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Chapter 8

Cognitive approaches in L2 pragmatics research

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Abstract

This chapter reviews L2 pragmatics research informed by cognitive SLA theories. Following

R. Ellis's (2008) classification, the chapter first introduces two theories — the

two-dimensional model, and the skill acquisition theory or ACT-R, which focus on the mental

representation of L2 knowledge and then reviews empirical evidence in L2 pragmatics under

these theories. The chapter then shifts to the Noticing Hypothesis that concerns cognitive

processes that can lead to changes in mental representation of L2 knowledge. Suggestions for

future research under each of the three cognitive SLA theorizations are provided. This chapter

ends with a call for more studies that examine the mental representation of L2 pragmatic

knowledge and how that mental representation develops under the influence of various

cognitive processes.

Key words: Cognitive approaches, the Noticing Hypothesis, skill acquisition, the

two-dimensional model

Introduction

This chapter reviews L2 pragmatics research taking a 'cognitivist' perspective.

According to R. Ellis (2008), cognitive approaches to L2 acquisition focus on learners'

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internal mechanisms that account for the representation and acquisition of L2 knowledge (p. 405). This understanding of the 'cognitivist' stance in SLA suggests two areas of research. The first area is investigating the nature of L2 knowledge, that is, how L2 knowledge is mentally represented in terms of structure and organization (e.g., declarative vs. procedural, explicit vs. implicit). The second area is examining the cognitive processes (e.g., attention, restructuring, and monitoring) involved in knowledge acquisition (i.e., development of mental representation of knowledge). According to R. Ellis (2008), theorizations of cognitive SLA primarily address issues related to knowledge representation (e.g., Bialystok's two-dimensional model and skill acquisition theories) or issues regarding cognitive processes (e.g., Schmidt's Noticing Hypothesis). This chapter adopts R. Elli's classification of cognitive theorizations and reviews empirical L2 pragmatics research accordingly.

A cognitive orientation has been prevalent in L2 pragmatics research almost since the field's inception. For example, Faerch and Kasper (1984) conceptualized pragmatic competence consisting of declarative and procedural components, which is consistent with the skill acquisition theories. In the 1990s, the cognitive orientation was reinforced by Kasper and Blum-Kulka's (1993) edited volume, which only featured cognitive theories. Although the field has witnessed pluralization of theoretical orientations later on, the 'cognitivist' stance continues to hold a strong presence among alternative theoretical approaches (e.g., language socialization, sociocultural theory; see Chapters 9 and 10 in this volume) (Kasper & Rose, 2002; Taguchi & Roever, 2017).

Despite their presence in L2 pragmatics research from early on, cognitive theories were not widely adopted in empirical studies in the 1980s because the field was heavily

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influenced by the research paradigm of cross-cultural pragmatics. Till the end of the 1990s, cognitive theories were mainly used to provide *post hoc* explanations in empirical studies. It was not until after the early 2000s that researchers increasingly started to use cognitive theories to guide empirical research, assessing the applicability of those theories to L2 pragmatics research.

Adopting R. Ellis's (2008) classification of cognitive theorizations, this chapter first reviews studies informed by theories addressing L2 knowledge representation (i.e., the two-dimensional model, and the skill acquisition theory or ACT-R). The chapter then reviews studies conducted under theorizations of cognitive processes involved in L2 acquisition (i.e., the Noticing Hypothesis).

Representation of L2 Pragmatic Knowledge

The term *pragmatic knowledge* is interpreted differently in the field according to one's theoretical background. First, a functional understanding of pragmatic knowledge concerns the description of various functions of linguistic forms in specific contexts of communication (i.e., form-function-context mappings). This understanding of pragmatic knowledge draws on pragmatics theories (e.g., pragmalinguistic and sociopragmatic knowledge) (Leech, 1983; Thomas, 1983), as well as certain models of communicative language competence (e.g., Bachman & Palmer, 2010) (see also Chapter 1 in this volume). On the other hand, a psycholinguistic understanding of pragmatic knowledge focuses on the mental structure and organization of the kind of knowledge that enables skillful and appropriate performance in communication (e.g., explicit vs. implicit pragmatic knowledge as theorized by Bialystok (1993)). Such understanding of pragmatic knowledge is based on

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psycholinguistic or cognitive theories (e.g., Bialystok, 1994, 2011; DeKeyser, 2017).

There are overlaps between the two understandings of pragmatic knowledge. For example, from a skill acquisition perspective, knowledge of form-function-context mappings may serve as the declarative knowledge basis for developing procedural knowledge that enables appropriate and fluent pragmatic performance. It is also possible that the linguistic categories of pragmatics (e.g., speech acts) reflect the structure of mental representation at a particular stage of pragmatic development, as hypothesized by Bialystok (1993).

The following sections focus on two cognitive theories: the two-dimensional model and the skill acquisition theory or ACT-R. I will discuss each theory for theoretical underpinnings, empirical evidence, and future research directions.

The Two-Dimensional Model

Theoretical underpinnings

The two-dimensional model (Bialystok, 1994, 2011) posits that language development involves two cognitive processes: *analysis of knowledge* and *control of processing*. The knowledge component concerns the degree to which learners analyze their implicit linguistic knowledge so it becomes explicit (Bialystok, 2011, p. 50). There are three levels of knowledge representation ranging from implicit to the most explicit: (1) conceptual (i.e., linguistic knowledge is organized around semantic meanings and/or context of use, such as children's initial access to language), (2) formal (i.e., linguistic knowledge is organized around linguistic structures, such as one's metalinguistic awareness of grammatical rules), and (3) symbolic (i.e., linguistic knowledge is organized based on the symbolic relationships between linguistic forms and their real-world referents, such as knowing that the word *table*

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stands for a specific kind of object). The processing component, on the other hand, concerns cognitive procedures involved in accurate selection and coordination of linguistic knowledge, as well as cognitive procedures for efficient access to the knowledge to support performance.

Empirical evidence

The two-dimensional model has several implications for L2 pragmatic development. Regarding the knowledge component, Bialystok (1993) has argued that the mental representation of pragmatic knowledge falls into conceptual, formal, and symbolic levels. She contends that pragmatic performance minimally requires formal representation, where linguistic forms are organized around pragmatic functions (pragmalinguistic knowledge) (e.g., using modals for requesting), but ideally it should rely on symbolic representation, which allows understanding of pragmatic functions of linguistic forms in context (sociopragmatic knowledge) (e.g., understanding that the English bi-clausal structures are appropriate for making requests in high-imposition contexts due to the tone-mitigating function). [1] Development in L2 pragmatic knowledge entails learning new pragmalinguistic forms and sociopragmatic rules, and gradually sorting out the form-function-context mappings.

