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## An Expansion of Skill Acquisition Theory for Practical Teaching

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### Abstract

Skill Acquisition Theory highlights the importance of practice and feedback in language learning. It suggests that learners need to engage in deliberate practice and that feedback is essential to identify errors and monitor their progress. Although Skill Acquisition Theory has been widely applied, DeKeyser (2007) has not provided guidance on teaching declarative and procedural knowledge. This paper aims to address this gap by reviewing literature and exploring effective methods for teaching these knowledge types by answering this research question: How should we effectively teach declarative knowledge, procedural knowledge, and automaticity? Furthermore, this paper aims to contribute to developing effective instructional strategies that enhance learning and performance for second language learners in writing and communication contexts.

## Introduction

Skill Acquisition Theory, developed by DeKeyser (2007), is a prominent theoretical framework in second language acquisition that aims to explain how individuals acquire new skills and knowledge in a second language. This theory has been widely applied in language learning contexts, particularly in developing practical instructional approaches and strategies. One of the critical benefits of Skill Acquisition Theory is that it provides a framework for understanding how language learning takes place. By explaining how declarative and procedural knowledge is acquired, the theory provides insight into how learners develop their linguistic abilities and offers guidance for language teachers and researchers seeking to facilitate and support this process (DeKeyser, 2007).

Skill Acquisition Theory is also helpful because it emphasizes the importance of practice and feedback in language learning. According to the theory, learners must engage in deliberate practice to develop their linguistic abilities, and feedback is critical for helping learners to identify errors, monitor their progress, and adjust their learning strategies (DeKeyser, 2007). By emphasizing the importance of these elements, Skill Acquisition Theory has been used to develop instructional approaches that prioritize active learning, practice, and feedback, overall contributing to second language acquisition. By offering a framework for understanding how learners acquire new skills and knowledge and by emphasizing the importance of practice and feedback in the language learning process, the theory has helped to inform and improve language teaching practices and has supported the development of more effective and engaging language learning experiences.

The theory has been used to inform language teaching practices in both formal and informal settings. It has been applied to developing instructional materials, assessment tools, and curriculum frameworks (Chapelle, 2009). Its versatility and flexibility make it a valuable resource for language educators seeking to design effective and engaging language learning experiences for their students. While another strength of Skill Acquisition Theory is its applicability to various learning contexts and settings, DeKeyser (2007) has not offered insights on how to teach declarative and procedural knowledge. Therefore, this paper aims to address this gap by reviewing existing literature on the topic and exploring effective methods for teaching declarative and procedural knowledge. The research question guiding this study is: How can declarative knowledge, procedural knowledge, and automaticity be effectively taught? By addressing this research question, this paper seeks to contribute to developing effective instructional strategies that can enhance the learning and performance of second language learners in both writing and communication contexts.

## Skill Acquisition Theory: A Background

Skill Acquisition Theory is a theory proposed by DeKeyser (2007) in the field of second language acquisition that aims to explain how individuals acquire and develop skills in a foreign language. The theory incorporates cognitive, behavioral, and social factors influencing language acquisition. According to DeKeyser (2007), learning a foreign language involves three distinct processes: the acquisition of declarative knowledge, procedural knowledge, and automatization.

First, DeKeyser (2007) explains that declarative knowledge refers to individuals' explicit knowledge about a particular subject or domain. In language learning, declarative knowledge includes knowledge of grammar rules, vocabulary, and other aspects of language that can be consciously articulated. Declarative knowledge is foundational in developing procedural knowledge, which refers to the ability to use language in real-life situations (DeKeyser, 1997), providing the learner with the basic building blocks of the language, such as vocabulary and grammar, necessary to

communicate effectively. Declarative knowledge can be acquired through various means, such as formal instruction in a classroom setting, self-study, or exposure to the language through media and social interactions (Chapelle, 2009). For example, a language learner may acquire declarative knowledge of English verb tenses through explicit instruction in a grammar lesson or exposure to English sentences that use those tenses in a meaningful context (DeKeyser, 1997). This makes declarative knowledge essential for effective communication in a foreign language. Without a basic understanding of grammar and vocabulary, learners would struggle to produce meaningful utterances or comprehend the language in real-life situations.

