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## CHAPTER 1

# LANGUAGE ACQUISITION AND LANGUAGE LEARNING

Joanna Bielska

### 1.1 INTRODUCTION

What does it mean to know a second language? Do second language learners possess two types of language knowledge represented in two different types of memory? Do they gain competence in a second language through two types of learning mechanisms differentiated by the presence or lack of awareness on the part of the learner? If so, are the two types of learning independent or do they interact? Is any of them primary? Can they be facilitated by instruction? These and similar questions have puzzled SLA researchers for over thirty years resulting in heated debates on the role of consciousness in second language acquisition (see e.g. Bialystok 1994, 2004; Ellis 2005a; Krashen 1981, 1982, 1994; Paradis 1994, 2004; Robinson 1995, 1997b, 2005; Schmidt 1990, 1993, 1994, 1995, 2001).

Understanding the difference and the relationship between explicit and implicit second language learning mechanisms is obviously important for SLA theorists, interested in looking into the human mind and explaining the cognitive processes involved in the highly complex task of acquiring a second language. It is also crucial for practitioners in the field of second/foreign language teaching, whose task is to design instruction in the way optimally facilitating the process of building second language learners' linguistic competence.

The purpose of this chapter is to present and discuss different claims concerning the dichotomy between implicit and explicit second language learning. The chapter starts with a short introduction to Stephen Krashen's acquisition-learning distinction, since much of the research on the role of consciousness in SLA has been conducted as a reaction to Krashen's ideas on the relationship or, actually, lack of relationship between unconscious acquisition and conscious

learning of a second language. In the next section some terminological problems are addressed and explicit and implicit language knowledge, processing, and instruction are briefly defined. The relationship between explicit and implicit knowledge is then presented from different theoretical perspectives, followed by a brief review of empirical research findings related to the implicit/explicit knowledge interface and a discussion of some methodological limitations involved in researching the dichotomy. The chapter concludes with some implications for second language instruction and suggestions for further research.

## 1.2 KRASHEN'S ACQUISITION-LEARNING DISTINCTION

The first attempt to propose a general theory of second language acquisition was Stephen Krashen's Monitor Theory, developed in the 1970s and early 1980s (Krashen 1981, 1982, 1985). The theory consists of five interrelated hypotheses, namely the Acquisition-Learning Hypothesis, the Monitor Hypothesis, the Natural Order Hypothesis, the Input Hypothesis, and the Affective Filter Hypothesis. Taken together, they address a variety of issues crucial for understanding the process of gaining competence in a second language, e.g. the nature of language knowledge and language acquisition processes, the role of metalinguistic knowledge in language use, the existence of and access to the innate language acquisition faculty, the age factor in SLA, the effect of affect on SLA, practical implications for foreign language instruction, etc. While a detailed discussion of the theory is beyond the scope of this chapter (see Krashen 1981, 1982, 1985, 1992, 1994; Krashen and Terrell 1983 for description of the theory; McLaughlin 1987, Gregg 1984, Larsen-Freeman and Long 1991 for reviews), Krashen's views on the distinction between acquisition and learning, the relationship between the two constructs, and implications concerning the role of instruction in SLA will be briefly presented below, as they triggered a major ongoing debate in SLA.

The distinction between acquisition and learning is the central hypothesis in Krashen's Monitor Theory. Krashen maintains that there are two distinct and independent ways of developing competence in a second language: **acquisition**, "a subconscious process identical in all important ways to the process children utilize in acquiring their first language" (1985: 1), and **learning**, a process of developing "conscious knowledge of a second language, knowing the rules, being aware of them, and being able to talk about them" (1982: 10). While the distinction between conscious and unconscious mental processes is hardly disputable, Krashen's claims regarding the lack of interaction between the two separately stored types of knowledge they result in – the acquired knowledge and the learned knowledge – have excited a lively controversy among SLA theorists.

According to Krashen, “learning does not ‘turn into’ acquisition” (1982: 83). His theory can therefore be referred to as a **non-interface** model (see section 1.4.1). In other words, explicit knowledge about language rules and patterns, built through conscious, intentional, and effortful processes in situations where learners focus their attention on the formal properties of language can never be converted into the type of knowledge learners draw on in spontaneous communication, i.e. acquired knowledge. Acquired knowledge can only be developed naturally, effortlessly and outside of awareness through exposure to **comprehensible input** and normal interaction in L2 situations where learners focus on meaning rather than form. While learned knowledge can serve “as a Monitor, or editor” (Krashen 1982: 15) during language production, Krashen claims that this is its only function, and no amount of practice can turn a learned rule into an acquired one. Apart from being a strong theoretical claim, the non-interface position has important practical implications. As noted by VanPatten and Williams, “the utility of learned knowledge within Monitor Theory is negligible. It follows that it is not worth spending precious instructional time on developing learned knowledge, as is typically the case in L2 classrooms” (2007: 27).

Another controversial issue related to Krashen’s view of language acquisition is his claim that “adults can access the same natural ‘language acquisition device’ that children use” (Krashen 1982: 10), which leads to fundamental similarities between child first language acquisition and adult second language acquisition. Krashen’s Monitor Theory is an example of so-called **language-specific nativism**, a theoretical perspective in the field based on the assumption that language acquisition, at least in the case of the first language, is impossible in the absence of an innate biologically endowed language faculty (see e.g. Chomsky 1975; White 2003, 2005; see also O’Grady 2005 for a discussion of different types of nativism). In Krashen’s view, any language (first or second) is acquired through the interaction between linguistic information embedded in meaningful messages (**comprehensible input**) and the innate **language acquisition device** (LAD). This position is clearly unacceptable to a wide spectrum of SLA theorists who subscribe to constructivist views of language acquisition, which hold that the process is essentially governed by general laws of human learning, both associative and cognitive, rather than by any language-specific mechanisms working on input and innate linguistic knowledge (see e.g. Carroll 2001, DeKeyser 2001, N.C. Ellis 2005b, Larsen-Freeman and N.C. Ellis 2006, MacWhinney 2001, Pienemann 1998, VanPatten 2004).

