Fostering language teaching efficiency through cognitive linguistics: Introduction

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Abstract

In this introductory chapter we discuss how a language pedagogy inspired by Cognitive Linguistics (CL) can benefit from an alliance with current Second Language Acquisition (SLA) research. Conversely, we show how insights from CL can usefully be incorporated into sequences of task-based learning, so as to improve learners' uptake of second-language (L2) elements of various kinds (including sounds, words, phrases and constructions). We argue that CL can help course designers, materials writers and teachers make informed choices about what to teach as well as how to teach it. We give an outline of the contents of the book and explain the contribution each of the chapters makes with a view to fostering language teaching efficiency.

Keywords: incidental and intentional learning; task-based learning and form(s)focused instruction; frequency; L1-to-L2 transfer; awareness-raising; cognitive engagement; linguistic motivation

1. Forging an alliance between CL and current SLA research

Cognitive Linguistics (CL) is an enterprise with multiple applications (see Kristiansen, Achard, Dirven and Ruiz de Mendoza, 2006, for a collective volume in which the various branches of application are discussed and exemplified). The present book is concerned with just one of them, namely the integration of insights from CL (e.g., Lakoff 1987; Langacker 1991; Taylor 2002) in second or foreign language teaching methodology.

The present volume on pedagogy-oriented CL follows two others that have appeared in the same book series, one devoted to vocabulary and phraseology (Boers and Lindstromberg 2008), the other devoted to pedagogical grammar (De Knop and De Rycker 2008). Much seminal work preceded these recent books. One example is Pütz, Niemeier and Dirven (2001), the first collective volume dedicated explicitly to the use of CL in language pedagogy. For an extensive review of those "early days," see

Boers and Lindstromberg (2006). A brief historical overview can also be found in De Rycker and De Knop (2009).

CL advocates will need to acknowledge, however, that the early proposals suffered from roughly two weaknesses. Firstly, they were mostly just that – proposals –, and were not backed up by empirical evidence for their pedagogical effectiveness.[1] Secondly, they offered little argumentation for the choice of language elements to be targeted in the proposed instructional methods. For example, some proposals (e.g., Boers 2000) targeted idioms, while it could be argued that these do not merit prioritising in foreign language learning[2] but see Boers and Lindstromberg (2009: Ch. 5) and Herrera and White (this volume). One of the defining characteristics of CL is its adherence to a usage-based model of language acquisition (e.g., Langacker 2000; Tomasello 2003), i.e., a model according to which people acquire their mother tongue on the basis of what they are exposed to, and in a way that roughly reflects the frequency of the elements that are encountered (see also Taylor, this volume). Due to presumed resemblances between L1 acquisition and L2 learning, proposals for the teaching of what – for lack of corpus evidence – were *believed* to be low-frequency items were hard to marry with that usage-based model.

With the present volume, we hope to demonstrate how much pedagogy-oriented CL has matured since its fledgling days. For example, much more care is now taken to assess CL-inspired instructional methods by means of experimental and/or corpus data. The result is a growing body of evidence of the the merits of these methods (as well as their limitations) and also a more informed idea of how to fine-tune the proposals that have been put to the test so far. The maturation of pedagogy-oriented CL has not come entirely from within, however. Increased contacts with a recent strand of Second Language Acquisition (SLA) research have undoubtedly driven many of the advances. The type of SLA research that we have in mind here is one in which the modifier "cognitive" regularly shows up to characterize its overall approach (e.g., Skehan 1998; Robinson and Ellis 2008). Moreover, although it is rooted in applied linguistics rather than descriptive linguistics, its premises have a lot in common with those of CL. Among the shared premises are the following (for a more detailed discussion, see Boers and Lindstromberg 2006: 306–309; Robinson and Ellis 2008: Ch. 1):

1. Insights from applied cognitive psychology (including models of perception, attention and memory) are highly relevant for language acquisition and learning (e.g., Robinson 2003; Robinson and Ellis 2008).

2. Acquisition depends on quantity and quality of input, and the frequency of encounters with given elements markedly influences the likelihood of their uptake and thus also the order in which these elements are acquired (e.g., Ellis 2002) – cf. the CL premise that L1 acquisition is usage-based, the outcome of what is sometimes called "emergentism" in contemporary SLA research jargon (e.g., Ellis and Larsen-Freeman 2006). Language is seen as a by-product of communicative processes. There is thus no need to postulate any such thing as an innate "universal grammar" or a "language acquisition device" as Chomskyan linguists are wont to.
3. The lexis-grammar dichotomy is a fallacy and should be replaced by a conception of language as a continuum from atomic and specific units to increasingly complex and more schematic ones (e.g., Langacker 1991; Taylor, this volume). One of the consequences of this is that due attention must be given to multiword items (such as strong collocations and other word partnerships) (e.g., Ellis 2008a; Nattinger and Decarrico 1992). The growing appreciation of the fact that words tend to have their own grammar (in the sense that they have distinct collocational and colligational patterns, e.g., Hoey 2005) has undoubtedly been spurred by corpus linguistics. For example, one of the founding fathers of corpus linguistics, Sinclair (1991), emphasises the ubiquity of what he calls the *idiom principle* (as opposed to the *open-choice principle*) in authentic language use. Reference can also be made to Halliday (1969) and his idea of "lexis as most delicate grammar." On the shared assumptions between CL and functional linguistics in general, see Robinson and Ellis (2008: Ch. 1).

Pedagogy-oriented CL proponents and "cognition-oriented" SLA researchers found a joint forum in March 2008, at the 33rd International LAUD Symposium (Landau, Germany), organized under the title *Cognitive Approaches to Second/Foreign Language Processing: Theory and Pedagogy*. The present volume is based on a selection of papers presented at that symposium.

In mainstream applied linguistics, a distinction is sometimes made between Second Language Acquisition (SLA) and Foreign Language Teaching (FLT), with the former referring to contexts where the learner has a lot of contact with the L2 community (e.g., in immersion situations) and the latter referring to contexts where the L2 community is more distant and where the language is thus met primarily in a more "formal" setting (typically in the language classroom). Most of the contributions to the

present volume deal with issues in FLT – also called *second language instruction* (Robinson 2001), *instructed language learning* (Robinson 2002), *classroom second language acquisition* (Doughty and Williams 1998), *formal language learning* (Garcia Mayo 2007), *second language pedagogy* (Prabhu 1987), and *instructed second language acquisition* (Ellis 1990).

