Form-focused instruction and the acquisition of tense by Dutch-speaking learners of English: Experimental studies into the effects of input practice and output practice

Ureel, J.J.J.

Citation for published version (APA):

General rights
It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations
If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: http://uba.uva.nl/en/contact, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.
CHAPTER 3
TENSE AND INSTRUCTED SLA

Like students of art who walk around a great statue, seeing parts and aspects of it from each position, but never the whole, we must walk mentally around time, using a variety of approaches, a pandemonium of metaphor.
(Robert Grudin)

3.1 Introduction
After investigating the challenges involved in defining and operationalizing both the grammatical category of tense (Chapter 1) and complexity features related to the grammatical category of tense in linguistic and SLA contexts (Chapter 2), I would now like to place the focus of investigation on a more SLA-specific context, that is, the context of L2 temporality and instructed SLA. The focus in this chapter will be on two specific aspects of acquiring L2 temporality: (1) the ways in which L2 temporality has been and is approached in the field of SLA and (2) the ways in which instruction, more precisely, input (practice)-based and output (practice)-based form-focused instruction, may be conceptualized when investigating the effects of explicit instruction.

In this third chapter, I will investigate three issues in greater detail. The first section of this chapter (Section 3.2) will look at how the grammatical category of tense functions as one of three means (pragmatic, lexical, morphological) used to express temporality. In SLA research, one of two approaches is generally used to investigate temporality. Depending on how one approaches temporality and its key features, a choice is usually made to adopt either a form-oriented approach or a meaning-oriented approach to L2 temporality. Both approaches will be discussed in this chapter. In addition, the ways in which tense is conceptualized in both approaches will be highlighted with a clear focus on the meaning-oriented approach. The reason for focusing on the meaning-oriented approach is the experimental research carried out for this doctoral dissertation, which is reported on in Chapters 4, 5 and 6. This research is predicated on a meaning-oriented approach to L2 temporality.

In the second section of this chapter (Section 3.3), the focus will be placed on one specific form of SLA, that is, instructed SLA. The title of this dissertation makes a reference to form-focused instruction (FFI) and in the second section the reader will be guided through the conceptualization of FFI in instructed SLA. At first glance, form-focused instruction may be at odds with a meaning-oriented approach to L2 temporality but clarification of this seemingly contradictory terminological distinction will shed light on the overall approach.
adopted for the experimental research carried out for this dissertation. In addition, two approaches will be presented which both offer options for practice-based instructional types: (1) input processing and (2) skill acquisition theory. In both approaches, practice plays an essential role. However, because of inherent differences between both approaches, the roles and implications of practice are not identical. Consequently, predictions with regard to L2 type-of-instruction theory and the roles of practice vary and will be explained in approach-specific contexts.

3.2 Investigating the L2 acquisition of temporal expression

3.2.1 Early investigations into temporal expression

In the first chapter of her 2000 book *Tense and Aspect in Second Language Acquisition: Form, Meaning, and Use*, Kathleen Bardovi-Harlig (2000) writes that “temporal expression, or what C. Smith (1980) has called “time talk”, has come into its own as an area of research in adult second language acquisition” (p. 1). As true as these words were when the book was published in 2000, a decade later, we have witnessed and are still witnessing an enormous increase in the number of SLA publications dealing with temporality and the acquisition of highly specific and constantly developing L2 temporal features (e.g., Ayoun & Salaberry, 2005; Bardovi-Harlig, 1999, 2001, 2006; Bardovi-Harlig & Comajoan, 2008; Collins, 2002; Salaberry, 2008; Salaberry & Shirai, 2002). L2 temporality is now anything but a neglected area of SLA.

For all the methodological systematicity that many of the past and contemporary studies into L2 temporality display, the first studies which investigated tense-aspect morphology did so but in a purely incidental manner (Bardovi-Harlig, 2000). In essence, they investigated tense-aspect morphology as part of much broader research interests. The two types of studies to do this were the morpheme (order) studies and the phonetic constraints studies. The morpheme studies, which were initiated in the 1970s (e.g., Bailey, Madden, & Krashen, 1974; Dulay & Burt, 1973, 1974; Krashen, Butler, Birnbaum, & Robertson, 1978) and stopped in the early 1980s, investigated a set of morphemes (e.g., articles, auxiliary be, irregular past, past tense -ed, plural -s, progressive -ing, third person -s) and initially sought to shed light on the order in which these morphemes were acquired by L2 learners. At a later stage, the research interest in the morpheme studies also included sequential features of the L2 acquisition of the morphemes being investigated (Ellis, 2008).

There were still occasional morpheme studies in the 1980s but the characteristic, methodological setup of the morpheme studies used to investigate the order of acquisition was no longer systematically used. Although the morpheme-studies approach for investigating the natural order is no longer used, interest in the natural order of acquisition has not dissipated and has remained visible in SLA research to this day.

70 Although the nouns order and sequence may be used synonymously, a distinction is often made in SLA research between the order of acquisition and the sequence of acquisition. With respect to the
studies, which were initiated in the 1980s and were still being carried out in the 1990s (e.g., Bayley, 1994; Wolfram, 1984, 1985, 1989; Wolfram & Hatfield, 1986), tried to account for the frequency with which verbs occurred with past tense verbal morphology. The overall outcome of the phonetic constraints studies (with respect to L2 English) was that the phonetic realization of the English past tense depended on phonological environments (Bardovi-Harlig, 2000). Both the morpheme studies and the phonetic constraints studies placed the research focus on the morpheme, that is, on form. By contrast, meaning was not considered an important feature worthy of too much attention and any separate lines of investigation at the time of the morpheme studies and the phonetic constraints studies.

A shift in the research focus came about in the 1980s as investigations of the expression of temporality found their own niche in SLA research and attempts were made to disentangle (temporal) form and meaning. Whereas the 1970s focused mainly on the acquisition of temporal morphology as form, the 1980s shifted the research focus to the study of how temporal morphology was acquired as the surface realizations of underlying temporal semantics. This shift was, in essence, the result of two factors: an increased interest in the semantics of both interlanguage in general and of temporal semantics in particular (Bardovi-Harlig, 2000). The remainder of this first section will focus on two main approaches to investigating L2 temporality that have crystallized in SLA research: (1) the form-oriented approach and (2) the meaning-oriented approach. Both approaches will be discussed and compared below. The focus will be placed on the meaning-oriented approach in an attempt to explain in detail the approach adopted for the experimental research carried out for this dissertation.

### 3.2.2 The form-oriented approach

The form-oriented approach to investigating the expression of L2 temporality explores the distribution of (emerging) verbal morphology. It does so by regarding features of temporal verbal morphology as indicators of an underlying system of interlanguage temporal semantics. Form-oriented studies into L2 temporality shed light on how and where a specific temporal verb form is used in L2 learners' interlanguages. Figure 3.1 visualizes the form-oriented approach

---

71 Both the morpheme studies and the phonetic constraints studies had other flaws too (e.g., a focus on the end point of acquisition and not the emerging system of tense and aspect). However, for the studies in this dissertation these flaws will not be discussed in detail. For a more detailed discussion of some of the flaws, the reader is advised to consult Bardovi-Harlig, 2000.
using past tense verbal morphology, more specifically, the simple past in present-day English as a verbal form with various (temporal) meanings.

![Diagram of simple past tenses]

Figure 3.1. A form-oriented approach to the simple past in present-day English

What is clear from Figure 3.1 is that the simple past in present-day English is a verbal form which has several meanings. Consequently, it is a form which may be used in several linguistic environments. The primary use of the simple past in present-day English is its use to refer to past time as is the case in the following examples:

(3.1) *We visited her two months ago.*

(3.2) *I was surprised to see her standing there as the car drove up the road.*

(3.3) *They visited their grandmother every summer when they were young.*

As is clear from (3.1), (3.2) and (3.3), the simple past in present-day English may be used to refer to single events in the past (3.1, 3.2), in which case it is often referred to as the event past, or to a repeated event in the past (3.3), in which case it is often referred to as the habitual past (Greenbaum & Quirk, 1990). The event may take place over an extended period of time, but this need not necessarily be the case.

In addition to its primary use, the simple past in present-day English also has secondary uses, which a form-oriented approach to investigating L2 temporality would also take into account. The simple past may be used, for example, as a hypothetical past. The hypothetical past does not actually refer to past time
but to present or future time. Examples of this secondary use may be found in the following sentences:

(3.4) *I wish he knew what she has been doing for him.*

(3.5) *If I had enough money, I would help you out.*

(3.6) *Would you be happy if I sold my motorbike?*

There is another secondary use of the simple past, often referred to as the attitudinal past (Greenbaum, 2000; Greenbaum & Quirk, 1990), which is described as a more polite or more tentative alternative to refer to present states of mind. Examples of such an attitudinal use may be found in the following sentences:

(3.7) *Did you want to talk to me?*

(3.8) *I wondered whether I could quickly have a word with you about this matter?*

(3.9) *I wanted to know whether you are coming to the party.*

Although both the hypothetical past and the attitudinal past show an element of pastness (or remoteness), it is not the temporal pastness associated with the simple past in its primary use. The pastness in (3.4) to (3.9) is of a figurative nature in that the speaker creates a metaphorical distance and not a temporal distance.

A form-oriented approach to investigating L2 temporality generally takes into account various meanings and uses of a temporal verb form and looks at how these meanings and uses emerge, are distributed and develop over time in L2 learners’ interlanguages.