Krashen’s claims would not be unanimously accepted in the nativist camp, either. SLA theorists investigating second language acquisition from the generative perspective tend to disagree on the availability of Universal Grammar (a component of LAD consisting of a system of grammatical categories and principles determining core properties of human language) to L2 learners and

its role in the process of forming interlanguage representation. Hypotheses concerning the accessibility of UG in SLA vary from no access, partial (indirect access), to full (direct) access (see e.g. Bley-Vroman 1990, Cook 1993, 1994, Gregg 1996, Schachter 1988, Schwartz and Sprouse 1996). For example, Bley-Vroman's (1989, 1990) **Fundamental Difference Hypothesis** (FDH), originally formulated in the context of the theory of Universal Grammar, stated that while children acquiring their first language rely on UG and language-specific processes, adult L2 learners use their knowledge of L1 and general problem solving processes to make up for the changes in the language faculty that occur with age (see Bley-Vroman 2009 for a recent reformulation of FDH).

A major weakness of the Monitor Theory is that the constructs it is based on are inadequately defined and the cognitive processes involved in language acquisition and learning are not actually explained in sufficient detail. The supporting empirical evidence provided by Krashen has also been viewed as insufficient and the theory has been seriously criticised on a variety of grounds including the view that it fails to meet the criteria for good theory (Gregg 1984, McLaughlin 1987). It is important to note, however, that Krashen's propositions stirred the imagination of SLA researchers, set new directions for SLA research and opened a debate on a number of important issues which still constitute the focus of theorizing within SLA (some of them will be discussed in the following sections of this chapter). As noted by VanPatten and Williams, "an understanding of this theory is crucial to understanding the field of SLA theory and research as a whole" (2007: 25).

### 1.3 IMPLICIT AND EXPLICIT SECOND LANGUAGE LEARNING – DEFINING THE DICHOTOMY

Defining the implicit-explicit dichotomy is by no means an easy task. One source of difficulty is the degree of overlap between this and other terminological distinctions, e.g. incidental vs intentional learning. **Incidental learning** has been defined as "unintended learning" (Schmidt 1995: 7) or learning by not focusing attention on what is being learnt (Paradis 1994, Schmidt 1994, Krashen 1989, Hulstijn 2005), for example learning grammar while focusing on communication or acquiring vocabulary while focusing on comprehending a text. **Intentional learning**, on the other hand, involves explicit intention on the part of the learner, i.e. deliberate focusing of attention and other cognitive resources on the learning goal. In contrast, as noted by Hulstijn (2005), the most important criterion for distinguishing implicit from explicit learning is the absence or presence of "awareness at the point of learning" (Schmidt 1994: 20). **Implicit learning** is said to be unconscious or subconscious (as noted by Schmidt, "no

one seems to make a distinction between the two” (1995: 3)), i.e. occur without awareness, **explicit learning**, on the other hand, is characterized by the presence of awareness during learning. Thus, implicit learning is always incidental, but it entails much more than unintended learning. Similarly, intentional learning will always be explicit, as awareness is implicated in all deliberate actions, but explicit learning does not have to be intentional (see Hulstijn 2005 for more discussion of the distinctions between incidental and implicit and between intentional and explicit learning).

Although by now it has generally been accepted that it is the presence or lack of consciousness (understood as awareness at the point of learning) which is the characteristic feature distinguishing explicit learning from implicit learning (e.g. DeKeyser 2005, Hulstijn 2005), not all terminological problems have been resolved due to the difficulty of defining awareness and its different levels (see section 1.4.3 for further discussion of this issue). Another difficulty is related to the differences in the meaning of the terms “explicit” and “implicit” when used with reference to the dichotomy in types of knowledge, learning processes, or types of instruction. The discussions of the differences between explicit and implicit knowledge revolve around the issues of content, storage, and access, each of them raising considerable controversy. Ellis (2005b: 214) offers the following descriptions of implicit and explicit knowledge:

Implicit knowledge is procedural, is held unconsciously and can only be verbalized if it is made explicit. It is accessed rapidly and easily and thus is available for use in rapid, fluent communication. In view of most researchers, competence in an L2 is primarily a matter of implicit knowledge.

Explicit knowledge is declarative [...], is held consciously, is learnable and verbalizable and is typically accessed through controlled processing when learners experience some kind of linguistic difficulty in the use of the L2. A distinction needs to be drawn between explicit knowledge as analysed knowledge and as metalingual explanation. The former entails a conscious awareness of how a structural feature works while the latter consists of knowledge of grammatical metalanguage and the ability to understand explanations of rules.

The distinction between explicit and implicit learning, as described above, refers to the two different modes of language processing involved in the development of linguistic competence and the complex, if any, interaction between them (see section 1.4 for further discussion).

Finally, the distinction between explicit and implicit instruction refers to describing differences between various types of pedagogical procedures. As

defined by DeKeyser, “an instructional treatment is explicit if rule explanation forms part of the instruction (deduction) or if learners are asked to attend to particular forms and try to find the rules themselves (induction)” (2005: 321). In contrast, instruction is defined as implicit when it makes no overt reference to rules and no directions to attend to particular forms are given (Norris and Ortega 2000, Doughty 2005). As noted by Doughty (2005), during either explicit or implicit instruction, learners’ attention may be drawn to language forms in isolation (“focus on forms”), during the processing of meaning (“focus on form”), or not at all (“focus on meaning”). Rule presentation, manipulated input, and feedback, three major components of pedagogical interventions, can be placed along an explicit/implicit continuum such that “the more metalinguistic the learning condition, the more explicit it is; the more ‘naturalistic’ the learning condition, the more implicit it is considered to be” (Sanz and Morgan-Short 2005: 234). Evaluating the relative effects of different types of explicit and implicit instruction has been the focus of much debate in SLA (see e.g. Norris and Ortega 2000, Ellis 2001, Doughty 2005 for further discussion).