A challenge for L2 learners is developing processing capacity for accurate selection of and efficient access to relevant pragmatic knowledge during communication. According to Bialystok (1993), the selection issue concerns whether one is able to identify a specific form, among alternatives, that is appropriate to express the intended pragmatic function in context (e.g., consider the example of using the English bi-clausal structure in request-making), and whether one is able to choose an appropriate interpretation of an utterance in context among competing interpretations (e.g., in Chinese, 'Where are you going?' and 'Have you eaten?',

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can serve as greeting expressions in certain contexts and should be interpreted as such). On the other hand, the access issue also concerns efficient retrieval and display of relevant pragmatic knowledge to support fluent performance.

The two-dimensional model provides a useful framework for investigating L2 pragmatic development in terms of knowledge and processing aspects. Although research explicitly referring to this model remains limited, empirical evidence supports the developmental pathways outlined in the model. Regarding the knowledge component, Hassall's (2015) case study on the learning of Indonesian address terms illustrates the development from formal to symbolic representation. The learner, Ross, was a true beginner of Indonesian. Because he already had the concept of address terms from his L1 (English), developing formal representation of address terms in L2 was a straightforward process: he progressively added new address terms into his pragmalinguistic repertoire over time during his sojourn in Indonesia. However, developing symbolic representation that relates specific address terms to different addressees was more effortful. For example, Ross felt uncomfortable calling interlocutors requiring respect as *Bapak* (father) or *Ibu* (mother) because that was in clash with his L1 norm. Moreover, although he discovered that the second person pronoun *anda* (you) was used infrequently and was used only in certain contexts, this awareness developed very slowly. After the sojourn, Ross was able to produce appropriate terms in all scenarios on a discourse completion test (DCT) except for one that dealt with peer interlocutors, suggesting that Ross was fine-tuning his symbolic representation of the Indonesian address term system during study abroad.

To date, only a few studies have examined the processing aspect of L2 pragmatic

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development in conjunction with the knowledge aspect. Using on-line listening tasks, Taguchi's (2007, 2008a, 2008b) longitudinal studies investigated the development of pragmatic comprehension in L2 English. She found that, while comprehension accuracy and speed both developed naturally over time, gains in accuracy and speed did not correlate (Taguchi, 2007); moreover, accuracy and speed demonstrated different developmental trajectories in a study abroad context compared with a domestic instructional context (Taguchi, 2008a); finally, gains in accuracy and speed were affected by different cognitive and social factors (Taguchi, 2008b). In the area of L2 pragmatic production, S. Li (2014) used an oral DCT to investigate the development of request-making in Chinese during study abroad. He found that, regardless of proficiency level, L2 Chinese learners gained in the quality of requests (as rated on the clarity of intention, grammaticality, and appropriateness), but they did not gain in planning time for production; on the other hand, the advanced-level learners improved on production speech rate whereas the intermediate-level learners did not.

In these studies, measures of accuracy/appropriateness of performance were indicators of pragmatic knowledge, and measures of speed/fluency of performance were indicators of processing capacity. Hence, findings of these studies support the two-dimensional model, showing that knowledge and processing are distinct aspects in pragmatic development with different developmental patterns. However, these studies have a methodological limitation because the underlying constructs and their indicators do not align perfectly. Whereas the temporal measures (e.g., processing speed, speech rate) reflect the efficiency of access to knowledge within the processing component, it is less clear which construct(s), knowledge or processing, that the accuracy/appropriate measures correspond to.

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Because the instruments used in these studies tap on-line performance, an incorrect judgment (as in Taguchi's studies) or production of an inappropriate request (as in S. Li's study) may indicate either a lack of the targeted pragmatic knowledge, or a lack of the processing ability for accurately selecting the relevant pragmatic knowledge, or a combination of both. Hence, no empirical study to date has fully adapted the two-dimensional model to examine L2 pragmatic development.

Future directions

As Taguchi and Roever (2017) observed, over two decades after being featured as a main cognitive model for investigating L2 pragmatic development (Kasper & Blum-Kulka, 1993), empirical studies adopting the two-dimensional model as the *a priori* theoretical framework remains limited. There are two possible reasons for this. First, with its focus on development, the model requires a study with a longitudinal design, but longitudinal studies have been generally underrepresented in the field (Taguchi, 2010). Another reason is the field's predominant focus on the appropriateness/accuracy aspect of pragmatic performance, and to a far less extent on the fluency aspect.

There are two possible future research directions under the two-dimensional model. First, there is a need to conduct refined analyses on the changes in the representation of pragmatic knowledge from the formal to the symbolic level. Adult L2 learners are considered to start with formal representation and then reach symbolic representation (Bialystok, 1993), but very few studies have documented such changes (e.g., Hassall, 2015). To explore such changes, future research can build on previous studies when selecting pragmatic features for investigation. For example, Takahashi (1996) examined transferability of two types of

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equivalent request-making strategies in Japanese and English: (1) functional equivalents (i.e., Japanese and English request strategies that match in pragmatic functions) and (2) conventional equivalents (i.e., Japanese and English request strategies that match in surface linguistic structures). Pragmatically appropriate request-making involves using the functional rather than the conventional equivalents. However, Japanese EFL learners rated the conventional equivalents to be more transferable to English than the functional equivalents, suggesting that they relied primarily on their L1 Japanese request strategies when making English requests. Because the learners were already familiar with various request-making strategies in English, they were likely at the level of formal representation of their pragmatic knowledge (i.e., form-function mappings). However, the learners were yet to reach the level of symbolic representation because they were unable to consider pragmatic functions in context when selecting specific request strategies. With these findings, future research can adopt a longitudinal design to examine how Japanese EFL learners develop symbolic representation of pragmatic knowledge for request-making (favoring functional equivalents) based on their existing formal representation (favoring conventional equivalents).

Another example for future research is Xiao's (2017) study that tracked L2 Chinese learners' production of mitigations when expressing opinions in conversations with native speakers. He examined sentence-level mitigations (i.e., lexical and syntactic downgraders) and discourse-level mitigations (i.e., pre- and post-expansions for preparing and qualifying one's opinions). He found that learners started with single pre- and post-expansions and gradually became able to use multiple pre- and post-expansions to prepare, qualify, and support their opinions. While the shift from single to multiple expansions suggests

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development at the level of formal representation (i.e., considering these as two mitigating strategies), it is unclear whether the learners made progress at the level of symbolic representation by employing multiple expansions as opposed to single expansion based on contextual considerations (e.g., expressing opinions on more vs. less sensitive topics). To test this hypothesis, researchers can replicate Xiao's study by using conversation topics that differ in contextual dimensions (e.g., more vs. less sensitive topics, different interlocutors) and examine whether learners can switch between single and multiple expansions according to contexts.

