Re-engaging the interface debate: strong, weak, none, or all?

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In the history of SLA research, the relationship between explicit and implicit knowledge has incited heated debate, culminating in, broadly, three disparate positions: (a) the non-interface; (b) the weak-interface; and (c) the strong-interface. In this paper, we re-engage the theoretical debate. Unlike the previous discussions, however, which typically find researchers espousing one position against another – usually the non-interface position, we claim that in the interlanguage of any L2 learners, there is likely both explicit and implicit knowledge, but, more important, three types of relationships co-existing between them: a strong interface, a weak interface, and no interface. We argue that further advances in SLA research would benefit from a concerted effort to identify which aspects of grammar are susceptible to a strong, weak, or no interface relation.

Keywords: explicit knowledge, implicit knowledge, interface, interlanguage, second language acquisition

Introduction

Ever since Krashen (1977; 1981; 1982) explicitly hypothesized that adult second language (L2) learners have two independent paths for developing ability in an L2, namely, subconscious acquisition and conscious learning, a spirited debate has ensued among researchers over whether or not L2 learners...
develop one or two knowledge systems, explicit and/or implicit, and what role consciousness partakes in that process. Following Paradis (2009), explicit knowledge is synonymous with metalinguistic knowledge, neurolinguistically subserved by declarative memory, which contrasts with implicit knowledge, neurolinguistically subserved by procedural memory. The two types of knowledge also differ putatively in (a) that explicit knowledge is open to introspection, but implicit knowledge is not, and (b) that use of explicit knowledge is deliberate and intentional, but use of implicit knowledge is effortless and non-intentional (Hulstijn 2005).

To date, SLA researchers have remained divided in their views on the relationship between explicit and implicit knowledge, with three vying positions persisting: the non-interface, the strong-interface, and the weak-interface. By ‘interface,’ it is often meant that there is a connection or overlap between the two types of knowledge.

Contemporary thinking appears to favor an interface position, particularly a weak-interface position, as is evident in the plethora of studies on the effects of form-focused instruction that have appeared in the SLA literature of the last fifteen years or so. During this period of time, theories and hypotheses that accentuate the role of consciousness have apparently gained momentum. Form-focused instruction has reportedly been effective in helping learners learn linguistic elements. Underlying the weak-interface position (and the strong-interface position, for that matter) there is a tacit assumption that everything is teachable and also learnable (cf. Pienemann 1989).

The seemingly mounting support for the weak-interface position notwithstanding, several issues have continued to lurk in the background of SLA research, among them fossilization (Selinker 1972), inter-learner differential acquisition (Bley-Vroman 1989), and intra-learner differential acquisition (Han 2004). These issues, we argue, are germane to discussion about explicit and implicit knowledge.

The purpose of this paper is to re-engage the interface debate. Assuming that explicit knowledge and implicit knowledge both are present in SLA yet without taking a categorical stance on the source of implicit knowledge, we proffer the argument that for instructed L2 learners, there is not just a singular relationship between explicit and implicit knowledge, but several co-existing relationships – a strong interface (for some linguistic elements), a weak interface (for some others), and no interface (for others) – and that each of these can be multi-faceted.

Before proceeding, a caveat is in order: this paper is not empirical, although empirical examples will be cited in places for expository purposes. In the following, we will first briefly review the three interface positions as played out in SLA research (see N. Ellis 2008a, for an accessible summary of related research in psychology and cognitive neurosciences). We will then zero in on the non-interface position, invoking empirical evidence from our previous research on fossilization to reveal the complex interplay between...
explicit and implicit knowledge. We will conclude by stressing the need for a more nuanced approach than has generally been attempted to understanding explicit and implicit knowledge in SLA.

**The interface debate**

**Strong interface, weak interface, no interface**

The strong-interface position is best exemplified in skill acquisition theory as applied to SLA (introduced and discussed most by DeKeyser). This theory (see, e.g. DeKeyser 2007), taking its origin from cognitive psychology (see, e.g. Anderson 1982), suggests that language learning, akin to cognitive skills development at large, consists of, and proceeds through, a series of stages: a declarative stage, where learners first accumulate a factual understanding (developing ‘knowledge that’); then, a procedural stage, where learners act on the declarative knowledge (developing ‘knowledge how’); and finally, a stage of automatization, where the procedural knowledge becomes fluent, spontaneous, and effortless.