#### 1.4 THE RELATIONSHIP BETWEEN IMPLICIT AND EXPLICIT KNOWLEDGE – THE INTERFACE HYPOTHESIS

Although there is no agreement between SLA theorists as to the exact nature of linguistic knowledge, different accounts of L2 learning, whether innatist (e.g. Gregg 1989, White 2003, 2005) or constructivist (e.g. DeKeyser 2001, N.C. Ellis 2005b; MacWhinney 1999, 2001, Pienemann 1998, VanPatten 2004), acknowledge that second language acquisition entails the development of implicit knowledge. Distinguishing whether L2 learners’ knowledge is represented implicitly or explicitly is therefore essential for SLA researchers irrespective of their theoretical views regarding the nature of linguistic knowledge and language learning (Ellis 2005a). It is also important to understand whether second language acquisition is driven by implicit or explicit language processing as well as whether and how implicit and explicit modes of learning interact to produce one’s linguistic competence. This is where various accounts of second language acquisition differ considerably, and the divergent views of what happens “at the interface” (cf. N.C. Ellis 2005a) result in differing suggestions regarding second language instruction. Ellis (2005a, 2005b) has identified three major positions on the implicit/explicit interface issue: the non-interface position, the strong interface position, and the weak interface position. These are briefly discussed in the following sections.

### 1.4.1 *The non-interface position*

The non-interface position has already been mentioned with reference to Krashen's learning-acquisition distinction (see section 1.2). According to Krashen (1985), implicit processing (with focus on meaning, not on form) of implicit input (meaningful language) results in the development of domain-specific implicit knowledge (i.e. true linguistic competence, cf. Sanz and Morgan-Short 2005). In contrast, explicit processing (with attention to form) of explicit evidence (e.g. grammar explanations) leads to the development of explicit knowledge which, although useful in monitoring one's performance, never "turns into acquisition" (Krashen 1982: 83). In the same vein, acquired knowledge never becomes explicit, i.e. conscious and available for verbal report. Krashen has therefore postulated that implicit and explicit knowledge are two separate knowledge systems.

Some support for the dissociation of the two types of knowledge postulated by Krashen has come from research on bilingualism conducted from the neurolinguistic perspective. According to Paradis (1994, 2004), implicit and explicit knowledge are two entirely different systems, which involve different neurofunctional mechanisms subserved by different cerebral structures (cf. Ullman 2005). Implicit linguistic knowledge, represented in procedural memory, is acquired incidentally (i.e. by focusing attention on something other than what is being acquired), stored implicitly (i.e. it is not available to conscious awareness), and used automatically (i.e. without conscious control). In contrast, explicit knowledge, represented in declarative memory, is learned consciously by focusing attention on what is to be learnt, can later be recalled into conscious awareness, and relies mostly on controlled processing. These two knowledge systems are qualitatively different and function independently. In normal circumstances, language users tend to rely on the implicit system, which is much faster, more robust, and less variable. The explicit system may be used to compensate for gaps in implicit competence and thus contribute to performance, but it remains a separate system, subserved by different neurofunctional mechanisms.

In contrast to the interface position described below, at the core of the non-interface position is the claim that declarative knowledge is not proceduralized through practice. As Paradis puts it, "explicit knowledge cannot be 'converted' or 'transformed' into implicit competence" (2004: 45). Paradis claims that "acquisition is not a process of automatizing rules of which the learner is aware, but of automatizing computational procedures (of which the learner is not aware) that underlie the automatic comprehension and production of sentences that, by inference, at a higher level of abstraction, can be described by linguists as corresponding to (pedagogical or theoretical) linguistic rules"

(Paradis 2004: 41). Therefore, metalinguistic knowledge does not gradually become implicit linguistic competence, but linguistic competence develops through practice alongside explicit knowledge, and both systems remain independently available to the language user. With time, reliance on implicit knowledge replaces the use of explicit knowledge. To quote Paradis again, “it is true that skilled use of a second language often begins as controlled processes that gradually appear to become automatic. In reality, controlled processing is gradually replaced by the use of automatic processing, which is not just the speeding-up of the controlled process, but the use of a different system which, through practice, develops in parallel” (Paradis 2004: 35). Moreover, the process of internalization of the computational procedures represented in procedural memory is entirely unconscious. Although learners may be aware of the surface form of utterances, they remain totally unaware of their underlying structure. Therefore, implicit competence never becomes explicit knowledge.

Accepting the non-interface view of implicit-explicit dichotomy entails a largely non-interventionist position with regard to the role of instruction in SLA. Viewed from this perspective, the role of L2 instruction is mostly limited to the provision of an environment conducive to SLA (cf. Doughty 2005). To this end, L2 instruction should provide learners with sufficient amounts of input so that domain-specific or more general learning processes (depending on the researcher’s theoretical stance) can start to operate. As Krashen states, “the only contribution that classroom instruction can make is to provide comprehensible input that might not otherwise be available outside the classroom” (1985: 33–34).

Nevertheless, formal instruction may also have an indirect positive effect on L2 acquisition (Long 1983, Paradis 2004). As noted by Krashen (1985), the learned knowledge serves as a monitor for checking the accuracy of the output generated by the learner’s implicit competence. This process as well as direct L2 instruction draw the learner’s attention to the forms that need to be practised, potentially resulting in further exposure to and practice of the correct forms. As noted by Paradis (2004), such increased practice of the appropriate form should hasten the acquisition of the underlying computational procedures that constitute linguistic competence.

