

AAUSC 2008 Volume

Conceptions of L2 Grammar: Theoretical Approaches and their Application in the L2 Classroom

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AAUSC 2008 Volume, Conceptions of L2 Grammar: Theoretical Approaches and their Application in the L2 Classroom

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ISBN-13: 978-1-4282-3149-8

ISBN-10: 1-4282-3149-8

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1 2 3 4 5 6 7 11 10 09

Chapter 2

Input Enhancement and L2 Grammatical Development: What the Research Reveals

Ronald P. Leow, Georgetown University

Introduction

The role of input enhancement (IE) (Sharwood Smith, 1991, 1993) currently remains quite a controversial issue in the second language acquisition (SLA) field. While some studies (e.g., Jourdenais, Ota, Stauffer, Boyson, & Doughty, 1995; Lee, 2007) have reported positive effects of input enhancement on second/foreign language (L2) development, others have failed to find such effects in their findings (e.g., Leow, 2001; Wong, 2003).

Adding to these inconclusive findings is the broad definition assigned to the term “input enhancement” in the SLA literature and the different methodological approaches employed for its operationalization and measurement. On the one hand, some instructional strands of research (e.g., *focus on form* and *processing instruction*)¹ appear to have shared Sharwood Smith’s broadest definition of input enhancement—a permutation of the different exemplars of his two axes of elaboration and explicitness—that conflates the independent variable enhancement with other instructional independent variables. On the other hand, other strands of research (e.g., *textual enhancement* and *input flooding*) have methodologically teased out the variable enhancement and compared the effects of this variable to its absence in L2 development. To date, no published study has teased out and compared these two substrands coexisting within the concept input enhancement to provide a clearer picture of the role of input enhancement in L2 grammatical development.

To this end, this chapter will do the following:

- Critically assess Sharwood Smith’s concept of input enhancement, which appears to have undergone a theoretical change from its original notion of consciousness-raising in relation to the role of awareness in his postulation and also a change from a product to a process perspective
- Critically evaluate separately the two substrands [referred to in this study as conflated input enhancement (CIE) and non-conflated input enhancement (NCIE)] with a strong emphasis on the research methodologies employed in these studies in relation to their internal and external validities, and then compare the differences between these substrands
- Provide informed suggestions, based on the appropriate robustness of research findings, that teachers may want to consider to understand and evaluate the potential contribution that input enhancement may have regarding learners’ L2 grammatical development.

Theoretical Underpinning

The term “input enhancement” was first proposed by Sharwood Smith (1991, 1993) to override his previous term “language consciousness-raising” (Sharwood Smith, 1981), which was “a complete and unrelenting focus on the formal structure of the TL” (Sharwood Smith, 1981, p. 160). Consciousness-raising (an internal processing) focused on product (explicit knowledge) and assumed that learners became conscious of all the input to which they were exposed, which would lead to some linguistic change in their mental state. Input enhancement, by contrast, is viewed by Sharwood Smith more from an input processing perspective regarding the input/intake² dichotomy and is associated with an external manipulation of the L2 input.

Sharwood Smith, then, views input enhancement from two perspectives: internal and external. An internal perspective views the L2 input as being enhanced by the learners’ internal mechanism that makes salient specific features in the input—for example, paying attention to words at the beginning of a sentence (see Rosa & O’Neill, 1999, for empirical support). An external perspective views input enhancement as any pedagogical attempt (usually by a teacher) to make more salient specific features of L2 input in an effort to draw learners’ attention to such enhanced features (cf. examples cited in the next paragraph). The major theoretical underpinning of either perspective is, without doubt, the role that attention plays in facilitating the intake of grammatical information before such information can be processed further into the learners’ language system.