This book is thus concerned mostly with the *intentional* learning of an L2 (where L2 stands for a 2nd, 3rd or n-th language), typically in a classroom setting – though usually supplemented by some amount of out-of-class exposure to the L2 through TV, the Internet and other media, homework, and perhaps occasional contact with L2 speakers. This is quite different from L1 acquisition and also L2 acquisition in an immersion context, where learners get ample opportunity for *incidental* acquisition, i.e., the incremental uptake of L2 elements through multiple encounters with them but largely in the absence of explicit instruction. In classroom-based language learning, however, the learners have far less exposure to the L2 and are much less likely to encounter certain target L2 elements a significant number of times. As such, there is much less ground for optimism about incidental uptake beyond a rather narrow set of high-frequency L2 elements. Moreover, if solely incidental acquisition were relied upon, classroom-based L2 learning would be very slow (at best). The importance of usage-based language acquisition makes up the subject matter of Part I of this volume. Throughout this part, however, various contributors also touch upon its limitations in many contexts of second language learning (see also Section 2 below).

To accelerate the learning process, teacher-guided intentional learning is needed, ranging from the minimal intervention of pointing out the presence of a given item, pattern or feature in the L2 input to more intensive interventions involving elaboration (see Section 4) and rehearsal. Considering the limited classroom time available (sometimes only a couple of class hours per week), there is obviously a need for teacher-led interventions that have not only been proven effective but that are also maximally *efficient*. A given teacher-led intervention is considered efficient if it generates a good return on investment in terms of the highest possible learning benefits for the time and effort put in by the learner, and this in comparison with (a) the absence of any intervention and (b) other interventions aimed at obtaining the same learning benefits.

The present volume explores ways in which CL insights can help foster such efficiency. In other words, how can we deploy CL to increase both the

rate of acquisition and the level of linguistic attainment? More particularly, the research findings brought together here illustrate ways in which CL insights can inform teachers, materials writers and course designers in their decisions about *what* to teach, i.e., the "selection" of L2 targets for classroom treatment, and about *how* to teach these, i.e., the methodological choices involved in realising those targets most efficiently. These questions correspond to Parts Two and Three of the volume, respectively. In the following sections we introduce the three parts of the book in more detail, situating at the same time the various contributions to each part.

2. The importance of usage-based acquisition, but reasons why it may not suffice in contexts of second language learning

As is argued by Taylor (this volume), native speakers' knowledge of their mother tongue reflects the language they have been exposed to, including all its probabilistic features brought about by frequency effects. In this line of reasoning, language acquisition is fundamentally a process of imitation of what is present in the input. This view is in fact not incompatible with Krashen's (1985) *Input Hypothesis*, which holds that, if learners receive sufficient amounts of "comprehensible input," they will – analogously to children acquiring their mother tongue – induce the grammar patterns of the language and extract vocabulary incidentally from those samples of comprehensible input (Krashen 1989).

A full analogy between L1 acquisition and L2 learning is questionable, however. Firstly, when (young) adults set about learning an additional language, their categorization of "the world" is already firmly entrenched (and aligned with the symbolic units of their mother tongue). This can be an advantage for L2 learning because the L1 concepts may provide anchor points for the learning of L2 vocabulary (Xia and Wolf, this volume), but it can also create obstacles if the categorization that is lexicalized in L2 does not correspond to that in the learners' L1 (Jing-Schmidt, this volume). Secondly, children growing up in their L1 community have ample and constant opportunity for discerning and imitating the patterns of their mother tongue, whereas L2 learners get far less exposure to the target language and consequently their exposure to elements that are not highly frequent is very much distributed over time (unless they are immersed in the L2 community, perhaps, but see Ellis 2008b). Apart from low-frequency items (e.g., specialized lexis), most of the items, patterns and features present in one's native language are probably encountered often

enough for incremental, incidental uptake to occur. In learning a second language, however, the chances of such incremental, incidental uptake are compromised because encounters with a given element may be too few and far between. By the time a given L2 word, pattern or other is re-encountered, chances are that the fleeting memory trace (if any) created by the previous encounter has disappeared. Skepticism about the feasibility of incidental L2 uptake has been fuelled, for example, by research into second language vocabulary acquisition (e.g., Nation 2001), where it was found that it indeed tends to take multiple encounters with a new word in a relatively short span of time for the word to start leaving a durable memory trace. Thirdly, the social settings within which L1 and L2 are acquired are vastly different. The mother-child dyad, and its immediate communicative context of meaningful and caring interaction, joint attention and turn-taking, bears little resemblance to what goes on between teachers and students in classrooms.

In their contribution to the volume, Alejo, Piquer and Reveriego estimate the chances that Spanish secondary school students will acquire English phrasal verbs (like *get up*, *take off* and *work out*) on the basis of encounters with these in their EFL course books. Phrasal verbs occur with high frequency in authentic native-speaker discourse and so they may at first sight qualify as candidates for acquisition without much explicit instruction. However, a comparison of the presence of phrasal verbs in EFL course books and their presence in a native speaker corpus casts serious doubt on that assumption. Not only are phrasal verbs generally under-represented in the course materials, re-encounters (if any) with the same phrasal verb are so far and few between that the necessary conditions for incremental uptake are hardly ever met. Moreover, the authors point out that the lack of opportunity for incidental learning is not sufficiently compensated for by targeted exercises, let alone, exercises that engage learners in the kind of elaborative processing that is known to foster retention.

The chapter by Xia and Wolf compares the appeal – for language learners – of L2 words at different levels of specificity or generality. The hypothesis is that learners will attend first and foremost to so-called basic-level words (e.g., *chair*) rather than words at a subordinate level (e.g., *armchair*) or at a superordinate level (e.g., *furniture*). The authors report on a series of experiments, conducted with the participation of Chinese learners of English, the results of which strongly corroborate their hypothesis. On the one hand, this means that – as in L1 – basic-level words

have a privileged status, which makes them inviting targets for learning. This is hardly surprising given their general utility. The utility of a basic-level verb like *run* is reflected, among other things, in its high frequency of occurrence compared with subordinate words (like *sprint*) or the superordinate *move*. On the other hand, the salience of basic-level words risks drawing learners' attention away from more specific or more generic vocabulary, i.e., the kind of vocabulary learners need to add to their repertoires if they wish to progress beyond intermediate level. Success in language learning, as Langacker (2008: 10) observes, depends, among other things, on a learner's ability to move away from basic-level description and go into sub- and superordinate levels of categorization – a phenomenon known as "conceptual fluency." Incidental acquisition through exposure to L2 samples is thus not only compromised by the scarcity of encounters with relatively infrequent items, many of those infrequent items seem to be of the kind that goes unnoticed, i.e., does not attract learners' attention or interest.

