Implicit Learning and Second Language Acquisition

Rozália Eszter Ivády
Implab Association, Budapest &
Budapest Technical University,
Cognitive Science Phd Program
1111, Budapest, Stoczek utca 2.
ivady@cogsci.bme.hu
http://www.implab.org

Abstract: In the following article I shall try to give an account of the different theories of explicit and implicit learning in second language acquisition (SLA) and relate it to results in the field of cognitive science (CS). We shall see that SLA is less concerned with theoretical niceties and I shall try to show how CS can help underpin a few hypotheses in how SLA works. I shall also draw up a hypothesis to account for critical period observations in SLA based on the ratio and role of explicit and implicit learning.

Keywords: implicit learning, second language acquisition.

Implicit cognition – definitely undefined

In second language acquisition (SLA) literature there are multiple questions that show kinship with the concept of implicit learning as used in cognitive science. We shall start by examining theoretical differences and then spotting a practical similarity.

1.1 Let us begin from the point of view of cognitive science (CS). Cleeremans, Destrebecqz, and Boyer (1998) summarized the different interpretations of implicit knowledge that we shall later find re-emerging in SLA research. Implicit learning is seen as “the ability to learn without awareness” (p.406), “when we acquire new knowledge without intending to do so” (p.406) and “in such a way that this knowledge is difficult to express” (p.406).

1.2 The above mentioned three requirements in SLA research are usually termed as conscious and unconscious, incidental versus intentional and implicit versus explicit acquisition methods. R. Ellis (1994) lists some characteristics of what he calls implicit:
- easily accessible (in psychology this is the hallmark of automatic processing),
- unanalyzed (memory-based rather than rule based),
- abstract and structured,
- can be consciously analyzed (and thus become explicit rules of the language),
- occur closely adhering to natural language behaviour.

1.3 Rules – a common ground

The explicit/implicit debate undoubtedly reaches its climax in discussions over grammar acquisition. As a practical issue, SLA researchers term learning as explicit when rules are emphasized as a type of metalinguistic knowledge: anything that makes learners aware of rules is explicit. As far as cognitive science is concerned, hypothesis testing is inherently categorized as explicit. Implicit learning in SLA is exemplar based and requires the
memorization of prefabricated language chunks. CS literature is divided on this issue: some of the results can accounted for by learning chunks, yet there is a debate on how much of the data this explanation covers and how much do we have to suppose abstract rules. This debate does not seem to be relevant in SLA research, where the two explanations exist in parallel.

2. On the relationship between explicit and implicit

The question of how implicit knowledge is related to explicit knowledge is pivotal both is CS and SLA. Surprisingly, however, SLA research is controversial concerning this issue.

2.1 If you know what you do, you do it better
In all paradigms of implicit learning tasks it was found that calling attention explicitly to underlying rules increased performance on the IL tasks (Cleermans et al., 1998) – though only when there was no secondary task. Thus explicit instruction enhances implicit learning.

2.2 No point in explicit teaching
Krashen (2000) in his Monitor Model emphasizes that explicit knowledge of certain rules does not add anything to the acquired knowledge of a language – rather it creates a monitor to notice and correct errors in one’s output. Explicit knowledge is strictly separated from implicit knowledge and far from assisting it, even has a contaminating effect – or at best there is no interference. Thus explicit knowledge cannot finally be turned into implicit knowledge. It has to be accumulated bit by bit from learning and parsing chunks of language.

2.3 A move towards the implicit
Bialystok (1978) proposes that there is an interface between explicit and implicit knowledge and there are two types of output: spontaneous-immediate and deliberate-delayed. In her two-dimensional model she supposes that the ideal way is to move from metalinguistic knowledge (highly analyzed and controlled) towards linguistic knowledge (not analyzed and not controlled). She suggests that progressing from explicit to implicit knowledge is possible and desirable.

2.4 Possible but different
Truscott and Sharwood-Smith (2004) suggested a modular view of language. They posit that there are two ways of producing affluent output in a second language. One would be using the linguistic (more precisely phonetic and syntactic) module, which is common to all known languages. However, according to Chomsky’s (1984) Principles and parameters model this is not possible. The alternative route would be using one’s metalinguistic competence: this is a set of memorized rules and their learnt applications. However, this never becomes part of the innate language system. From the point of view of CS, we might call this implicit knowledge. Sharwood-Smith (2004) suggested it to be an automated process.

2.5
According to R. Ellis (1994) the interaction is possible, however, it has a more subtle effect in enhancing performance. Explicit knowledge is an aid in monitoring and in noticing (either errors or lack of knowledge) but cannot in itself contribute to smooth performance.