Sharwood Smith maintains in the concept of input enhancement the original notion of his two axes (degrees of elaboration or duration and explicitness or metalinguistic depth) postulated for consciousness-raising and provides exemplars of these two axes: Exemplars on the elaboration axis range from a one-time signal to indicate a learner error to repeated signals for the same type of error, while exemplars on the explicitness axis range from a facial gesture to a metalinguistically sophisticated rule explanation. A permutation of these two axes may result in the following examples of input enhancement: A teacher may (1) raise an eyebrow once or more than once to indicate that a student has made a grammatical error but not provide any feedback regarding the error; (2) raise the eyebrow once or more than once and correct the error once or more than once; or (3) raise the eyebrow once or more than once, correct the student once or more than once, and provide a grammatical explanation for the error produced once or more than once.

According to Leow (2007), the definition of input enhancement, based on these two axes of elaboration and explicitness is

arguably too open-ended to be empirically tested and this may have led to several misinterpretations of what comprises an empirical study with an appropriate research design that has set out to address the effects of the variable input enhancement on comprehension, intake, and L2 development. (p. 44)

While the role of attention is noncontroversial in input enhancement, of less certainty is the role that learner awareness plays in such input modifications.

This uncertainty is due to a subtle shift in the role of consciousness or awareness in the new term input enhancement or, as Sharwood Smith (1993) states, “In this way the role of awareness is vastly reduced from that which we might otherwise assume to be the case” (p. 171). From a current attentional perspective, Leow (2007) points out that one plausible interpretation of this statement may be that Sharwood Smith is backing away from a strong postulation of a role for awareness at the level of understanding (consciousness-raising of grammatical rules) and is now proposing a reduced level of awareness, perhaps at the level of noticing—that is, attention plus a low level of awareness (cf. Schmidt’s noticing hypothesis, 2001).³ Another interpretation, according to Leow, may be that Sharwood Smith is leaning toward Tomlin and Villa’s (1994) notion of detection, which is the cognitive registration of stimuli that alone is necessary for further processing of input and subsequent learning to take place. Crucially, detection, according to Tomlin and Villa, does not imply a role for awareness.

Empirical Studies of Input Enhancement in SLA

Given the broad definition assigned to input enhancement in the SLA literature, the present chapter categorizes into two substrands studies that have incorporated in their research designs Sharwood Smith’s (1991) definition of input enhancement—namely, as any pedagogical intervention on the part of the teacher/researcher to make targeted items in the L2 input more salient in an effort to draw attention to these enhanced items. These two substrands are (1) those studies that included some kind of input enhancement in their overall research designs and (2) those studies that have methodologically teased out the variable enhancement in their designs.⁴

The first substrand, termed in this chapter “conflated input enhancement” (CIE), incorporates a permutation of the different exemplars of Sharwood Smith’s two axes—that is, elaboration and explicitness. Input enhancement is operationalized as a conflation of the variable input enhancement plus one or more independent variables (some not methodologically controlled), and the research design employed views this conflation as one independent variable. For example, participants in a CIE study may be exposed to L2 texts in which targeted grammatical forms are highlighted or enhanced in an effort to draw learners’ attention to these forms while they read the texts. In addition to these enhanced texts, participants are provided with grammatical information (e.g., feedback, explicit metalinguistic information or instruction) regarding the grammatical rules of the targeted forms in the texts. These two sources of exposure and grammatical information are then combined (i.e., conflated) to represent input enhancement of the L2 data. The control group is not exposed to any enhanced input or provided with any grammatical information.

While the direct comparisons between the two groups are (1) the absence or presence of enhancement, (2) the absence or presence of grammatical information, and (3) the absence or presence of enhancement plus grammatical information, the research designs of these studies typically address only the

third comparison. In other words, the true effects of enhancement are conflated with those of grammatical information. Did the effects come from enhancement only, from grammatical information only, or from a combination of the two? Only the last question is answered in the CIE design.