So, if the ultimate aim is near-native proficiency in L2, learners should get a lot of exposure to samples of the target language but exposure alone is unlikely to suffice in many settings. It follows there is an important active role to be fulfilled by teachers as well as materials writers and course designers. At its most minimal and least time-consuming, that role is to simply guide learners' attention to useful targets for learning. However, is merely drawing students' attention to these targets enough to make a difference? In their contribution, Stengers, Boers, Eyckmans and Housen suggest that it does *not* make much of a difference, at least with regard to learners' uptake of multiword units (e.g., strong collocations like *vast majority*). In an experiment conducted over the course of a school year, learners majoring in either English or Spanish were systematically alerted to the multiword units occurring in the texts that made up part of their course materials. Despite these regular teacher-led "noticing" activities, post-tests gauging students' receptive knowledge as well as their active mastery of multiword units showed no evidence of any superior learning gains among these students in comparison with the results obtained by control groups.

If we cannot take incidental acquisition for granted, and if teacher-guided noticing alone does not accelerate learning much, then more profound interventions seem to be in order. What those interventions could look like is discussed in Part III of the book. Given the time constraints associated with classroom-based language learning, the first question to

ask, however, is exactly which L2 items, patterns or features merit prioritized attention and instruction in the first place. That is the question addressed in Part II of the volume. We will come back to both questions in the chapter overviews below.

3. How CL can inform decisions about *what* to teach

The decision to invest classroom time into any given L2 target element must evidently take into consideration the level of the learners and their goals. It would make little sense (unless perhaps for affective reasons) to teach beginning learners of English words or patterns that they are unlikely to meet or find the need to use much. A primary criterion for prioritisation of given learning targets is indisputably *utility*, i.e., the likelihood of the learned item or pattern being highly useful to the learner (for receptive and/or productive purposes), and this generally correlates with frequency. For instance, a learner is likely to benefit more from comprehending the word *carrot* than the word *turnip*, and from mastering the simple past than the "*used to* + infinitive" pattern, because the first element in these comparisons will in all likelihood be encountered and needed more often. And yet, what merits prioritised *learning* need not always coincide with what invites prioritised *teaching*. That is because some of the high-utility items and patterns may be encountered frequently enough even in classroom-based L2 learning for students to pick them up independently, i.e., without explicit teacher guidance. If so, their frequency/utility certainly justifies prioritized *learning*. Yet, they need perhaps not be awarded much explicit *instruction* as this might be at the expense of slightly less frequent elements which the students are much less likely to pick up on their own. It stands to reason that – all else being equal – elements which occur highly frequently in the input will indeed stand a better chance of being picked up incidentally (and so might do without explicit instruction) than less frequently encountered elements (but see below on the difficulties presented in this respect by certain "function words" like articles and prepositions). In that line of reasoning, it would be only those elements that do *not* meet the conditions for incidental learning that would benefit most from teacher-led intervention. Unfortunately, the "all-else-being-equal" phrase disguises the panoply of variables which make it extremely hard in actual practice to estimate which comparatively frequent elements are really likely to be acquired incidentally and under which specific circumstances.

For one thing, it will inevitably depend on the amount of input a given group of learners receives, both in and out of class (and this can vary markedly from one country to the next). For another, frequency of encounters with certain L2 elements is not the only variable which influences the chances of successful incidental uptake. According to what

has become known as the *Noticing Hypothesis* (Schmidt 1990, 2001), learning cannot take place without a certain degree of consciousness on the part of the learner. Unless learners pay attention to a given element in the input, that element will not become a candidate for uptake in long-term memory: "What is attended to is learned, and so attention controls the acquisition of language itself" (Ellis and Robinson 2008: 3). Noticing is now widely believed to be a necessary (though by itself often insufficient) condition for learning. Controversy remains, however, over what mental operation exactly constitutes noticing, how it can be measured, and how gradable a phenomenon it is (Godfroid, Boers and Housen, in press; Williams 2005).

The tenet that a certain degree of consciousness is necessary for learning is also at the heart of the so-called *focus-on-form* movement in language teaching methodology, i.e., an approach which emphasizes the importance of periodically shifting learners' attention to the formal features of the target language before, during or after communicative activities (Ellis 1990; Doughty and Williams 1998; Long 1991). This is believed to be necessary because, as they are engaged in communication, language users will generally attend to the meaning rather than the precise form of messages. Meaning cannot truly be divorced from linguistic form, of course, but it nevertheless appears to be the case that, once a message has been decoded, it is the meaning that is stored in memory, while the precise surface form through which it was conveyed is forgotten (Craik and Tulving 1975; Jarvella 1971). For a recent discussion of the role of memory in language comprehension, including up-to-date references, see Harley (2008: Ch. 12). Given the unreliability of verbatim memory and the lack of salience of certain linguistic items, it is believed by focus-on-form proponents that learners will benefit from having L2 formal features pointed out to them. One way of doing so is to draw learners' attention to certain elements or features present in the input which are otherwise likely to go unnoticed (Boers, Deconinck and Lindstromberg, this volume; Sharwood-Smith 1991: 121).

The probability of learners giving pause to certain elements independently of such teacher-led intervention (and thus of improving the chances of autonomous, incidental uptake) also appears to depend on the nature of the element at stake. Some linguistic elements seem to have more communicative value than others and are thus more likely to be attended to by the learner during communicative activities (VanPatten 1990, 2002). This is especially the case when they can cause comprehension problems

and thus necessitate negotiation of meaning. For example, "content" words are likely to attract more attention than "function" words. As a result, the behaviour of articles and certain prepositions may go largely unnoticed without prompting.[3] Likewise, a past tense marker in English seems to have more communicative value than the 3rd person singular *–s* in the simple present tense. Verb endings in languages where use of the subject pronoun is optional (e.g., Spanish) may possibly attract more attention from the learner in comparison with languages where it is compulsory. Subjunctives in French may not receive much unprompted attention from the learner, as their substitution by indicatives seldom causes communication failures. And so on. There is not only variation in the perceived communicative value of linguistic elements (be they sounds, affixes, words, collocations, grammar patterns, etc.) but also in how this variation influences their chances of receiving unprompted attention from the learner. It follows yet again that frequency of encounters alone cannot help us estimate whether a given L2 element is likely to be picked up incidentally or – conversely – whether classroom time should be devoted to pointing it out.

Another factor which influences the chances of exposure-based learning outside the classroom is the degree of complexity of the target item or pattern. Other things being equal (which – as we know – they seldom are), a monosyllabic content word may be easier to remember than a multi-syllabic one. An invariable pattern (e.g., fixed word order; regular formation of plurals) will generally be easier to master than a variable one (e.g., change of word order in subordinate clauses; differing plural markers). However, the extent to which a particular L2 target poses challenges will inevitably depend on a learner's L1 background. For example, a relatively complex L2 pattern may bear such close resemblance to an equivalent pattern in the learner's mother tongue that it is relatively easy to learn, in some cases to the point even that L1-to-L2 transfer can be relied upon. Conversely, a pattern that may seem relatively straightforward to learners from one linguistic background may constitute a major hurdle to learners from another. For instance, Dutch-speaking learners of English experience comparatively little difficulty in appreciating the use of the articles in English (which bears strong resemblance to that in Dutch), but this is quite a different matter for learners whose L1 does not make use of articles at all. In short, the degree of complexity of any given L2 target plays a role in deciding whether or not it should be given (much) explicit classroom treatment but the precise nature of that role can only be determined by taking the L1 background of the L2 learner into account.