The basic tenets of skill acquisition theory and, in turn, of the strong-interface position are that (adult) SLA is largely, if not exclusively, a conscious process, and hence that declarative knowledge should be the point of departure for learning (DeKeyser 1998). An instantiation *par excellence* of the strong-interface position is the Noticing Hypothesis (Schmidt 1990; 1995; 2001). Schmidt (1990: 142) famously claims that ‘you can’t learn a foreign language (or anything else, for that matter) through subliminal perception,’ implying that conscious attention is the only viable pathway to learning, everything else ensuing as its spinoffs.

Unlike the strong-interface position, which sees consciousness and learning as all but isomorphic, the weak-interface position has several incarnations, each differing in the weight it assigns to consciousness. Two variants of the weak-interface position are notable for their popularity and currency. First in line is R. Ellis’s (1994; 2005; 2006) view: Recognizing two types of knowledge, the explicit and the implicit, as possible outcomes of instructed SLA, R. Ellis argues essentially that explicit knowledge can turn into implicit knowledge, contingent on the nature of grammatical elements – whether they are developmentally constrained or not. Explicit knowledge of developmental elements can become implicit only when learners are developmentally ready, while explicit knowledge of non-developmental or so-called variational elements can turn into implicit knowledge at any time (see, however, R. Ellis 2008a, for a weaker position on the relation between explicit and implicit knowledge). R. Ellis’s view, although differing somewhat from that of DeKeyser or Schmidt, is more closely tied to the skill acquisition theory than to any other, and it underscores the contribution of consciousness.
Ascribing a much lesser role to consciousness, N. Ellis (2005; 2006; 2007), on the other hand, maintains that learning is largely implicit, an associative and rational process whereby learners intuitively identify and organize constructions or form-function mappings based on their probabilistic encounters with relevant exemplars in the communicative environment. However, this process is not perfect and can be somewhat ‘irrational,’ in that a priori tuned usage system (i.e. L1 or ‘learned attention’) may interfere with the learner’s processing of L2 input. However, such imperfection can be ameliorated through explicit instruction ‘involving the learner in a conscious tension between the conflicting forces of their current interlanguage (IL) productions and the evidence of feedback, either linguistic, pragmatic, or metalinguistic, that allows socially scaffolded development’ (N. Ellis 2007: 84). In addition to its feedback function, explicit learning (and knowledge, for that matter) in a process dominated by implicit learning supposedly aids ‘noticing for intake’ (see, e.g. Leow 2001), that is, ‘the initial registration of pattern recognizers for constructions that are then tuned and integrated into the system by implicit learning during subsequent input processing’ (N. Ellis 2007: 84). This view on the explicit and implicit is dubbed the ‘associative-cognitive creed,’ now a theory in SLA (VanPatten and Williams 2007), genetically linked to the more general usage-based views on language and language development (see, e.g. Goldberg 2006; Bybee 2008; Langacker 2009).

In sum, the two weak-interface positions are qualitatively different: One position considers the learning process largely explicit and the other largely implicit, and accordingly, in one position, explicit knowledge is necessary, but ancillary, in the other. Nonetheless, the two views are in unison on one understanding, namely that explicit knowledge may help where implicit knowledge fails (see, e.g. N. Ellis and Robinson 2008), and, in essence, that everything is learnable.

In stark contrast, the non-interface position holds that not everything is learnable, hence bestowing upon explicit instruction a much lesser capacity (see, e.g. Krashen 1981; Schwartz 1993; Truscott 1996; Paradis 2009). Differentiating between consciously learned knowledge (explicit knowledge) and subconsciously acquired knowledge (implicit knowledge), Krashen (1982: 20) notes several limitations of learning: first, conscious learning cannot entirely make up for incomplete acquisition; ‘some unacquired rules will be learnable and others not.’ Second, language is too complex to be explained or learned explicitly (cf. Selinker 1972). Third, what is learned explicitly is not deployable in real, spontaneous communication. Spontaneous communication, in his view, calls up implicit knowledge, which can only be acquired through experience with comprehensible input of the target language (TL). As such, learned knowledge and acquired knowledge are dissimilar, separate, and mutually irreplaceable.