Another research possibility under Bialystok's model is improving methods of investigation when examining the development of knowledge and processing components together. As discussed earlier, a problem of studies using on-line data collection instruments (S. Li, 2014; Taguchi, 2008a, 2008b) is the difficulty in teasing apart knowledge from processing. Hence, future researchers can combine off-line and on-line instruments for assessing knowledge and processing. For example, when studying L2 request-making, one can design multiple-choice questions or written DCT (that do not impose time pressure and thus are off-line tasks) to examine whether learners are able to use appropriate request strategies according to contexts. Participants can be asked to provide concurrent verbal reports while completing the tasks, or be interviewed afterwards; in this way, researchers would be able to ascertain their exiting pragmatic knowledge in request-making. Meanwhile, researchers can include role-play tasks in which learners produce requests under time pressure (and thus an on-line task). The role plays can be analyzed for appropriateness (e.g., ratings, strategy types) and fluency (e.g., speech rates), corresponding to accurate selection

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and efficiency access within the processing component.

The Skill Acquisition Theory: ACT-R

Theoretical underpinnings

The skill acquisition theory that has been applied to L2 pragmatics research is the ACT-R (Adaptive Control of Though – Rationale) proposed by Anderson (1993) and introduced to SLA by DeKeyser (2015). The theory posits that skill development (e.g., improvement in language performance) entails changes in the mental representation of knowledge across three stages: cognitive, associative, and autonomous. The initial cognitive stage involves explicit learning of declarative knowledge (e.g., knowing about adding the suffix *–ed* when expressing the past tense in English). Performance at this stage is slow and erroneous because it often entails effortful retrieval and implementation of relevant declarative knowledge. Next, at the associative stage, learners practice the targeted action (e.g., encoding the English past tense by adding the suffix *–ed*) by utilizing the learnt declarative knowledge. Repeated practices trigger proceduralization, a process in which procedural knowledge develops. Procedural knowledge consists of 'production rules', namely 'if…then…' procedures (e.g., if one needs to describe past actions in English, then add the suffix *–ed*). Because procedural knowledge encodes various steps in executing the targeted action into one coherent chunk for processing, performance at the associative stage is much more accurate and fluent than performance during the cognitive stage. Finally, the autonomous stage involves a long fine-turning process called automatization. A large amount of practice is required in this process to develop automatized knowledge, which enables nearly error-free performance with complete spontaneity.

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There are important differences in the nature and function between declarative and procedural (and automatized) knowledge. First, declarative knowledge consists of factual information, but procedural knowledge encodes procedures involved in performing targeted actions. Second, although procedural knowledge allows accurate and speedy performance, its effects are highly skill-specific in that the procedural knowledge developed through practice in one skill can hardly transfer to support performance of another skill. For example, reading and writing entail different sets of cognitive processes and therefore draw on different procedural knowledge. The procedural knowledge developed from practice in reading can barely transfer to improve performance on writing, and vice versa. In contrast, declarative knowledge can be shared across skills (e.g., reading and writing both require knowledge of vocabulary and grammar).

Empirical evidence

The skill acquisition theory has two implications for L2 pragmatics research. Concerning the nature of pragmatic knowledge, the theory allows conceptualizing the construct in terms of declarative and procedural components. This notion was indicated over three decades ago in Faerch and Kasper's (1984) framework, which distinguishes declarative pragmatic knowledge (referring to pragmatics resources such as pragmalinguistic and sociopragmatic knowledge) from procedural pragmatic knowledge (consisting of meta-cognitive procedures such as context analysis, goal formation, planning, and monitoring). A second implication concerns the role of practice in facilitating pragmatic development, a topic that has rarely been investigated. In particular, it makes sense to examine what kind of practice and how much practice is needed for developing procedural

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pragmatic knowledge that supports accurate and fluent performance.

A small body of research has explored the aforementioned issues. S. Li (2013) examined the effects of different amount of practice on the development request-making in L2 Chinese. His study included three groups: an input-based practice group, an output-based practice group, and a control group. All groups first received metapragmatic instruction on targeted declarative pragmatic knowledge (i.e., form-function-context mappings for making Chinese requests). Afterwards, the input group practiced the targeted features receptively, while the output group engaged in production practices. Amount of practice was operationalized as the number of instances for practicing the targeted mappings in either receptive (e.g., identifying the most appropriate request-making forms for a given dialogue) or productive (e.g., filling in the blanks of a dialogue by using the targeted request-making forms) mode. There were a total of eight instances of practicing for each group. The input group was assessed with a recognition task, while the output group by a production task for three times (i.e., immediately before, half way through, and immediately after practice). Learners' performance on the two assessment tasks were analyzed for appropriateness/accuracy and fluency. Overall, more practice resulted in better performance for both groups. However, the amount of practice needed to improve performance varied: four instances of practice led to significant improvement in appropriateness/accuracy of performance, but for performance fluency, the two treatment groups did not outperform the control group even after eight instances of practicing. These findings suggest that, while declarative pragmatic knowledge can be refined to a high degree with a relatively small amount of practice (such as those used in S. Li's study), the development of procedural

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pragmatic knowledge requires a larger amount of practice.

With a similar design, S. Li and Taguchi (2014) investigated whether the effects of practice were skill-specific (recognition vs. production). The input and output groups engaged in similar practice activities as in S. Li (2013); however, the groups were assessed by both recognition and production tasks. The results showed a cross-modality effect of practice on accuracy. The input group improved on the production task, while the output group gained on the recognition task. However, the practice effects were modality-specific in terms of fluency. Over time, the input group reduced the response times in the recognition task, but did not gain in production fluency; in contrast, the output group improved on production fluency, but did not gain in recognition fluency. These results indicate that, as the skill acquisition theory predicts, the practice effects on procedural pragmatic knowledge are restricted to the same modality, but the effects on declarative pragmatic knowledge are shared across modalities.

An important issue that remains unresolved is how much practice is needed to develop procedural pragmatic knowledge. Because it is possible that the amount of practice in these studies was insufficient for developing the procedural pragmatic knowledge, future research can increase the amount of practice gradually and track its effects on proceduralization. This would entail a longitudinal research design to examine the cumulative effects of practice through multiple data collections over time.

Another problem to be resolved in future research is the insensitivity of the measures for capturing proceduralization. In the studies discussed above, raw temporal measures (e.g., response times, planning times, and speech rates) were calculated and compared over time

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and across groups. Changes in raw temporal measures may merely reflect a speed-up process rather than proceduralization, because proceduralization in the strictest sense refers to the restructuring of cognitive processes that can be captured by decreased coefficient of variation (i.e., the ratio of standard deviation over mean) (Segalowitz, 2010). Although Segalowitz's position remains controversial (DeKeyser, 2017), using alternative and refined temporal measures that can capture the development of procedural pragmatic knowledge should enrich our understanding of proceduralization in L2 pragmatics research.

Future directions

There are two main directions for future pragmatics research informed by the skill acquisition theory. The first direction concerns various realizations of practice (e.g., types of practice, amount of practice, and timing of practice) and their effects on pragmatic development; the second concerns the external validity in practice activities and measures for assessing practice effects.