Certain L1/L2 configurations may facilitate SLA while others are likely to have a more inhibitory effect. Yet another confounding factor is that simple patterns are not only believed to be easier to learn than complex ones, they are also believed to be more/better "teachable" (Ellis 1990). Whether CL can help make complex patterns teachable too is a question we will address below. In the present section we ask in what ways CL can help course designers, materials writers and teachers make informed choices about *what* to teach, against the background of the very general – and occasionally contradictory – recommendations mentioned above. The following contributions, which make up Part II of the book, illustrate some of these ways.

The chapter by Neff-van Aertselaer and Bunce shows that items as highly frequent as the verb *have* and its Spanish counterpart *tener* invite targeted instruction even at relatively advanced levels. The reason is that without guidance learners may fail to appreciate that not all of the multiple usages of such polysemous words are shared by L1 and L2. The authors' comparison of native speaker and learner corpora reveals Spanish students' over-use of some senses of *have* and their under-use of others, and this pattern resembles the distribution of the various uses of *tener* in their L1. The study thus demonstrates that lemma frequency per se need not be a reliable criterion to gauge the challenges for full acquisition. To the equation must be added the degree of polysemy and the distinctive collocational and colligational behaviour associated with different senses of a high-frequency word as well as the degree of overlap with the L1 counterpart.

Jing-Schmidt's contribution illustrates how very basic and universal experiences and actions (e.g., eating, getting dressed, lying down, etc.) are subcategorized and coded differently across languages. Because of their concreteness and shared nature, descriptions of these experiences and actions tend to be pretty transparent. Hence, learners are not very likely to give pause to the precise wording that is used in the second language. For instance, none of the words that make up the phrase *put on your shoes* is likely to be insufficiently familiar to intermediate students of English to attract much attention. Transfer from L1 may then lead a German-speaking student, for example, to go on producing *pull on your shoes* instead (a literal translation of German *anziehen* yields *to pull on*). Thus, Jing-Schmidt's cross-linguistic comparison can be taken as yet another word of caution that the lexical categorization of even very common and seemingly straightforward conceptual distinctions may require teacher-prompted

attention, especially if erroneous L1 transfer is likely. This chapter also lends further support to the claim that second language acquisition is all about second language *cognition* and how differences in conceptual structure may hinder L2 development (Ellis and Robinson 2008: 8).

Herrera and White's contribution contrasts with the previous ones in that it looks at a class of items generally believed to be of *low* frequency: idioms. Interestingly, the authors' hand counts of idioms in a sizeable corpus of newspaper headlines and leads in both English and Spanish reveal that – at least in this genre – idioms are far more commonly used than the results of computerized searches in e-corpora suggest. That is because in a considerable proportion of the instances, idioms are used in guises that deviate markedly from their so-called canonical form. It is not at all uncommon for one (or more) keywords of an idiom to be substituted, for example. One English-language headline ran *A fortune up your sleeve*, with *fortune* taking the place of the more canonical *ace* or *card*. And yet the resulting phrase stays recognizable and interpretable – by the expert speaker, at least – as the idiom it was derived from. Arguably, to increase their overall proficiency, learners should be taught how to recognize such phrases as idioms, comprehend headlines in which idioms (canonical and derived) occur, and appreciate the evaluative usage of idioms in journalistic writing as a whole. If so, then clearly idioms deserve a more central place in second language instruction than they have hitherto been awarded in mainstream pedagogy.

Moving on from a specific category of figurative expressions – idioms – to figuration in general, Littlemore, Chen, Tang, Koester and Barnden report two studies on the obstacles that figurative language use can create for L2 learners. The first study describes metaphor usage in academic lectures and the second study reveals how crucial a role metonymy can play in the discourse of a particular community (in this study, staff working at a nursery). One of the striking findings of the former study is how large a proportion of students' comprehension problems in an English for Academic Purposes (EAP) context are due to unsuccessful metaphor interpretation (e.g., *end result* was interpreted as *last result*). What is especially troublesome is the observation that in a great many cases the students themselves are not even aware of the fact that they have misunderstood the metaphors. In the second study, it was found that the use of metonyms particular to the given discourse community tended to create comprehension problems for outsiders. For example, to facilitate speedy communication at mealtime, vegetarian children were routinely referred to

as “veg bowls”. It is also noteworthy that in-group members do not seem to be conscious of the fact that their “idiosyncratic” metonyms actually hinder outsiders’ access to their community.

Eddington and Ruiz de Mendoza’s contribution takes us to the most schematic level considered in the book, namely that of *argument constructions*. These serve as sentence pattern “templates” which cover instantiations ranging from concrete, prototypical ones to more abstract, extended ones. The constructions used by the authors are “caused motion” (e.g., *Julio was tossed out of the bar*; *Phil was cheated out of his job*), “benefactive” (e.g., *He wrote a book for his kids*; *She sacrificed her time for her family*) and “to X one’s way” (e.g., *Bill cut his way through the jungle*; *He worked his way through college*). Their priming experiment shows that argument constructions are psychologically real and thus valid templates for the teaching of sentence patterns. The relevance of this finding for language teaching is underscored by cross-linguistic variation in the “scope” that these constructions can have. For instance, the extended abstract use of the “caused motion” construction *Phil was cheated out of his job* is not available in Spanish. The authors suggest it must be possible to identify such areas of L1-L2 differences and to teach the L2-specific, extended uses of certain argument constructions in step-wise fashion, starting from a shared, more prototypical use which is the easiest for the learner to recognize.

The closing chapter of Part II of the book, by Boers, Deconinck and Lindstromberg, considers the learning and teaching of multiword expressions at large, including idioms but also compounds, collocations and other formulaic sequences. Just like single words, multiword “chunks” are evidently so vast in number that only a fraction of their total stock can be “covered” in class, and so teachers will need to be selective about the kinds of chunks that they want to give special attention. In addition to utility as a selection criterion, the authors propose the criterion of *teachability*. By this they mean that teachers, material writers and course designers should target chunks that have features that make them memorable, provided those features are recognized. Among those features with attested mnemonic potential are imagery (e.g., *to show someone the ropes* and other figurative idioms), but also sound patterns such as alliteration (e.g., *road rage*) and assonance (e.g., *binge drinking*). A quantitative analysis of their occurrence in dictionaries (such as *Collins Cobuild Dictionary of Idioms*) shows that these two sound patterns – which are the focus of their research – have been influential in the formation and standardization of over a fifth of

English multiword units. The authors then go on to review a body of experimental evidence which confirms that alliteration and assonance have considerable mnemonic potential. Crucially, however, it appears that it takes awareness-raising for that potential to be unlocked. Students themselves do not tend to notice the presence of alliteration (let alone assonance) in the chunks they come across in their course materials. It is the teachers who have to alert them to these phenomena. The data suggest that this kind of intervention – despite its brevity – measurably increases the chances of retention. Given the concern with the pedagogical outcome of a teacher's intervention in the last part of Boers, Deconinck and Lindstromberg's contribution, their chapter also provides a suitable bridge between Parts Two and Three of the volume.