### 3.2.3 The meaning-oriented approach

The meaning-oriented approach to investigating L2 temporality takes as its point of departure a functional approach to L2 temporality and investigates the expression of semantic concepts through various means. In SLA research, meaning-oriented studies investigate the varied range of means that L2 learners use to express (temporal) semantics. Meaning-oriented studies provide a broad picture of investigation but not necessarily a broader picture than the form-oriented studies. As is clear from Figure 3.1, form-oriented studies cover various meanings and uses but do this with a formal common denominator: the verbal form under investigation. Meaning-oriented studies have as a common denominator a semantic concept and, subsequently, investigate the various means which may encode that semantic concept. Figure 3.2 provides a schematic representation of the approach adopted by meaning-oriented studies of
TENSE AND INSTRUCTED SLA

L2 temporality. It uses the semantic concept of ‘bygone-ness’ under investigation in this dissertation.

![Diagram of 'bygone-ness' expression](image)

**Figure 3.2. A meaning-oriented approach to the expression of 'bygone-ness' in present-day English**

The developmental picture provided by meaning-oriented studies is reflected in three stages of L2 temporal semantics. The stages which are generally distinguished in meaning-oriented studies into L2 temporality are (1) the pragmatic stage, (2) the lexical stage and (3) the morphological stage (Bardovi-Harlig, 2000). The expression of L2 temporality exhibits a more or less fixed route from pragmatic to lexical to grammatical means (Dietrich, Klein, & Noyau, 1995; Giacalone Ramat & Banfi, 1990; Meisel, 1987), with some scholars suggesting that this three-stage acquisitional route is universal and not dependent on the languages under investigation (Giacalone Ramat & Banfi, 1990). However, agreement on the route of acquisition of L2 temporality is lacking, which is reflected in the many hypotheses about the acquisition and the development of L2 temporality (Salaberry, 2008).

Before discussing the three stages that have been referred to above, it is important to underscore what is meant with the term *stage*. Bardovi-Harlig (2000) is extremely explicit when she says that by stage of acquisition she means “a developmental period that can be characterized by the use of a particular feature” (p. 13). Bardovi-Harlig (2000) continues her discussion by stating the following about the concept of stage:

The concept of stage is used widely in the study of the acquisition of temporal semantics by a range of researchers from different theoretical backgrounds (e.g., Andersen 1986a, 1986b, 1989, 1991; Dietrich et al., 1995). For example, the meaning-oriented approach may characterize a stage by the use of adverbials and connectives to make temporal reference, and by the absence of verbal morphology. That means that the dominant means of temporal reference is lexical, but it does not mean that features from an earlier stage or a later stage are entirely absent. Likewise, a form-oriented study may describe a stage as being characterized by the use of simple past with a certain category of verbs. That means that the dominant tense-aspect morpheme is the simple past, but it does not mean that other tense-aspect morphology is never used, or that
the past is not used elsewhere. The boundaries of stages are not abrupt because the acquisition of temporal expression is gradual. Nevertheless, it is possible to identify stages in the development of interlanguage temporality by identifying the characteristic means of expression of each stage. (p. 13)

Although the characteristic use of pragmatic, lexical, and morphological devices can be associated with distinct stages of interlanguage development, characteristic use is not the same as exclusive use. (p. 48)

What is clear from Bardovi-Harlig’s (2000) references to the concept of stage is that the three stages generally recognized in the development of interlanguage temporality follow a chronological route of development with the pragmatic stage as the first stage, the lexical stage as the second stage and the morphological stage as the third stage. However, the development of L2 temporality is both dynamic and recursive at the same time. In other words, although an L2 learner’s interlanguage temporality may have reached, for example, the lexical stage of development of L2 temporality, it may also display features of the pragmatic and/or the morphological stage(s). What is of importance is the degree of characteristic use.

The pragmatic stage is regarded as the earliest stage of development of L2 temporal semantics. It is characterized by the absence of any systematic use of tense-aspect morphology. Meisel (1987) and Schumann (1987) report four distinct pragmatic means of establishing temporal reference:

1. scaffolded discourse, that is, the reliance on the contributions from fellow speakers,
2. implicit reference, that is, the reliance on references inferred from specific contexts,
3. the reliance on contrasting events,
4. the use of chronological order.

Although the four pragmatic means above are often distinguished, L2 learners may use various pragmatic means simultaneously.

The lexical stage is regarded as the second stage and is characterized by a variety of lexical means. The most common examples of such lexical means are the following:

1. temporal adverbials (e.g., at 9 o’clock in the morning, yesterday, then, several months ago, last week, 20th of June),

---

72 It is generally recognized that temporal adverbials consist of a heterogeneous group of adverbials and may be subdivided into semantic types such as adverbials of position, adverbials of duration, adverbials of frequency and adverbials of contrast, which are acquired in stages. For a more detailed discussion of the division of temporal adverbials and their sequenced acquisition, see, for example, Klein, 1993, 1994, and, Noor, 1993.
2. locative adverbials (e.g., here, in Spain, at my sister’s, there),
3. connectives (e.g., first, (and) then),
4. verbs (e.g., begin, commence, end, finish, start, stop)

Many descriptive and pedagogical grammars of English highlight the interaction between the various means used to express temporality in English, especially the interaction between lexical means and morphological means. For all the attention that has been and is still being dedicated to lexical means of expressing temporality in grammars of present-day English, it is the research carried out by scholars investigating adult SLA that has shed light on the primacy of non-morphological means of expressing temporality (Bardovi-Harlig, 2000). At the lexical stage, verbs often occur in morphologically invariant forms (e.g., eat, greet, swim in present-day English), which may be either morphologically unmarked forms (e.g., base forms in present-day English) or morphologically relatively simple forms (e.g., third person singular present forms in Romance languages), which are generalized to non-targetlike contexts (Andersen, 1991; Bardovi-Harlig, 1995; Bardovi-Harlig & Reynolds, 1995; Giacalone Ramat & Banfi, 1990). Applied linguists generally agree that lexical means of temporal expression are important and that this importance is reflected in the functional load of lexical means of temporal expression in learner production. However, in Chapter 2 a reference was already made to possible processing problems that (Dutch-speaking) ESL learners may experience when lexical means and morphological means of temporal expression interact. Studies into input processing suggest that lexical means are so prominent that they often take precedence over morphological means when L2 learners process input. This finding would suggest that the heavy negative effects resulting from the large functional load of lexical means may have to be ‘counterbalanced’ when pedagogical considerations are made for tense-related instructional intervention.

The third stage of the development of L2 temporal semantics—the morphological stage—is the last stage that L2 learners enter into. Typical of the morphological stage is that it consists of verbal morphology which is initially extremely unstable and unsystematic. In addition, temporal verb morphology requires a relatively long time to stabilize. There are various reasons for the slow and gradual development of temporal verb morphology. Firstly, it is generally accepted that temporality is an intricate network of multifarious relationships, which are determined by a variety of variables. Consequently, acquiring verbal morphology is challenging in that L2 learners have to acquire a series of temporal rules—either implicitly or explicitly—which govern the forms, meanings and uses of temporal verb forms and which are not necessarily always

---

73 The intricate interaction between the grammatical category of tense and, for example, temporal adverbials has already been highlighted in Chapter 1.

74 In present-day English, morphologically unmarked forms are also referred to as base forms or default forms.
restricted to purely temporal features (e.g., interaction between tense and aspect, tense and mood, pragmatic, lexical and morphological means). The sheer intricacy inherent in temporality results in slow and gradual development of lower-level stages before higher-level accuracy, meaningfulness and appropriateness are achieved. Secondly, L2 learners appear to rely heavily on lexical means of temporality when processing L2 input. In turn, this reliance may slow down the overall development of morphological features of L2 temporality. This issue has already been discussed above and although it may appear to be simply a question of resultant slow development of L2 temporality, there may be more at play than that. The ‘slowing down’ process may also take on the form of partial or incorrect FMU mappings, which would subsequently have to be addressed in instructional settings. The third and final reason for the slow and gradual development of temporal verbal morphology is of a communicative nature. Many L2 learners may or may not be aware of morphological problems related to temporality since the first two stages of temporal expression (i.e., the pragmatic stage and the lexical stage) enable L2 learners to interact in a communicatively viable way (Bardovi-Harlig, 2000). Since communication is the ultimate goal of SLA for many L2 learners, they may not feel the need nor the motivation to produce grammatically accurate verb forms to express temporal relations. They may simply draw enough satisfaction from being able to communicate in an understandable way.

Whatever the reason(s) may be for the slow and gradual development of L2 temporality, studies have shown that instruction does have an affect on L2 learners’ developing tense-aspect systems by, for example, advancing L2 learners along the acquisitional sequence (e.g., Bardovi-Harlig & Reynolds, 1995; Cadierno, 1995; Dougherty & Varela, 1998; Harley, 1989).