Regarding types of practice activities, future researchers can be informed by existing instructional studies. For example, Takimoto (2012) compared the effects of two types of practice — task-type repetition (i.e., practicing target features with different exercises) and same-task repetition (i.e., repeating exactly the same exercise) — on the learning of request modifications in L2 English. He found that same-task repetition led to more gains than task-type repetition. Although Takimoto's focus was on the development of declarative knowledge, task repetition can also trigger the development of procedural knowledge. Different roles that these two types of practice play in enhancing proceduralization would be an interesting topic to pursue in the future.

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Another example for researching types of practice activities comes from studies comparing deductive and inductive instructions (e.g., Rose & Ng, 2001; Takimoto, 2008). Deductive instruction involves the provision of metapragmatic information followed by practice activities, while inductive instruction provides practice activities that allow learners to infer metapragmatic rules. Both instruction types aim to develop declarative pragmatic knowledge and offer practices for using that knowledge, but they may differ in the depth of processing (Craik, 2002; Lockhart, 2002) involved in the learning process. Compared with deductive instruction, inductive instruction can push learners to process learning materials and the embedded form-function-context mappings more deeply, hence leading to better retention of gains (Takimoto, 2009). Previous studies (e.g., Rose & Ng, 2001; Takimoto, 2008) compared deductive and inductive instructions only against the development of declarative pragmatic knowledge (as indicated by appropriateness/accuracy measures). Future research can investigate whether and to what extent different depth of processing during practice can lead to different development of procedural pragmatic knowledge.

Turning to the issue regarding appropriate amount of practice, existing findings (S. Li, 2012, 2013) are preliminary because they are limited to one target feature (i.e., request-making) and input-based and output-based types of practice. Pragmatic features vary along different dimensions such as linguistic complexity (e.g., routines such as 'take care' vs. the bi-clausal structure 'I was wondering if….' for request-making), saliency (e.g., internal modifications being less salient than external modifications), and the amount of cognitive resources required for processing (e.g., conventional expressions being easier to process than non-conventional counterparts). Meanwhile, different types of practice can affect depth of

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processing differently (e.g., inductive and deductive instructions) as well as the cognitive

processes involved (e.g., input and output-based practices). Hence, future research can

examine how much practice is needed for learning different types of pragmatic features under

different practice conditions.

Another area for future investigation is the distribution of practice. Is it better to

spread out practice sessions with wide intervals in between (i.e., spaced practice), or is it

more beneficial to have massed practice with brief intervals? These questions have not been

examined in L2 pragmatics. But studies on vocabulary and morphosyntax acquisition (e.g.,

Bird, 2010; Nakata, 2015; Suzuki & DeKeyser, 2017a, 2017b) have suggested a number of

factors that can affect the learning outcome, including the nature of the targeted linguistic

feature (e.g., grammar and vocabulary), timing of outcome assessment (e.g., immediate vs.

delayed posttest), and individual differences in cognitive abilities (e.g. rote memory, analytic

ability). Future researchers can also examine how these factors influence L2 pragmatics

learning under different practice conditions.

Finally, while the ultimate goal of developing declarative, procedural, and

automatized knowledge is to support learners' real-world communication, existing L2

pragmatics research informed by the ACT-R is purely lab-based with highly controlled

practice activities and assessment tasks (e.g., lacking features of interaction). Hence, to what

extent the practiced pragmatic performance transfers to real-life situations remains unknown.

This brings us to the second main research direction, which concerns the external

validity of practice activities and the evaluation of the effectiveness of practice. The crux of

the matter is transfer-appropriate processing (TAP), which means that transfer of a skill from

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a learnt task to a new task is likely to the extent that the cognitive operations in the new task are congruent to those in the learnt task (DeKeyser, 2007a; Gatbonton & Segalowitz, 2005). The implication is that practice activities and assessment tasks should be designed with reference to target language-use behaviors (DeKeyser, 2007b). Future research can incorporate methodologies informed by discursive pragmatics (e.g., Kasper, 2006; Youn, 2015) in order to design practice activities and assessment tasks that better resemble authentic language-use situations. For example, if instruction aims to enable learners to produce appropriate speech acts in face-to-face interactions, then features characterizing natural conversations (e.g., turn taking, engagement in conversation through appropriate sequential moves) should be incorporated into the development of practice and assessment tasks.

So far I have reviewed studies that investigated the mental representation of pragmatic knowledge. In the next section, I will discuss research that examined the cognitive processes involved in the development of pragmatic knowledge.

Cognitive Processes Involved in L2 Pragmatic Knowledge Development

R. Ellis (2008) distinguishes between micro and macro cognitive processes involved in L2 acquisition. The micro processes include attention, restructuring, and monitoring. The macro processes encompass two pairs of contrastive learning processes: incidental vs. intentional learning, and explicit vs. implicit learning.[2] L2 pragmatics research has yet to examine the macro processes; instead, the field has primarily drawn on Schmidt's Noticing Hypothesis (2001, 2010), which underscores the micro process of attention.

The Noticing Hypothesis

Theoretical underpinnings

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Schmidt's Noticing Hypothesis (2001, 2010) concerns the cognitive mechanisms involved in the initial processing of L2 input, that is, the role of attention in converting input into intake that can lead to subsequent learning (i.e., changes in mental representation of linguistic knowledge). Noticing is theorized as a lower level of awareness, which refers to 'conscious registration of attended specific instances of language' (Schmidt, 2010, p. 725) (e.g., noticing an English request utterance produced with the bi-clausal structure in a situation where a large favor is being asked). Understanding, on the other hand, represents a higher level of awareness and entails generalizations across instances (e.g., realizing that using the English bi-clausal structure is appropriate for request-making in high-imposition situations). The strong version of the hypothesis posits that noticing is a necessary and sufficient condition for L2 learning to occur (Schmidt, 1993). The weak version (Schmidt, 1993, 2010) acknowledges the possibility of learning without attention (e.g., implicit statistical learning) and proposes that more attention leads to more learning. Nevertheless, the hypothesis has maintained a position arguing for a critical role of attention in L2 acquisition. On the other hand, understanding is considered to be facilitative but not necessary for L2 acquisition.

Empirical evidence

For L2 pragmatics learning, Schmidt (1993, 2010) has argued that noticing entails paying attention to the targeted pragmalinguistic forms, their pragmatic functions, and the associated contextual features, while understanding refers to making conscious connections between the noticed forms and the contexts in which these forms occur for conveying pragmatic functions. The hypothesis has three implications for L2 pragmatic development.

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First, the strong version of the hypothesis predicts that no pragmatic development can occur without attention. Second, the weak version of the hypothesis posits that more attention can lead to more pragmatics learning. Third, given the facilitative role of understanding, achieving understating is likely to result in better learning than mere noticing.

