Table 3

Analysis of Covariance for the Interpretation Task

Source	DF	SS	MS	F	p
Covariates	2	31.7	15.9	2.50	.09
Group	2	59.7	29.9	4.70	.01
Error	49	311.6	6.4		
Total	53	403.0			

Table 4

Analysis of Covariance for the Production Task

Source	DF	SS	MS	F	p
Covariates	2	2.7	1.3	0.22	.80
Group	2	172.9	86.4	14.25	< .01
Error	49	297.2	6.1		
Total	53	473.4			

coche que _____ (costar) menos de quinientos dólares. Ten items tested the subjects' abilities to appropriately provide the indicative and ten the subjunctive. Given the nature of the research questions, the analysis below concentrates only on the ten items from each task that gauged students' abilities to comprehend and produce the subjunctive, leaving an analysis of their indicative abilities for a future study.⁶

For the interpretation task, a correct answer received 1 point and an incorrect answer 0. For the production task, a score of 1 was awarded for providing the correct mood and a 0 for the wrong mood. The researcher compared his assessment of each student's production performance with that of another instructor of Spanish, and an insignificant number of discrepancies arose. Indeterminable forms were omitted

from the analysis, recorded as missing values for the statistical analysis.

To measure the effects of the pre-treatment subjunctive introduction, two days before the treatment period the researcher administered a twenty-item test of the subjects' abilities to produce ten present indicative forms and ten subjunctive forms in a meaningful activity. Their subjunctive accuracy was factored into the statistical analysis of the measurements of the treatment effects (i.e., the pretest and the posttest).

Results: Two analyses of covariance (ANCOVAs) addressed the research questions, one each for the interpretation and production tasks. For both analyses, the pre-treatment subjunctive test means and the pretest means served as covariates in the analysis of the posttest means. This procedure yielded adjusted posttest means, representing the relative effect of each treatment while accounting for pre-treatment subjunctive knowledge.⁷

After considering the subjects' pretest and subjunctive-test scores, both ANCOVAs revealed a significant main effect for group, signifying that on the two tasks the three groups differed in terms of their adjusted posttest means. A post-hoc Scheffé procedure for multiple comparisons provided insights into the nature of the main effects. The analysis revealed two patterns: (1) on both the interpretation and the production tasks the means of both experimental groups were higher than those of the control group; (2) on both tasks the two experimental groups' means were equal, statistically speaking.

Responding to the research questions, neither receives an affirmative answer. The analysis implies that, even though *both* instructional approaches helped the participants to bind a new meaning to the subjunctive (i.e., the subjunctive may indicate a non-referential/non-existent antecedent), the Processing Instruction group's lack of superior overall performance on the assessment measurements indicates that it did not benefit more than the output-oriented group.

Discussion and Conclusions

This experiment gauged the relative benefits of a processing-instruction approach to the subjunctive. Although the processing-instruction group did not outperform the output-oriented group, the results of the study are encouraging, as they indicate that teachers and materials designers could incorporate processing-instruction tasks into subjunctive instruction and be confident that students will benefit from such activities.

Still, previous studies on Processing Instruction showed that, whereas structured input led to gains in both comprehension and production abilities, output-oriented instruction only yielded production gains. In the present study, both instructional types led to comprehension and production gains. It is then premature to claim that Processing Instruction will be more beneficial than output-oriented instruction where instruction concerns the subjunctive.

Why might the experimental groups in this study perform similarly and the experimental groups of previous studies differently? Recall that Processing Instruction's success is largely due to its ability to help learners notice in input a grammatical structure and its meaning. Learners make form-meaning connections because structured input highlights a structure's communicative value. Nonetheless, Processing Instruction primarily distinguishes itself from traditional grammar instruction in terms of processing mode (i.e., it is input not output oriented). Thus, in all likelihood, some factor other than mode led to the two experimental groups' similar outcomes.

One explanation is that the subjects' pre-treatment knowledge of the subjunctive influenced their performance on the posttest. This explanation would require evidence that pre-treatment subjunctive knowledge was a predictor of posttest performance. However, Tables 3 and 4 indicate that a learner's performance on the two pre-treatment tests—as indicated by the covariates' effects—did not correlate with his or her performance on either the

posttest interpretation task [$F(2,49) = 2.50$; $p = .09$] or the posttest production task [$F(2,49) = 0.22$; $p = .80$]. Furthermore, regression analyses showed that the subjunctive test alone did not correlate significantly with either the posttest interpretation task or the posttest production task. Thus, it is improbable that exposure to the subjunctive prior to the treatment significantly influenced posttest performance. Some instructional feature that characterized both treatments likely accounts for the experimental groups' parallel performance profiles.

Given that processing mode primarily distinguishes Processing Instruction and traditional grammar instruction, this experiment raised the subjunctive's communicative value for both the input-oriented and the output-oriented groups (see **Instructional Procedures**). Close inspection of the previously published experiments suggests that their output-oriented groups generally were not compelled to make form-meaning connections, as in the following:

With another student, make up and answer questions following the model:

Model: *comer en casa* —>

¿Cuándo me invitas a comer en tu casa?
Te invito para el sábado.