Four overarching principles for the acquisition of L2 temporality have been reported in the various studies carried out as part of the European Science Foundation (ESF) project investigating the acquisition of temporality (e.g., Bhardwaj, Dietrich, & Noyau, 1988; Dietrich, 1995; Dietrich, Klein, & Noyau, 1995; Klein, 1993, 1994; Rohde, 1996). Although initially highlighted in ESF studies, the principles are so universal that they are found in other studies which investigate the acquisition of L2 verbal morphology too (e.g., Bardovi-Harlig, 1992; Bardovi-Harlig & Bofman, 1989; Kaplan, 1987). The first principle states that the development of temporal expression is both slow and gradual. L2 learners generally acquire the forms, meanings and uses of temporal features in stages and over a longer period of time. The second principle states that form often precedes function (i.e., meaning and use in our tripartite approach to grammar) (see also Salaberry, 2008). What this means in practice is that L2 learners’ verbal morphology may develop without clear meanings or uses. In other words, various forms may develop but without any clearly delineated meaning-related and/or use-related components. The third principle is that irregular verbal morphology generally precedes regular morphology. This does
not mean, however, that irregular verbal morphology is always less problematic than regular verbal morphology. It simply means that, for example, irregular past verb forms appear earlier and often include more tokens than regular past verb forms. The fourth and last principle claims that L2 learners show a tendency to avoid discontinuous tense marking (e.g., be + V-ing, have + V-en in present-day English) and initially rely on suffixed inflections before extending tense-aspect morphology to include auxiliaries.

The section above has highlighted the characteristic features of both form-oriented and meaning-oriented studies into L2 temporality in two separate discussions. So let us now turn to a comparison of both approaches.

3.2.4 Comparing form-oriented and meaning-oriented approaches

This section will highlight some of the main similarities and differences that may be found between the two types of approaches to L2 temporality discussed in the previous sections. In addition, the studies carried out as part of the experimental research in this dissertation (see Chapters 4, 5 and 6) will be discussed in function of the two approaches, with features of the studies being highlighted and compared in the context of the form-oriented and meaning-oriented approaches to L2 temporality.

The first similarity between both the form-oriented and the meaning-oriented approaches to L2 temporality is the view that morphology is regarded as “the surface realization of an underlying semantic system” (Bardovi-Harlig, 2000, p. 10). Although the terms form-oriented approach and meaning-oriented approach appear somewhat deceptive in that the former could be synonymous with a focus on form(s) only and the latter with a focus on meaning only, the form-oriented/meaning-oriented distinction does not reflect this difference in research focus (see Section 3.3 for more information on SLA-specific terminological issues relating to form and meaning). Both approaches take as their point of departure the assumption that temporal verb morphology is the realization of an underlying temporal system consisting of semantic concepts. The form-oriented approach investigates the underlying semantic system by means of morphology only and focuses on, for example, one specific morpheme, which is subsequently tracked in L2 learners’ interlanguages in some or all of its possible meanings and uses. In this approach, the temporal semantics are inferred from the distribution of morphemes. The meaning-oriented approach also investigates the underlying semantic system but does this by means of the three means discussed above (i.e., the pragmatic, lexical and morphological

---

75 The type/token distinction is one which has been taken from lexical studies, where the type-token ratio is used as a measure of lexical density. The type-token ratio may be defined as “the ratio of the total number of different words (types) to the total number of words (tokens) in a sample of text” (Crystal, 2003, p. 478). With respect to studies of verbal morphology, the type/token distinction refers to the number of different verbs (verb forms) as the number of verb types and the number of times a specific verb (form) appears as the number of verb tokens.
means). Instead of focusing on, for example, one specific morpheme, the meaning-oriented approach takes as its point of departure a semantic temporal concept (e.g., ‘bygone-ness’) and investigates the means that are used—in isolation or in interaction—to express the targeted semantic concept.

The second similarity is the interlanguage perspective that both approaches take. Both the form-oriented approach and the meaning-oriented approach investigate L2 learners’ interlanguages and the development of L2 temporality in those interlanguages. In either approach, the interlanguages are described as systems which are independent of the target language(s). Although an interlanguage approach may seem at odds with the concept of instruction in studies into the acquisition of L2 temporality, there is ample room to combine the two features. Often, in instructional studies, the concept of targetlike comprehension and/or production is used as a means to assess L2 learners’ receptive and productive skills. Bardovi-Harlig (2000) addresses the relationship between target tense-aspect systems and interlanguage tense-aspect system by stating the following:

Although in the target languages verbal morphology also encodes, with some variation, grammatical information of person and number in addition to tense and aspect, acquisition studies focus exclusively on tense and aspect. This means that an analyst will code as a good example of the preterite in Spanish . . .; in English he have studied as a good example of a present perfect. The reason for doing this is that temporal reference and person-number are distinct semantic systems. Moreover, morphology for person is acquired later than tense, at least in L2 English, . . . Thus, coding only tokens that show both tense-aspect and person-number agreement as appropriate uses of a given tense-aspect form would result in an analysis that is dependent on the emergence of person-number. (pp. 113–114)

Although Bardovi-Harlig limits her reference to the problematic tense/aspect and person/number distinctions, other issues are also at play if formal accuracy is defined as a coding/scoring criterion. As far as the experiments in this doctoral dissertation are concerned, spelling issues—such as formal regularity and irregularity—are definitely features which need to be considered. In Chapter 2, form-related problems were already addressed with respect to the past/present perfect distinction in present-day English (Section 2.4.3).

The third similarity is one which is related to the focus of investigation in SLA research. In both the form-oriented approach and the meaning-oriented approach, many—if not most—of the studies into L2 temporality have primar-

---

6 Bardovi-Harlig (2000) is judicious when making this statement and qualifies it with the following endnote: “This is not necessarily the case if a study focuses on formal accuracy in which case tense-aspect may be conflated with person and number. Unless it is explicitly stated, it is sometimes difficult to determine what scoring procedure was used. The longitudinal studies reviewed in the following section all distinguish between tense-aspect and person and number, but some of the cross-sectional studies seem to incorporate them in their focus on achieving the target.” (p. 188)
ily focused on the emergence of the simple past (or the perfective past in Romance languages). There are two main reasons for this focus on the past (Bardovi-Harlig, 2000). Firstly, the expression of pastness occurs early in the development of L2 temporality so that it can easily function as a research focus for L2 researchers and can be tracked longitudinally. Secondly, references to past situations force language learners to displace situations and such displacement generally requires some sort of marker in language learners’ primary languages and interlanguages.

The fourth similarity is related to an aspect of research design. In both the form-oriented and meaning-oriented approach, studies have generally been of a predominantly longitudinal nature. Since the studies in both approaches have investigated the emergence of L2 temporality, a longitudinal design has been clearly preferred when carrying out research. However, this does not mean that cross-sectional studies are completely absent from the two approaches. Bardovi-Harlig (2000) discusses the historical developments for a preference for studies into L2 temporality which are longitudinal in design but for the discussion at hand, these developments are not relevant.

The fifth similarity is of a conceptual nature. Bardovi-Harlig (2000) states that both form-oriented and meaning-oriented studies into L2 temporality focus on emergence, as opposed to, for example, accuracy or acquisition orders (cf. morpheme studies), which focus on acquisition. Although a valid distinction, it is not one which is consistently used in contemporary SLA research. Bialystok and Sharwood Smith (1985) and Ellis (1997) recognized two ways of operationalizing acquisition: (1) the internalization of completely new forms and (2) the increased control over forms that have already been partially acquired. However, as Ellis (2006, 2008) rightly acknowledges, acquisition may also be operationalized as “progress along a sequence of acquisition (i.e. movement from an early to later stage of development in an attested sequence)” (2006, p. 34; 2008, p. 840). Consequently, the distinction between emergence and acquisition has become somewhat blurred.

For all the similarities between form-oriented and meaning-oriented approaches into L2 temporality referred to above, there are also some fundamental differences between both approaches. The first major difference is related to the view that although morphology is regarded as the realization of underlying temporal semantic systems, it is approached differently in both approaches. Since this difference was already discussed above, no further details will be provided here.

The second difference is related to the overall focus of investigation. In this respect, Bardovi-Harlig (2000) refers to the fact that meaning-oriented studies into L2 temporality cast a broader net than studies in the form-oriented approach. This is clear when looking at Figure 3.3, which provides a side-by-side comparison of the linguistic means under investigation in both approaches. The net that is cast in the meaning-oriented approach is one which covers three
means (pragmatic, lexical, morphological), whereas the form-oriented approach focuses its attention on morphological means only and subsequently shadows various meanings and uses of one specific temporal verb form.

<table>
<thead>
<tr>
<th>FORM-ORIENTED STUDIES</th>
<th>MEANING-ORIENTED STUDIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the distribution of the emergence of verbal morphology?</td>
<td>How do learners express temporal relations?</td>
</tr>
<tr>
<td>Morphological means</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) Pragmatic means</td>
<td>(a) scaffolding</td>
</tr>
<tr>
<td>(b) chronological order</td>
<td>(c) implicit ordering</td>
</tr>
<tr>
<td>(2) Lexical means:</td>
<td>adverbials</td>
</tr>
<tr>
<td>(3) Morphological means:</td>
<td>emergence of (verbal) morphology to mark temporal relations</td>
</tr>
</tbody>
</table>

Figure 3.3. A comparison of form-oriented and meaning-oriented studies of temporal expression in SLA research (adapted from Bardovi-Harlig, 2000)

Although Bardovi-Harlig (2000) clearly refers to a broader net being cast, a word of caution is warranted when interpreting her metaphor. It is definitely true that meaning-oriented studies into L2 temporality focus on various means of expressing temporality whereas form-oriented studies focus on form to the exclusion of any other means. This is probably the reason why Bardovi-Harlig uses the ‘broader net’ metaphor. However, form-oriented studies into L2 temporality partly make up for their exclusive focus on form by looking at various meanings and uses (see Figure 3.1). In any case, caution must be exercised. The ‘broader net’ metaphor should not be equated with an a priori broader research interest in L2 temporality.