The Noticing Hypothesis has been one of the most frequently referenced cognitive theories in L2 pragmatics research over different learning environments (naturalistic, study abroad, instructed, and virtual environment) (for a review, see Taguchi & Roever, 2017). However, as Taguchi and Roever (2017) observed, the hypothesis is typically not used as *a priori* theory to guide empirical research; instead, it is often cited to provide *post hoc* explanation for learning outcome, that is, learners' observable performance. However, the Noticing Hypothesis cannot always account for learning outcome, especially when there is no data showing the cognitive processes (noticing and understanding) involved in input processing.

A good example to illustrate this point is the line of research on L2 pragmatics teaching. A number of studies have compared explicit and implicit instructional approaches for their effectiveness (for reviews, see Taguchi, 2015; Taguchi & Roever, 2017). The key difference between the two approaches is whether explicit metapragmatic information is provided or not. Research findings have generally shown that explicit instruction is more effective than implicit instruction. For example, Nguyen, Pham, and Pham (2012) compared the effects of explicit and implicit conditions on the learning of English criticisms. They reported that both instructed groups outperformed a control group, but the explicit condition led to larger gains than the implicit instructional condition. Citing the Noticing Hypothesis as

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a *post hoc* explanation, the authors argued that the explicit metapragmatic information could guarantee learners' attention to the targeted features, whereas such attention was not guaranteed in the implicit condition; moreover, the metapragmatic information could ensure learners' pragmatic awareness at the level of understanding, which was not necessarily possible under the implicit condition; consequently, the explicit condition led to better learning outcome than the implicit condition.

Nguyen et al.'s argument is also seen in other studies reporting an advantage of the explicit over implicit condition. The Noticing Hypothesis can support such explanations because it predicts that more attention leads to more learning and that achieving a higher level of awareness (i.e., understanding) facilitates learning. However, this argument becomes problematic in studies that revealed the opposite — the implicit condition being more effective than the explicit condition (e.g., Q. Li, 2012; Takimoto, 2006, 2009). Q. Li's (2012) study is one example. This study taught request modifications to Chinese EFL learners. Three treatment groups received learning materials in print and engaged in the same practice activities. The explicit instruction group received additional metapragmatic information, the enhanced implicit instructional group received input with the targeted features highlighted, and the unenhanced implicit group was given plain copies of the learning materials. The two implicit groups improved more than the explicit group from the pretest to the posttest; at the delayed posttest, only the unenhanced (implicit) group retained gains across all targeted features. Q. Li interpreted that the provision of metapragmatic information might have diverted learners' attention away from the targeted pragmatic features, which led to less pragmatic gain.

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Interestingly, while Q. Li (2012) and Nguyen et al. (2012) both acknowledged the essential role of attention to targeted pragmatic features in affecting learning outcome, they differed in whether the provision of metapragmatic information positively or negatively influenced learners' attentional allocation. Clearly, the Noticing Hypothesis can be used to support Nguyen et al.'s (2012) findings but not Q. Li's (2012) results. According to Schmidt (1993), the validity of the Noticing Hypothesis can only be verified with data showing whether and to what extent attention is directed to the targeted pragmatic features while learning. However, like Q. Li (2012) and Nguyen et al. (2012), most previous studies did not document the actual attention allocation. Hence, it remains unknown how different instructional conditions affect learners' attention to the targeted pragmatic features, and to what extent those attended features are subsequently learned.

Recently, a few studies (Kim & Taguchi, 2015, 2016) overcame this methodological problem by documenting actual learning processes in conjunction with learning outcomes. These studies were informed by Robinson's Cognition Hypothesis (2001, 2003), which posits that increased task complexity can create more opportunities of negotiation (that help focus learners' attention on targeted features), which, in turn, enhance L2 learning. Kim and Taguchi (2015) compared the effects of simple and complex tasks on the quantity of pragmatics-related episodes (PREs; discussion around pragmalinguistic forms and sociopragmatic factors) while completing a task, the quality of task completion, and the leaning outcome of English request-making among Korean EFL learners. Both instructed groups received metapragmatic information followed by respective complex and simple tasks that differed in the amount of reasoning needed for task completion. In the complex task,

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learners collaboratively worked out the sociopragmatic factors of a scenario (e.g., setting,

interlocutor relationship) while co-constructing a request-making dialogue based on the

scenario. In the simple task, learners received explicit sociopragmatic information before

co-constructing a dialogue. The complex task condition resulted in a larger number of PREs,

which helped direct learners' attention to the targeted features. The two groups did not differ

at the immediate posttest (DCT measures), but only the complex task group retained their

gains at the delayed posttest. This study is commendable for its methodological innovation,

i.e., collecting data showing learners' verbalized thinking processes during task-based

interaction (as reflected in PREs). Such data can demonstrate that, even under explicit

conditions, manipulation of task features can help direct more attention to pragmatic features,

which, in turn, can lead to the retention of pragmatic knowledge.

   Two other lines of research have attempted to investigate what Schmidt (1993)

called 'instance of noticing' in order to establish the connection between attention and

learning outcome. The first line of research involves case studies relying on learners'

self-reports on their learning experiences (e.g., Hassall, 2015; Schmidt, 1993). Hassall (2015)

contrasted the learning of Indonesian address terms between two Australians during study

abroad. Both participants were interviewed and also kept diaries reporting instances of

learning. These participants were strikingly different in the amount of noticing instances of

address forms. Ross, who gradually expanded his social network while abroad, reported a

number of instances of noticing related to specific address terms in different settings (e.g.,

classroom, airport, host family, and peer gathering). He also actively sought explanation for

what he had noticed from expert speakers. In contrast, Amy, who felt embattled toward the

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host culture, reported very few instances of noticing. She also did not achieve the level of

understanding as Ross did. Pre- and post-DCTs revealed remarkable difference between the

two participants. While Ross improved from not being able to respond to the DCT items at all

to being able to choose appropriate address terms in most items, Amy's ability remained

unchanged over time, as she could complete only one item at posttest.

The other line of research (Takahashi, 2005, 2012, 2013, 2017) investigated learners'

allocation of attention as they completed instructional tasks. Takahashi (2005) examined the

amount of noticing of English request-making forms and its subsequent effects on learning

among EFL learners under two implicit instruction conditions: form comparison (FC) and

form search (FS). In the FC condition, learners produced their own requests, compared their

productions with native speakers' requests, and described the differences. Learners in the FS

condition received request samples produced by native and non-native speakers, and searched

for distinctly native expressions. All learners were asked whether they had noticed the

targeted forms and whether they realized their pragmatic functions through a retrospective

questionnaire. Compared with the FS condition, participants in the FC condition reported

more noticing of the targeted features and their pragmatic functions. However, successful

noticing did not invariably lead to subsequent learning as assessed by a DCT. In fact, there

were individual differences in noticing and subsequent learning even under the same learning

condition, suggesting that the effects of instruction conditions cannot be assumed to have

uniform effects on individual learners.