4. How CL can inform decisions about how to teach

There is now a broad consensus that the kind of processing the learner engages in regarding a given element (a word, phrase, construction, morphological feature or other) influences the chances of strong memory traces being established (see, e.g., Baddeley 1997, for a standard work on memory). A well-known model of memory shows that so-called "deep" processing (i.e., processing involving considerable cognitive involvement) is more likely to result in uptake than "shallow" processing (Cermak and Craik 1979). Resorting to different metaphorical terminology, the chances of uptake are influenced by the amount and kind of *elaboration* that the learner engages in. Elaboration refers to the various kinds of mental operations learners may perform in connection with a given language element they have noticed (e.g., Barcroft 2001, in connection with vocabulary). Examples are the comparison of the noticed element (e.g., a word, a phrase or a construction) with counterparts in L1 or with semantically related elements in L2, the association of a lexical item with a mental picture, the integration of a word or phrase in a story-line, the contemplation of unexpected pronunciation or spelling, and so on and so forth.

An important strand in recent SLA research and FLT methodology has been concerned with the design of communicative tasks that stimulate the kind of cognitive involvement in students that pushes learning (e.g., Ellis 2003). In the area of vocabulary learning, for example, this has become known as *task-induced involvement* (Laufer and Hulstijn 2001). In this type

of task-based learning, tasks are designed with the express purpose of raising students' awareness of certain L2 target elements (single vocabulary items, phrases, etc.) in the input and/or eliciting certain L2 target elements from the students themselves as they perform the task. It is crucial, however, that learners get the opportunity to direct their attention to those elements (e.g., Garcia Mayo 2007). The pedagogical effectiveness of a communicative task can be compromised if all attention is taken up, for example, by the complexity of the message that is (to be) conveyed. That is why researchers have been investigating the role of complexity as well as the role of "planning" (as opposed to "real-time," spontaneous communication). Proposals have been put forward for the pedagogical sequencing of tasks that elicit the same target elements under increasingly challenging conditions. For example, teachers could start with a task in which students are allowed preparation time for the communication of relatively simple content and end with a task (eliciting the same target elements) in which students communicate about more complex issues without preparation time (e.g., Robinson and Gilabert 2007). Due consideration in this strand of SLA research is thus given to the need for consolidation and "automatisation," i.e., learners' ability to smoothly retrieve L2 elements from long-term memory and to use these fluently and accurately during real-time communication (e.g., Segalowitz 2007). Note that this line of task-based learning differs from orthodox Communicative Language Teaching by virtue of its focus-on-form orientation. However, meaningful communication remains primordial and the learner acquires the L2 targets as a by-product as it were, of performing carefully designed communicative activities. The students' awareness of the targeted elements is heightened by the nature of the task. The principal role of the teacher is to implement these activities and to help the students perform them adequately as the need arises. The teacher then intervenes by informing or reminding the students of certain L2 items or patterns that they appear not to have mastered yet. This intervention may take place in preparation for a given communicative task, during task performance itself, or in the form of (corrective) feedback, which then serves as preparation for a subsequent task in the sequence (Ellis, Basturkmen and Loewen 2002). We believe that it is at the level of such teacher-mediated interventions that pedagogy-oriented CL can make a valuable and significant contribution.

As far as we are aware, CL-inspired proposals have generally been less concerned with communicative-task design than with the rather direct presentation of selected L2 target elements and explicit instruction.[4] This

does not mean, however, that they are incompatible with task-based learning, since episodes of teacher-led instruction are also incorporated into modern versions of the latter. In this book it is argued that CL-inspired teaching techniques can help improve efficient use of those interventions through their capacity to forge robust form-meaning mappings in memory. CL pedagogy does this by exploiting pathways for elaboration (or "deep" processing) which have long been neglected in mainstream FLT. These pathways for elaboration have become available as a result of CL explorations of linguistic motivation, i.e., the non-arbitrary features of language. Radden and Panther (2004), for example, distinguish the following kinds of motivation: (a) motivated form-meaning connections (most readily exemplified by onomatopoeia), (b) motivated form-form connections (the authors give no examples, but word partnerships that rhyme like *brain drain* or alliterate like *French fries* must belong to this category – see Boers, Deconinck and Lindstromberg, this volume), and (c) motivated meaning-meaning connections (for example, the way the different senses of a polyseme can be shown to be derived from a central prototype – see, e.g., Radden and Dirven's (2007: 233–263) analysis of modal polysemy).

It is in the latter, i.e., motivated meaning-meaning connections, that CL has been most interested so far. In other words, it has mostly been the semantic pole of symbolic units rather than the phonological pole that has attracted Cognitive Linguists' attention. This is manifest in the majority of pedagogy-oriented CL proposals put forward so far as well, and we acknowledge this also holds for the present volume (with the exception of Boers, Deconinck and Lindstromberg's and Fraser's chapters).

Cho investigates how Applied Cognitive Linguistics (ACL) can aid the teaching of a word class that is notorious for its polysemy, namely prepositions. Prepositions have served as a showcase for CL analyses of motivated meaning-meaning connections (e.g., Brugman 1981; Lindner 1981), which reveal how all the various usages of a single preposition (e.g., *over*) are derived, directly or indirectly, from a prototypical sense via well-attested cognitive mechanisms (such as perception-based image-schema transformations, metonymy and metaphor). Cho focuses on the prepositions *in*, *on* and *at* and the difficulties these pose for Japanese learners of English. The author reports two experimental studies. The first confirms the hypothesis that it is the derived, non-prototypical usages of these items that learners tend to find most difficult to master. The reason is that it is at the level of derived senses rather than prototypical ones that L1 and L2

counterparts tend to differ. The second study is a controlled learning experiment along a pre-test/treatment/post-test design. Its results confirm the hypothesis that students benefit significantly from instruction that clarifies how the various usages of these prepositions are interconnected. Findings in the same vein have been reported before (e.g., Boers and Demecheleer 1998; Kövecses and Szabó 1996), but, in comparison, those earlier studies were small-scale, did not use a rigourous experimental design and/or lacked statistical analysis.