The second substrand, called “non-conflated input enhancement” (NCIE) in this chapter, avoids conflating enhancement with another variable by methodologically teasing out the variable input enhancement and comparing an enhanced group (+ enhanced input) with an unenhanced one (– enhanced input). For example, one experimental group receives a text enhanced with targeted forms bolded and underlined. The other group (control) receives the same text but without any forms bolded and underlined. No other source of exposure or grammatical information is provided.

NCIE studies, then, address only the first direct comparison listed earlier for the CIE studies—namely, the presence or absence of enhancement. Consequently, any statistical difference in performance can be attributed to the variable enhancement and nothing else, everything being equal.

Given these two methodological approaches to the concept of input enhancement, it is clearly important to compare critically these two substrands coexisting within the concept of input enhancement to provide a clearer picture of the role of input enhancement in L2 grammatical development.

Conflated Input Enhancement: Empirical Studies

In the CIE substrand of research (Table 1), input enhancement (metalinguistic and/or visual) has been subsumed within, for example, (1) some type of instruction, be it focus on form (e.g., Leeman, Arteagoitia, Fridman, & Doughty, 1995) or processing instruction (e.g., VanPatten & Cadierno, 1993), or (2) oral or written interaction via the use of recasts (Leeman, 2003, for oral; Sachs & Suh, 2007, for written) or corrective feedback (e.g., White, Spada, Lightbown, & Ranta, 1991). These studies typically compared the performance of a group exposed to conflated input enhancement with that of a control group that is not exposed to such conflated enhancement.

The typical research design comprised a pretest–instruction or interaction–post-test format. With the exception of the processing instruction strand, not many studies have addressed delayed effects. As can be seen in Table 1, quite a range of linguistic items, languages and language levels, amount of exposure, and postexposure linguistic assessment tasks has been included in the research designs.

The majority of CIE studies report overall significant benefits for this type of input enhancement (e.g., Doughty, 1991; Lee, 2007; Leeman, 2003; VanPatten & Cadierno, 1993; White et al., 1991), while only two studies did not find such a benefit over the control group (Leeman et al., 1995; Sachs & Suh, 2007). Given the research designs employed, the logical methodological questions that arise are whether the variable input enhancement in these designs (1) contributed significantly to the improved L2 development, (2) was redundant, or (3) simply needs to

Table 1
A Summary of Conflated Input Enhancement (CIE) Studies

| Study and Year | Participants/ L2 | Exposure Time | Input/ Enhancement | Targeted Forms/ Structures | Measurement of Attention | Delayed Effects | Results |
|--|--|---|--|----------------------------------|---|--------------------|--|
| Benefits | | | | | | | |
| Doughty (1991) | 20 ESL students | 10 working days of treatment | Instruction + IE <i>Highlighting and capitalization</i> | English relativization | Offline: Written (grammatical judgment task, guided and nonguided sentence combination) Oral (specific and general elicitation based on sets of pictures and a park scene, respectively) | Not addressed | Significant benefit for instruction + IE |
| White, Spada, Lightbown, & Ranta (1991) | 129 francophone ESL learners <i>Beginning college level</i> | Phase 1: 3 hours of explicit instruction, 2 hours of activities and corrective feedback | FonF + IE <i>Corrective feedback</i> | L2 question formation | Offline: Correction (grammatical judgment task) and oral communication tests | Not addressed | Significant benefit for instruction + IE |