These findings indicate the importance of studying individual difference factors that

(a) mediate the effects of instruction on the allocation of attention, and (b) mediate the role of

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noticing in affecting learning (see also Chapter 29 in this volume). To investigate these issues, Takahashi (2012) asked Japanese EFL learners to watch video-recorded conversations containing targeted request forms for four times. After each view, learners identified expressions that they found challenging and rated the level of interest in learning those expressions. Takahashi found that pragmatic awareness (operationalized as noticing plus subjective interest) during learning was affected by learners' motivation and listening proficiency. Using the same instruments, Takahashi (2013) further reported that learners' pragmatic awareness led to the learning of structurally simple forms (e.g., internal modifiers) but not structurally complex forms (e.g., the bi-clausal patterns), suggesting that linguistic complexity can also mediate the effects of noticing on learning. Most recently, Takahashi (2017) focused on the learners who showed relatively higher levels of pragmatic awareness in her previous studies. She found that learners' familiarity with the grammatical structures of the targeted pragmalinguistic forms facilitated their noticing of such forms. However, noticing did not invariably lead to learning (as assessed by a DCT), possibly because noticing represents a relatively shallow level of processing. Together, Takahashi's findings demonstrate that noticing of pragmatic features is jointly influenced by learner-external environments (e.g. level of explicitness/implicitness in teaching) and learner-internal factors (e.g., motivation, proficiency, and grammar knowledge).

Future directions

As previously argued, the Noticing Hypothesis essentially concerns learners' internal cognitive processes governing the allocation of attention during input processing. Although the strong version of the hypothesis claims that 'no learning can occur without noticing', L2

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pragmatics researchers have often interpreted it as 'noticing guarantees learning'. This is probably why there has been a tendency to overuse the Noticing Hypothesis to provide *post hoc* explanations for observed learning outcomes, while in reality there are several intermediary processes between initial input processing and learning. Again, this hypothesis is a theorization of very specific L2 learning processes (i.e., noticing and understanding), so future research adopting this hypothesis should focus on these processes in the first place.

Research on pragmatics instruction can continue to benefit from the Noticing Hypothesis. Researchers have examined the effectiveness of instructional approaches (e.g., explicit vs. implicit, processing instruction) on L2 pragmatics learning by referring to their role in directing learners' attention to targeted pragmatic features (see Chapter 20 in this volume). Because each instructional approach typically includes different learning tasks, it is unclear whether it is an instructional approach or one (or several) specific learning task that is effective (or ineffective) in directing learners' attention to learning targets. For example, different effectiveness of the two implicit instruction conditions found in Takahashi's (2005) study is likely a result of the different operationalizations of the conditions and learning tasks used. Hence, future research should investigate the role of specific instructional tasks in promoting noticing (and understanding) of pragmatic features and whether and how noticing translates into subsequent learning. Methodologically, this means documenting both learning processes and learning outcomes to maximize the explanatory power, as shown in Kim and Taguchi (2015) reviewed earlier in this section.

Another research direction is to investigate how attention to target pragmatic features is influenced by various individual difference factors in conjunction with the

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affordances of learner-external environments. Takahashi's studies reviewed above demonstrated that, under implicit learning conditions, individual differences in motivation, listening proficiency, and grammar knowledge contributed to learners' attentional allocation to pragmatic features. Presumably, other individual difference factors, such as working memory, structural sensitivity, and other factors related to pragmatics learning (Robinson, 2005) may also facilitate allocation of attention in different learning tasks. Hence, future studies can examine whether and how attention to pragmatic features is influenced by the interaction between task characteristics and individual difference factors. For example, it seems interesting to investigate whether and how working memory (an individual difference factor) influences learners' attention to structurally simple and complex pragmalinguistic forms (a factor about target feature property) in both cognitively demanding and less demanding tasks (a task feature factor).

Conclusion

This chapter reviewed L2 pragmatics studies informed by SLA theories that share a 'cognitivist' perspective. At the core of the cognitive theorizations of L2 acquisition is the issue of mental representation of language systems. As VanPatten (2017) has argued, acquiring a second language essentially means acquiring the mental representation of that language (i.e., how the knowledge of the language is structured and stored in one's mind). The ongoing discussions in SLA research surrounding topics such as explicit vs. implicit knowledge, declarative vs. procedural knowledge, rule-based vs. instance-based representation, have all enriched our understanding of the L2 mental representation. Moreover, SLA theories focusing on the cognitive processes (e.g., explicit vs. implicit

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learning, incidental vs. intentional learning, input processing) all aim to clarify whether and how these theorized processes can lead to changes in L2 mental representation. From a cognitive perspective, the observed development in language use is essentially driven by the changes in learners' mental representation of the language.

L2 pragmatics research, however, has long focused on the use aspect of pragmatic knowledge, with only a very small body of research investigating the mental representation of pragmatic knowledge (i.e., how pragmatic knowledge is structured and stored in one's mind) and the cognitive processes that can influence the changes in the mental representation. This trend probably explains why pragmatics is noticeably underrepresented in mainstream discussions of cognitive SLA theories on issues such as the interface between explicit and implicit knowledge and the mechanisms underlying implicit and explicit learning (e.g., N. Ellis, 2017; Rebuschat, 2015; Suzuki & DeKeyser, 2017). In fact, L2 pragmatics has much to contribute to these ongoing debates. For example, to what extent is pragmatic knowledge implicit? Bialystok's (1994, 2011) theorization suggests the existence of implicit pragmatic knowledge that can gradually be analyzed to become more explicit. If so, how can we empirically examine this theorized explicit/implicit interface in pragmatic knowledge? On the other hand, is it more profitable, as DeKeyser (2003) suggested, to discuss declarative/procedural pragmatic knowledge rather than explicit/implicit pragmatic knowledge? Moreover, do implicit learning mechanisms (e.g., statistical learning) work for acquiring L2 pragmatics? These are just some of the fascinating questions to be explored in the future. This chapter, therefore, calls for more empirical studies based on cognitive SLA theories to investigate the nature of pragmatic knowledge and its development.

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NOTES

1. One should note that learners' subjectivity and agency can affect whether or not they choose to implement their knowledge at the level of symbolic representation in real-life communication. Interested readers can read more on this topic in Chapter 12 of this volume.

2. R. Ellis (2008) defines the macro and micro processes from the perspective of learners' internal cognitive operations, rather than from the perspective of learner-external environment. Hence, although L2 pragmatics research has examined explicit vs. implicit *instruction* (focusing on learner-external environment), the field has yet to investigate explicit vs. implicit *learning* (focusing on learner-internal cognition) involved in L2 pragmatic development.