The notion of prototype is also at the heart of the study reported by Hamrick and Attardo, who propose a prototype-based approach to the teaching of auxiliary use in the Italian *passato prossimo* (i.e., roughly the counterpart of the present perfect tense in English). In more traditional grammar instruction, students are presented with a rule of thumb based on the distinction between transitive and intransitive verbs. At first sight this general rule makes learning economical but its purpose seems defeated by scores of exceptions. Hamrick and Attardo's model shows how the so-called exceptions can be treated as cases that lean towards the prototypical auxiliary usage of either *essere* or *avere*. The authors report an experiment the mixed results of which suggest that application of their model by non-native students reduces erroneous auxiliary selection considerably in comparison with a control condition where students were provided with the more traditional rule of thumb; to be fair, given their more elaborate nature, the proposed CL-inspired explanations are harder to memorize. Clearly, a pedagogical compromise is required between a presentation that comprehensively covers all uses but that constitutes a relatively heavy learning burden, on the one hand, and a presentation that is easy to remember but whose coverage is incomplete, on the other.

A third contribution reporting experimental data is by Hu and Fong, who investigate the extent to which awareness of Conceptual Metaphors (CMs) aids Taiwanese EFL learners' interpretation of unknown idioms. Overall, quantitative results confirm earlier studies which reported positive effects of grouping idioms under shared CMs (e.g., Boers 2000; Skoufaki 2008). However, more detailed analyses also reveal very marked variations in success rates across different idioms. Hu and Fong present data from think-aloud protocols which demonstrate that cross-cultural as well as cross-linguistic differences can easily lead to misinterpretations of idioms even if they are presented as instantiations of a CM. For example, Chinese differs from English in the roles that are assigned to the concepts "heart," "head" and "mind," and this difference is shown to hinder learner-

independent meaning-guessing of English idioms that refer to these concepts (e.g., *pour your heart out; keep a level head; at the back of your mind*). The exercise of interpreting L2 idioms with the aid of CM clues may be an effective way of inviting a certain amount of cognitive investment on the part of the learners. After all, this kind of elaboration is believed to aid retention. Still, additional help from the teacher will more often than not be indispensable to ensure correct form-meaning mappings. During these interventions, students' faulty interpretations of idioms can be fruitfully exploited to point out the cross-cultural differences that underlie them.

If metaphor deserves explicit attention in the language classroom, then the next question is how teachers and materials writers can be helped to select from the considerable number of metaphorical expressions occurring in authentic discourse. After all, classroom time is limited and should be used wisely in the interest of both teachers and students. Especially in Language for Specific Purposes (LSP) courses, such as Business English, time spent on teaching metaphors may suffer from a lack of "face validity" if students question the utility of learning the targeted expressions (e.g., *to drown in debts*) or if they question their metaphorical nature in the first place (e.g., *higher interest costs*). The chapter by Juchem and Krennmayr makes a plea for corpus-informed course design in this regard. More particularly, they argue for the collaboration between LSP course designers and a team of analysts, the so-called Pragglejaz Group, who have been charting the presence of metaphors in various text genres through the rigorous application of standardized identification and categorization procedures. The authors also report a classroom experiment in which well-attested conceptual metaphors were used as a channel for teaching semi-technical vocabulary to students of Business English. The fear that students with a non-language-major profile might question the validity and usefulness of the approach turned out to be unfounded, as the students responded to the treatment with enthusiasm.

The chapter by Sanchez-Stockhammer estimates the potential of lexical decomposition as a strategy for teaching and learning English and German words. Psycholinguistic studies suggest that the analysis of words into meaningful constituents (e.g., a learner's realization that *discover* is made up of 'dis' and 'cover') can positively influence lexical processing, but they are unclear about the scope of this strategy. The author complements the psycholinguistic evidence by estimating the morphological analyzability of the 2,500 most frequent English and German lemmas. The results of the study indicate that the strategy of lexical decomposition has considerable

applicability even in this corpus of high-frequency lemmas, a substantial fraction of which consists of monosyllabic words. In addition, the reported data show some characteristic differences between the vocabulary profiles of the two languages. The author concedes that a high number of words in her sample are only partially decomposable (like the adjective *local*), and it would therefore be unrealistic to expect the average learner to independently derive the full meaning of those items. The teacher's role in helping students employ the decomposition strategy is therefore likely to be substantial.

The closing chapter of the book, by Fraser, is rather unusual in the CL tradition in that it zooms in on the *phonological* pole instead of the *semantic* pole of symbolic units. Fraser proposes an alternative itinerary for the instruction of L2 pronunciation based on the Cognitive Phonology principle that the signifier, or acoustic image, is a concept, too – and not only the signified as is more easily understood. L1 acquisition crucially involves learning a range of different phonological concepts such as [THE SOUND OF A WORD], [SYLLABLE], [RHYME] or [PHONEME]. The problem, however, is that those speakers who are literate in a particular writing system tend to believe that speech is a string of discrete phonemes, i.e., real sounds, rather than abstract concepts of sounds derived from, among other things, the prior understanding of words. This so-called "literacy bias" makes it hard for learners, already hindered by strongly rooted concepts of the native language, to conceptualize (i.e., "hear in new ways") the sound of speech of an L2. As Fraser points out, learning how to form those new concepts requires explicit instruction. Her chapter convincingly shows that a theoretical framework based on Cognitive Phonology may improve teachers' understanding of how learners acquire L2 pronunciation, which in its turn may lead to improved teaching interventions. Instead of having to absorb technical information about articulation, for example, learners benefit more from extended exposure in combination with guidance as to which features of the input native speakers attend to most.

5. Conclusion

Ultimately, the future of any language theory lies in its relevance, i.e., the extent to which it addresses issues that are topical in the broader society, and its usefulness in terms of both the further development of the framework itself and the potential applications of the findings outside the academic world. The overall objective of this volume has been to bring

together a number of recent studies that explore the implications of the basic assumptions, insights and constructs of CL for one such critical area of applied linguistics, namely, the teaching of a second or foreign language in efficient ways. Moreover, language pedagogy is, as Kristiansen et al. (2006: 15) argue, better suited than other domains for systematically investigating the pervasiveness of how language in use and other cognitive faculties interact. As this book shows, a great deal can be expected from forging a closer alliance between pedagogy-oriented Cognitive Linguists and researchers of second language acquisition, not only with respect to the many areas of shared interest but also, and perhaps even more importantly, methodologically. Practically all of the studies contained in this volume are informed by corpus analysis, arrive at their findings on the basis of rigourously designed experiments and/or involve quantitative techniques. This form of rigour and attention to detail can only enhance the validity and coherence of the research findings. In this way, the present volume not only contributes to a better understanding of how the cognitive approach to language may facilitate SLA, it also helps push CL further in the direction of a stronger empirical research paradigm, as advocated by Geeraerts (2006). While taking this direction is likely to yield fewer claims and more modest ones, at least the claims made will be more substantiated.