3. Progress and proficiency

3.1
Explicit knowledge seems to enhance performance in CS implicit learning tasks. In addition, latest research in SLA has confirmed the same phenomenon (Rosa & O’Neill, 1999). Automatization is at the heart of most SLA theories – IL learning does not usually operate with this term, if
Ivady: Implicit learning and second language acquisition

not for movement acceleration in the pushing of buttons in Sequence Learning.

3.2 The progress of learning thus is definitely speeded up by explicit teaching in adulthood. However, a perplexing problem remains: though we can all master our first language to proficiency with very little variation in the time duration of acquisition, one can observe huge differences between individuals in the success of acquiring a second language. Can this be blamed on our less operative implicit learning? Based on raw data this can hardly be true, as children’s implicit learning is much worse than adults’ is (Lukács, Németh, Krajcsi, & Kemény, 2007).

3.3 However, children have no other way than to acquire language implicitly. The emergence of the ability to form abstract rules is around the age of 10 to 14 (Piaget, 1954). This falls approximately to the same period as the acquisition of metalanguage. This might be a powerful rule to speed up initial language acquisition, but natural languages are naturally organized along principles set up by implicit learning. Could it be that it can inherently only be learned by an implicit learning mechanism perfectly? Krashen (2000) presents a case where he claims this has been done in adulthood, thus critical period might not be a magic boundary and some immersion programs suggest the same (Spilka, 1970).

3.4 The number of rules and their formulation is hugely debated amongst descriptive linguists of a given language. Perhaps the reason is that there is no perfectly matching explicit set of rules.

4. Conclusion

We get a very powerful tool at around the age of 10 – analysis, hypothesis testing and rule forming. Yet language is ultimately not designed to yield this tool - however powerful, one cannot slice bread neatly with a chainsaw.

Invited Peer Commentary

Comments on the Target article

Judit Kormos
Eötvös Loránd University, Budapest
Institute of English and American Studies,
Department of Applied Linguistics
em. 330/A
kormos.j@chello.hu

Overall I agree with the author of the paper that the main issues concerning implicit learning in SLA (second language acquisition) are the definitions of implicit learning, the role of implicit learning in acquiring L2 linguistic rules, the interface of explicit and implicit knowledge, and age related differences and implicit learning.

I think that on the whole the paper gives an appropriate account of how these issues have been handled in the field of SLA, but I am going to point out areas where considerable amount of research has been done recently, and suggest an additional issue namely the role of implicit learning in theories of SLA.

1. Definition
In recent conceptualizations of the role of implicit learning (IL) in SLA, IL has been defined as “learning without awareness of what is being learnt” (de Keyser, 2003, p. 314), and it is differentiated from incidental learning, which means “a deliberate attempt
to commit new information to memory” (Hulstijn, 2003, p. 360).

2. What kind of knowledge can be learnt implicitly? Recent research in the field of SLA says more about IL than it being exemplar-based. Laboratory studies comparing explicit and implicit learning of L2 grammatical rules of both natural and artificial languages (e.g. de Graaf, 1997; deKeyser, 1995; N. Ellis, 1993; Robinson, 1996, 1997) reveal that although some learning takes place in the implicit condition, students in the explicit condition show significantly better performance.

Current research is centred on the question of what kind of rules IL is efficient. In line with Reber (1976, 1993), some studies (e.g. Robinson, 1996), suggest that relatively difficult grammatical rules are best to be learnt implicitly (of course the question is what a difficult rule means and for what kind of learner a rule is difficult). There is, however, also evidence for the relative ineffectiveness of IL for abstract and non-salient rules (de Keyser, 1995; Williams, 1999), which supports the view in CS that implicit learning involves item-learning (e.g. Gomez, 1997; Perruchet & Pacteau, 1990, 1991).

An additional question that might be raised here is how efficient is IL in the acquisition of L2 linguistic rules and vocabulary.

3. Age and IL
Most SLA researchers assume that one of the basic differences between child and adult L2 learning is that children primarily rely on implicit learning, whereas adults also apply explicit learning mechanisms (for a review see deKeyser, 2003). Evidence for this is also provided by the fact that whereas the outcome of adult SLA is largely influenced by individual variables such as language aptitude and working memory capacity, no such effect for children was found (deKeyser, 2000). It might be true that children’s implicit learning mechanisms might be slow, but I doubt that they would be inefficient especially if we consider the general findings of SLA studies that although adults learn faster, their ultimate attainment is much lower than that of children (for a review see Birdsong, 1999; Marinova-Todd, Marshall, & Snow, 2000).

4. Theories of SLA and IL
A final point that might be raised in the discussion is that both nativist and connectionist theories of language learning attribute central role to implicit learning as for the former language learning (both L1 and L2) means the implicit acquisition of principle and parameter setting based on UG, and for the latter the implicit acquisition of abstract rules through the statistical analyses of probabilities of co-occurrence in the input.