Further Reading

DeKeyser, R. (2017). Knowledge and skill in ISLA. In S. Loewen & M. Sato (Eds.), *Routledge handbook of instructed second language acquisition* (pp. 15–32). London, UK: Routledge.

This article introduces key constructs shared among skill acquisition theories that are applicable to SLA research. It discusses current issues, reviews key empirical evidence, and proposes future directions surrounding instructed second language acquisition (ISLA) research informed by the skill acquisition perspective. The article also offers several suggestions for classroom teaching.

Li, S. (2019). Cognitive approaches to L2 pragmatics research. In N. Taguchi (Ed.)., *Handbook of pragmatics and SLA*. Routledge (pp. 113-127). Routledge.

Schmidt, R. (2010). Attention, awareness, and individual differences in language learning. In W. M. Chan, S. Chi, K. N. Cin, J. Istanto, M. Nagami, J. W. Sew, T. Suthiwan & I. Walker (Eds.), *Proceedings of CLaSIC 2010* (pp. 721–737). Singapore: National University of Singapore, Centre for Language Studies. This article introduces the origin and development of the Noticing Hypothesis. Citing research in cognitive psychology and SLA, it reviews empirical evidence for and major objections against the hypothesis. It highlights the importance of investigating the role of individual difference factors in affecting learners' awareness as they process L2 input.

References

Anderson, J. R. (1993). *Rules of the mind*. Hillsdale, NJ: Lawrence Erlbaum.

Bachman, L. F., & Palmer, A. S. (2010). *Language assessment in practice.* New York, NY: Oxford University Press.

Bialystok, E. (1993). Symbolic representation and attentional control. In G. Kasper & S. Blum-Kulka, (Eds.), *Interlanguage pragmatics* (pp.43–57). New York, NY: Oxford University Press.

Bialystok, E. (1994). Analysis and control in the development of second language proficiency. *Studies of Second Language Acquisition*, *16*, 157–168.

Bialystok, E. (2011). How analysis and control lead to advantages and disadvantages in bilingual processing. In C. Sanz & R.P. Leow (Eds.), *Implicit and explicit conditions, processes and knowledge in SLA and bilingualism* (pp. 49–58). Washington, DC:

Li, S. (2019). Cognitive approaches to L2 pragmatics research. In N. Taguchi
(Ed.)., *Handbook of pragmatics and SLA*. Routledge (pp. 113-127). Routledge.

Georgetown University Press.

Bird, S. (2010). Effects of distributed practice on the acquisition of second language English

syntax. *Applied Psycholinguistics*, *31*(4), 635–650.

Craik, F. I. M. (2002). Levels of processing: Past, present … and future? *Memory*, *10*,

305–318.

DeKeyser, R. M. (2003). Implicit and explicit learning. In C. Doughty & M. Long (Eds.),

Handbook of second language acquisition (pp. 313–348). Oxford, UK: Blackwell.

DeKeyser, R. M. (2007a). Introduction: Situating the concept of practice. In R. M. DeKeyser

(Ed.), *Practice in a second language: Perspectives from applied linguistics and*

cognitive psychology (pp. 1–18). Cambridge, UK: Cambridge University Press.

DeKeyser, R. M. (2007b). The future of practice. In R. DeKeyser (Ed.), *Practice in a second*

language: Perspectives from applied linguistics and cognitive psychology (pp.

287–304). Cambridge, UK: Cambridge University Press.

DeKeyser, R. M. (2015). Skill acquisition theory. In B. VanPatten & J. Williams (Eds.),

Theories in second language acquisition: An introduction (pp. 94–112). London, UK:

Routledge.

DeKeyser, R. M. (2017). Knowledge and skill in ISLA. In S. Loewen & M. Sato (Eds.),

Routledge handbook of instructed second language acquisition (pp. 15–32). London,

UK: Routledge.

Ellis, N. (2017). Implicit and explicit knowledge about language. In J. Cenoz, D. Gorter & S.

May (Eds.), *Language awareness and multilingualism* (pp. 113–124). Switzerland:

Springer.

Li, S. (2019). Cognitive approaches to L2 pragmatics research. In N. Taguchi (Ed.)., *Handbook of pragmatics and SLA*. Routledge (pp. 113-127). Routledge.

Ellis, R. (2008). *The study of second language acquisition* (2nd edition). Oxford, UK: Oxford University Press.

Faerch, C., & Kasper, G. (1984). Pragmatic knowledge: Rules and procedures. *Applied Linguistics*, *5*, 214–225.

Gatbonton, E., & Segalowitz, N. (2005). Rethinking communicative language teaching: A focus on access to fluency. *The Canadian Modern Language Review*, *61*, 325–353.

Hassall, T. (2015). Individual variation in L2 study-abroad outcomes: A case study from Indonesian pragmatics. *Multilingual*, *34*(1), 33–59.

Kasper, G. (2006). Speech acts in interaction: Towards discursive pragmatics. In K. Bardovi-Harlig, C. Félix-Brasdefer & A. Omar (Eds.), *Pragmatics and Language Learning*, *Vol. 11* (pp. 281–314). Honolulu, HI: University of Hawai'i, National Foreign Language Resource Center.

Kasper, G., & Blum-Kulka, S. (Eds.). (1993). *Interlanguage pragmatics*. New York, NY: Oxford University Press.

Kasper, G., & Rose, K. R. (2002). *Pragmatic development in a second language*. New York, NY: Blackwell.

Kim, Y., & Taguchi, N. (2015). Promoting task-based pragmatics instruction in EFL classroom context: The role of task complexity. *The Modern Language Journal*, *99*, 656–677.

Kim, Y., & Taguchi, N. (2016). Learner-learner interaction during collaborative pragmatic tasks: The role of cognitive and pragmatic task demands. *Foreign Language Annals*, *49*, 42–57.

Li, S. (2019). Cognitive approaches to L2 pragmatics research. In N. Taguchi (Ed.)., *Handbook of pragmatics and SLA*. Routledge (pp. 113-127). Routledge.

Leech, G. (1983). *Principles of pragmatics*. London, UK: Longman.

Li, Q. (2012). Effects instruction on adolescent beginners' acquisition of request modification. *TESOL Quarterly*, *46*, 30–55.

Li, S. (2012). The effects of input-based practice on pragmatic development of requests in L2 Chinese. *Language Learning*, *62*, 403–438.

Li, S. (2013). Amount of practice and pragmatic development of request-making in L2 Chinese. In N. Taguchi & J. Sykes (Eds.), *Technology in Interlanguage Pragmatics Research and Teaching* (pp. 43–69). Amsterdam/Philadelphia: John Benjamins.

Li, S. (2014). The effects of different levels of linguistic proficiency on the development of L2 Chinese request production during study abroad. *System*, *45*, 103–116.