The non-interface position reflects a generative view of language development a hallmark of which is that competence and performance are differentiated rather than coalesced as is true for a skill-based or usage-based
view that underlies a strong or weak interface position. Following the generative view, competence is enabled by Universal Grammar interacting with L2 natural input; instruction, by implication, may help performance only under monitored conditions, but it does not help competence or implicit knowledge which drives spontaneous performance.

Fundamentally, as should be clear by now, tensions among the interface (or lack thereof) positions are undergirded by divergent theories. Yet, it is important to note that the theories are imported from other disciplines rather than born from within the field of SLA, a point to which we will return in the last section.

Of the three interface positions, the non-interface position has proven the most controversial. The centerpiece of doubts and criticisms is its falsifiability (McLaughlin 1978; Sharwood Smith 1981; Gregg 1984). The lack of a clear definition and operationalization of constructs such as learned and acquired knowledge allegedly makes validation studies conceptually and practically difficult, if not impossible (see, however, Hulstijn 2005 for an alternative take on the relationship between rationalism and empiricism). Williams (2009) maintains that in order to unambiguously establish implicit learning and knowledge, the methodology used must exert control over (a) the learning task, (b) the input, and (c) the measurement of learning, in addition to a clear operationalization. One would reckon that these same criteria must apply also to any methodological attempts to measure explicit learning and knowledge.

In spite of the noted problems with the non-interface position, the field of SLA has seen major conceptual changes over the last fifteen years. Influenced by findings reported in the psychology and cognitive neuroscience literature (e.g. Reber 1976; Reber, Kassin, Lewis, and Cantor 1980; Mathews, Buss, Chinn, and Stanley 1989; Lebrun 2002; Paradis 2009), researchers have increasingly subscribed to the notion that two types of knowledge can develop in L2 learners. Meanwhile, empirical evidence from research on instructed SLA has begun to accrue at a stunning pace pointing to a positive contribution of explicit knowledge to spontaneous language use or implicit knowledge (see, e.g. Norris and Ortega 2000; R. Ellis 2002; Russell and Spada 2006). This, for many (e.g. N. Ellis 2008a), constitutes evidence of at least a weak interface between explicit and implicit knowledge and, thus, serves as counter-evidence to the non-interface position.

The body of research on instructed SLA is not without disturbing features, however. For instance, most of the form-focused studies tend to involve simple and categorical rules as their targets of instruction (see, e.g. Bitchener and Knoch 2009). This, in turn, provides fodder for the argument that instruction is not really necessary, since those rules are learnable anyway by learners themselves – with or without instruction. Another known issue is that the studies tend to be brief, and it is therefore likely that the claimed effects of instruction on acquisition are not reliable. Indeed, lack of retention (e.g. Harley 1989; Pienemann 1989; White 1991), of abstraction (e.g. Suzuki 2006; Revész 2007), and of integratability (McLaughlin 1990) can often be
observed for the learned knowledge (cf. Bardovi-Harlig 2006). Equally noteworthy is that when studies involved multiple linguistic domains, such as morphosyntax, phonology, and lexicon, the results tended to be asymmetric: The effects of instruction (in the form of consciousness-raising activities such as corrective feedback) appeared more pronounced for lexical and phonological than for morphosyntactic learning (see, e.g. Pica 1985; Carroll, Roberge, and Swain 1992; Alanen 1995; Gass, Svetics, and Lemelin 2003; Kim and Han 2007). Furthermore, when studies subjected multiple morphosyntactic elements to instruction, learning came out unequal: Certain elements appeared to benefit more than others from instruction (see, e.g. R. Ellis 2007; Song 2009). There are other issues as well, but these at hand suffice to suggest (a) that L2 acquisition is too complex to be reduced to a singular relation between explicit and implicit knowledge, and (b) that the non-interface position may not be completely off the mark.