| | | | | | | | |
|---|---|-------------------------------|---|----------------------------------|--|---------------|--|
| *VanPatten & Cadierno (1993) | 49 learners of Spanish <i>Intermediate college level</i> | 2 class sessions | Instruction + IE <i>Grammatical explanation</i> | Spanish clitic object pronouns | Offline: Interpretation and written production tests | Addressed | Significant benefit for instruction + IE at both immediate and post-tests |
| Leeman, Arteagoitia, Fridman, & Dougherty (1995) | 22 learners of Spanish <i>Advanced college level</i> | 2 class sessions and homework | FonF + IE <i>Enhanced reading text/questions with underline, highlighting, different color for each tense</i> | Preterit versus imperfect | Offline: Debate, essay, GJT, modified cloze test | Not addressed | Benefit for FonF but not in direct comparison with communicative group |
| Leeman (2003) | 74 learners of Spanish <i>First year college level</i> | Approximately 20 minutes | Information-gap activities + IE <i>Enhanced recasts</i> | Spanish noun/adjective agreement | Offline: 3 oral picture-difference tests | Addressed | Significant benefit for oral enhanced positive evidence at both the immediate and delayed post-tests |
| Lee (2007) | 259 Korean ESL learners <i>Grade 11</i> | 1 hour | 3 written texts (36 + exemplars), oral discussion + IE <i>Large, boldfaced with different fonts</i> | English passive voice | Offline: Form-correction test | Not addressed | Significant benefit for prior knowledge, oral discussion + IE |

(continued)

Table 1 (continued)
A Summary of Conflated Input Enhancement (CIE) Studies

| Study and Year | Participants/ L2 | Exposure Time | Input/ Enhancement | Targeted Forms/ Structures | Measurement of Attention | Delayed Effects | Results |
|--------------------|--|------------------|---|--|---|--------------------|--|
| No Benefits | | | | | | | |
| Sachs & Suh (2007) | 30 Korean EFL learners <i>Intermediate to high-intermediate</i> | More than 1 hour | Computerized recasts + IE <i>Underlining and boldfacing</i> | Backshifting of verbs from the past perfect in English | Online: Think aloud protocols Offline: Multiple-choice text completion tests | Not addressed | No significant benefit for written enhanced recast |

*The design and findings of this study generally represent a series of conceptual replications that include VanPatten & Sanz (1995), Cadierno (1995), VanPatten & Oikkenon (1996), Farley (2001a, 2001b, 2004), Cheng (2002), Benati (2004), VanPatten & Wong (2004), Wong (2004), and Marsden (2006).

be presented with other independent variables (e.g., feedback, oral discussion, instruction) to be beneficial to L2 development.

In addition, whether learners paid attention to the enhanced forms remains unknown owing to the context in which the enhanced input was presented. In other words, online or concurrent data gathered via online data elicitation procedures such as “think aloud” protocols⁵ were not elicited in these studies to establish that attention was, indeed, paid to the enhanced forms in the input before any statistical analyses were conducted to address its effect (cf. Leow, 1999, for a critical overview of studies premised on the role of attention in L2 development). Online data are, by nature, higher in internal validity⁶—that is, they provide superior evidence of attention being paid to enhanced input than offline data, which can be used only to make inferences as to whether learners paid attention to the enhanced form or structure in the input. This lack of online data presents an internal validity issue related to the findings of most studies in this strand of research. In addition, the effect of CIE on learners’ retention of grammatical information has not been adequately addressed.

In sum, findings indicate that input enhancement conflated with other independent variables such as feedback, oral discussion, and instruction appears to promote superior grammatical development when compared to the absence of such conflation.

Non-conflated Input Enhancement: Empirical Studies

NCIE studies (Table 2) involve not only types of written typographical cues to enhance the saliency of targeted linguistic forms (usually one or two types) in the input (visual textual enhancement), but also relative frequency of linguistic forms in the L2 input (input flooding). In visual textual enhancement, many studies have visually modified or enhanced written input via the use of bolding, capitalizing, underlining, italicizing, different fonts and sizes, and so on (e.g., Alanen, 1995; Bowles, 2003; Izumi, 2002; Jourdenais et al., 1995; Leow, 1997; Leow, Egi, Nuevo, & Tsai, 2003; Overstreet, 1998; Shook, 1994; Williams & Evans, 1998). In input flooding, the frequency of targeted items has often been substantially increased in an effort to draw readers’ attention to these items in the input (e.g., White, 1998). For example, White (1998) exposed participants in her study to a 10-hour package of L2 input comprising short stories, fables, and poems that included collectively more than 100 targeted grammatical forms during a two-week period. These studies typically compared the performance of a group exposed to enhanced input with that of a control group not exposed to such enhancement in the input.