Notes

1. There is a very small number of exceptions among those early publications which do report experiments whose results lend support to the idea that certain CL insights, such as those regarding Conceptual Metaphors (CMs) (e.g., Lakoff and Johnson 1980), can be turned into useful tools for teaching (e.g., Boers 2000; Kövecses and Szabó 1996). However, it must be conceded that some of these experiments lacked the methodological rigour that has become the norm nowadays in controlled language learning experiments. For example, none of the reports in Boers (2000) make any mention of pre-tests administered to ascertain that experimental and control groups were actually on a par prior to the treatment. In at least one of the experiments, the CL-inspired treatment differed from the control treatment in more ways than the CL aspect only, and so it is hard to say whether the improvement in performance attested under the experimental treatment was solely due to the use of CL insights.
2. Other early proposals for CL-inspired teaching did target more common items, such as phrasal verbs (e.g., Kövecses and Szabó 1996) and prepositions (e.g., Boers and Demecheleer 1998), but did not stop to ask the question whether these might not as well be acquired incidentally.

3. Function words are not usually phonologically salient, as they are the first to undergo reduction in speech (Bybee 2002), and this also hinders their acquisition by L2 learners (Ellis 2008b).
4. In a way, a lot of proposals in Applied Cognitive Linguistics (ACL) are reminiscent of the kind of explicit, discrete-point teaching that has been termed *forms-focused instruction* (often associated with *Audiolingualism*) in contrast with form-focused task-based learning (Long 1991). Consequently, ACL proposals may come across as old-fashioned instead of innovative. In recent years, however, several SLA researchers and FLT methodologists have voiced their concern that task-based learning may not suffice and needs to be supplemented by more explicit instruction. Ironically, this may lead to a reinstatement of some forms-focused teaching techniques which have long been frowned upon, especially those with regard to "grammar" (Swan 2006) and vocabulary (Laufer 2005).

References

Baddeley, Alan
1997 *Human Memory: Theory and Practice*. Hove: Psychology Press Ltd. [Revised from Baddeley, A. (1990) *Human Memory: Theory and Practice*. Needham Heights, MA: Allyn and Bacon].

Barcroft, Joe
2002 Semantic and structural elaboration in L2 lexical acquisition. *Language Learning* 52: 323–363.

Boers, Frank
2000 Metaphor awareness and vocabulary retention. *Applied Linguistics* 21: 553–571.

Boers, Frank, and Murielle Demecheleer
1998 A cognitive semantic approach to teaching prepositions. *English Language Teaching Journal* 53: 197–204.

Boers, Frank, and Seth Lindstromberg
2006 Cognitive linguistic applications in second or foreign language instruction: Rationale, proposals, and evaluation. In *Cognitive Linguistics: Current Applications and Future Perspectives*, Gitte Kristiansen, Michel Achard, René Dirven, and Francisco Ruiz de Mendoza (eds.), 305–355. Berlin/New York: Mouton de Gruyter.

Boers, Frank, and Seth Lindstromberg
2009 *Optimizing a Lexical Approach to Instructed Second Language Acquisition*. Basingstoke: Palgrave Macmillan.

Boers, Frank, and Seth Lindstromberg (eds.)
2008 *Cognitive Linguistic Approaches to Teaching Vocabulary and Phraseology*. Berlin/New York: Mouton de Gruyter.

Brugman, Claudia
1981 Story of *over*. M.A. thesis. University of California, Berkeley.

Bybee, Joan
2002 Phonological evidence for exemplar storage of multiword sequences. *Studies in Second Language Acquisition* 24: 215–221.

Cermak, Laird S., and Fergus I. M. Craik
1979 *Levels of Processing in Human Memory*. Hillsdale, N.J.: Lawrence Erlbaum.

Craik, Fergus. I. M., and E. Tulving
1975 Depth of processing and the retention of words in episodic memory. *Journal of Experimental Psychology*: *General* 104: 268–294.

De Knop, Sabine, and Teun De Rycker (eds.)
2008 *Cognitive Approaches to Pedagogical Grammar*. Berlin/New York: Mouton de Gruyter.

De Rycker, Antoon, and Sabine De Knop
2009 Integrating Cognitive Linguistics and Foreign Language Teaching: Historical background and new developments. *Journal of Modern Languages/Jurnal Bahasa Moden* 19: 29–46.
Doughty, Catherine, and Jessica Williams (eds.)
1998 *Focus on Form in Classroom Second Language Acquisition*. Cambridge: Cambridge University Press.
Ellis, Nick
2002 Frequency effects in language processing: A review with implications for theories of implicit and explicit language acquisition. *Studies in Second Language Acquisition* 24: 143–188.
Ellis, Nick
2008a Phraseology: The periphery and the heart of language. In *Phraseology in Foreign Language Learning and Teaching*, Fanny Meunier and Sylviane Granger (eds.), 1–13. Amsterdam/Philadelphia: John Benjamins.
Ellis, Nick
2008b The dynamics of second language emergence: Cycles of language use, language change, and language acquisition. *The Modern Language Journal* 92: 232–249.
Ellis, Nick, and Diane Larsen-Freeman
2006 Language emergence: Implications for applied linguistics (introduction to the special issue). *Applied Linguistics* 27: 558–589.
Ellis, Nick, and Peter Robinson
2008 An introduction to Cognitive Linguistics, Second Language Acquisition, and language instruction. In *Handbook of Cognitive Linguistics and Second Language Acquisition*, Peter Robinson and Nick Ellis (eds.), 3–24. New York/London: Routledge
Ellis, Rod
1990 *Instructed Second Language Acquisition*. Oxford, UK and Cambridge, MA: Basil Blackwell Ltd.
Ellis, Rod
2003 *Task-based Language Learning and Teaching*. Oxford: Oxford University Press.
Ellis, Rod, Helen Basturkmen, and Sean Loewen
2002 Doing focus on form. *System* 30: 419–435.
Garcia Mayo, Maria del Pilar (ed.)
2007 *Investigating Tasks in Formal Language Learning*. Clevedon: Multilingual Matters.
Geeraerts, Dirk
2006 Methodology in Cognitive Linguistics. In *Cognitive Linguistics: Current Applications and Future Perspectives*, Gitte Kristiansen, Michel Achard, René Dirven, and Francisco Ruiz de Mendoza (eds.), 21–49. Berlin/New York: Mouton de Gruyter.
Godfroid, Aline, Alex Housen, and Frank Boers

in press A procedure for testing the Noticing Hypothesis in the context of vocabulary acquisition. In *Inside the Learner's Mind: Cognitive Processing and Second Language Acquisition*, Martin Pütz and Laura Sicola (eds.). Amsterdam and Philadelphia: John Benjamins.