Li, S., & Taguchi, N. (2014). The effects of practice modality on the development of pragmatic performance in L2 Chinese. *The Modern Language Journal*, *98*(3), 794–812.

Lockhart, R. S. (2002). Levels of processing, transfer-appropriate processing, and the concept of robust encoding. *Memory*, *10*, 397–403.

Nakata, T. (2015). Effects of expanding and equal spacing on second language vocabulary learning: Does gradually increasing spacing increase vocabulary learning? *Studies in Second Language Acquisition*, *37*(4), 677–711.

Nguyen, T. T. M., Pham, T. H., & Pham, M. T. (2012). The relative effects of explicit and implicit form-focused instruction on the development of L2 pragmatic competence. *Journal of Pragmatics*, *44*(4), 416–434.

Rebuschat, P. (Ed.) (2015). *Implicit and explicit learning of languages*.

Li, S. (2019). Cognitive approaches to L2 pragmatics research. In N. Taguchi (Ed.)., *Handbook of pragmatics and SLA*. Routledge (pp. 113-127). Routledge.

Amsterdam/Philadelphia: John Benjamins.

Robinson, P. (2001). Task complexity, task difficulty and task production: Exploring

interactions in a componential framework. *Applied Linguistics*, *22*(1), 27–57.

Robinson, P. (2003). The cognition hypothesis, task design and adult task-based language

learning. *Second Language Studies*, *21*(2), 45–107.

Robinson, P. (2005). Aptitude and second language acquisition. *Annual Review of Applied*

Linguistics, *25*, 46–73.

Rose, K. R., & Ng. K. F. (2001). Inductive and deductive teaching of compliments and

compliment responses. In K. R. Rose & G. Kasper (Eds.), *Pragmatics in language*

teaching (pp.145–169). Cambridge, UK: Cambridge University Press.

Schmidt, R. (1993). Consciousness, learning and interlanguage pragmatics. In G. Kasper & S.

Blum-Kulka (Eds.), *Interlanguage pragmatics* (pp. 21–42). Oxford, UK: Oxford

University Press.

Schmidt, R. (2001). Attention. In P. Robinson (Ed.), *Cognition and second language*

instruction (pp. 3–32). Cambridge, UK: Cambridge University Press.

Schmidt, R. (2010). Attention, awareness, and individual differences in language learning. In

W. M. Chan, S. Chi, K. N. Cin, J. Istanto, M. Nagami, J. W. Sew, T. Suthiwan & I.

Walker (Eds.), *Proceedings of CLaSIC 2010* (pp. 721–737). Singapore: National

University of Singapore, Centre for Language Studies.

Segalowitz, N. (2010). *The cognitive bases of second language fluency*. New York, NY:

Routledge.

Suzuki, Y., & DeKeyser, R. M. (2017a). Exploratory research on L2 distributed practice: An

Li, S. (2019). Cognitive approaches to L2 pragmatics research. In N. Taguchi
(Ed.)., *Handbook of pragmatics and SLA*. Routledge (pp. 113-127). Routledge.

aptitude x treatment interaction. *Applied Psycholinguistics*, *38*(1), 27–56.

Suzuki, Y., & DeKeyser, R. M. (2017b). Effects of distributed practice on the

proceduralization of morphology. *Language Teaching Research*, *21*(2), 166–188.

Suzuki, Y., & DeKeyser, R. M. (2017c). The interface of explicit and implicit knowledge in a

second language: Insights from individual differences in cognitive aptitudes.

Language Learning, *67*(4), 747–790.

Taguchi, N. (2007). Development of speed and accuracy in pragmatic comprehension in

English as a foreign language. *TESOL Quarterly*, *42*, 313–338.

Taguchi, N. (2008a). The role of learning environment in the development of pragmatic

comprehension: A comparison of gains between EFL and ESL learners. *Studies in*

Second Language Acquisition, *30*, 423–452.

Taguchi, N. (2008b). Cognition, language contact, and the development of pragmatic

comprehension in a study-abroad context. *Language Learning*, *58*, 33–71.

Taguchi, N. (2010). Longitudinal studies in interlanguage pragmatics. In A. Trosborg (Ed.),

Handbook of pragmatics vol.7: Pragmatics across languages and cultures (pp.

333–361). Berlin: Mouton de Gruyter.

Taguchi, N. (2015). Instructed pragmatics at a glance: Where instructional studies were, are,

and should be going. *Language Teaching*, *48*, 1–50.

Taguchi, N. & Roever, C. (2017). *Second language pragmatics*. Oxford, UK: Oxford

University Press.

Takahashi, S. (1996). Pragmatic transferability. *Studies in Second Language Acquisition*, *18*,

189–223.

Li, S. (2019). Cognitive approaches to L2 pragmatics research. In N. Taguchi (Ed.)., *Handbook of pragmatics and SLA*. Routledge (pp. 113-127). Routledge.

Takahashi, S. (2005). Noticing in task performance and learning outcomes: A qualitative analysis of instructional effects in interlanguage pragmatics. *System*, *33*, 437–461.

Takahashi, S. (2012). Individual differences and pragmalinguistic awareness: A structural equation modeling approach. *Language, Culture, and Communication*, *4*, 103–125.

Takahashi, S. (2013). Awareness and learning in second language pragmatics. *Language, Culture, and Communication*, *5*, 53–76.

Takahashi, S. (2017). Pragmatics-Grammar interface in pragmalinguistics awareness and learning. *Language, Culture, and Communication*, *9*, 87–111.

Takimoto, M. (2006). The effects of explicit feedback on the development of pragmatic proficiency. *Language Teaching Research*, *10*, 393–417.

Takimoto, M. (2008). The effects of deductive and inductive Instruction on the development of language learners' pragmatic competence. *The Modern Language Journal*, *92*, 369–386.

Takimoto, M. (2009). The effects of input-based tasks on the development of learners' pragmatic proficiency. *Applied Linguistics*, *30*(1), 1–25.

Takimoto, M. (2012). Assessing the effects of identical task repetition and task-type repetition on learners' recognition and production of second language request downgraders. *Intercultural Pragmatics*, *9*, 71–96.

Thomas, J. (1983). Cross-Cultural pragmatic failure. *Applied Linguistics*, *4*, 91–111.

VanPatten, B. (2017). Processing instruction. In S. Loewen & M. Sato (Eds.), *Routledge handbook of instructed second language acquisition* (pp. 166–180). London, UK: Routledge.

Li, S. (2019). Cognitive approaches to L2 pragmatics research. In N. Taguchi (Ed.)., *Handbook of pragmatics and SLA*. Routledge (pp. 113-127). Routledge.

Xiao, F. (2017). Development in the use of Chinese mitigation in interaction. *Chinese as a Second Language Resear*ch, *6*(1), 39–72.

Youn, S. J. (2015). Validity argument for assessing L2 pragmatics in interaction using mixed methods. *Language Testing*, *32*, 199–225.