The third and final major difference is related to the formulation of research questions. Because of an inherently different approach to temporal semantics, the research questions in both approaches have been different. Form-oriented studies into L2 temporality address research questions in which the formal features of L2 temporality are assumed. By contrast, meaning-oriented studies into L2 temporality do not make any assumptions with respect to such formal features. Generally, they address issues such as: How do L2 learners express (specific features of) temporality at a specific stage of development?, What are the changes in the development of L2 temporality? What are the variables that may influence the development of L2 temporality from one stage to the next?
After highlighting some of the important similarities and differences between the form-oriented and meaning-oriented approaches, it is time to investigate how the studies carried out for the research in this dissertation (see Chapters 4, 5 and 6) fit into the body of research into L2 temporality described so far in this chapter. In other words, I would like to look at the defining features which may be used to classify the studies as either form-oriented or meaning-oriented studies. The studies that have been carried out as part of this dissertation are, in essence, examples of meaning-oriented studies, with a clear focus on two realizations (i.e., past/present perfect) of a temporal semantic notion (i.e., ‘bygone-ness’).

The target feature under investigation in all three of the studies consists of the past/present perfect distinction when used to locate bygone situations in present-day English. Bardovi-Harlig’s (2000) formulation as morphology being the “surface realization of an underlying semantic system” (p. 10) applies to all three of the studies in that I investigated the distribution of past and present-perfect verbal morphology as a means of locating bygone situations. The concept of ‘bygone-ness’ clearly delimits the semantic scope of the studies which have been carried out and places the focus of research on the investigation of one semantic concept, which is termed *bygone-ness* in this dissertation. Both the past and the present perfect have other meanings and uses in present-day English but the focus of investigation was solely on their meanings and uses as tenses to locate bygone situations. As already mentioned above, the past in English has, for example, secondary (i.e., extensional) meanings and uses which do not refer to pastness at all. By the same token, the present perfect also has other meanings and uses besides its meaning and use as a tense to locate bygone situations. One such example of another meaning and use of the present perfect is the continuative perfect (e.g., *I have been a student for as long as I can remember*), which describes a situation or habit which started in the past, continues into the present and possibly extends into the future.

In addition to focusing on the past/present perfect distinction when used to locate bygone situations in present-day English, a conscious decision was taken to focus on the meanings and uses of these two tenses and not on the forms. This is in keeping with the traditional focus of meaning-oriented studies into L2 temporality. However, this does not mean that form did not play any role. It obviously did since formal features of verbal morphology had to be used to ascertain which tenses that the participants were using. However, we consciously decided that formal accuracy was not an item of interest and were relatively lenient with formal problems that appeared during the coding and scoring procedures. Since the focus in the studies set up for this dissertation was not on formal accuracy, a decision was taken to filter out formally inaccurate answers.
on the tests and to decide on a token-by-token basis whether to disregard formally inaccurate verb forms or not.\textsuperscript{77}

All three studies were of a longitudinal nature but a note of caution is warranted at this stage. As opposed to a large number of longitudinal studies into L2 temporality, the three studies that were carried out covered a relatively short period of time with approximately three weeks between pretest and posttest sessions. The third study also contained an unannounced delayed-posttest experimental session, which took place eleven weeks after the immediate posttest. However, during that 11-week period no additional tense-related instruction was provided to any of the participants. Some scholars would point out that a three-week period between pretests and posttests may not be opportune in trying to establish the effects of instruction on the formation of temporal FMU mappings. Since many of the studies into L2 temporality investigate the emergence of specific temporal features and since the development of L2 temporality is generally considered to be slow and gradual, a longitudinal approach would appear to make more sense. However, the participants in our studies were not L2 learners whose interlanguages showed initial emergence of the past/present perfect distinction when locating bygone situations in present-day English. Many of the participants were already able to produce many correct instances of the targeted distinction, which was clear from the pretest scores. So instead of focusing on initial emergence, we were more interested in how the participants’ control over the past/present perfect distinction increased as a result of instruction. In other words, we were interested in possible signs of stabilization (with respect to the past/present perfect distinction) in the participants’ interlanguages as a result of instruction. In addition, we were not necessarily interested in completely error-free comprehension and production of the targeted past/present perfect distinction but simply in a possible improvement as a result of instruction. This approach was adopted with a view to contributing to an acquisitionally informed pedagogy. We are aware that prolonged exposure to the targeted linguistic feature may have been beneficial but within the design-related constraints such exposure was not feasible. In addition, some scholars claim that it is not necessarily the length of interaction but the intensity of the interaction which plays a vital role in establishing the effects of instruction (Klein, Dietrich, & Noyau, 1995).

### 3.3 Conceptualizing form-focused instruction

Throughout the introduction and Chapters 1 and 2 of this dissertation, I have made references to the terms instruction and form-focused instruction (FFI) without any attempts on my part to define or even operationalize the terms. However, in the experimental studies reported on in Chapters 4, 5 and 6, the reader will

\textsuperscript{77} See Chapter 4, Section 4.2.5, for additional information on the coding and scoring procedure applied in the three experimental studies carried out for this dissertation.
notice that conscious decisions were made to put into practice the types of L2 instruction provided to the various groups of participants. To be able to understand the decisions that were made, it is necessary to shed some additional light on the term *form-focused instruction* by pointing out some pertinent issues which SLA scholars have mulled over since, what has been referred to by Doughty and Williams (1998a) as Michael Long’s influence on the “reawakening of interest in this issue [the role of attention to form]” (p. 3). The term *form-focused instruction* covers a whole range of instructional setups, which cannot possibly be discussed exhaustively within the constraints of this dissertation. Consequently, I have selected those issues which I deem relevant for the discussion and research at hand. Much more elaborate discussions of FFI in general and of specific FFI-related aspects may be found in, for example, de Graaff and Housen (2009), Doughty (2003), Doughty and Long (2003), Doughty and Williams (1998c), Ellis (1994, 2002, 2006, 2008), Long (1991) and Norris and Ortega (2000).

The remainder of this second section will first consider some conceptual aspects of FFI. This will be followed by a discussion of how the effects of FFI have been addressed in the field of SLA. The discussion will be carried out using two approaches, input processing and skill acquisition theory, and will focus on the roles of input (practice) and output (practice) which proponents of both approaches espouse.

### 3.3.1 A conceptual framework for operationalizing form-focused instruction research

#### 3.3.1.1 Focus on form/focus on forms

Since the renewed interest in attention to form in the field of SLA in the 1980s (see Doughty & Williams, 1998a, 1998c), the field at large has seen an enormous increase in the experimental and quasi-experimental studies into the effects of instruction that has somehow focused on form. Although this research has furthered the understanding of aspects of instructed SLA, it has also brought with it a multitude of terms which have caused confusion and, at times, disagreement.

The term *form-focused instruction* is used in this doctoral dissertation as an umbrella term to cover a range of possible taxonomies of pedagogical options which form instructional setups based on conceptual criteria. In this respect, I am following, among others, de Graaff and Housen (2009), who broadly define the term *form-focused instruction* as follows:

> [A]ny instructional activity which aims at drawing the learners’ attention to language form, where “form” stands for grammatical structures, lexical items, phonological features and even sociolinguistic and pragmatic features of language.” (p. 736)

For detailed discussions of terminological issues related to the term *form-focused instruction*, the reader is advised to consult, for example, de Graaff and Housen
The advantage of defining the term broadly is that it can be used multifunctionally to refer to a variety of taxonomies. Consequently, scholars are able to fall back on the term as a kind of common denominator. However, with such multifunctional use comes the problem of definitional murkiness, which was already highlighted in Chapter 2 for the concept of complexity, where it was referred to as terminological polysemy. By using such a broad term, important and necessary distinctions may be lost, resulting in vagueness when discussing fundamentally different concepts. In other words, using the term form-focused instruction may be useful but scholars should clearly introduce any further distinctions that need to be made by, for example, the specification of a more detailed taxonomy of FFI in an attempt to avoid confusion. Such specification will be undertaken in this section to prepare the reader for the experimental research reported on in Chapters 4, 5 and 6.

One such taxonomy is Long’s (1991) widely used focus on form (FonF)/focus on forms (FonFs) distinction. Although the FonFs construct has remained relatively transparent with respect to what it covers, the FonF construct has been “stretched to cover a type of FFI that it was initially intended to exclude” (Ellis, 2002, p. 15). Ellis (2002) discusses the reconceptualization of the FonF construct by comparing essential, definitional characteristics of FonF put forward by Long (1991) and definitional characteristics of FonF put forward by Doughty and Williams (1998a). Let us have a more detailed look at Ellis’s (2002) discussion of the reconceptualization of FonF. In Long’s initial definition of FonF (1991), two essential definitional features were highlighted according to Ellis (2002):

1. Attention to form takes place in the classroom where the main concern is meaning or communication.
2. Attention to form takes place incidentally as necessitated by communicative needs.

According to Ellis (2002), Doughty and Williams’s (1998b) definitional features are formulated somewhat differently, though they are not altogether incompatible with Long’s features of FonF:

1. Learners must engage with meaning before engaging with form.
2. Analysing learners’ linguistic needs is important to identify and select the forms that require instruction.
3. Instruction must be brief and unobtrusive.