Interestingly, for researchers holding a non-interface position, the literature on effects of instruction may, in actuality, serve as a defense of their view (e.g. Krashen 1982; Schwartz 1993; Truscott 1996; 1998; 2004). For example, Truscott’s (1996: 328) review of research on written corrective feedback in SLA concludes:

(a) Research evidence shows that grammar correction is ineffective; (b) this lack of effectiveness is exactly what should be expected, given the nature of the correction process and the nature of language learning; (c) grammar correction has significant harmful effects; and (d) the various arguments offered for continuing it all lack merit.

Truscott’s review raises legitimate issues in the published evidence on the positive effects of corrective feedback. The noted issues, such as absence of a control group and using measures that are not relevant to the research question or to the interpretation of the results, all seem to cast doubt on the professed support for correction, and, in turn, to undermine the strong – and weak – interface positions.

After all, the role of correction is arguably as much a methodological issue as a theoretical one (see, however, Carroll 2000). Theoretically, Truscott (1996) asserts that by virtue of its (often inconsistent) focus on discrete, surface elements, leaving the underlying system intact, correction produces pseudo-learning, and that such a type of learning is not easy to remember, let alone transferable to language use. Truscott (1996: 342) takes particular issue with ‘a standard view of correction,’ namely that:

Learners find out that they are wrong in regard to a particular grammatical structure and are given the right form (or directions for finding it); they then have correct knowledge about that structure, so they should be able to use it properly in the future, assuming only that they understand and remember the correction.
This view has engendered as much of the research based on the interface position as has guided teachers’ corrective practice for decades. Influential as it is, it nevertheless appears at variance both with the analytical finding – as reported by Truscott (1996) – and with (at least some) veteran teachers’ observations that even otherwise successful learners do not seem receptive to repeated correction (see, e.g. Han 2001).

Thus, from a non-interface perspective, explicit learning (and for that matter, explicit knowledge) is ineffectual in driving the development of L2 competence (implicit knowledge) – due largely to its nature of being discrete and decontextualized and using as its primary propositional content metalinguistic information that cannot be processed by the language acquisition device (LAD). Negative data in particular induce explicit knowledge ‘that cannot be transduced into the appropriate type of input that functions in grammar-building’ (Schwartz 1993: 158).

However, despite all its penetrating insights, the non-interface position cannot stand alone. As a theoretical lens, it suffers the same weakness as the interface positions: it ignores the counter evidence. Studies have shown, compellingly, that some explicit knowledge can become implicit (R. Ellis 2005; Mackey 2007; Norris and Ortega 2000; see, however, R. Ellis 2008a). In the currently prevailing conception of the role of instruction (and for that matter, corrective feedback), it is not that instruction is either helpful or not, but that it is helpful ‘to some extent, for some forms, for some students, at some point in the learning process’ (DeKeyser 1998: 42). Such understanding is obviously still underspecified, and yet it goes a long way toward retracting from a strong-interface position.

In view of the conflicting arguments across the interface and non-interface positions, it appears likely that each position has some validity to it. But the onus of the proof should be on each – not any – of the three interface positions to specify for which areas of grammar there can be a strong, a weak, or no interface between explicit and implicit knowledge. To that end, in the remainder of this paper we focus on the non-interface position – a position that has been least discussed in the literature to date – invoking examples from our prior research on fossilization to shed light on the intricate relations between explicit and implicit knowledge.

**Fossilization and lack of interface**

**Fossilization**

Fossilization, a theoretical construct proposed by Selinker (1972), refers to a learning phenomenon whereby the L2 learner persists in certain performance errors – despite favorable learning conditions, such as abundant exposure to input, adequate motivation to learn, and plentiful opportunity for communicative practice (Han 2004). That learning can become permanently...
truncated differentiates fossilization from stabilization, a hiatus in learning (Han 2004; see, however, Long 2003).

Since its inception, fossilization has drawn considerable attention from both researchers and practitioners (for reviews, see Long 2003; Han 2004). Early perceptions of fossilization tended to view it as a global phenomenon. That is, once it occurs, fossilization putatively affects the entire interlanguage system (see, e.g. Bley-Vroman 1989; Tarone 1994). Theoretical and empirical research in subsequent years has, however, resulted in a more nuanced view: Fossilization is local rather than global – affecting only subsystems of interlanguage – and selective – differentially affecting individual learners and their interlanguage subsystems (Han 2004; Han and Odlin 2006; MacWhinney 2006; Lardiere 2007). An example of local and selective fossilization can be found in Lardiere (2007). Patty, the case subject of Lardiere’s longitudinal study, produced the following utterances:

a. China also send a lot of boat to the refugee who want to go back to China
b. So there is seven #seven opera you can only listen to
c. There are book club in Hawaii you may like to join

These utterances simultaneously show fossilization in grammatical morphemes but acquisition in relative clauses.

