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Input Processing and Processing Instruction: Definitions and Issues

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Abstract

Input Processing (IP) proposed by VanPatten (1993), was innovated based on Krashen's (1982) input hypothesis. In IP model, principles are stated that describe how learners either miss grammatical markers in the input or how they get them wrong (VanPatten, 2002b). Based on this model, learners process input for meaning before form. Processing Instruction (PI), an explicit focus on form that is informed by the model of IP, is a practical solution to IP model. 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 (Wong, 2004). This article intends to study the definitions of IP and PI as well the issues of IP and PI, including the principles of IP, features and goal of PI, and input used in PI (Structured input activities), and then to introduce difference between the terms IP and PI.

Keywords: input processing, processing instruction, Structured Input activities.

1. Introduction

1.1 SLA Process

With no doubts, Second Language Acquisition (SLA) is a complex process. VanPatten (2004a) claims its complexity for at least two reasons; first, it involves the acquisition of a complex implicit linguistic system consisting of lexical entries and their features and forms, an abstract syntactic system, a phonological system, and rules on pragmatic use of language, among other components related to language; in addition, acquisition cannot be reduced to a single process, however, SLA is best conceived of as involving multiple processes that in turn may contain sub-processes that work at every stage of acquisition.

One of the processes which involves in SLA is IP, the initial process by which learners connect grammatical forms with their meanings as well as how they interpret the roles of nouns in relationship to verbs (VanPatten, 2004b). IP theory captures a series of internal strategies which learners might use in comprehending sentences and how these strategies might affect acquisition (VanPatten, 1996, 2004a).

1.2 SLA Process in IP and PI

During the last decades explicit grammar instruction has appeared to have beneficial effects on the processes, the ultimate level, and the rate of SLA (e.g. Long, 1991; Sharwood Smith, 1993; Ellis, 1993). Within the last few years, investigations have been made on the effects of one type of explicit grammar instruction which focuses on the learners' processing strategies followed by input-based practice. The instruction named PI (VanPatten, 1996), has been widely referenced in most input processing studies (VanPatten & Cadierno, 1993). Based on the theory of PI maintained by VanPatten and Cadierno (1993) and VanPatten (1996), SLA occurs through a series of processes. In the first process, learners drive intake from input. In the second process, PI assists the learners in making form-meaning connections and it aims to improve the qualities of the input to increase the amount of input that becomes intake.

2. Definition of IP and Issues

The theory upon which IP is based maintains that IP is concerned with how learners initially perceive and process linguistic data in the language they hear or read and with those psycholinguistic strategies and mechanisms by which learners derive intake from input (VanPatten , 1996, 2004a). According to Sanz and VanPatten (1998), IP refers to "a research domain about how learners make form-meaning connections as well as parse incoming sentences in the L2….It is the application of psycholinguistic inquiry to comprehension and processing of second language sentences" (p. 50). IP attends to explain the way learners get form from input and the way they assign grammatical roles to nouns during comprehension while their primary attention is on meaning.

2.1 Principles of IP

VanPatten's (1996) model of IP addresses the specific issue of how intake is derived from input and which psychological strategies the L2 learner tends to rely upon during input processing. As VanPatten (2003) asserts, IP consists of two sub-processes: making form-meaning connections and parsing. Making form-meaning connections means getting the connection between, for example, -s suffix and third person singular from the input. Principle 1 (the primacy of meaning principle), Principle 2 (the availability of resources principle), Principle 3 (the first noun principle), and Principle 4 (the sentence location principle) are principles which guide form-meaning connections. VanPatten (2003) defines parsing as "mapping syntactic structures on to the utterance, for example, knowing which noun is the subject and which is object when hearing a sentence" (p.29).

These strategies have been most recently summarized and modified in VanPatten (2004b,) in the form of two basic principles and some sub-principles:

Principle 1. The Primacy of Meaning Principle. Learners process input for meaning before they process it for form.