#### *1.4.2 The strong interface position*

The strong interface position has most forcefully been promoted by DeKeyser (1997, 1998, 2001, 2005, 2006). As he notes,

Even though implicitly acquired knowledge tends to remain implicit, and explicitly acquired knowledge tends to remain explicit, explicitly learned knowledge can become implicit in the sense that learners can lose awareness of

its structure over time, and learners can become aware of the structure of implicit knowledge when attempting to access it, for example by applying it to a new context or for conveying it verbally to somebody else. (DeKeyser 2005: 315)

Drawing on Anderson's Adaptive Control Theory (ACT) model of cognitive skill acquisition (see e.g. Anderson 1990, 1995), DeKeyser argues that some, though not all, second language acquisition occurs in the three stages of development characteristic for complex skill acquisition in general: declarative, procedural, and automatic. In the first stage of skill acquisition, the learner develops declarative knowledge about the skill, so-called "knowledge that", which most often occurs as a result of explicit instruction accompanied by demonstration of skilled behaviour by an "expert". In the next stage, the declarative knowledge is proceduralized, i.e. turned into "knowledge how". The last stage involves the gradual process of automatization or fine tuning of procedural knowledge: as a result of practice, the time required to execute the task (reaction time), the percentage of errors (error rate) and the amount of attention required gradually decrease leading to fluency and spontaneity in the relevant behaviour (cf. DeKeyser 2007). At this stage, learners may lose the declarative knowledge drawn on in the initial stages of skill acquisition, although this is not necessarily the case (see DeKeyser 1998 for further discussion).

The transition from declarative knowledge to procedural knowledge, followed by its gradual automatization is not linear, but follows the power law of learning, a mathematical function repeatedly observed in the acquisition of many different skills (see e.g. Newell and Rosenbloom 1981, quoted in DeKeyser 2007), indicating that the shift from declarative to procedural knowledge is achieved rather quickly, in notable contrast to a much slower process of automatization of procedural knowledge. As noted by DeKeyser (2007), the power law of learning is a robust empirical phenomenon and a central concept in the study of skill acquisition; its shape is believed to "contain the key to some fundamental learning mechanisms" (DeKeyser 2007: 99) and has been interpreted as indicative of "a qualitative change over time, as a result of practice, in the basic cognitive mechanisms used to execute the same task" (DeKeyser 2007: 99; see DeKeyser 2001 for a thorough discussion of the power law of learning).

The application of skill acquisition theory to SLA results in emphasizing the importance of explicit knowledge in the initial stages of learning and the need to engage learners in systematic practice so that this knowledge is proceduralized. As in line with the theory, one can only practise something one has some available declarative knowledge of (Sharwood-Smith 1994, cf. DeKeyser 1998: 53) and the process of proceduralization requires engaging in the target behaviour of conveying meaning in the foreign language while keeping the relevant declarative knowledge in working memory, one fundamental principle

of L2 instruction should be choosing and sequencing tasks in such a way that they provide opportunities for “systematic, yet truly meaningful and context-embedded practice of forms that have previously been in focus” (DeKeyser 2001: 146). Declarative knowledge should, therefore, be developed first, followed by structured (though not repetitive) exercises aiming at improving its accessibility during communicative tasks, and then proceduralized (and eventually automatized) through meaningful practice provided by extended exposure to relevant forms in the input and more open-ended communicative activities (cf. DeKeyser 1998: 58–60).

Care should also be taken to foster the retention of declarative knowledge due to a directional asymmetry which characterizes skill acquisition and increases with learning (DeKeyser 2001, see also Segalowitz 2005). Procedural knowledge has been shown to be highly specific, and consequently resistant to transfer to other, even similar, tasks, whereas declarative knowledge is generalizable to new situations. As DeKeyser argues:

The implication for training is that two kinds of knowledge need to be fostered, both highly specific procedural knowledge, highly automatized for efficient use in the situations that the learner is most likely to confront in the immediate future, and also solid abstract declarative knowledge that can be called upon to be integrated into much broader, more abstract procedural rules, which are indispensable when confronting new contexts of use. (DeKeyser 2007: 100)

It is important to note that skill acquisition theory has not been proposed as an explanation of all processes involved in second language acquisition. As noted by DeKeyser (2007), the theory is most easily applicable in the case of high-aptitude adult learners engaged in the learning of simple structures at fairly early stages of learning in instructional contexts. Consequently, while it offers specific implications for formal L2 instruction, it should not be seen, in DeKeyser’s (1998, 2007) view, as totally incompatible with other theoretical positions in the field, most notably those representing the weak interface position discussed next.

#### 1.4.3 *The weak interface position*

The weak interface position exists in different versions (Ellis 2005a). What they have in common, however, is the claim that second language acquisition, even in instructed settings, is mainly a process of building implicit knowledge of L2. Explicit knowledge may have an indirect effect on the development of linguistic competence by facilitating key acquisitional processes, mainly by drawing learners’ attention to aspects of target language input which might otherwise go unnoticed or take too long to notice. Thus the potential role of explicit knowledge

consists in altering the learner's implicit processing strategies with the effect of making them more attuned to the target language input, which should result in increased efficiency of SLA (see e.g. Doughty 2005, VanPatten 1996, 2004). As implicit learning is a gradual process which is said to be "labouriously slow" (N.C. Ellis 1993: 309), explicit learning may provide a short cut resulting in an increased rate of second language acquisition.