When analysing Doughty and Williams’s (1998b) definitional features, it becomes clear that they highlight the advantage of a FonF approach, as opposed
to a FonFs approach or what they refer to as the “traditional forms-in-isolation type of grammar teaching” (Doughty & Williams, 1998a, p. 3), by focusing on Long’s (1991) wording “overriding focus ... on meaning or communication” (p. 46). Ellis’s (2002) concern is focused on Doughty and Williams's second definitional feature. According to Ellis, this feature is not compatible with Long’s (1991) definitional features since the analysis of learners’ needs and the identification and selection of forms are not compatible with an incidental approach to attention to form. Ellis (2002) explains the reconceptualization from incidental to planned by highlighting researchers’ desires to conduct (quasi-)experimental studies. Such a shift, however, is of great importance to Ellis since it brings with it a different approach to treatment. Ellis (2002) states the difference as follows:

In the case of planned focus-on-form, the instruction will be intensive, in the sense that learners will have the opportunity to attend to a single, preselected form many times. In the case of incidental focus-on-form, the instruction will be extensive, because a range of linguistic forms (grammatical, lexical, phonological, pragmatic) are likely to arise as candidates for attention. ... This difference is important both theoretically and pedagogically, because it raises the question as to whether language learning benefits most from focusing on a few problematic linguistic forms intensively or from a scatter-gun approach, where multitudinous problematic forms are treated randomly and cursorily and where treatment may or may not be repeated. (p. 16, quoted with original highlighting)

Consequently, Ellis (2002) suggests that FFI should be conceptualized more appropriately in terms of a more nuanced three-way distinction (i.e., FonFs, planned FonF, incidental FonF) and not in terms of a crude two-way distinction (i.e., FonFs, FonF). Table 3.1 provides an overview of Ellis’s three-way conceptualization of FFI.

Table 3.1. Types of form-focused instruction (from Ellis, 2002, p. 17)

<table>
<thead>
<tr>
<th>Type of FFI</th>
<th>Primary focus</th>
<th>Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Focus-on-forms</td>
<td>Form</td>
<td>Intensive</td>
</tr>
<tr>
<td>2. Planned focus-on-form</td>
<td>Meaning</td>
<td>Intensive</td>
</tr>
<tr>
<td>3. Incidental focus-on-form</td>
<td>Meaning</td>
<td>Extensive</td>
</tr>
</tbody>
</table>

Although Ellis’s three-way conceptualization of FFI is a valid one, it does open the door to a possible free-for-all with respect to categorizing specific types of FFI if concepts such as meaning and communication are stretched. The planned-FonF category is a category which could possibly cause some confusion in that it allows the preselection of a linguistic form (just like the FonFs category). However, this does not mean that planned, contextualized instruc-
tional tasks are automatically of a planned FonF nature. The instructional practice-based setups in Study 1 (Chapter 4), Study 2 (Chapter 5) and Study 3 (Chapter 6) are without a doubt setups which were planned and contextualized, but using Ellis’s taxonomy it could be argued—according to Ellis’s approach—that they are not pedagogical options for planned FonF instruction since the context in which they are presented is not necessarily a communicative one. Indeed, this is in line with one of Long’s (1991) initial definitional characteristics, which refers to the required presence of a meaning or communication component when focusing on form. Using Ellis’s (2002) conceptualizations of FFI, the instructional setups in Chapters 4, 5 and 6 could be referred to as functional or situational since the instructional materials provide L2 learners with the opportunity to practise producing specific target features in a situational context. Although such activities are functional, they are not inherently communicative. Consequently, such materials would fall under FonF instruction in Ellis’s taxonomy because the main concern is on form rather than meaning despite the apparent focus on meaning (Ellis, 2002). In addition, learners who are confronted with functional tasks are fully aware that the target of instruction is accurate use through practice (i.e., repeated use) of a specific target feature (Ellis, 2002). In other words, it could be stated that the participants in all three of the studies conducted for this doctoral dissertation were not pushed to communicate but rather to interact with instructional tasks of a non-communicative nature. In addition, the participants knew in advance what the focus of instruction was by participating in a theoretical experimental session, which preceded any practice-based instruction. The line between communicative context and functional/situational context is a narrow one and may possibly create confusion for many. However, what must not be forgotten is that for FFI instruction to be categorized as planned FonF, preselection must still entail a communicative component. Focused communicative tasks, for example, are tasks that have been selected to elicit the production of a specific target feature in the context of performing a communicative task. Ellis (2002) clearly states that such tasks have “all the characteristics of communicative tasks” (p. 21). If one looks in detail at the nature of the instruction and the practice-based instructional components in Studies 1, 2 and 3, it is clear that the majority of the participants were somehow pushed to communicate by means of picture selection tasks. Indeed, these tasks were available for both input-practice and output-practice groups. The only group of participants which was not pushed to communicate was the input-only group in Study 1. As a consequence of this design-related feature, the pedagogical tasks for the tasks used for the practice-based training in the three studies reported on in this doctoral dissertation may be categorized as explicit FonF tasks using Ellis’s nuanced taxonomy.
3.3.1.2 Questions raised in L2 type-of-instruction research

Although the focus of contemporary L2 instruction research appears to be firmly focused on what types of instruction are most effective for learning L2s, this was not always the main focus of investigation in the past. In the 1980s and early 1990s, much of the L2 instruction research was focused on whether or not instruction made any difference at all. Consequently, many studies investigated the effects of instruction by comparing instructed L2 learners with un instructed L2 learners. For the purposes of this doctoral dissertation, I will focus on features of L2 type-of-instruction research and take for granted the turn in research focus with respect to the value of L2 instruction in comparison with naturalistic L2 learners.

In their oft-cited research synthesis and meta-analysis with regard to the effectiveness of L2 instruction, Norris and Ortega (2000, pp. 418–419) provide the following six general research questions which, according to them, L2 type-of-instruction research has sought to investigate:

1. Is an implicit or an explicit approach more effective for short-term L2 instruction?
2. Can raising learners’ metalinguistic awareness of specific L2 forms facilitate acquisition by fostering psycholinguistic processes of form-to-function mapping?
3. Is instruction that draws learners’ attention to relevant forms in the context of meaning-focused lessons more effective than an exclusive focus on meaning and content?
4. Is negative feedback beneficial for L2 development, and if so, what types of feedback may be most effective?
5. Is acquisition promoted more effectively when learners process the input in psycholinguistically relevant ways than when they experience traditional grammar explanation and practice?
6. Is comprehension practice as effective as production practice for learning L2 structures?

A discerning reader will notice that the six general research questions do not represent disparate research interests. Norris and Ortega (2000) point out the common (cognitive) thread throughout the research questions by stating that type-of-instruction studies addressing them are based on a single theoretical assumption, that is, the aim of instructional interventions to bring about changes in how L2 learners focus their attention when processing L2s to facilitate noticing of linguistic features and, subsequently, acquisition. In addition, Norris and Ortega (2000) state that these changes should be brought about “in efficient ways in terms of rate of acquisition and target-like levels of ultimate attainment” (p. 419). Consequently, one of the major concerns of contemporary L2 type-of-instruction research is centred on the importance of implicit
and/or explicit cognitive processing involved in optimal L2 learning (Norris & Ortega, 2000).

### 3.3.2 The effects of practice-based instruction according to input processing and skill acquisition theory

The discussion in this section will focus on two issues: (1) the essential components of two common approaches available in contemporary SLA research, which are referred to using the terms *input processing* and *skill acquisition theory*, and (2) the instructional realizations of these approaches in what Norris and Ortega (2000) have referred to as “practice-based instructional types” (p. 422). As such, this section is not meant to serve as an exhaustive discussion of the approaches. Within the constraints of this dissertation, justice cannot possibly be done to every detail of the approaches. I will present the issues which are relevant for the research carried out and I will highlight—wherever necessary—any useful references for additional information about the approaches. After discussing the essential components of both approaches, I will place the focus on the role of practice in general and on the roles of both input (practice) and output (practice) in both approaches. It is important to underline that the input/output distinction should not be interpreted as an either/or distinction. Both input and output are features of both approaches. However, because the approaches have different views on the roles of both, a discussion of how the roles of input (practice) and output (practice) are viewed in both approaches is warranted. The order in which the approaches are discussed does not reflect any preference on my part for one of the two approaches.

#### 3.3.2.1 Input processing and processing instruction

**Input processing.** The name most associated in SLA research with input processing (IP) and its pedagogical realization, which has been termed *processing instruction* (PI), is Bill VanPatten. The IP and PI research paradigms were launched in the early 1990s and the article which first introduced the concepts is VanPatten and Cadierno (1993). Both concepts have established themselves in contemporary SLA research with a relatively large body of research investigating both general and specific features of IP and PI (e.g., Benati, 2004; Benati & Lee, 2008; Cadierno, 1995; Farley, 2001a, 2001b, 2004a, 2004b; Lee & Benati, 2008).