Five sub-principles which fall under the general matter of the primacy of meaning principle are summarized as:

Principle 1a. The Primacy of Content Words Principle. Learners process content words in the input before anything else.

Principle 1b. The 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.

Principle 1c. The Preference for Non-redundancy Principle. Learners are more likely to process non-redundant meaningful grammatical form before they process redundant meaningful forms.

Principle 1d. The Meaning-Before-Non-meaning Principle. Learners are more likely to process meaningful grammatical forms before non-meaningful forms irrespective of redundancy.

Principle 1e. 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.

Principle 1f. The Sentence Location Principle. Learners tend to process items in sentence initial position before those in final position and those in medial position.

Principle 2. The First Noun Principle. Learners tend to process the first noun or pronoun they encounter in a sentence as the subject/agent.

Three sub-principles, also, go under the second basic principle as:

Principle 2a. The Lexical Semantics Principle. Learners may rely on lexical semantics, where possible, instead of word order to interpret sentences.

Principle 2b. The Event Probabilities Principle. Learners may rely on event probabilities, where possible, instead of word order to interpret sentences.

Principle 2c. 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.

The first basic principle and its sub-principles are related to the processing of morphological form, functional categories such as articles, prepositions, etc. in the input, as well as dealing with the location of the sentence. The second basic principle and its sub-principles are relevant to order.

3. Definition of PI and Issues

Sanz and VanPatten (1998) define PI as "a psycholinguistically motivated focus on form that is an adjunct to communicative language teaching and/or to comprehension-based approaches" (p.50). According to Farley (2001)," PI [as an explicit focus on form] makes a deliberate attempt to intervene in the acquisition process by giving the learners explicit information concerning the target item, and activities containing structured input" (p. 289). Simply, it is a type of explicit grammar teaching which draws on the principles of IP and aims to improve the quality of input received by the learners so that the amount of input becoming intake will increase (Karacaer, 2003).

VanPatten (2002a) developed PI as a methodological approach to second language teaching which attempts to manipulate input to push learners away from their natural but "non-optimal processing strategies" and make better "form-meaning connections" (p. 764). VanPatten (1990, cited in Benati, 2001) has argued that PI which helps learners to process information via comprehension practice might be more effective than that which requires learners to produce language too prematurely. It is thought to be more effective as it provides a more direct route for the learner to convert input to intake.

According to Buck (2006) PI is based on a model which presents three processes involved in language acquisition. The first involves processing of the input and creation of intake, which consists of attention to form-meaning connections. In the second process these form-meaning pairs are incorporated into the developing linguistic system. These data can then be accessed for output in the third process. Buck (2006) believes that VanPatten's (1996) model focuses on the first process: the way input is processed. The mechanisms are conceptualized as consisting of a set of processes, illustrated in the following Figure:

I II III

input → intake → developing system → output

I *= input processing*

II *= accommodation and restructuring*

III *= access and production procedures*

Figure 1. A Model of the Processes in Second Language Acquisition (VanPatten, 1996)

In this model, the first set of processes that involves conversion of input into intake entails the principles of input processing, through which the learner actually interacts with the available language input. Intake is defined here as input that the learners pay attention to and from which form-meaning connections have been made (VanPatten, 1996). The subsequent processing involves either partial or complete accommodation of data (intake) into learner's developing system. Depending on the nature of the data, accommodation may have an effect on the developing system such that some kind of restructuring may occur. In his earlier work, VanPatten (1992, cited in Buck, 2006) referred to this set of processes as belonging to the branch of SLA research called Universal Grammar. Since this second process entirely involves processes within individuals' minds, it is much more complex and harder to define or operationalize. Finally, the third set of processes represents a learner's ability to access the previously incorporated data in his or her developing language system through producing output in the form of speaking and/or writing.