Much of the research directly or indirectly addressing the explicit-implicit interface issue has been motivated by Schmidt's **noticing hypothesis** (Schmidt 1990, 1993, 1995, 2001), which addressed the issue of the role of consciousness in language learning in the way relevant to many different theories of second language acquisition. In his original formulation of the hypothesis, Schmidt (1990, 1995) claimed that language learning without attention is impossible and that awareness at the level of noticing (also called focal awareness), defined as "the conscious registration of some event" (Schmidt 1995: 29) is necessary for selecting input as intake for L2 learning. As noted by Ellis (2005b), in later formulations Schmidt slightly modified his position to allow for the possibility of non-conscious learning of linguistic form, arguing in favour of the weaker claim that "more attention results in more learning" and that "people learn about the things they attend to and do not learn much about the things they do not attend to" (Schmidt 2001: 30). He stressed that what must be noticed are "elements of the surface structure of utterances in the input, instances of language, rather than any abstract rules or principles of which such instances must be exemplars" (Schmidt 2001: 5). Schmidt's ideas on the role of noticing in SLA have been a topic of great debate in the SLA field (see e.g. Tomlin and Villa 1994, Carroll 1999, Gass 1997, Robinson 2005). The claim that noticing contributes to language learning has been used as an argument in favour of different types of pedagogical intervention in instructed SLA designed to induce noticing of relevant features in L2 input, e.g. focus on form (Long and Robinson 1998; Doughty 1998, 2005), processing instruction (VanPatten 1996, 2004), and input enhancement (Sharwood-Smith 1994, 2007, Wong 2005).

Schmidt (1990, 1995, 2001) has also made a distinction between awareness at the level of noticing, and awareness at the level of understanding. While in more recent formulations (Schmidt 2001) **noticing** is understood in a restricted sense and entails awareness at a very low level of abstraction, **understanding** is viewed as awareness at higher levels of abstraction. Thus, noticing refers to allocating attention to surface features and item learning, whereas becoming aware of structural regularities of a language by making comparisons across instances and different forms of metalinguistic reflection are a matter of understanding. As Schmidt notes, "a higher level of awareness (understanding) is involved in contrasts between explicit learning (learning on the basis of conscious knowledge, insights, and hypotheses) and implicit learning (learning

based on unconscious processes of generalization and abstraction)” (1995: 1). Explicit learning involves not only awareness at the level of noticing, but also awareness at the level of understanding, whereas implicit learning does not involve understanding.

Is there, however, any relationship between explicit and implicit knowledge? Can “learned” knowledge become “acquired”, to use Krashen’s terms? Actually, according to Schmidt,

Another, possibly more productive, way to pose the question is in terms of learning processes (rather than types of knowledge), to ask whether bottom-up, data driven processing, and top-down, conceptually driven processing guided by goals and expectations (including beliefs and expectations concerning the target language grammar), interact; to which the answer is probably yes, they do. (Schmidt 2001: 5)

To date, little is known about the exact nature of this interaction in second language acquisition, as little is known concerning SLA processes in instructed settings (see e.g. Doughty 2005). SLA researchers differ both in their theoretical viewpoints and suggestions for second language instruction. For example, Doughty (2005), in contrast to DeKeyser (2005), argues that although implicit and explicit language learning have been shown to occur simultaneously, the default processing mode in second language acquisition, as in first language acquisition, is implicit. As she adds, however, “this need not and certainly does not rule out the occasional switch to explicit processing” (Doughty 2005: 292), which, in fact, appears to be necessary to override the effects of input processing strategies developed in the process of L1 acquisition. This is best done in focus on form interventions, which draw learners’ attention to relevant L2 forms when problems arise incidentally during meaning oriented tasks (see Doughty and Williams 1998, Pawlak 2006 for more information on form-focused instruction).

The goal of second language instruction, therefore, should be to organize learners’ L2 processing space such that learners’ attention is drawn to relevant elements of language in the input and their perceptual processes are engaged in implicit learning. There is little value in promoting metalinguistic awareness as “explicit, declarative information is only helpful in improving performance in cases where complex tasks involve few and obvious variables” (Doughty 2005: 298). Moreover, there is evidence that “declarative knowledge is a by-product of practice during implicit learning” (Doughty 2005: 295), as increases in verbalization ability usually follow rather than precede improvements in performance. Doughty concludes that providing explicit knowledge in advance of task does not facilitate language learning, which contrasts with DeKeyser’s position outlined in section 1.4.2.

Another approach to second language pedagogy focusing on influencing learners' processing of L2 input is **processing instruction** – PI (see e.g. Farley 2005, VanPatten and Cadierno 1993, VanPatten 1996, 2004), a comprehension based approach to grammar intervention designed to alter the processing strategies of the learners and thus affect the kind of intake they derive from the input, which in turn should lead to a change in the developing system (cf. Van Patten and Cadierno 1993, VanPatten and Uludag 2011). In processing instruction, learners receive explicit information about a grammatical structure as well as processing problems which might lead to comprehension mistakes when they encounter it in L2 input. This explicit metalinguistic instruction is followed by structured input activities, “which contain input manipulated in particular ways to push learners away from less-than-optimal processing strategies” (VanPatten and Uludag 2011: 45). Processing instruction is therefore similar to more traditional approaches to grammar instruction in providing learners with explicit knowledge ahead of task. The aim of PI is not, however, turning learners' explicit knowledge into implicit knowledge by proceduralizing it, but redirecting learners' attention in ways that would help learners to overcome the mismatch between their default L1 processing strategy and L2 input, thus facilitating second language acquisition. Some researchers (e.g. Doughty 2005) question the necessity of including the metalinguistic component in processing instruction, suggesting that it is the structured processing component that makes PI effective.