---

78 The debate about cognitive processing is reflected in the interface debate in SLA, which addresses the interfaces between explicit and implicit knowledge. Three positions are generally distinguished in this debate: (1) the no-interface position (e.g., Hulstijn, 2002; Krashen, 1981, 1985, 1994; Krashen & Terrell, 1983; Paradis, 2004), (2) the weak-interface position (e.g., Ellis, 1990, 1997, 2008) and (3) the strong-interface position (e.g., DeKeyser, 1997, 1997, 2001, 2003; DeKeyser & Jufts, 2005; Sharwood Smith, 1988). For the discussion at hand, some form of interface is required since practice would otherwise play no role—or only an extremely small role—in the acquisition of L2 features. The importance awarded to the independent variable practice in the three studies in Chapters 4, 5 and 6 reflects the assumption that some form of interface exists.
2007; VanPatten, 1993, 1996, 2002a, 2002b, 2002c, 2003, 2004a, 2004b, 2004c, 2004d; VanPatten & Cadierno, 1993; VanPatten & Okkenon, 1996; VanPatten & Sanz, 1995; VanPatten & Wong, 2004; Wong, 2004a, 2004b). At the same time, questions about IP and PI have also been raised. In turn, these questions have not only spawned interesting debates between SLA scholars; they have also provided insightful remarks about the theoretical and practical foundations of IP and PI (e.g., DeKeyser, Salaberry, Robinson, & Harrington, 2002; Doughty, 2004; Lightbown, 2004; VanPatten, 2002b, 2002c). The descriptions provided in this section are meant as summaries of the general features of both IP and PI within the context of the research being carried out for this dissertation.

In the IP research paradigm, language acquisition has generally been described as “the development of some underlying competence on which skills in language use depend” (VanPatten, 2004a, p. 29), with VanPatten (1996) clearly defining the developing system as “the complex of mental representations that as an aggregate constitutes the learner’s underlying knowledge of the second language (phonology, syntax, morphology, etc.)” (p. 9). In addition to defining the developing system, VanPatten has also referenced to other names for the developing system in SLA such as underlying mental representation, interlanguage or developing system. Like many other SLA scholars, VanPatten is extremely consistent in stressing that second language acquisition is inherently complex. One of the several causes of this complexity is the fact that acquisition does not consist of one single process but rather of multiple processes, multiple knowledge domains and multiple interactions of both, at all possible levels of acquisition (VanPatten, 2004b, 2007). In other words, acquisition is said to be a multicomponential phenomenon. The three major sets of SLA processes that are generally distinguished in the IP research paradigm are: (1) input processing, (2) accommodation and (3) restructuring, which are represented schematically in Figure 3.4 (VanPatten, 2003, 2004b, 2007). Figure 3.4 has been taken from more recent IP-related publications. The reader will notice that the representation is actually somewhat misleading. Numbers 1, 2 and 3 in Figure 3.4 do not actually refer to the aforementioned three major sets of SLA processes (i.e., input processing, accommodation, restructuring). Number 2 in Figure 3.4 combines the second and third sets of processes (i.e., accommodation, restructuring) and number 3 refers to a process—which in turn consists of a set of subprocesses—which results in output. However, as far as VanPatten and IP/PI proponents are concerned, output is not directly one of the SLA processes. This does not mean, however, that output is sidelined in the IP model. It is given a role which will be highlighted below. A clearer schematic representation would be either a simplified version as found in the earlier IP-related publications (e.g., VanPatten, 1996) or an adapted representation as found in Figure 3.5.
The focus of VanPatten’s and IP/PI proponents’ discussions has been on one of the three major processes, namely, on input processing. Although VanPatten has provided information—albeit relatively limited information—on the processes of accommodation and restructuring, the focal point of his and IP/PI advocates’ publications has been on input processing.\footnote{Accommodation is described by VanPatten (2004a) as “either the partial penciling in or complete incorporation of a surface feature (form-meaning connection) of language into the developing system” (p. 33) and restructuring as “what may happen to the developing system after a form has been accommodated” (p. 33). Whereas accommodation involves quantitative changes to the developing system or linguistic behaviour, restructuring involves qualitative changes to the developing system of linguistic behaviour (VanPatten, 2004a).} This may appear to be a rather trivial fact but it is important to underscore at this point. VanPatten himself stresses this by regularly pointing out that his model or theory of input processing should not actually be equated with a model or theory of SLA since SLA implies more than simply processing input (VanPatten, 2004a, 2004b, 2007). Central to VanPatten’s model of input processing (and, by extension, to model-based pedagogical proposals) are “assumptions about the nature of “attention,” language “processing” and the structure of attentional and memory “resources” (DeKeyser et al., 2002, p. 806).

---

**Figure 3.4. The multicomponential nature of SLA (based on VanPatten, 1996)**

<table>
<thead>
<tr>
<th>input</th>
<th>intake</th>
<th>developing system</th>
<th>output</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

1 = input processing  
2 = accommodation, restructuring  
3 = access, production procedures

**Figure 3.5. An adaptation of the multicomponential nature of SLA (based on VanPatten, 1996)**

<table>
<thead>
<tr>
<th>input</th>
<th>intake</th>
<th>developing system</th>
<th>output</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

1 = input processing  
2 = accommodation, restructuring  
3 = access, production procedures
As is clear from Figure 3.4, IP is the process which focuses on how input is processed and how a subset of the input, referred to as intake, is subsequently made available for further processing in SLA. As mentioned above, the three major processes may themselves contain subprocesses. In VanPatten’s model, IP is said to consist of two subprocesses, which are not necessarily mutually exclusive: (1) the formation of form-meaning connections (FMCs) and (2) parsing (VanPatten, 2004a). The formation of FMCs occurs the very first time that an L2 learner makes a connection between form and meaning. In other words, it occurs the first time that an L2 learner maps form onto meaning or vice versa. The nature of the connection that is made may vary from whole to partial, from correct to incorrect (VanPatten, 2004a, 2004b). Although VanPatten provides ample data from, for example, Spanish to highlight partial connections, I will use data from English in the context of this dissertation.

Imagine that a Dutch-speaking ESL learner comes across the verbal form is diving and processes the relationship as an FMC between the English verb inflection be (present) + -ing (form) and the present (meaning). This connection is, of course, correct but it is partial or incomplete since the verb inflection be (present) + -ing in present-day English encapsulates not only a temporal meaning (i.e., present) but also an aspectual meaning (i.e., progressive). Subsequent processing would then be required to complete the FMC and to integrate the aspectual meaning into the already established FMC with a temporal meaning.

The processing of input is not a random process and VanPatten has developed a series of processing principles in an attempt to describe this complex feature. A complete discussion of all of the principles falls outside the scope of this dissertation but for an overview of one of the main principles and some of its subprinciples, the reader is advised to read Section 2.4.5 in Chapter 2. The second process found in input processing is referred to as parsing. According to VanPatten (2004a) parsing refers to “how learners assign syntactic categories to words they comprehend and to what kind of syntactic representations learners build during comprehension” (p. 31). In his discussions of parsing, VanPatten (1996, 2003) generally refers to the first-noun strategy, which English learners of Spanish rely on when processing Spanish sentences, which in 60 per cent of Spanish sentences is unproblematic since SVO and even VO—Spanish is a pro-drop language—are interpretable by an English L1 parser. However, the remaining 40 per cent of Spanish sentences follow other syntactic patterns (e.g., SOV, OVS, OV), resulting in regular misinterpretations of OVS sentences as SVO sentences.

Although VanPatten refers fairly regularly to form-meaning connections (FMCs), he does occasionally highlight the function aspect of connections (or mappings) too (e.g., VanPatten, 2004a, 2004b). In light of the tripartite approach to mappings adopted in this doctoral dissertation, the reader is advised to read VanPatten’s form-meaning connection (FMC) as form–meaning–use mapping (FMU mapping), which is the term used in this dissertation.
VanPatten’s model of IP is essentially a limited-capacity model of IP, which forces L2 learners to attend to input data. Attending to input data takes place—following VanPatten—according to specific principles, which have been formulated as the basis of VanPatten’s model of IP. By way of summary, a 2002 version of VanPatten’s main principles of IP is provided in Table 3.1.

Table 3.2. Main principles of input processing (from VanPatten, 2002b, p. 758)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>Learners process input for meaning before they process it for form.</td>
</tr>
<tr>
<td>P1a</td>
<td>Learners process content words in the input before anything else.</td>
</tr>
<tr>
<td>P1b</td>
<td>Learners prefer processing lexical items to grammatical items (e.g., morphology) for the same semantic information.</td>
</tr>
<tr>
<td>P1c</td>
<td>Learners prefer processing “more meaningful” morphology before “less” or “nonmeaningful” morphology.</td>
</tr>
<tr>
<td>P2</td>
<td>For learners to process form that is not meaningful, they must be able to process informational or communicative content at no (or little) cost to attention.</td>
</tr>
<tr>
<td>P3</td>
<td>Learners process a default strategy that assigns the role of agent (or subject) to the first noun (phrase) they encounter in a sentence/utterance. This is called the first-noun strategy.</td>
</tr>
<tr>
<td>P3a</td>
<td>The first-noun strategy may be overridden by lexical semantics and event probabilities.</td>
</tr>
<tr>
<td>P3b</td>
<td>Learners will adopt other processing strategies for grammatical role assignment only after their developing system has incorporated other cues (e.g., case marking, acoustic stress).</td>
</tr>
<tr>
<td>P4</td>
<td>Learners process elements in sentence/utterance initial position first.</td>
</tr>
<tr>
<td>P4a</td>
<td>Learners process elements in final position before elements in medial position.</td>
</tr>
</tbody>
</table>

Input (practice) and output (practice). Let us now turn to the roles of input (practice) and output (practice) in IP before looking at the IP-based pedagogical realization, which is also known as processing instruction (PI). In VanPatten’s multicomponental view of SLA, both input (practice) and output (practice) are featured. However, the roles that both concepts play in SLA are fundamentally different and are described by VanPatten (2004b) as “complementary” (p. 6). In fact, according to VanPatten, SLA is input-dependent but a form of dependency cannot be ascertained for the relationship between SLA and output. VanPatten (VanPatten, 2004a) discusses this issue by stating that input is at some level the “primary initial ingredient for the development of competence, however one construes that competence” (p. 35). Indeed, the role of input is universally accepted in SLA and in SLA theories (see Gass, 1997, and for a contemporary systematic discussion of the role of input across SLA theories,
Ortega, 2007). As far as the role of output is concerned, VanPatten (2003, 2004a, 2004b) is not an advocate of claims that SLA is in some way output-dependent. The adjective output-dependent implies that without any output, there would be no SLA, or at least, no successful SLA. However, according to VanPatten’s views, output is not an essential part of the acquisition process since it does not bring about any changes to the developing system. Using Salaberry’s (1997) words with respect to VanPatten and Cadierno’s (1993) claim about the acquisition/learning distinction: “Acquisition and learning are the accurate description of the cognitive processes generated by input and output practice” (p. 423). This confirms the essential, first-class role of input (practice) and the non-essential, second-class role of output (practice) in second language acquisition.