The textual input enhancement strand of research contains a relatively large number of studies that have attempted to address empirically its effects on L2 grammatical development. Consequently, as can be seen in Table 2, quite a range of linguistic items, languages and language levels, amount of exposure, text lengths and postexposure linguistic assessment tasks have been included in the research designs. Like the CIE studies, the typical research design comprised

Table 2
A Summary of Non-confiliated Input Enhancement (NCIE) Studies

| Study and Year | Participants/L2 | Exposure Time | Input/Enhancement | Targeted Forms/ Structures (Number) | Measurement of Attention | Delayed Effects | Results |
|--|--|------------------|--|---|---|-----------------|------------------------|
| Benefits | | | | | | | |
| Shook (1994) | 125 learners of Spanish <i>First/fourth semester</i> | Less than 1 hour | 2 passages • 185 (perfect) • 217 (relative pronouns) <i>Uppercase and bold</i> | Present perfect (6) Relative pronouns (6) | Offline: Multiple-choice (MC) recognition Production (fill-in-the blanks) test | Not addressed | Significant benefit |
| Jourdenais, Ota, Stauffer, Boyson, & Doughty (1995) | 10 learners of Spanish <i>Second semester</i> | Less than 1 hour | 210 words <i>Underline, bold, shadow, different font</i> | Preterit (18) Imperfect (10) | Offline: Production (essay) | Not addressed | Significant benefit |
| No Benefits | | | | | | | |
| Alanen (1995) | 36 anglophone learners of Finnish <i>First semester</i> | Less than 1 hour | 2 passages: 87 and 98 words <i>Italics</i> | Type of locative suffixes (12-13) Consonant change (5-8) | Online: Think aloud protocols Offline: Sentence completion test | Not addressed | No significant benefit |
| Leow (1997) | 84 learners of Spanish <i>Second semester</i> | Less than 1 hour | 2 passages: 631 (long) <i>Underline, bold</i> | Formal imperatives 15 (short passage) 24 (long passage) | Offline: MC recognition test | Not addressed | No significant benefit |

| | | | | | | | |
|--------------------------|---|------------------------|---|--|---|---------------|--|
| Jourdenais (1998) | 124 learners of Spanish <i>Second semester</i> | During a 1-week period | 3 chapters of narrative <i>Bold, shadow, different font</i> | Preterit (36) Imperfect (36) | Offline: Production (essay) | Not addressed | No significant benefit |
| Overstreet (1998) | 50 learners of Spanish <i>Third semester</i> | Less than 1 hour | 2 passages: 210 (familiar), 210 (unfamiliar) <i>Underline, bold, shadow, different font</i> | Preterit (18) Imperfect (10) | Offline: Circle the verb Production (picture-cued essay) | Not addressed | No significant benefit |
| White (1998) | 86 francophone ESL learners Grade 6 | During a 2-week period | 10-hour instructional package: short stories, fables, poems, etc <i>Enlargement, different combinations of bold, italics, underline</i> | Third person singular Possessive pronouns | Offline: Oral picture description | Addressed | No significant benefit at either the immediate or delayed post-tests |

(continued)