Lack of interface

Many of the documented instances of fossilization do seem to involve a disconnect between explicit and implicit knowledge. Krashen and Pon (1975: 126), for example, report, from their analysis of a three-month database of errors produced by P, an adult, advanced Chinese-speaking learner of English, that she was able, when given the time and opportunity, to correct 95% of her production errors and ‘describe the grammatical principle involved and violated.’ The authors note:

In writing, and in careful speech, she is apparently able to utilize her conscious linguistic knowledge of English, while in casual speech she may be too rushed or preoccupied with the message to adjust her output.
(Krashen and Pon 1975: 126)

Krashen (1982: 86) further comments:

P was an excellent Monitor user . . . an adult with a BA in Linguistics with honors, whose written English appeared nearly native-like. In casual conversation, however, P made occasional ‘careless’ errors on ‘easy’ rules that she had known consciously for twenty years. Thus, even well-learned, well-practiced rules may not turn into acquisition.
Similar findings have also surfaced from a number of longitudinal studies (see, e.g. Han 2000; Lardiere 2007), where the lack of interface is differentially evident in learners’ performance under different monitoring conditions, for example, doing explicit metalinguistic exercises versus carrying out real communicative tasks.\(^4\)

Han (2000; 2006; 2010) provides a series of reports on an on-going longitudinal study of fossilization (1995-present), where she examined a number of constructions in the English written production of two adult, male speakers of Chinese, pseudo-named G and F, both of whom had extended experience in instructed learning followed by extended experience of immersion in a TL environment and both of whom were instrumentally and integratively motivated to improve their English. In the two sections that follow, we will describe from that database a selection of constructions – loosely characterized as (a) under-passivization (Han 2000), (b) over-passivization (Han 2006), and (c) underuse and overuse of articles and plurals (Han 2010),\(^5\) to first illustrate an overall lack of interface between explicit and implicit knowledge and then expound a multitude of relations between explicit and implicit knowledge.

For our purposes, we follow R. Ellis (2008b) in defining explicit knowledge and implicit knowledge. Thus, explicit knowledge refers to knowledge of prescriptive grammatical rules,\(^6\) accessible only through controlled processing and typically accessed when the learner has planning time. Implicit knowledge refers to procedural knowledge of rules, accessible through automatic processing and typically accessed when the learner is performing naturalistically or fluently. Operationally, we assume that explicit knowledge is what guides learners’ performance on metalinguistic tasks or untimed production tasks, and implicit knowledge what guides learners’ spontaneous production or performance on timed production tasks.

Sample constructions

Example 1 below illustrates under-passivization, known also as the ‘pseudo-passive’ (see, e.g. Schachter and Rutherford 1979).

(1) a. Your letter of 17/4/96 has just received.
   b. The long paper is still there, have not finished yet, especially waiting for your revision.

This construction appeared more frequently in G’s and F’s casual writing (i.e. email writing to friends) than their formal writing (i.e. writing academic papers). Moreover, on an untimed L1-L2 translation task, G and F were able to produce well-formed passives. Additionally, their casual writing – presumably a function of implicit knowledge given that it was spontaneous – also displayed overuse of the passive, that is, using the passive where
contextually inappropriate. Taken together, these behaviors suggest that G and F had the explicit knowledge but were unable to utilize it in naturalistic and spontaneous performance (i.e. informal email writing).