However, declarative knowledge alone is not sufficient for effective language use. Learners must also develop procedural knowledge, which involves the ability to use language in a flexible and contextually appropriate way (DeKeyser, 2020). DeKeyser's Skill Acquisition Theory therefore emphasizes the importance of declarative knowledge in language learning as a foundation for developing procedural knowledge. Learners must acquire a declarative understanding of grammar and vocabulary through formal instruction and exposure to the language to communicate effectively in a foreign language.

Second, DeKeyser (2020) explains that procedural knowledge refers to the ability to use declarative knowledge in practice and to perform specific skills in a given context. In the context of language learning, procedural knowledge refers to the ability to use the language in real-life situations and to communicate effectively with others. Procedural knowledge is developed through practice and experience (DeKeyser, 2007). As learners use the language in different contexts and receive feedback on their performance, they become more skilled at using the language in a flexible and contextually appropriate way (Chapelle, 2009). Procedural knowledge is also essential for effective communication in a foreign language. Without the ability to use declarative knowledge in practice, learners may struggle to produce meaningful utterances or comprehend the language in real-life situations (DeKeyser, 1997). For example, a learner may have a strong declarative knowledge of English grammar but would still struggle to hold a conversation with a native speaker due to a lack of procedural knowledge.

Like Swain's (1985) Output Hypothesis, DeKeyser (2007) suggests that procedural knowledge is also developed through trial and error. Learners must experiment with different language forms and strategies, receive feedback on their performance, and make adjustments based on that feedback (Chapelle, 2009). As they gain experience, they become more skilled at using the language in different contexts and develop a sense of what is contextual. Several factors such as motivation, attention, and awareness also influence procedural knowledge. Highly motivated learners are more likely to engage in the learning process and persist despite setbacks (DeKeyser, 2007). Attention and awareness are also important, as learners must be able to focus on the input they receive and be aware of the strategies they use to process and produce language (Chapelle, 2009). DeKeyser's Skill Acquisition Theory therefore emphasizes the importance of developing procedural knowledge in language learning as the ability to use declarative knowledge in practice. Learners must gain experience through trial and error, receive feedback, and adjust based on that feedback to develop their procedural knowledge and effectively communicate in a foreign language.

Lastly, DeKeyser (2007) defines automaticity as the ability to perform a skill without conscious effort or attention. In language learning, automatization refers to the ability to use language forms and structures quickly and efficiently with little conscious thought or effort (DeKeyser, 2007). Automatization is a key component of second language acquisition. As learners develop declarative and procedural knowledge of the language, they begin to automate using that knowledge through practice and experience (Chapelle, 2009). Automatization is important for effective communication in a foreign language because it allows learners to process and produce language forms quickly and accurately without having to pause to think about the rules or structures involved. This enables learners to communicate more fluently and naturally, and to focus their

attention on the communicative aspects of language use rather than the form (DeKeyser, 1997).

DeKeyser (2007) suggests that automatization is developed through a process of practice and feedback. As learners use the language in different contexts and receive feedback on their performance, they gradually automate the use of language forms and structures, making them more efficient and automatic (Chapelle, 2009). Automatization is also influenced by a number of factors, such as frequency of use, similarity to the learner's first language, and cognitive processing capacity. Learners who use a particular language form frequently are more likely to automate its use, while learners whose first language is similar to the target language may have an easier time automating certain forms (DeKeyser, 2007). Additionally, learners with higher cognitive processing capacity may be able to automate language forms more quickly and efficiently (DeKeyser, 1997). Automatization is important for effective communication in a foreign language because it enables learners to communicate more fluently and naturally, and to focus their attention on the communicative aspects of language use.