Although VanPatten (2002a) recently asserted that "output may play a number of important roles in language development" (p. 762) and that, in fact, it plays a facilitative role in acquisition (VanPatten, 2004a), he did not agree with the claim that "using a form in one's output is a direct path to acquisition" (VanPatten, 2004a, p. 27) and suggested instead, on the basis of current evidence, that acquisition does not appear to be dependent on output (VanPatten, 2004a). VanPatten (1993, 1996, 2000) proposes that PI has an effect on changing L2 learners' underlying developing system so as to effect changes in their output, and that this effect cannot be achieved by any type of output-based instruction.

3.1 Basic Features of PI as an approach to SLA

Wong and VanPatten (2003, p.410) suggest three basic features for PI. These are as follows:

1) Learners are given information about a linguistic structure or form.

2) Learners are informed about a particular IP strategy that may negatively affect their picking up the form/structure during comprehension.

3) Learners are pushed to process the form/structure during activities with structured input – input that is manipulated in particular ways so that learners become dependent on form and structure to get meaning, and/or to privilege the form/structure in the input so that learners have a better chance of attending to it. Learners do not produce the structure or form during structured input activities.

3.2 Goal of PI as an approach to SLA

VanPatten (1996) calims that PI approach is designed to avoid specific problems that learners have in processing input. As it has been described earlier, learners need access to input to produce linguistic systems. However, Wong and VanPatten (2003) believe that access to input does not guarantee correct processing. They say "If we can identify learner strategies or processes for dealing with input, perhaps we can manipulate the input in particular ways to push learners to process it better" (p.410) . Therefore, altering processing strategies which impede acquisition is the goal of PI (Buck, 2006).

VanPatten (1996) describes processing strategies as processing input for meaning before processing it for form, that includes processing content words in the input before anything else, that is, nouns, verbs, adjectives and adverbs (lexical morphemes rather than grammatical morphemes), as well as processing lexical items (e.g. temporal adverbs before grammatical items (verb morphology). VanPatten (1996) states that PI is to alter the processing strategies that learners take to the task of comprehension and to encourage them to make better form meaning connections and thus making an impact on the developing linguistic system by providing correct intake than they would if left to their own devices.

3.3 Structured Input activities (SI)

In PI, unlike many other forms of instruction, learners do not produce the language at first – they process input to understand it, and activities are designed to focus their attention on getting the right meaning from the stimuli (VanPatten, 1996). One of the criticisms that VanPatten (1996) makes of many teaching materials is that learners can do many activities without understanding the content. However, this is not acceptable within the PI model. The input used in PI is called 'Structured Input' (SI). The term 'Input' is used because learners actively focus on processing input instead of producing language. The term 'Structured' is used since the input is not spontaneous. In other words, PI consists of SI activities which offer the opportunity to interpret the form-meaning relationship correctly without any practice in producing the target form or structure (Van Patten, 1996).

As Farley (2001) asserts, "SI is language data (either oral or written) that has been altered in a way that encourages the L2 reader or listener to attend to the target item for meaning" (p.289). According to VanPatten (2002b), SI activities are those in which learners see a grammatical feature in the input and must use it to process the utterance for meaning. In SI

activities input is manipulated in such a way that learners become dependent on form or structure to get the meaning (Van Patten, 2002a).

Ellis (2001) defines SI instruction as fitting within FOFs category because it aims to focus student attention on form and because attention is repeatedly drawn to a preselected linguistic feature. A crucial aspect of this instructional approach is that it involves a primary FOF. In SI instruction students are required to work with language input that focuses their attention on a particular target structure. They are given listening or reading tasks that require them to pay attention to the form of the target structure and to process its meaning. They are not at any stage engaged in activities requiring them to produce this structure.

As Yazici (2007) claims, the activities used in PI frequently require the learners to express a personal opinion on a theme; they often involve themes which are familiar even to beginning learners, and often an attempt has been made to make them lively and humorous. Because these activities are selective in what they target, they are said to be SI activities.