#### 1.5 EFFECTIVENESS OF IMPLICIT AND EXPLICIT LEARNING – SOME RESEARCH FINDINGS

Relatively few studies in the SLA field have focused on direct controlled comparisons of differential effectiveness of explicit and implicit learning. All such experimental studies reviewed in DeKeyser (2005), whether conducted in a laboratory context (e.g. DeKeyser 1995, Doughty 1991, N.C Ellis 1993, Robinson 1996, 1997a) or in a real classroom setting (e.g. Scott 1990, VanPatten and Oikkenon 1996) showed a clear advantage for explicit learning, as groups that received the most explicit treatments tended to outperform those that received implicit or at least less explicit training on posttreatment experimental tasks. These findings, however, have to be viewed as tentative, since the studies have been limited in number and targeted very specific structures, for example Welsh initial consonant mutation (N.C Ellis 1993), relative clauses (Doughty 1991), or subject-verb inversion after adverbials (Robinson 1996). Actually, as noted by DeKeyser (2005), there is a need for more studies that would address the issue of differential effectiveness of implicit and explicit learning as a function of the nature of the targeted structure.

It remains unclear, for example, whether abstract knowledge can be gained through implicit learning mechanisms. In spite of extensive research, cognitive psychologists have found it difficult to convincingly demonstrate that implicit learning can lead to internalization of abstract patterns (see e.g. Gomez 1997, Perruchet 1994, Vokey and Brooks 1992; see e.g. Berry 1997 for an alternative view). As noted by DeKeyser (2005), SLA researchers have not been able to show any significant unconscious learning of abstract patterns either. Although this may be the effect of imperfect research methodology, for now it seems that implicit learning is best for learning concrete, if complex, elements.

Having reviewed the limited number of studies that tried to compare the effectiveness of implicit and explicit learning as a function of the nature of the grammar element to be learned, that is its difficulty related to complexity, level of abstractness, as well as rule scope, rule reliability, and salience (see e.g. Bardovi-Harlig 1987; DeKeyser 1995, 2000; Robinson 1996, 1997a; Williams 1999, quoted in DeKeyser 2005), DeKeyser concluded that “the harder it is to learn something through simple association, because it is too abstract, too distant, too rare, too unreliable, or too hard to notice, the more important explicit learning processes become” (2005: 334). He also stressed that the effectiveness of explicit instruction will vary depending on the subjective difficulty of the rule, described as “the ratio of the rule’s inherent complexity to the student’s ability to handle such a rule” (2005: 331), which is where individual differences in language aptitude may play a role.

The role of individual differences in implicit and explicit adult second language learning was examined by Robinson (1997b), who designed an experimental study to, among other things, test the claims of Krashen (1981, 1985) and Reber (1993) that individual differences in cognitive abilities, operationalized for example in language aptitude tests, will only be related to the effects of learning which is under conscious control, not to the effectiveness of implicit learning which occurs in the absence of awareness. He found some support for Krashen’s claims as the correlations between aptitude measures and accuracy scores on a grammaticality judgement task were low and statistically non-significant for the subjects’ learning under incidental, meaning-focused condition, and much higher and statistically significant for an Instructed, form-focused condition.

The findings relating to the comparison between conditions based on Reber’s (1993) research were more mixed, as the scores of the subjects in the implicit, instructed-to-remember condition correlated positively with the grammatical sensitivity component of language aptitude (but, interestingly, not the memory component), and the aptitude/accuracy correlations in the explicit rule-search condition depended on the difficulty of the rule (the grammatical sensitivity component correlated with accuracy on easy rule sentences, the memory component with performance on hard rule sentences). The latter finding, actually,

fits Reber's predictions. The former one, i.e. the positive correlations between grammatical sensitivity and the accuracy scores in the implicit condition is interpreted by Robinson as indicative of the subjects' spontaneous switch to conscious rule search, despite the task instructions, triggered by individual differences in aptitude.

Actually, Robinson claims that conscious processing was, although to differing degrees, induced by task demands during training in all the conditions under study, and the questionnaire data gathered provide no support for the claim that learning in the incidental and implicit conditions was the result of unconscious processes only. He concludes, therefore, that adult L2 learning under differing conditions is fundamentally similar (and different from child L1 acquisition due to adults' cognitive maturity) because it results mainly from conscious processing strategies adopted in response to task demands. The findings of his study, therefore, support Krashen's and Reber's claims concerning the role of individual differences in explicit learning, they do not provide evidence, however, in support of the claims that implicit learning is superior. In fact, Robinson claims that the results of his study suggest that the dual-system accounts of L2 learning (Krashen 1982, 1985; Paradis 1994; Zobl 1995) may be flawed as learning under incidental vs instructed conditions does not "reflect the processing operations of distinct unconsciously- and consciously-accessed systems" (1997b: 81).

## 1.6 METHODOLOGICAL CONCERNS

### 1.6.1 *Implicit and explicit knowledge – the problem of measurement*

Many of the controversies discussed in the previous sections cannot be easily resolved due to methodological problems. In order to address the issue of implicit/explicit knowledge interface, SLA researchers need research methodology that would enable them not only to obtain valid and reliable evidence of learners' linguistic knowledge but also to distinguish whether this knowledge is represented implicitly, explicitly or, possibly, in both ways (Ellis 2005a, DeKeyser 2005). In the same vein, testing the hypothesis of explicit knowledge being gradually converted to implicit knowledge through practice would only be possible if the relative amount of each at a particular time could be reliably measured. As noted by DeKeyser, "the crux of the issue is finding measures of implicit and explicit learning that are both pure and sensitive, so that they show exactly how much is learned through either process, nothing more and nothing less" (2005: 319). To date, however, no perfect measures of

this sort have been designed, although there has been some progress in this area, especially with regard to implicit learning (see e.g. Williams 2004, 2005; Hama and Leow 2010; Leung and Williams 2011).

In most studies designed to examine the implicit-explicit dichotomy, researchers try to elicit subjects' knowledge by manipulating conditions in such a way that they are more or less conducive to the retrieval of either implicit or explicit knowledge. Explicit knowledge is usually operationalized as ability to verbalize specific grammatical rules, whereas implicit knowledge is said to be accessed during oral or written production tasks (see e.g. Hu 2002, Macrory and Stone 2000). However, as noted by Douglas (2001), construct validity of the measures used is rarely considered and empirically tested.