Halliday, Michael
1969 Categories of the theory of grammar. *Word* 17: 241–292.

Harley, Trevor
2008 *The Psychology of Language: From Data to Theory*. Hove/New York: Psychology Press.

Hoey, Michael
2005 *Lexical Priming: A New Theory of Words and Language*. London: Routledge.

Jarvella, R.J.
1971 Syntactic processing of connected speech. *Journal of Verbal Learning and Verbal Behavior* 10: 409–416.

Kövecses, Zoltán, and Peter Szabó
1996 Idioms: A view from Cognitive Semantics. *Applied Linguistics* 17: 326–355.

Krashen, Stephen D.
1985 *The Input Hypothesis: Issues and Implications.* London: Longman.

Krashen, Stephen D.
1989 We acquire vocabulary and spelling by reading: Additional evidence for the input hypothesis. *Modern Language Journal* 73: 440–464.

Kristiansen, Gitte, Michel Achard, René Dirven, and Francisco Ruiz de Mendoza (eds.)
2006 *Cognitive Linguistics: Current Applications and Future Perspectives*. Berlin/New York: Mouton de Gruyter.

Lakoff, George
1987 *Women, Fire and Dangerous Things: What Categories Reveal about the Mind*. Chicago/London: University of Chicago Press.

Lakoff, George, and Mark Johnson
1980 *Metaphors We Live By*. Chicago/London: University of Chicago Press.

Langacker, Ronald W.
1991 *Foundations of Cognitive Grammar, Volume 2: Descriptive Applications*. Stanford: Stanford University Press.

Langacker, Ronald W.
2000 A dynamic usage-based model. In *Usage-Based Models of Language*, Michael Barlow and Suzanne Kemmer (eds.), 1–63. Stanford: Center for the Study of Language and Information.

Langacker, Ronald W.
2008 The relevance of Cognitive Grammar for language pedagogy. In *Cognitive Approaches to Pedagogical Grammar*, Sabine De Knop and Teun De Rycker (eds.), 7–35. Berlin/New York: Mouton de Gruyter.

Laufer, Batia
2005 Focus on Form in second language vocabulary acquisition. In *EUROSLA Yearbook 5*, Susan Foster-Cohen (ed.), 223–250. Amsterdam/Philadelphia: John Benjamins.

Laufer, Batia, and Jan Hulstijn
2001 Incidental vocabulary acquisition in a second language: The construct of task-induced involvement. *Applied Linguistics* 22: 1–26.

Lindner, Susan
1981 A lexico-semantic Analysis of English Verb-particle Constructions with UP and OUT. PhD. diss., University of California at San Diego.

Long, Michael H.
1991 Focus on form: A design feature in language teaching methodology. In *Foreign Language Research in Cross-Cultural Perspective*, Kees de Bot, Ralph B. Ginsberg, and Claire Kramsch (eds.), 39–52. Amsterdam/Philadelphia: John Benjamins.

Nation, Paul
2001 *Learning Vocabulary in Another Language*. Cambridge: Cambridge University Press.

Nattinger, James R., and Jeanette S. DeCarrico
1992 *Lexical Phrases and Language Teaching*. Oxford: Oxford University Press.

Prabhu, Nagore S.
1987 *Second Language Pedagogy*. Oxford: Oxford University Press.

Radden, Günter, and René Dirven
2007 *Cognitive English Grammar*. Amsterdam/Philadelphia: John Benjamins.

Radden, Günter, and Klaus-Uwe Panther
2004 Introduction: Reflections on motivation. In *Studies in Linguistic Motivation*, Günter Radden and Klaus-Uwe Panther (eds.), 1–46. Berlin/New York: Mouton de Gruyter.

Pütz, Martin, Susanne Niemeier, and René Dirven (eds.)
2001 *Applied Cognitive Linguistics II: Language Pedagogy*. Berlin/New York: Mouton de Gruyter.

Robinson, Peter (ed.)
2001 *Cognition and Second Language Instruction*. Cambridge: Cambridge University Press.

Robinson, Peter (ed.)
2002 *Individual Differences and Instructed Language Learning*. Amsterdam/Philadelphia: John Benjamins.

Robinson, Peter
2003 Attention and memory during SLA. In *The Handbook of Second Language Acquisition*, Catherine J. Doughty and Michael H. Long

(eds.), 631–678. New York: Blackwell Publishing.

Robinson, Peter, and Nick Ellis (eds.)
2008 *Handbook of Cognitive Linguistics and Second Language Acquisition*. New York/London: Routledge.

Robinson, Peter, and Roger Gilabert (eds.)
2007 *Task Complexity, the Cognition Hypothesis and Second Language Instruction*. Special issue of *International Review of Applied Linguistics.*

Schmidt, Richard W.
1990 The role of consciousness in second language learning. *Applied Linguistics* 11: 129–158.

Schmidt, Richard W.
2001 Attention. In *Cognition and Second Language Instruction*, Peter Robinson (ed.), 3–32. Cambridge: Cambridge University Press.

Segalowitz, Norman
2007 Access fluidity, attention control, and the acquisition of fluency in a second language. *TESOL Quarterly* 41: 181–186.

Sharwood-Smith, M.
1991 Speaking to many minds: On the relevance of different types of language information for the L2 learner. *Second Language Research* 7: 118–132.

Sinclair, John
1991 *Corpus, Concordance, Collocation*. Oxford: Oxford University Press.

Skehan, Peter
1998 *A Cognitive Approach to Language Learning*. Oxford: Oxford University Press.

Skoufaki, Sophia
2008 Conceptual metaphoric meaning clues in two idiom presentation methods. In *Cognitive Linguistic Approaches to Teaching Vocabulary and Phraseology*, Frank Boers and Seth Lindstromberg (eds.), 101–132. Berlin/New York: Mouton de Gruyter.

Swan, Michael
2006 Legislation by hypothesis: The case of task-based instruction. *Applied Linguistics* 26: 376–401.

Taylor, John
2002 *Cognitive Grammar*. Oxford: Oxford University Press.

Tomasello, Michael
2003 *Constructing a Language: A Usage-Based Theory of Language Acquisition.* Cambridge, MA: Harvard University Press.

VanPatten, Bill
1990 Attending to form and content in the input: An experiment in consciousness. *Studies in Second Language Acquisition* 12: 287–301.

VanPatten, Bill
2002 Processing Instruction: An update. *Language Learning* 52: 755–803.
Williams, John N.
2005 Learning without awareness. *Studies in Second Language Acquisition* 27: 269–304.