Comments on the Target article

Gábor Kovács
Corvinus University, Budapest & Eötvös Loránd University, Budapest
School of English and American Studies Department of English Language Pedagogy, DELP
lkg@rocketmail.com

The main theories are well summarized, yet I feel the experimental basis of the question is
rather neglected. A few general claims can be made concerning implicit learning both in the broader sense and in second language acquisition.

1. No evidence has yet been found to support the claim that learning without consciousness is possible. Though early experiments on artificial grammar learning (AGL) and sequence learning (SL) were indeed promising, many critics pointed out that performance on the test – sometimes barely surpassing performance at random – can be explained by conscious knowledge. (Dulany, Carlson, & Dewey, 1984; Johnstone & Shanks, 1999; Perruchet & Pacteau, 1990; Pothos & Baily, 2000).

2. Well controlled laboratory experiments in SLA – to the best of my knowledge – support the advantages of explicit knowledge of rules. These include the so called “cXperanto” experiment by de Graaf (1997), the study on the acquisition of an artificial language called “Implexan” (DeKeyser, 1995). Robinson’s (1997) experiment also shows the superiority of the “explicit-deductive” above the other three studied. (See also Alanen, 1995; N. Ellis, 1993; Leow, 1998; Michas & Berry, 1994; Robinson, 1997; Rosa & O’Neill, 1999).

3. Laboratory studies are always prone to be criticized on the grounds that their ecological validity is questionable, yet the few studies that have been conducted in classroom setting in every case showed a significant advantage in the explicit group (for example).

In summary the overall picture seems to be clear and I agree with Judit Kormos (in this issue) that Krashen’s (1982) idea has not been proved fruitful – arguments based on introspection can not stand against evidence based on experimental data.

Implicit learning and instructed SLA

István Ottó
Regional Public Administration Office for Southern Transdanubia, 7400, Kaposvár, Csokonai utca 3.
iotto@t-online.hu

1. As Ivády (in this issue) herself points out, natural languages are way too complex to be learnt explicitly to a degree of proficiency that is exhibited by many adult language learners. However, the extent to which implicit and explicit learning contribute to becoming proficient in a second language is at the heart of current thinking in the study of SLA and language pedagogy. Most notably, what we believe about the relative importance of the two different processes determines our beliefs regarding the appropriate approach to teaching foreign languages.

2. Instructed second language learning has had an oscillating history between implicit and explicit approaches with shifts taking place whenever the general public got weary of one extreme or the other (Celce-Murcia, 1991). The grammar-translation method is an example of the explicit end of the scale while the communicative approach is found at the implicit end. The swinging of the pendulum, as it is often referred to in the literature, is currently stopping midway, as practitioners realize that many students have been leaving communicative classrooms with fossilized errors in their inter-language.
3. In order to remedy the situation, communicative language teaching is turning into Focus on Form instruction (cf. the edited volume by Doughty & Williams, 1998) gaining popularity all over the world.

While the explicit discussion of grammatical rules is still avoided, visual and other cues are utilized to draw attention to various grammar points in order to facilitate noticing (Schmidt, 1990) and appropriate language usage.

4. Another crucial issue concerns the possible existence of an interface between implicit and explicit knowledge systems. The original formulation of the problem in SLA research is known as the Acquisition/Learning Hypothesis put forward by Krashen (1982), who posited that there is no interface between acquired and learnt knowledge, the former being responsible for fluent language use while the latter merely functioning as a monitor.

5. Others believe that all rules can be acquired through the process of automatization (McLaughlin, 1987), whereby initially explicit information will eventually turn into implicit knowledge, similarly to the acquisition of other skills. The problem with this strong interface position is that it is not clear whether knowledge actually becomes implicit or processing becomes fast enough for it to stay in the focus of awareness for only a fraction of time. For practical purposes, of course, the importance of this latter issue is marginal.

6. A third camp is promoting a weak interface hypothesis, which suggests that only rules that the learner’s language acquisition device is ready for might be taught explicitly (R. Ellis, 1994). Developmental sequences in SLA and Universal Grammar theory which underlie this position are much debated and recurring themes in applied linguistics.

7. A fourth approach that might be termed the partial interface position is one that differentiates between rules based on their complexity rather than their position in an acquisition order. Some rules might simply be better candidates for explicit teaching than others. Consider the forming of the plural of nouns in English and in German. While in the former case the rules are fairly straightforward, when learning German one is better off memorizing the plural forms one by one in spite of the fact that most language books will readily provide learners with a set of rules. While the partial interface hypothesis might be an interesting idea to pursue, it is not clear at present what criteria might be used to determine which rules are most amenable to explicit teaching and which regularities are better left for the learners’ unconscious to distil.

REFERENCES
(together for all the articles in this issue)