In order to address the above issue, Ellis (2005a) designed a test battery composed of five different tasks differing in likelihood of involving subjects' awareness (response based on *feel vs rule*), time available (*pressured vs unpressured*), focus of attention (*meaning vs form*), and the use of metalinguistic knowledge (required or not). The assumption was that "each test would provide a relatively separate measure of either implicit or explicit knowledge according to how it mapped out on these criteria" (Ellis 2005a: 157). Ellis hypothesized, for example, that an oral narrative test would constitute a good measure of implicit knowledge because participants would have no reason to access their metalinguistic knowledge, they would perform under time pressure, focus primarily on meaning, and rely primarily on feel. In contrast, an untimed grammaticality judgment test would measure explicit knowledge as it involved a high degree of awareness, required the use of metalinguistic knowledge and focused subjects' attention on form, with the time pressure eliminated. Factor analyses of the scores on the five tests included in the battery demonstrated that the tests, based on Ellis's operational definitions of explicit and implicit knowledge, produced two different factors interpreted as corresponding to the two constructs under investigation. The study thus provided empirical evidence in support of the construct validity of the measures used. However, as Ellis admits, the tests designed constitute "relatively separate measures of implicit and explicit knowledge" (2005a: 153) and providing pure measures of the two types of knowledge is virtually impossible, as tests can only predispose learners to access one or the other type of knowledge. Moreover, even if valid and reliable measures of implicit and explicit knowledge were available, it would still remain unclear to what extent the learning itself may have been implicit or explicit (cf. DeKeyser 2005).

### 1.6.2 *Implicit and explicit learning – experimental designs*

Both laboratory and classroom-based studies of the differential effect of implicit and explicit learning used experimental designs with varying treatment conditions. As has been already mentioned, most of these studies provided empirical evidence in favour of the hypothesis that explicit instruction and higher degree of awareness result in better performance on post-treatment measures, thus pointing to the advantage for explicit treatments. It should be noted, however, that in some of these studies, explicit treatments were operationalized as simply more explicit than implicit treatments, thus differentiating between **implicit** and **implicit plus explicit** instruction. For example, in DeKeyser's (1995) study of the effect of two types of instruction on two kinds of rules in an artificial grammar, the implicit-inductive treatment was defined as mere exposure to numerous sentence/picture pairs, and explicit-deductive treatment as similar exposure accompanied by explicit explanation of relevant rules. In such a design implicit learning cannot be ruled out in either treatment, and participants in the explicit condition may possess both implicit and explicit knowledge of the target structure, which, as noted by Leung and Williams (2011), would fully explain why on experimental tasks they tend to outperform participants with implicit knowledge only.

Another methodological problem raised by Leung and Williams (2011) is the discrepancy between training and testing tasks used in SLA research in implicit vs explicit learning, which makes the findings biased against implicit learning, as implicit knowledge has been shown to be relatively inflexible and context dependent. The short duration of most the relevant studies may also contribute to the advantage for explicit learning, as the treatments may have been too short for implicit learning to bring learning effects. Moreover, as stressed by DeKeyser (2005), both in the laboratory and classroom-based studies, the type of tests used as a measure of the dependent variable, despite the time pressure introduced in some of them, allowed for some degree of monitoring of explicit knowledge. Actually, commenting on type-of-instruction research findings, Doughty states that “the case for explicit instruction has been overstated” (2005: 274) and interprets the apparent advantage for explicit instruction as “an artifact of cumulative bias” (2005: 274).

The above arguments demonstrate the difficulty involved in designing pure measures of explicit and implicit second language learning. It may actually prove impossible to disentangle the two empirically, especially with the use of behavioural data (cf. Doughty 2005). Therefore, DeKeyser (2005) recommends that SLA researchers follow the advice of cognitive psychologists and “focus on the differential effects of implicit and explicit orientations on learning, rather than on attempts to demonstrate that learning is implicit in some absolute sense” (Stadler and Roediger 1998: 107, quoted in DeKeyser 2005: 339).

1.7 FROM THEORY TO PRACTICE – IMPLICATIONS  
FOR SECOND LANGUAGE INSTRUCTION

Although SLA research and theory have made considerable advances in recent years, it is still a matter of considerable controversy how to design second language instruction so that it makes second language acquisition both effective and efficient. There is no agreement, among other things, as to the relative role of implicit and explicit learning in developing second language competence as well as the role of implicit and explicit knowledge in language use. There is, as a result, no agreement as to the optimal shape of classroom-based second language instruction. Nevertheless, Ellis (2005b) ventured to draw together findings from different second language research studies and formulated the following set of general principles for language pedagogy, calling them “provisional specifications” and admitting that not all SLA researchers or language teachers would necessarily agree with them:

- Principle 1: Instruction needs to ensure that learners develop both a rich repertoire of formulaic expressions and a rule-based competence.
- Principle 2: Instruction needs to ensure that learners focus predominantly on meaning.
- Principle 3: Instruction needs to ensure that learners also focus on form.
- Principle 4: Instruction needs to be predominantly directed at developing implicit knowledge of the L2 while not neglecting explicit knowledge.
- Principle 5: Instruction needs to take into account the learner’s “built-in syllabus”.
- Principle 6: Successful instructed language learning requires extensive L2 input.
- Principle 7: Successful instructed language learning also requires opportunities for output.
- Principle 8: The opportunity to interact in the L2 is central to developing L2 proficiency.
- Principle 9: Instruction needs to take account of individual differences in learners.
- Principle 10: In assessing learners’ L2 proficiency it is important to examine free as well as controlled production.