1. *cenar en tu casa.*

2. *almorzar.*

(VanPatten and Cadierno 1993, 230)

This task does not require contemplation of the meaning of either *me* or *te*, as two students could mimic the model with *¿Cuándo me invitas a cenar en tu casa?* followed by *Te invito para el sábado*. Similarly, an activity requiring students to change a present-tense sentence to the preterit (e.g., change *Busco una aspiradora buena* to the preterit; cf. Cadierno 1995, Appendix A) demands no contemplation of the preterit's meaning.

The present experiment, however, seems to have operationalized output-oriented instruction differently. Whereas

VanPatten and Cadierno (1993) and Cadierno (1995) saw output-oriented instruction as entailing only some focus on meaning, this study presumed it should allow learners to make form-meaning connections whenever possible. Of course, these previous experiments have focused on "traditional" grammar instruction, focusing chiefly on form.

Nevertheless, the present results raise intriguing questions for researchers interested in methodologies of grammar instruction informed by psycholinguistics. Is Processing Instruction's efficacy due more to its input-oriented focus or to its raising of a grammatical structure's communicative value? VanPatten (1993) hypothesizes the following:

Since the internal system is a knowledge system (not a performance system), then change is possible only with exposure to structured input.... However, language use [read: output] involves a separate set of processes involving learners' ability to access the developing system. (VanPatten 1993, 447)

Yet, in this study, the students in the output-oriented group had nothing to access in terms of the subjunctive's meaning in adjectival clauses (i.e., non-referentiality/non-existence) even though they had previous exposure to the structure in imperatives. In adjectival clauses, the subjunctive's syntactic and semantic properties would be, from a learner's perspective, comparatively novel and therefore enjoy a largely distinct representation in long-term memory (cf. Cowan 1995). The subjunctive in adjectival clauses involves subordinate (e.g., *No hay nadie que venga con nosotros*) rather than—what appear to be—independent clauses (e.g., *¡Venga!*). Also, the subjunctive's function in imperatives is pragmatic, such that the structure's function is to effect a change in the surrounding speech situation; the subjunctive's function in adjectival clauses is discursive, disambiguating antecedents.

Perhaps output can also provide data to effect changes in the underlying grammatical system. Of course, VanPatten as well as other researchers exploring the effects of intake on acquisition (cf. Lee and Rodríguez 1997) readily acknowledge that "the role of

output in language teaching continues to be a question in need of further research" (VanPatten 1993, 447).

Recently, investigators such as Grove (1996) and Swain and Lapkin (1995) have argued that so-called pushed output tasks benefit acquisition. Essentially, when learners must negotiate for meaning in writing or speech, they reportedly become cognizant of gaps in their own grammatical competence.

[Research] is beginning to accumulate evidence supporting the theoretical claim that "pushing" learners beyond their current performance level can lead to enhanced performance, a step which may represent the internalization of new linguistic knowledge, or the consolidation of existing knowledge. (Swain and Lapkin 1995, 375)

All in all, then, the present experiment might compel researchers to study further whether meaningful production can provide the sort of data that VanPatten stipulates that the developing grammatical system needs or whether it primarily alters that which has already been acquired.

Concerning the generalizability of the present study, upon recognizing that the subjunctive connotes a myriad of semantic features (e.g., coercion, doubt, emotion, non-referentiality, futurity, etc.), the conclusions drawn here may not be generalizable to the acquisition of the subjunctive in nominal or adverbial clauses. Furthermore, the researcher recognizes that a longer treatment period (i.e., more than two class periods) might reveal further insights into the efficacy of both of the instructional approaches studied here. Nonetheless, this study provides additional support to VanPatten's (1997) assertion that psycholinguistic principles can effectively inform the FL classroom and the learning process even as it relates to abstract grammatical phenomena such as the Spanish subjunctive.⁸

■ NOTES

¹VanPatten (1987) describes the conditions that may elevate the communicative value of a grammatical structure in production: "[Copulas] generally do not add any real information to a message contained

in a sentence, and they may be either deleted in speech or unattended to in input without any particular interference in communication" (66). Conversely, a structure would have communicative value when it *does add information* to a message, such as when it disambiguates.

²Activities from Knorre et al. (1993) reflecting principles of processing instruction were omitted.

³Whereas most Spanish verb paradigms utilize the infinitive for stem formation (e.g., *salir* > *sales*, *saliste*, *salías*), the subjunctive derives from a conjugated form (e.g., *tú-salir*: *salgo* > *salgas*).

⁴This introduction involved the subjunctive in imperatives in both input- and output-oriented tasks.

⁵Various statistical procedures verified that all three tests had relatively the same number of items, words per item, vocabulary (although referring to different contexts), and morphosyntactic characteristics. Furthermore, each of twenty-five fourth-semester learners of Spanish took all three tests, and the resulting regression analyses confirmed that a participant's score on one test predicted his or her scores on the other two.

⁶A production task involving spontaneous speaking or writing was not conducted. As noted by Collentine (1995), the production of the complex syntax that surrounds the subjunctive appears to interfere with the processing of the subjunctive morphology by the type of learner examined in this study.

⁷Analyses of variance indicated that there were no statistical differences between the three groups on either the pretest [interpretation task: $F(2,51) = 0.02$; $p = .98$; production task: $F(2,51) = 0.42$; $p = .66$] or the subjunctive measurement [$F(2,51) = 0.09$; $p = .91$].

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