Interestingly, this phenomenon of under-passivization existed alongside over-passivization. While occasionally under-passivizing transitives, producing ‘novel unaccusatives’ (Balcom 1997; Han 2002), G seemingly over-passivized unaccusatives, as shown in Example 2.

\[
\begin{align*}
(2) & \quad \text{a. Gas is arrived.} \\
& \quad \text{b. Relay event against Listserv is now disappeared.}
\end{align*}
\]

Moreover, for each of the passivized unaccusatives, a target like unaccusative was also found in the same interlanguage, as illustrated by Example 3.

\[
\begin{align*}
(3) & \quad \text{a. Our phone bill arrived this morning.} \\
& \quad \text{b. We expect that this will gradually disappear.}
\end{align*}
\]

Such variable use of target-like and non-targetlike unaccusatives in an asymptotic end state of interlanguage implicates a permanent lack of interface between explicit and implicit knowledge, in light of a diagnostic criterion suggested by Paradis (2009), namely, that use of explicit knowledge is variable, whereas use of implicit knowledge is stable.

Further evidence of overgeneralization of the passive construction can be found in verbs of causative alternation. Both G and F appeared to conflate the transitive and intransitive/unaccusative variants for this class of verbs, to the extent that the intransitive variants were consistently passivized, as shown in Example 4 taken from F.

\[
\begin{align*}
(4) & \quad \text{a. My thinking way has been changed since joining Fanta.} \\
& \quad \text{b. My English was not improved.}
\end{align*}
\]

Cross-comparisons of concurrent and longitudinal naturalistic, written production data and clinical data elicited via untimed grammaticality judgment and correction tasks from G and F indicated that G and F ‘had not fully acquired the underlying semantic and syntactic constraints’ of unaccusatives (Han 2006: 73).

Turning to a different subsystem, Han (2010) examined the use of articles and plurals in G, invoking again naturalistic data and clinical data elicited via four timed translation tasks, an untimed noun-identification task, and an untimed error correction task. Quantitative analyses of the naturalistic data established the long-term persistence of three patterns. First, with regard to plurals, quantified nouns were more accurately marked than non-quantified nouns (94% vs. 78%). Second, with regard to articles, the indefinite article was used more accurately than the definite article (84% vs. 67%). Third, between plurals and articles, G was, overall, more accurate in using the former (86%)

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than the latter (75%). More relevant, however, is the finding of a disconnect between G’s naturalistic production and his performance on the noun identification task: On this task G demonstrated a rather high accuracy rate in determining whether a given noun was countable or non-countable (75% for count nouns and 86% for non-count nouns), but a qualitative analysis of the aggregate data reveals that what was accurately determined on the metalinguistic task was inaccurately used in naturalistic production (i.e. email writing to friends and colleagues), as illustrated in Example 5.

(5) a. . . . NetApp in case some issue come out.
   b. His uncle gets three kinds of cancers.

Another venue of evidence – somewhat unorthodox – for the lack of interface comes from G’s performance on an error correction task. On this task, G was given short texts – adapted from the email messages he received from a native-speaking co-worker – where articles and plurals had been taken out along with a few other forms serving as fillers. G was instructed to detect and supply missing items therein. Ten minutes was given for the task, but G asserted completion in less than five minutes, claiming that he could not find much wrong. As it turned out, his accuracy rate on this task was minimal (5%). Here, a lack of interface between explicit and implicit knowledge can be argued: Although the task demanded use of explicit knowledge about articles and plurals, G failed to demonstrate it. It is conceivable that, over the 12 years of immersion, G had lost explicit or declarative memory of the grammatical rules he had learned in the classroom (cf. Oller and Richards 1973; Anderson 1980), and therefore had little on hand to apply to the task. G’s low accuracy rate also suggests that in spite of the many years of exposure to the TL involving daily interaction with native-speaking colleagues, he had benefited little from the abundant input available to him – or that ‘all the extra input in the world [had summed] to naught’ (N. Ellis 2008b: 389); his use of articles and plurals had largely stalled at being limited, biased, and selective (Han 2010). According to Carroll (2000), failure to detect errors breeds fossilization.