Although the dichotomy between implicit and explicit language knowledge is directly addressed only in Principle 4, all of them are partially based on research examining the nature of second language representation and the processes involved in arriving at this representation and could then be discussed in the context of implicit/explicit knowledge interface.

As has already been stated, most SLA researchers and theorists would agree that second language competence is primarily represented as implicit knowledge and it is this implicit knowledge that people predominantly draw on in spontaneous, fluent communication in L2. Ellis (2005b) therefore concludes that the ultimate goal of any instructional programme should be developing learners' implicit knowledge of the L2. However, as he rightly notes, there are conflicting theories regarding how this can be achieved, depending on the theorist's stance on the interface issue. For example, according to skill-acquisition theory described above (see e.g., DeKeyser 2001, 2007), learners arrive at implicit knowledge through the process of proceduralization of explicit knowledge. What they need to get past the declarative threshold into proceduralization is the combination of abstract rules and concrete examples as well as practice tasks that allow for the use of declarative knowledge (DeKeyser 2007). Skill acquisition theory thus lends support to the PPP (presentation, practice, production) model of second language instruction. Emergentist theories, on the other hand (see e.g. N.C. Ellis 2005a, 2005b; MacWhinney 1999), emphasise that implicit knowledge of language develops predominantly through implicit learning mechanisms extracting regularities from input. However, explicit knowledge of form-meaning associations can facilitate initial registration of pattern recognizers and thus impact upon subsequent implicit language learning. Internalizing and then analysing formulaic expressions may serve as a basis for the development of implicit rule-based competence (N.C. Ellis 1996, cf. Ellis 2005b).

Irrespective of the differences in these (and other) theoretical positions, there seems to be a consensus in the SLA field that in order to develop implicit language knowledge learners need extensive exposure to L2 input and ample opportunity to engage in communication, production and interaction, which should be taken into account in planning instruction. It is also important to include free production tasks in assessment in order to avoid limiting it to testing explicit language knowledge usually drawn on in controlled production tasks. Finally, while instruction, both implicit and explicit, may facilitate second language acquisition processes and increase learning outcomes, the effects that it brings are constrained by the phenomenon of developmental readiness – the rate of SLA may be speeded up by instruction, its route, however, cannot be altered, i.e. learners must be psycholinguistically ready for receiving instruction on a given structure (see e.g. Ellis 1989, Pienemann 1989; see Ellis 2005b for further discussion).

## 1.8 CONCLUSION

As has been shown, the role of awareness in second language acquisition is not without debate. Conducting research in this area is fraught with methodological difficulties, since, as yet, “we do not have a window into the mind” (Sanz and Morgan-Short 2005: 234). Such a window might one day become available thanks to advanced technology used in cognitive neuroscience. As for now, however, neuroimaging studies of bilinguals have produced “inconsistent results and conflicting interpretations” (Paradis 2004: 184). If empirical research on the explicit-implicit dichotomy is to progress, essential improvements in research methodology based on behavioural data are necessary.

As regards the research agenda, many important questions remain to be answered. According to DeKeyser (2005), the issues that need to be addressed include, for example, the interaction between implicit/explicit learning processes and structural characteristics of the learning target (e.g. abstractness, complexity, difficulty, etc.) as well as the three-way interaction of implicit/explicit learning conditions, psycholinguistic features of the learning targets and learners’ aptitudes. If progress is to be made in this area, psycholinguistically relevant measures of SLA processing need to be developed (cf. Doughty 2005).

Furthermore, it is important that research findings on implicit and explicit learning not only contribute to second language acquisition theory and cognitive psychology, but also bear some relevance to second language instruction. To this end, while not neglecting narrow controlled experiments conducted in laboratory settings, researchers should conduct more realistic, though less rigorous, experiments in classroom settings to ensure their ecological validity. Simultaneous pursuit of these two lines of research should lead to a better understanding of what actually happens at the implicit/explicit interface.

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## PRZYSWAJANIE A UCZENIE SIĘ JĘZYKA OBCEGO

### Streszczenie

Celem rozdziału jest przedstawienie różnych poglądów na temat roli świadomości i uwagi w procesie rozwijania kompetencji językowej. Punkt wyjścia rozważań stanowi Teoria Monitora Stephena Krashena i wywodzące się z niej klasyczne rozróżnienie pomiędzy procesem przyswajania języka (*language acquisition*) i uczeniem się go (*language learning*) oraz kontrowersje wokół związków pomiędzy tymi procesami i rodzajami wiedzy językowej, do których prowadzą. W rozdziale zdefiniowano pojęcia implicytności i eksplicytności w odniesieniu do rodzajów wiedzy językowej, procesów przyswajania języka oraz strategii dydaktycznych. Szczegółowo omówiono również różne stanowiska teoretyczne, dotyczące wzajemnych zależności pomiędzy implicytną i eksplicytną wiedzą językową, uwzględniając przyjęty w literaturze przedmiotu podział na stanowiska wykluczające bezpośredni związek między nimi (*the non-interface position*), wskazujące na ich silne bezpośrednie powiązania (*the strong interface position*) oraz te podkreślające słabszą, pośrednią rolę wiedzy eksplicytniej w rozwijaniu wiedzy implicytnej, stanowiącej podstawę kompetencji językowej (*the weak interface position*). W dalszej części rozdziału przedstawiono krótki przegląd badań eksperymentalnych dotyczących skuteczności poszczególnych strategii dydaktycznych, różniących się między sobą stopniem eksplicytności. Rozdział zawiera również dyskusję na temat metodologii tego typu badań ze szczególnym uwzględnieniem trudności związanych z pomiarem oraz operacjonalizacją zmiennych, jak również wnioski dotyczące potencjalnych zastosowań wyników badań w dydaktyce języków obcych.