To develop appropriate and effective SI activities, certain steps should be followed. VanPatten (1996) suggests the following guidelines for developing structured input activities:

(1) Teach only one thing at a time.

VanPatten's (1996) advice is not to burden the learner with more than one thing until the instructor is sure that the learner's have noticed and understood the form-meaning relation.

(2) Keep meaning in focus.

Learners must understand the stimuli to perform the activity.

(3) Learners must do something with the input. This does not mean 'repeat' or 'say

out loud' but rather 'internally process'.

VanPatten (1996) favors activities which require learners to agree or disagree with statements or to say: "Yes, that applies to me" or "No, it doesn't".

(4) Use input.

That is, research on individual learning styles suggests that some learners react quite negatively to getting only oral input; they want to see what they are hearing. Certainly, written input can help learners to segment the stimuli into words and perhaps also to see certain paradigmatic relations. Because the stimuli are not transitory, learners who are still quite slow in processing can have the time they need to work out the meaning of the stimuli.

(5) Move from sentences to context.

That is to say, we parse sentences and link their meanings into larger text units at the discourse level. If we start with sentences in activities, the learner has a limited stretch of speech or text to attend to notice relevant forms. Presumably, long sentences will present the same difficulty to learners. In short, practice the new form-meaning connections in discourse activities, but learn them first at the sentence level.

(6) Keep the psycholinguistic processing strategies in mind.

The psycholinguistic rationale for the SI activities is that acquisition occurs when learners attend to the new structure in input rather than when they attempt to produce it.

There are two types of activities in PI, called *Refrential Activities* and *Affective Activities*. VanPatten (1993) distinguishes between referential and affective activities. Referential activities are those for which there is a right or wrong answer and for which the learner must rely on the targeted grammatical form to get meaning. Normally, as Wong and VanPatten (2003) indicate, a sequence of SI activities would begin with two or three referential activities. Following referential activities, learners are engaged in affective SI activities. These are activities in which learners express an opinion, belief, or some other affective response and are engaged in processing information about the real world.

3.4 PI in Practice

Based on what has been discussed above, it is certain that PI requires a structural syllabus taught by means of SI activities. Regarding the usage of PI in curriculum development, VanPatten (1996) raises the following questions: Can and should PI occur outside of the classroom, say, as homework? Does it need to be brought into the classroom? Because PI is input based, can computers deliver effective PI? Pursuing questions such as these will help teachers and curriculum developers maximize communicative language use during the minimum amount of time that language students spend in the classroom. PI is entirely input-based and the SI activities can be presented in both written and oral form. Farley (2004) suggests that with the current emphasis on computer-assisted language learning, interactive multimedia materials such as web-based workbooks and CD-ROM/DVD-ROM programs are becoming more readily available. These materials, typically textbook supplements, are completed outside of normal classroom time. PI could be delivered easily using this medium, providing both written SI activities and opportunities to interpret oral input recorded and played as audio files.

4. Conclusion

IP refers a theoretical model of processing of what is assumed to occur in the brain on perceiving input (VanPatten, 2002a) and PI can be seen as an approach and a practical solution to the difficulty of having learners transform their understanding of input into output. As has been previously stated, PI, as an explicit grammar instruction, aims to enhance the salience of the input received by learners so that richer intake is derived from the input. This is achieved by engaging

learners in SI activities so that they process grammatical forms in the input and make proper form-meaning connections. According to VanPatten (1996, 2002a, 2004a) PI affects the developing system via intake and developing system, in turn, enables the learner to produce linguistic forms under certain circumstances. Through PI, the implication that grammar instruction should be tied to input has gains importance (VanPatten, 2003).

References

Benati, A. (2001). A Comparative study of the effects of processing instruction and output- based instruction on the acquisition of the Italian future tense. *Language Teaching Research 5*(2), 95-127. http://dx.doi.org/10.1177/136216880100500202

Buck, M. (2006). The effects of processing instruction on the acquisition of English progressive aspect. *Estudios de Lingüística Aplicada, 24* (43), 77-95.