In his discussion of the roles of output, VanPatten (2004a, 2004b) distinguishes two types of output: (1) output as interaction and (2) output as production (or Swain’s (1985) notion of pushed output). Output as interaction is output which is used in interactional contexts. What this type of output does, according to VanPatten (1996, 2004a, 2004b), is change—in interactional contexts—the so-called task demands which are placed on L2 learners during input processing, resulting in freed up attentional resources, which, in turn, give L2 learners the opportunity to process input elements which they may have missed initially. In other words, input is made more manageable and quoting VanPatten (2004b): “Greater manageability can lead to increased resources for noticing” (p. 26). This role of output is, of course, based on VanPatten’s view of input processing being a limited-capacity phenomenon. As a result of interacting with an interlocutor, the L2 learner is given essential data—which are found in the interlocutor’s output—which function as input for the L2 learner. In addition, output as interaction may also lead L2 learners to noticing that something which they have said is not the same as what they have heard during the interaction, resulting in the noticing, which is essential for making FMCs. If we turn to output as production, we see that VanPatten is once again extremely clear about his point of view. He disagrees with the assumption that using a form in one’s output is a direct path to second language acquisition (VanPatten, 2003, 2004a, 2004b). VanPatten (2003, 2004a, 2004b) simply acknowledges that output may be beneficial in developing language skills (e.g., accuracy and fluency) but skill development and the creation of an implicit linguistic system are two separate phenomena.

Processing instruction (PI). In a 2005 publication on PI, VanPatten addresses the PI background by linking the pedagogical intervention to his general model of input processing. The fundamental question that PI attempts to address is—using VanPatten’s (2005) words—“Is there a way to enrich learners’ intake using insights from input processing?” (p. 272) or a reformulation of this question: “To what degree can we either manipulate learner attention during input processing or manipulate input data so that more and better form-meaning connections are made?” (p. 272). Generally, PI is discussed in function
of its three basic characteristics, which VanPatten (2005, p. 273) describes 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 of the form of structure during comprehension.
3. Learners are pushed to process the form or 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 (i.e., learners are pulled away from their natural processing tendencies toward more optimal tendencies).

VanPatten and other IP/PI advocates (e.g., Benati & Lee, 2008; Lee & Benati, 2007; VanPatten, 1996; Wong, 2004b) have described PI using alternative terminology but the characteristics described above are consistently recognizable in the various descriptions of PI. Some descriptions have used abbreviations, which have become common in discussions of PI. For example, the information about the linguistic structure or form has been termed *explicit information* (EI). The activities with structured input have been termed *structured input activities* (SIAs). What is clear from the characteristics above is that PI is essentially an input-based approach to (grammar) instruction, in which input and input practice play pivotal roles. The way in which PI fundamentally differs from other input-based treatments is found in the second PI characteristic: the identification of a possibly problematic processing strategy based on the model of input processing highlighted above. VanPatten (2005) encapsulates this feature by stating that “PI does not just determine what is a problem form or structure but also *why* it is a problem vis-à-vis the processing issues” (p. 275). In addition to explaining the nature of the three PI components, VanPatten and PI advocates often discuss, in detail, the guidelines that have been drawn up for developing SIAs. Wong (2004b) describes the development of SIAs in function of two general procedures that must be followed: (1) identify the processing problem/strategy and (2) follow the guidelines for the development of SIAs. In one of the earliest publications on PI, VanPatten (1996) provides the following six guidelines for drawing up SIAs:

---

81 Within the PI paradigm, VanPatten (1996, 2005) refers to two types of SIAs: (1) referential SIAs and (2) affective SIAs. Referential SIAs are activities for which right or wrong answers exist and for which L2 learners must rely on targeted forms to get meaning. Affective SIAs are activities for which L2 learners are invited to express opinions, beliefs or to give other affective responses. In affective SIAs, L2 learners are involved in processing information about the real world.
1. Present or teach only one thing at time.
2. Keep meaning in focus.
3. Have L2 learners do something with the input.
4. Use both written and oral input.
5. Move from sentences to connected discourse.
6. Keep the psycholinguistic processing strategies in mind.

Although VanPatten (1996) himself has clearly stated that the guidelines above are to be viewed as guidelines and not maxims and that the application of the guidelines may vary from lesson to lesson, their realization in SIAs has become somewhat problematic. Doughty (2004) highlights considerable changes between SIAs in earlier and later studies into PI, which she describes as “the departure from the original PI treatment design” (p. 262). The biggest change—according to Doughty (2004)—is the move from processing activities (in earlier studies) to language manipulation and metalinguistic activities (in later studies), which has led to a loss of focus on meaning and function during learner processing of the target feature. Doughty (2004) puts forward two possible reasons for this departure by focusing on the actual processing problems that have been addressed in later studies into PI. Whereas initial studies focused on what has been referred to by VanPatten as the first-noun strategy, later studies have focused on two types of processing problem: (1) L2 learners processing input using strategies developed during L1 acquisition (e.g., first-noun strategy) and (2) L2 learners failing to notice features that are not salient in the input, either because they are too difficult or because the information is available elsewhere in more noticeable forms, or both. The consequence has been that the SIAs in later IP studies have reflected more directly a FonFs approach whereas the SIAs in earlier IP studies were developed with a clearer FonF approach. In turn, Doughty (2004) claims that the emphasis on FonFs in later PI studies has resulted in gained knowledge which is not truly relevant to real SLA processes.

The IP and PI research paradigms have resulted in a plethora of publications. However, for what VanPatten (2005) has referred to “robust results” (p. 276), issues of contention related to the paradigms have also been discussed, resulting in warranted notable observations by various SLA scholars on, for example, theoretical and definitional issues, on design and operationalization issues, and on replication issues (e.g., DeKeyser et al., 2002; Doughty, 2004; Lightbown, 2004; Salaberry, 1997).

3.3.2.2 Skill acquisition theory

Skill acquisition theory principles. In their 2010 publication Key Terms in Second Language Acquisition, VanPatten and Benati refer to Robert DeKeyser as “the name most associated with skill and skill learning in SLA” (p. 150). Skill acquisition theory in SLA—like many other cognitive approaches to SLA—does not originate from the field of SLA itself but rather from the field of cog-
nitive psychology, where its study has been and still is substantial (e.g., Anderson, 1983, 1993, 2000; Carlson, 1997, 2003; Newell & Rosenbloom, 1981). Since the mid-1980s, skill acquisition theory has featured in SLA and has been productive in guiding SLA research (Ortega, 2009). Because of the close link with endeavours in cognitive psychology, a description of skill acquisition theory in SLA irrevocably falls back on concepts and issues which are also found in cognitive psychology. At the same time, however, the wholesale importation of skill acquisition theory and research interests into the field of SLA is not recommended because of the language-specific features and research interests that come with learning an L2 and language skills.

DeKeyser (2007c) describes the basic claim of skill acquisition theory as follows:

The basic claim of skill acquisition theory is that the learning of a wide variety of skills shows a remarkable similarity in development from initial representation of knowledge through initial changes in behavior to eventual fluent, spontaneous, largely effortless, and highly skilled behavior, and that this set of phenomena can be accounted for by a set of principles common to the acquisition of all skills. (p. 97)

In essence, skill acquisition theory is an information processing theory which describes the gradual transformation of performance from controlled to automatic (Ortega, 2009). However, the transformation is not of a haphazard nature. It is predicated on specific claims and constructs, which interact to form the principles of skill acquisition theory. The transformation essentially takes places as a result of practice over a series of trials. In turn, such practice ensures that the number of controlled processes is diminished whilst simultaneously increasing the number of automatic processes during performance (Ortega, 2009).

Three developmental stages in the skill-acquisition continuum have generally been recognized and have been referred to using different taxonomies. The most common terminology in SLA research for the three developmental stages has been (1) declarative, (2) procedural and (3) automatic (taken from Anderson’s earlier formulations of his Adaptive Control of Thought (ACT) theory (Anderson, 1983)). Figure 3.6 provides a schematic overview of the
developmental stages in skill acquisition theory. The difference between the three developmental stages may be found in both the type of available and/or used knowledge and the ways in which that knowledge is used.