Table 2 (continued)
 A Summary of Non-conflated Input Enhancement (NCIE) Studies

| Study and Year | Participants/L2 | Exposure Time | Input/Enhancement | Targeted Forms/ Structures (Number) | Measurement of Attention | Delayed Effects | Results |
|---------------------------------|---|------------------------|---|---|---|--|---|
| Leow (2001) | 21 learners of Spanish <i>First year</i> | Less than 1 hour | 242-word passage Underline, bold | Spanish formal imperative (17) | Online: Think aloud protocols Offline: MC, fill-in-the-blank, production tests | Not addressed due to abnormal distribution of data | No significant benefit when amount of noticing compared |
| Lzumi (2002) | 61 ESL learners | During a 2-week period | 5 passages: 180 words (approximately) Bold, shadow, different fonts and sizes | English relativization | Online: Note-taking Offline: Sentence combination (picture-cued essay); interpretation GJT; postexposure questionnaire | Not addressed | No significant benefit |
| Leow, Egi, Nuevo, & Tsai (2003) | 72 learners of Spanish <i>First year</i> | Less than 1 hour | 2 magazine passages Underlined, bolded, larger font | Perfect (10) and subjunctive (10) forms | Online: Think aloud protocols Offline: MC test | Not addressed | No significant benefit |

| | | | | | | | |
|----------------------|--|------------------|---|---|---|---------------|--|
| Bowles (2003) | 15 learners of Spanish <i>Fourth semester</i> | Less than 1 hour | 242-word passage <i>Underline, bold</i> | Spanish formal imperative (17) | Online: Think aloud protocols MC, fill-in-the-blank, production tests | Addressed | No significant benefit when amount of noticing compared at both immediate and delayed post-tests |
| Wong (2003) | 81 learners of French <i>Second semester</i> | Less than 1 hour | 3 articles (526, 465, 517 words) <i>Bold, larger font, italics, underline</i> | French past participle agreement in relative clauses (16) | Offline: Error correction test | Not addressed | No significant benefit |

a pretest–exposure–post-test format, and most studies have not addressed delayed effects.

Only a few studies have reported significant benefits for textual input enhancement on L2 intake and grammatical development (e.g., Jourdenais et al., 1995; Shook, 1994) when compared to the control group on the posttests. The following results are of particular interest: (1) A conceptual replication of Jourdenais et al.'s study (Jourdenais's 1998 unpublished dissertation) with a larger number of participants (10 versus 124, respectively) reported no significant benefits, and (2) Shook instructed his successful enhanced group not only to pay attention to the enhanced forms while reading, but also to formulate grammatical rules for these enhanced forms in his study, clearly indicating some deeper level of processing or awareness when compared to simply reading for meaning.

The majority of studies with no specific instruction to pay attention to the enhanced items in the input appear to indicate no statistical benefit regarding L2 development on post-test outcomes (Alanen, 1995; Izumi, 2002; Leow, 1997, 2001; Leow et al., 2003; Overstreet, 1998; White, 1998; Wong, 2003).⁷ Nonsignificant findings have also been reported in the input flooding strand (White, 1998). In this NCIE substrand, only four studies have operationalized and measured the process of attention in some way before addressing the effect of textual input enhancement on L2 development. Consequently, as in the CIE studies, the absence of online or concurrent data presents an internal validity issue to the findings of several studies in this strand of research. In addition, as in the CIE substrand, the effect of NCIE on learners' retention of grammatical information has not been adequately addressed, although nonsignificant differences reported on immediate post-tests do not augur well for positive delayed effects.

In sum, it appears that enhancing written input or increasing the number of linguistic items in the input, combined with no specific instruction to attend to enhanced items in the input, does not promote statistically superior intake and written production of targeted linguistic forms in the input when compared to a control group exposed to unenhanced input.

Plausible Explanations for the Nonsignificant Benefits in Textual Enhancement Studies

In the NCIE substrand, three studies (Bowles, 2003; Leow, 2001; Leow et al., 2003) have employed online data elicitation procedures such as “think aloud” protocols to gain a clearer understanding of the processes involved while L2 readers read enhanced and unenhanced L2 texts. These studies have provided two plausible explanations to account for the apparent lack of linguistic benefit attributed to textual enhancement:

- The statistically equal amount of reported noticing of targeted items in the input (Bowles, 2003; Leow, 2001; Leow et al., 2003)
- The apparent low level of awareness of the targeted items (Leow, 2001; Leow et al., 2003), which may indicate that learners did not necessarily

attempt to process enhanced items in the input for grammatical information but simply sought to extract semantic information from the targeted forms

Indeed, Leow (2001) has suggested that level of awareness—not necessarily input enhancement—might play a more important role in the overall nonsignificant benefits reported by studies addressing textual enhancement. This perspective, based on online data, gives a more prominent role to awareness in any subsequent processing of linguistic information based on enhancement. In addition, it appears to concur more closely with Sharwood Smith's internal perspective of input enhancement than the external one.