Interfaces between explicit and implicit knowledge

The examples provided above represent three scenarios for fossilization: (a) where the interlanguage construction backslides (Selinker 1972), as in the case of the pseudo-passive (Example 1); (b) where the interlanguage construction remains intact, as in the case of the passivized unaccusative variant of verbs of causative alternation (Example 4), and (c) where the interlanguage construction oscillates, as in the case of the passivized unaccusative within a fixed range between a target-like and a non-targetlike variant (Example 2 and). Table 1 schematizes these scenarios.
The three scenarios each suggest a differing relationship between explicit and implicit knowledge. Scenario (a) exhibits a lack of interface, as arguably does (c), but (b) suggests a strong, albeit infelicitous, interface. That is, when the explicit knowledge is not targetlike, there is a corresponding absence of targetlike implicit knowledge (cf. McCarthy 2008).9 Furthermore, in each of these scenarios, the status of explicit knowledge is different: in (a) the explicit knowledge is targetlike; in contrast, it is non-targetlike in (b), but partially targetlike in (c). This state of affairs speaks to a possible co-existence of the presence and absence of explicit-implicit interface within any given interlanguage, in general, and to a differential relationship between explicit and implicit knowledge in fossilization, a putative lack of interface phenomenon, in particular.

Table 1. Three scenarios of fossilization

<table>
<thead>
<tr>
<th>Type</th>
<th>Tokens</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Time 1</td>
</tr>
<tr>
<td>(a) backsliding</td>
<td>X</td>
</tr>
<tr>
<td>(b) no variation</td>
<td>X</td>
</tr>
<tr>
<td>(c) inter-and intra-contextual variation</td>
<td>XY</td>
</tr>
</tbody>
</table>

Notes: X stands for a non-targetlike feature and Y for its target-like analog.

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Concluding remarks

The debate on the relationship between explicit and implicit knowledge, for its long history, has not culminated in a consensus, though empirical research in instructed SLA over the last 15 years has fueled the general conception favoring an interface over a non-interface position. This conceptual trend, however, does not seem to be based on robust empirical research, nor does it, even when taken at face value provide a solution to SLA seminal issues such as fossilization (Selinker 1972), inter-learner differential success (Bley-Vroman 1989), and intra-learner differential success (Han 2004). The jury is, therefore, still out on the validity of any categorical stance, whether it is a strong-, weak-, or non-interface position.

It is against this background that we delved into fossilization, a putative case of no interface (Krashen 1982; Krashen and Pon 1975). Re-examining a number of fossilized constructions as reported in Han (2000; 2006; 2011), we argued the existence of different interfaces between explicit and implicit knowledge, which evades a clear-cut characterization as a strong-interface, a weak-interface, or no interface, and concluded that all three were implicated.
in the same interlanguage. We claimed, by extension, that such co-existence of different relations should apply within and across different subsystems of any given interlanguage, and within and across L2 learners (cf. Larsen-Freeman 2006).

As our analysis has attested, the lack of interface phenomenon is not monolithic, but rather a set of complex interfaces between explicit and implicit knowledge. Although the hallmark of lack of interface is imbalance between explicit and implicit knowledge, it is not necessarily the case that it is always implicit knowledge that is wanting. Rather, the explicit and implicit knowledge can play out differently *vis-à-vis* different interlanguage subsystems: On the one hand, explicit knowledge may fail to become implicit, the prototypical scenario of no interface *à la* Krashen. On the other hand, there can be a strong albeit infelicitous interface between explicit and implicit knowledge. Additionally, explicit knowledge may erode (cf. Oller and Richards 1973), and implicit knowledge may seemingly surpass explicit knowledge.

Grammatical elements that are susceptible to permanent lack of interface appear to come in two types (Han 2009; 2011; 2012). The first type involves what Krashen (1982) has referred to as easy, learnable, but difficult to internalize elements, such as inflectional morphemes and articles. But fossilization research additionally has established that there might be grammatical elements that cannot be adequately learned in the first place (cf. Schwartz and Sprouse 1996). This type includes so-called ‘soft structures’ (Sorace 2005; Sorace and Keller 2005) that lie at the interface between syntax and semantics, syntax and pragmatics, and syntax and discourse (see, e.g. Montrul 2004; Serratrice, Sorace, and Paoli 2004; Hopp 2005; Sorace and Filiaci 2005; Montrul and Bowles 2009; Ivanov 2012; Slabakova, Kempchinsky, and Rothman 2012). The unaccusative variant of verbs of causative alternation mentioned earlier is a case in point (see Example 4). First, the ‘rules’ surrounding the unaccusative variants are far too complex to explain, which, according to Pinker (1989), include both broad-range and narrow-range rules (i.e. constraints on broad range rules) (for a discussion, see Balcom 1997). Although the broad-range rules, which pertain largely to formal properties, can be instructed, the narrow-range rules, which govern how to apply the structure, are not quite explicable. Second, the distribution of transitive and unaccusative variants is entirely pragmatically determined (Han 2006), the acquisition of which would depend on input experience, and in the case of adult learners, on aptitude, too (DeKeyser 2000; Long 2003; Abrahamsson and Hyltenstam 2008).