Ellis, R. (1993). Second language acquisition research: How does it help teachers?. *ELT Journal*, *47*(1), 3-11.

Ellis, R. (2001). *Form-focused instruction and second language learning*. Malden, MA: Blackwell.

Farley, A. (2001). Authentic processing instruction and the Spanish subjunctive. *Hispania, 84*, 289- 299. http://dx.doi.org/10.2307/3657760

Farley, A. (2004). The relative effects of processing instruction and meaning-based output instruction. In B. VanPatten (Ed.), *Processing instruction: Theory, research and commentary* (pp. 147–172). Mahwah, NJ: Erlbaum.

Karacaer, Z. (2003). *The role of processing instruction: A study on English causatives.* Unpublished doctorial dissertation, Anadolu University, Eskişehir, Turkey.

Krashen, S. (1982). *Principles and practice in second language acquisition*. Oxford: Pergamon Press.

Long, M. H. (1991). Focus on form: A design feature in language teaching methodology. In K. de Bot, R. Ginsberg, & C. Kramsch (Eds.), *Foreign language research in cross cultural perspective* (39-52). Amsterdam: John Benjamins.

Sanz, C. & VanPatten, B. (1998). On input processing, processing instruction, and the nature of replication tasks: A response to M. R. Salaberry. *Canadian Modern Language Review, 54,* 263–273.

Sharwood Smith, M. (1993). Input enhancement in instructed SLA: Theoretical bases, *Studies in Second Language Acquisition*, *15*, 165-179. http://dx.doi.org/10.1017/S0272263100011943

VanPatten, B. (1993). Grammar instruction for the acquisition rich classroom. *Foreign Language Annals, 26,* 433-450.

VanPatten, B. (1996). *Input processing and grammar instruction in second language acquisition*. Norwood, NJ: Ablex.

VanPatten, B. (2000). Processing instruction as form-meaning connections: Issues in theory and research. In J. Lee & A. Valdman (Eds.), *Form and meaning: Multiple perspectives* (43-68). Boston: Heinle & Heinle.

VanPatten, B. (2002a). Processing instruction: An update. *Language Learning, 52,* 755-803.

VanPatten, B. (2002b). Processing the content of input processing and processing instruction research: A response to DeKeyser, Salaberry, Robinson and Harrington. *Language Learning, 52,* 825-831. http://dx.doi.org/10.1111/1467-9922.00203

VanPatten, B. (2003). *From input to output: A teacher's guide to second language acquisition.* Boston: McGraw Hill.

VanPatten, B. (2004a). *Processing instruction: Theory, research and commentary*. NJ: Lawrence Erlbaum Associates.

VanPatten, B. (2004b). Several reflections on why there is good reason to continue researching the effects of processing instruction. In B. VanPatten, (Ed.), *Processing instruction: Theory, Research and Commentary* (325-335). Mahwah, NJ: Lawrence Erlbaum Associates.

VanPatten, B. & Cadierno, T. (1993). Input processing and second language acquisition: A role for instruction. *Modern Language Journal, 77*, 45-57. http://dx.doi.org/10.1111/j.1540-4781.1993.tb01944.x

Wong, W. & VanPatten, B. (2003). The evidence is IN: Drills are out. *Foreign Language Annals, 36*(3), 403-423. http://dx.doi.org/10.1111/j.1944-9720.2003.tb02123.x

Wong, W. (2004). Processing instruction in french: The roles of explicit information and structured input. In B. VanPatten (Ed.), *Processing instruction: Theory, research and commentary* (187-205). Mahwah, NJ: Erlbaum.

Yazıcı, Ç. İ. (2007). *A study of the effects of processing instruction on the development of English wh- questions used by Turkish EFL learners.* Unpublished doctoral dissertation, University of Çukurova, Adana- Turkey.