![Diagram of developmental stages in skill acquisition theory]

The three developmental stages in Figure 3.6 represent the fundamental ideas behind general skill learning, which show a striking resemblance to the mastery of L2 skills (Dörnyei, 2009). To understand the nature of skill learning, let us have a closer look at these three developmental stages. The declarative (or cognitive) stage is the stage which is characterized by declarative knowledge ('knowledge that'). In essence, such declarative knowledge is knowledge which has not yet been acted on (DeKeyser, 2007a, 2007c). What the learner is required to do is undertake the initial encoding of the skill by acting on the declarative knowledge that is provided. In, for example, an instructed SLA context, the declarative stage would be the stage at which L2 learners are given explicit information about an L2 target feature. In the second stage, the procedural (or associative) stage, learners are invited to practise the encoded skill. Progression is characterized by a shift from relying on declarative knowledge to procedural knowledge. In an instructed SLA context, L2 learners are invited at this stage to act on declarative knowledge by turning 'knowledge that' into 'knowledge how'. In other words, L2 learners are pushed to turn declarative knowledge into procedural knowledge. Anderson (1976, p. 117) described the differences between declarative and procedural knowledge by means of three assumptions:

1. Declarative knowledge seems to be possessed in an all-or-none manner, whereas procedural knowledge seems to be something that can be partially possessed.
2. One acquires declarative knowledge suddenly, by being told, whereas one acquires procedural knowledge gradually, by performing the skill.
3. One can communicate one’s declarative knowledge verbally, but not one’s procedural knowledge.

DeKeyser (1997) has found that the process of proceduralization, that is, transitioning from declarative knowledge to procedural knowledge, need not take up too much time. In other words, proceduralization may be complete after a few trials or instances. Of course, proceduralization can be effectuated only if certain conditions are available (DeKeyser, 2007c). For example, the relevant declarative knowledge should be made available and should be drawn on in attempts to execute any target behaviour. In addition, the proceduralization of declarative knowledge also shows a great deal of regularity, which has been captured in the central concept referred to as the power law of practice or power law of learning. This concept refers to the regularity which captures the decrease of reaction time and error rate as a consequence of practice.85

The huge advantage of procedural knowledge over declarative knowledge, according to DeKeyser (2007c), is that procedural knowledge “no longer requires the individual to retrieve bits and pieces of information from memory to assemble them into a “program” for a specific behavior; instead, that program is now available as a ready-made chunk to be called up in its entirety each time the conditions for that behavior are met” (p. 98). What follows the procedural stage is a generally long road to automatic (or autonomous) knowledge, which represents the third stage of skill learning. This road paves the way for increased robustness and fine-tuning of the procedural knowledge so that that knowledge may be used for behaviour that shows high levels of consistency, fluency and spontaneity, which is termed automaticity in skill acquisition theory terminology. When applying the declarative/procedural/automatic taxonomy to language learning, Anderson saw the differences between L1 and L2 leaning as simply a difference in the stage that had been reached (Ellis, 2008). Whereas L1 learners almost always progress to the automatic stage, L2 learners often reach only the procedural stage. Or as Ellis (2008) puts it: “[A]lthough foreign language learners achieve a fair degree of proceduralization through practice, and can use L2 rules without awareness, they do not reach full autonomy” (p. 429).

Although skill learning theory appears relatively straightforward, it is a theory which explores a highly complex phenomenon. In turn, this phenomenon is influenced by a variety of factors. In addition to the inherent complexity of skill learning, there are also competing views in SLA research with respect to the fundamental interaction between declarative and procedural knowledge and the ultimate development of procedural knowledge, which has also been referred to as the declarative-to-procedural shift (Dörnyei, 2009). The three best-known

---
85 See, for example, DeKeyser (2001, 2007a, 2007c) for additional information about the power law of practice in an SLA context.
views on the development of procedural knowledge are: (1) the proceduralization of declarative knowledge, which was described above (e.g., Anderson, 1983, 1993, 2000), (2) the construction of parallel procedural knowledge, a view which maintains that declarative and procedural knowledge are independent, resulting in an inability to convert declarative knowledge into procedural. (e.g., Hulstijn, 2002; Ullman, 2005) and (3) the construction of a repertoire of episodic instances (e.g., Logan, 1988, 2005). Because of the constraints of this dissertation, no further details about this highly interesting yet complex discussion will be provided. For detailed overviews and discussions, the reader is advised to consult, for example, DeKeyser, 2001, and Dörnyei, 2009.

**Input (practice) and output (practice).** At the basis of the gradual transformation from declarative knowledge to procedural knowledge, and from procedural knowledge to automatic knowledge, lies the concept of practice in skill acquisition theory. DeKeyser (2007a, 2007c) highlights the concept of practice in SLA by discussing its role and possible features in skill acquisition theory. The role that is assigned to practice in skill acquisition theory is pivotal since practice is the driving force behind moving L2 learners through the various types of knowledge on their way to complete L2-learner autonomy. Unlike VanPatten’s model of input processing, which views SLA as input-dependent and assigns no role to output (practice) in the acquisition process, skill acquisition theory takes a different approach to practice. It regards practice in general as a necessary component of the SLA process but underscores that the gradual transformation, which is called **proceduralization**, is skill-specific (Ortega, 2009). DeKeyser (2007a) acknowledges that skill specificity is probably the issue which has attracted most of the research focus in applied linguistics lately. Following skill acquisition theory tenets, only minimal or no transfer would take place between skills. In the context of practice in instructed SLA, this would lead to skill-specific practice effects for both input practice and output practice. In other words, input practice would lead to the acquisition of comprehension-based (or receptive) skills whereas output practice would lead to the acquisition of production-based (or productive) skills. This, of course, is not in agreement with VanPatten’s predictions about practice, which state that only input (practice) is necessary for acquisition to take place, that is, the acquisition of recep-

---

86 VanPatten’s model of input processing takes output (practice) into consideration but only as a measure to improve accuracy and fluency (output as production) or as a facilitative feature (output as interaction) and not as a direct route to SLA.

87 Research in cognitive psychology has also addressed the issue of transfer appropriate processing (TAP), which refers to a key concept underlying the nature of encoding/learning-retrieval relationships (Segalowitz, 2010). The approach to practice in skill learning theory described above fits into the broader picture of learning language skills and TAP. Lightbown (2008) describes the underlying tenet of TAP as follows: “The fundamental tenet of TAP is that we can better remember what we have learned if the cognitive processes that are active during learning are similar to those that are active during retrieval” (p. 27). For a more detailed discussion of the TAP in instructed SLA, see Lightbown, 2008, and, Segalowitz, 2010.
3.4 Conclusion

The overall focus of this chapter was on the grammatical category of tense and the ways in which it interacts with the field of instructed SLA. In the first section (Section 3.2), I provided the background for how tense has been conceptualized in studies investigating the acquisition of L2 temporality. After presenting—in isolation and by means of comparison—the two approaches (i.e., focus-oriented approach and meaning-oriented approach) that have been used to investigate L2 temporality, I focused on the meaning-oriented approach, which was used for the experimental studies that were carried out for this dissertation. Although studies with a meaning-oriented approach show specific design-related and methodological features, they do not specifically shed any light on possible instructional setups that may be drawn up for investigation.

In an attempt to highlight relevant research-related issues to the instruction that was provided to the participants in the experimental research, I turned the focus to instructed SLA in the second section of this chapter (Section 3.3). The term form-focused instruction (FFI) was explained and with it possibilities for conceptualizing this umbrella term. Since the instruction in Studies 1, 2 and 3 was of an FFI nature, it was important to contextualize this term and to provide a backdrop for the experimental research carried out. Subsequently, I turned to the concept of practice, which was used as a way of distinguishing between the major instructional setups in the studies that were carried out. Since the distinction between input practice and output practice formed the foundation of the experimental research that was carried out in this dissertation, I tried to indicate the roles and the importance of practice by discussing two approaches—input processing and skill acquisition theory—which both assign crucial roles to the concept of practice but do so in fundamentally different ways. Input processing underscores the importance of input (practice) in SLA and the complementary role of output (practice) in increasing accuracy and fluency and facilitating the production of input. Consequently, SLA is said to be only input-dependent according to input processing tenets. Skill acquisition theory, on the other hand, embraces both input (practice) and output (practice) as essential components in SLA. Both forms of practice lead to the gradual transformation of performance from declarative knowledge to procedural and from procedural to automatic, that is, from controlled to automatic. Input processing and skill acquisition theory share some cognitive features (e.g., importance of practice, provision of explicit L2 information (declarative knowledge) before attempting to continue with proceduralization) but skill specificity is not one of them. Whereas input processing does not advocate skill specificity and claims that transfer from input-practice effects does exist and that both comprehension and production in
SLA are influenced by input practice, skill acquisition theory is more reluctant and promotes the idea that practice effects are skill-specific. In other words, according to the principles of skill acquisition theory, input practice leads to the acquisition of comprehension-based (or receptive) skills and output practice to the acquisition of production-based (or productive) skills. As a result of this fundamental difference with respect to skill specificity, hypotheses for the experimental research carried out are different depending on which approach is taken.

The following three chapters (Chapter 4, 5 and 6) will report on the three studies that were carried out for this doctoral dissertation. In addition to providing design-related and methodological information for every study, the reader will be guided through the statistical analyses and preliminary discussions of the results obtained. More detailed discussions and interpretations will be provided in Chapter 7, which will also address the strengths and limitations of the studies and will shed light on pedagogical implications and options for possible future research.