## Synthesizing and Expanding Models

This essay embarks upon an exploration of skill acquisition within the context of pedagogical application. Drawing inspiration from DeKeyser's skill acquisition models (2007), the aim is to synthesize and extend these models to elucidate their relevance in practical teaching. The examination commences with an exploration of declarative knowledge, discerning the distinctions between inductive and deductive learning methodologies. Additionally, it delves into the practical implications in genre-based strategies. The focus then shifts to procedural knowledge, encompassing various pedagogical techniques, including processing instruction, the strategic application of spaced distribution, the efficacy of negotiation through transcription exercises, and the importance of feedback and noticing mechanisms. Finally, I delve into the concept of automaticity, examining its influence on skill acquisition through the prisms of task repetition and the impact of study abroad programs. This comprehensive analysis aims to furnish educators with a more nuanced comprehension of skill acquisition theory and its possible applications in the realm of pedagogy.

### *Declarative Knowledge*

**Inductive vs. Deductive Learning.** Inductive and deductive learning are two distinct approaches to teaching and learning. Inductive learning involves a bottom-up approach, where learners are presented with specific examples and observations first, from which they derive general principles or rules through their own reasoning and analysis (Williams, 1999). Thus, it encourages learners to discover patterns and draw conclusions independently. In contrast, deductive learning follows a top-down approach, where learners are first given explicit rules or principles, and then they apply these generalizations to specific examples (Shaffer, 1989). Thus, deductive learning typically involves a more teacher-centered approach, as it provides learners with established language rules upfront. Both inductive and deductive learning approaches have their merits, and their effectiveness depends on various factors, including the learners' preferences and the specific learning context (Shaffer, 1989).

Cerezo et al. (2016) conducted a study to compare the effectiveness of guided induction and deductive instruction in teaching complex Spanish “gustar” (i.e., to be pleasing) structures. The study included 34 participants who were divided into two groups: guided induction and deductive instruction. The guided induction group received instruction through a series of activities that involved discovering the rules of gustar structures through examples and input. The deductive instruction group received explicit instruction through a traditional grammar lesson. The study found that both

groups showed improvement in their ability to use *gustar* structures, but the guided induction group outperformed the deductive instruction group in terms of accuracy and fluency. The guided induction group also showed a higher level of engagement and motivation compared to the deductive instruction group. The researchers concluded that guided induction can be a more effective approach than deductive instruction for teaching complex grammatical structures as it promotes active learning and discovery while also increasing engagement and motivation among learners. They suggest that this approach could be applied to teaching other grammatical structures and languages.

Vogel et al. (2011) have also conducted a study to compare the effectiveness of guided inductive and deductive approaches in teaching French grammar to intermediate-level college students. The study involved 70 participants who were divided into two groups: guided inductive instruction and deductive instruction. The guided inductive group received instruction through activities that required them to analyze examples of French grammar to discover rules and patterns, while the deductive group received explicit instruction through a traditional grammar lesson. The study found that both groups showed improvement in their ability to use French grammar, but the guided inductive group outperformed the deductive group in terms of long-term retention and transfer to new contexts. The researchers also found that the guided inductive approach promoted deeper learning, greater engagement, and higher motivation among the students. This study suggests that guided inductive instruction can be a more effective approach for teaching grammar to intermediate-level college students as it promotes active learning and discovery while increasing engagement and motivation among learners. The researchers recommend that this approach could be used to teach other languages and grammatical structures.

Guided induction involves presenting learners with examples of the target language and allowing them to induce the rules or patterns themselves through guided discovery. This method is practical because it encourages learners to actively engage with the language and develop their own understanding of the rules and patterns (Vogel et al., 2011). Deductive instruction, on the other hand, involves presenting learners with explicit rules or patterns and then providing examples to illustrate them. This method is practical because it provides learners with a clear understanding of the rules and patterns from the beginning, which can help them better understand the language and apply it in context (Cerezo et al., 2016). Therefore, guided induction and deductive instruction are two practical ways to teach declarative knowledge in language learning. Both guided induction and deductive instruction can be practical ways to teach declarative knowledge, depending on the learner's needs and preferences. Some learners may benefit more from guided discovery and the opportunity to develop their own understanding, while others may prefer a more explicit presentation of the rules and patterns. By using a combination of these methods, language teachers can help learners develop declarative knowledge in a way that is both effective and engaging.

