

## Implicit and Explicit Knowledge in Second Language Learning, Testing and Teaching

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# **Implicit and Explicit Knowledge in Second Language Learning, Testing and Teaching**

Rod Ellis, Shawn Loewen, Catherine Elder,  
Rosemary Erlam, Jenefer Philp and  
Hayo Reinders

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## ***Preface***

This book originated in a project funded by the Marsden Fund, a fund administered by the Royal Society of New Zealand to support ideas-driven research. The initial principal investigators were Rod Ellis and Catherine Elder. When Catherine Elder left the project in 2004, her place was taken by Shawn Loewen. Two other researchers at the University of Auckland were also closely involved in the project – Rosemary Erlam and Jenefer Philp – and also, at various times, there were a number of research assistants – in particular, Satomi Mizutani, Keiko Sakui and Thomas Delaney. The successful completion of the project owed much to the combined efforts of all these researchers. The project took place over three years (2002–2005).

There were three major goals:

- (1) To develop tests to measure second language (L2) implicit and explicit grammatical knowledge.
- (2) To identify the relative contributions of these two types of L2 knowledge to general language proficiency.
- (3) To investigate what effect form-focused instruction has on the acquisition of L2 explicit and implicit grammatical knowledge.

These three goals are reflected in the structure of this book. Thus, Part 2 reports the results of the research designed to develop tests of implicit and explicit knowledge, Part 3 contains a number of studies that examined the application of the tests in various applied ways, including the role played by implicit and explicit L2 knowledge in language proficiency and Part 4 addresses the effects of instruction on the acquisition of L2 explicit and implicit grammatical knowledge. This book, therefore, is an attempt to bring together the results of the Marsden Fund Project.

The distinction between implicit and explicit L2 knowledge is fundamental to understanding the nature of L2 acquisition, the role of these two types of knowledge in L2 proficiency and the contribution that various types of instruction can make to L2 acquisition. It is also a distinction that appears to be supported by current neurobiological research, which has shown that the two types of knowledge are neurologically distinct. Because this distinction is central to the whole book, Part 1 (Chapter 1: Introduction) is devoted to its definition and explication.

The distinction has been incorporated into very different theories of L2 acquisition, including those based on an information-processing model and those derived from sociocultural theory. The research reported in this book was informed by an information-processing model, the model most familiar to the researchers involved. This model views knowledge as related to but independent of language use. It is acquired as a result of learners engaging in active processing of the L2 input they are exposed to and is reflected in the gradual and dynamic way in which learners build their interlanguages. Key processes are those relating to attention to form (i.e. noticing and noticing-the-gap), rehearsal in short-term memory, integration into long-term memory and monitoring (see Ellis, 2008). These are terms that will be used throughout the book. In Part 4 (Chapter 14: Conclusion), an attempt will be made to retrospectively examine the main findings from a different perspective – that afforded by sociocultural theory.

The contents of the book are, in part, based on a number of previously published papers:

- Elder, C., Erlam, R. and Philp, J. (2007) Explicit language knowledge and focus on form: Options and obstacles for TESOL teacher trainees. In S. Fotos and H. Nassaji (eds) *Form Focused Instruction and Teacher Education: Studies in Honour of Rod Ellis*. (p. 225–240) Oxford: Oxford University Press (Oxford Applied Linguistics Series).
- Ellis, R. (2004) The definition and measurement of L2 explicit knowledge. *Language Learning* 54, 227–275.
- Ellis, R. (2004) Measuring implicit and explicit knowledge of a second language: A psychometric study. *Studies in Second Language Acquisition* 27, 141–172.
- Ellis, R. (2006) Modelling learning difficulty and second language proficiency: The differential contributions of implicit and explicit knowledge. *Applied Linguistics* 27, 431–63
- Ellis, R., Loewen S. and R. Erlam. (2006) Implicit and explicit corrective feedback and the acquisition of L2 grammar. *Studies in Second Language Acquisition* 28, 339–68.
- Erlam, R. (2006) Elicited imitation as a measure of L2 implicit knowledge: An empirical validation study. *Applied Linguistics* 27, 464–491.

However, none of these papers has been reproduced verbatim. Rather the contents have been modified to avoid repetition and to ensure continuity from one chapter to the next. The book also contains reports of a number of previously unpublished studies that were part of or were closely related to the Marsden Project (see Chapters 4, 7, 8, 10–12). In addition, Chapter 1 (Introduction) and Chapter 14 (Conclusion) have also been specifically written for this book.

It remains for us to thank the New Zealand Royal Society of Arts for funding the research that led to this book and the University of Auckland's Research Office for its logistic support. I would also like to thank Katherine Cao for her work on the bibliography of the book and the Center for Applied Linguistics in Washington DC for appointing me as Ferguson Fellow for 2008, which made possible the assembling of the final manuscript.

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## *Part 1*

# ***Introduction***

The chapter in Part 1 introduces the key terms used in this book – implicit/explicit learning, knowledge and instruction. The distinctions between implicit and explicit knowledge and implicit and explicit learning are of central significance in both cognitive psychology and in second language acquisition (SLA) research. The closely related distinction between implicit and explicit instruction is also important for language pedagogy. These distinctions address how we come to know what we know about a second language (L2), how we store that knowledge and the use we make of it. No SLA researcher and no language teacher can afford to ignore these distinctions.

The chapter begins with an exploration of how these distinctions have been treated in cognitive psychology. It then moves on to examining how they have been addressed in SLA research. Separate sections consider implicit/explicit L2 learning, implicit/explicit L2 knowledge and implicit/explicit language instruction. The issue of whether or not there is an interface between implicit and explicit learning and knowledge is also addressed, as this is of crucial importance when considering the role of instruction in L2 acquisition.

This chapter aims to provide an introduction to these key constructs together with the theoretical background that informs the empirical studies reported in subsequent parts of the book.



## Chapter 1

# ***Implicit and Explicit Learning, Knowledge and Instruction***

ROD ELLIS

### **Introduction**

The distinctions relating to implicit/explicit learning and knowledge originated in cognitive psychology, so it is appropriate to begin our examination of them with reference to this field of enquiry. Cognitive psychologists distinguish implicit and explicit learning in two principal ways:

- (1) Implicit learning proceeds without making demands on central attentional resources. As N. Ellis (2008: 125) puts it, 'generalizations arise from conspiracies of memorized utterances collaborating in productive schematic linguistic productions'. Thus, the resulting knowledge is subsymbolic, reflecting statistical sensitivity to the structure of the learned material. In contrast, explicit learning typically involves memorizing a series of successive facts and thus makes heavy demands on working memory. As a result, it takes place consciously and results in knowledge that is symbolic in nature (i.e. it is represented in explicit form).
- (2) In the case of implicit learning, learners remain unaware of the learning that has taken place, although it is evident in the behavioral responses they make. Thus, learners cannot verbalize what they have learned. In the case of explicit learning, learners are aware that they have learned something and can verbalize what they have learned.

The focus of research in cognitive psychology has been on whether implicit learning can take place, and, if it does, how it can best be explained. However, since Reber's (1976) seminal study of implicit learning, there has been an ongoing debate about the validity of his 'multiple learning systems' view of human cognition. Many researchers dispute the existence of multiple systems and argue in favor of a single system that is capable of achieving different learning outcomes.

This controversy within cognitive psychology is very clearly evident in a collection of papers addressing the role of consciousness in learning (Jimenez, 2003). In the opening paper, Shanks (2003) critiqued the