CIE versus NCIE Studies

Given the clear difference in grammatical benefits for input enhancement on L2 grammatical development when viewed from CIE and NCIE perspectives, the findings of these studies need to be interpreted in light of the differences in research design and in terms of the robustness of these designs in both substrands.

There are potentially two major differences in the research designs between the two substrands. The first difference is the amount of exposure provided to the L2 learners. As can be seen in Tables 1 and 2, CIE studies were conducted over a longer period of time, usually more than three hours, as compared to NCIE studies, which typically averaged less than an hour of exposure. The second difference is the type of interaction present during the exposure: For the CIE studies, exposure usually included some form of oral instruction or interaction with a local focus on a specific targeted linguistic item—and this mode may demand far deeper processing by learners in such a context. For example, Leeman's (2003) study isolated the enhancement variable in an interactive setting in which the recast was also enhanced; it found significant benefits for such enhanced recasts when compared to the absence of enhancement in the recast. Conversely, NCIE studies were typically conducted within a reading mode and focused first more globally on content than on the targeted linguistic item in the input. Recall, however, Shook's (1994) study, which found significant benefits for the group that was requested not only to pay attention to the enhanced forms but also to formulate a grammatical rule for them.

From a methodological viewpoint, both substrands appear to suffer overall from the same major internal validity limitation—namely, the failure to operationalize and measure the process of attention upon which the notion of input enhancement is based. In other words, did learners really notice or pay attention to the enhanced items in the input? If they did notice the enhanced form, did they become aware of any grammatical feature embedded in the enhanced form?

The CIE studies also suffer from an inability to tease out the specific impact of input enhancement from the one or more independent variables with which it has been conflated. For example, Lee (2007) reported positive benefits for textual enhancement on Koreans' use of the passive voice in English. In this study, an oral discussion of the experimental text after its reading was included in the

research design. It was also reported that learners' prior knowledge of the targeted linguistic structure was relatively high. Given that textual enhancement was not teased out from these two other potential independent variables (oral discussion and prior knowledge), the question remains whether the findings were a result of textual enhancement alone or whether they actually represented a permutation of textual enhancement, oral discussion, and prior knowledge. Consequently, this type of conflation prevents any definitive statement from being made about the effect of the variable textual enhancement, and conclusions regarding the effects of textual enhancement per se on L2 development may need to be watered down or reported in the appropriate context.

What the IE Literature Reveals

The critical review of the literature on the grammatical benefits of input enhancement reveals three major findings.

1. A conflation of input enhancement with one or more variables (e.g., instruction, feedback, metalinguistic information, oral discussion), together with an exposure that lasts for more than three hours, appears to contribute to better grammatical development. There is one caveat, however: It is unknown what specific role the variable input enhancement has played in this development.
2. In the written mode, the variable input enhancement provided in a period of less than one hour does not appear to hold any superior grammatical benefit when compared to the absence of such enhancement. While learners may report noticing more targeted items in the input (Bowles, 2003), the low level of awareness revealed in online data may indicate that internalization of grammatical information may require a higher level of awareness (Leow, 2001; Leow et al., 2003).
3. The issue of delayed effects of input enhancement on L2 grammatical development has not been robustly investigated.