The debate on the relationship between explicit and implicit knowledge is fundamentally one between divergent theories in SLA. Hence, inasmuch as the theories are mutually exclusive, the disparate positions will remain irreconcilable. However, the field of second language acquisition can be hampered rather than facilitated by this state of affairs.

To date, researchers subscribing to these theories have almost exclusively operated within their own theoretical confines; little crossover has occurred.
In consequence, the field has failed to reach a consensus over some of the fundamental constructs, including acquisition. Han (2012) notes two problems as plaguing contemporary SLA research, which she terms ‘under-transfer’ and ‘over-transfer.’ Under-transfer denotes a phenomenon whereby researchers ‘reinvent the wheels due to sheer ignorance of what has been accomplished in other sectors, or even worse, turn a blind eye to findings from other sectors’ (Han 2012: 1912). Over-transfer speaks to the fact that the field of SLA is dominated by theories imported from other disciplines; increasingly, researchers borrow, wholesale, theories from other fields in framing their perspective and research. Han (2012: 1912–13) writes:

While not denying the value of ‘borrowing,’ a difference in the manner of borrowing can matter greatly to the understanding of issues germane to SLA: It is one thing to let second language acquisition research be informed by other disciplines, but quite another to let it be guided by them.

Due to their epistemological and ontological differences, field-external theories, including but not limited to those mentioned in this paper, are not likely to interface with one another. As such, they suffer two major limitations: first, they are inadequate as a descriptive and explanatory framework, and related to this, second, their contribution to SLA research will necessarily be fragmentary. While the field of SLA has a palpable need to develop its own theories, which have been few and far between, a step to that end would be for current researchers to come together and co-examine a core set of SLA issues. While such attempts are emerging on the horizon (see, e.g. VanPatten and Williams 2007), we would like to promote paradigmatic crossover by encouraging researchers to reengage the explicit-implicit knowledge debate, and more specifically, to co-investigate the following question: which aspects of grammar are susceptible to a strong interface, a weak interface, or no interface across and within second language learners?

A sound understanding of these questions may not only help substantiate SLA research; it will also benefit second language education. The efficacy of second language instruction lies not in implementing what teachers or textbook writers think what and how students should learn but in proceeding with a scientific understanding of the potential and limits of instruction and instructed learning.

Notes

1. While recognizing that explicit/implicit learning are not isomorphic with explicit/implicit knowledge (cf. Williams 2009), in this paper we focus on knowledge and not the process of learning.

2. This view draws on Pienemann’s suggestion on differentiating between developmental and variational elements (see, e.g. Pienemann 1989; see, however, Krashen 1993). The latter are not subject to processing constraints.

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3. Selinker (1972) cautions about describing interlanguage in linguistic terms, famously noting that learners’ psychological units may not be linguistic ones.

4. In providing an overview of implicit learning in second language acquisition, Williams (2009: 320) observes that ‘what appears to define “implicit learning research”’ is a type of methodology rather than a theoretical orientation.

5. Considering space constraints as well as the nature of this paper, we will not recount the methodological procedures of the studies. Interested readers should consult the primary sources given here.

6. A reviewer rightly points out that this view of explicit knowledge is rather limited, as there can be explicit knowledge without prescriptive rules (see, e.g. Schmidt 1990, on noticing).

7. This is predicated on an established criterion for determining the endstate of L2 development of five years of residence (LOR) in a TL immersion environment (see, e.g. Johnson and Newport 1989). The LOR for both G and F well exceeded the putative benchmark value.

8. Manipulating the timed vs. untimed variable is a standard way of gauging activation of explicit vs. implicit knowledge (see, e.g. R. Ellis 2005) in SLA research.

9. This does not suggest a causal relationship between the two but rather a correlation.

References


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[Received 15 May 2013]