Pedagogical Implications

Given the revelations of the IE literature, it is recommended that teachers be aware that the potential impact of the variable IE appears to depend on the mode or context in which it is employed; the amount of time spent for exposure; and the level of awareness or processing of the enhanced grammatical item. To this end, exposing L2 learners to textually enhanced input in the written mode may not have its expected result, perhaps owing to learners' focus (that is, on meaning) and/or low processing or level of awareness of the enhanced items in the input during exposure. Taking these factors into consideration, it is recommended that the provision of enhanced written L2 texts designed to draw readers' attention to and raise learners' awareness of the grammatical features of the enhanced forms should include some instruction to process these targeted forms carefully.

Given that L2 readers typically process a L2 text for meaning, this detailed attention to enhanced forms should be promoted after the L2 readers have had a chance to perform this content-based task.

For example, consider a teacher who would like to expose his or her students to several exemplars of a new targeted linguistic form (for example, past tense verbs) in an authentic article in the foreign language. To draw the students' attention to these targeted forms in the text, the teacher underlines all instances of the forms before asking the students to read the text. Based on the findings of the current empirical literature, it would be advisable to ask the students first to read the text for content, and then to redirect their attention to the enhanced forms. At this point, the level of cognitive processing or awareness of the linguistic feature(s) of the targeted form will depend on the teacher's objective(s). For a preliminary introduction to the physical feature of the targeted forms, students may simply be asked to note the forms. For a deeper level of processing or awareness of the linguistic feature(s), students may be requested to formulate an underlying rule or pattern regarding the targeted forms in the text. In this way, the teacher can obtain insights into whether students did, in fact, pay attention to the enhanced forms in the text—a prerequisite for any linguistic information to be taken in by the students.

On the other hand, combining input enhancement within an instructional period or interactional session that is focused primarily on the targeted grammatical item in the input appears to contribute to significantly better L2 development. This outcome may reflect the extended length of exposure and deeper level of processing or awareness of the targeted grammatical item provided by this type of exposure. Consequently, providing input enhancement within these contexts in the classroom setting is strongly supported by current empirical evidence and logically appears to be the preferred way to expose learners to enhanced input.

Conclusion

A critical review of the IE literature does not reveal any solid evidence for the use of input enhancement and, more specifically, for the use of textual enhancement, as an independent variable in promoting L2 grammatical development in the classroom setting. At the same time, there is no overwhelming evidence arguing against its use. Indeed, with a better awareness of what the literature reveals regarding the potential impact of input enhancement on L2 grammatical development, teachers can, in their own informed way, manipulate their use of the L2 input in a way that not only draws learners' attention to such enhancement, but also promotes a deeper processing of the grammatical information embedded in the targeted enhanced forms in the input.

Notes

1. From a focus on form (FonF) perspective, Doughty and Williams (1998) place input enhancement at the implicit end of exposure to the L2, whereas Wong (2007) views processing instruction and structured input as input enhancement.

2. "Intake . . . is that part of the input that has been attended to by second language learners while processing the input. Intake represents stored linguistic data that may be used for immediate recognition and does not necessarily imply language acquisition" (Leow, 1993, p. 334).
3. Empirical evidence for the role of awareness (both at the level of noticing and understanding) in SLA has been reported in current attentional research (e.g., Leow, 1997, 2001; Rosa & Leow, 2004; Rosa & O'Neill, 1999).
4. Given that this chapter discusses input enhancement, studies addressing the notion of consciousness-raising (e.g., Fotos, 1993; Nagata & Swisher, 1995) are not included in this chapter review.
5. "Think aloud" protocols are gathered online or concurrently while learners are performing a task or reading a L2 text. Learners are requested to say aloud whatever they are thinking during performance and not to explain their thought processes (these results are known as non-metalinguistic think alouds).
6. Internal validity deals with the interpretation of the research findings within the study itself.
7. Some studies have reported a significant improvement from pretest scores to post-test scores by groups exposed to enhanced input (e.g., Leow, 1997; Sachs & Suh, 2007). However, when post-test scores are compared to the scores of the control group, no significant difference in performance is found.

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