**Revising Genre-Based Strategies.** Genre-based strategies refer to approaches or techniques used in language teaching and learning that focus on the study and practical application of different text genres or types (Alinasab et al., 2021). Genres are specific forms of communication, such as essays, letters, reports, narratives, or speeches, each with its own set of conventions, structures, and language features (Hyon, 1996). In language education, genre-based strategies involve teaching students not just the rules of grammar and vocabulary but also how to use language effectively in specific real-life situations or contexts (Alinasab et al., 2021). This approach helps students understand the purpose and audience of a particular text genre, and it equips them with the skills to create or analyze texts accordingly.

Alinasab et al. (2021) conducted a study to investigate the genre-based revising strategies employed by graduate students in applied linguistics when revising their term papers. They analyzed 14 term papers written by the participants, which were collected from a course on research methods in applied linguistics. The data were analyzed using

content analysis and thematic analysis. The findings showed that the participants used a variety of revising strategies, including adding, deleting, replacing, reordering, and rephrasing. The most frequent strategy used was adding, which involved adding new information to the paper to meet the genre expectations. The participants also used a range of linguistic features and discourse markers to create coherence and cohesion in their papers. The study highlights the importance of genre-based instruction in helping graduate students develop effective revising strategies. The authors suggest that further research is needed to explore the effectiveness of genre-based instruction in different contexts and with different types of writing tasks.

Revising genre-based writing can have a significant impact on the acquisition of declarative knowledge in accordance with Skill Acquisition Theory. In the context of genre-based writing, revising a written text involves both procedural and declarative knowledge. Revising requires the writer to have a deep understanding of the conventions of the genre they are writing in, as well as the ability to apply these conventions in their writing (Alinasab et al., 2021). This process requires declarative knowledge about the genre's features, such as its structure, language use, and communicative purposes.

Through repeated revision, writers acquire both declarative and procedural knowledge about genre-based writing. Alinasab et al. (2021) have shown that the act of revising helps writers to consolidate their understanding of the genre and to develop an intuitive sense of the appropriate conventions for a given genre, and as a result, writers are able to use this acquired declarative knowledge to inform their writing decisions in the future and produce more effective texts. Furthermore, the acquisition of declarative knowledge through revising genre-based writing is strengthened by the provision of explicit feedback and instruction. Through feedback and instruction, writers can develop a deeper understanding of the genre's conventions and can apply this knowledge more effectively in their writing (Alinasab et al., 2021). This, in turn, leads to the acquisition of more sophisticated declarative knowledge, which can be applied to a broader range of writing contexts. In summary, revising genre-based writing can have a positive impact on the acquisition of declarative knowledge, since through the process of revising, writers develop a deeper understanding of the conventions of genre-based writing, allowing procedural knowledge to help produce more effective texts with practice.

## *Procedural knowledge*

**Processing Instruction.** Processing Instruction is a methodology that aims to improve learners' understanding and production of specific grammatical structures by providing them with explicit linguistic information and engaging them in structured activities (VanPatten, 2005). Unlike traditional grammar instruction, which often relies on rules and drills, Processing Instruction focuses on the comprehension and production of sentences that contain the target grammar forms. It typically involves presenting learners with sentences that illustrate the target structure, highlighting the relevant elements, and then guiding them through activities that require processing and using the structure in context (VanPatten & Cadierno, 1993). This approach is designed to enhance learners' internalization of the grammar rules and their ability to use them naturally in their language production.

Baleghizadeh et al. (2014) conducted a study to investigate the impact of processing instruction on the recognition and production of English derivational affixes among EFL learners. The researchers worked with a group of 56 intermediate-level EFL learners who were randomly assigned to an experimental group or a control group. The experimental group received processing instruction on the use of English derivational affixes, while the control group received traditional instruction. The researchers used a pretest-posttest design to compare the participants' recognition and production of English derivational affixes before and after the intervention. The results showed that the experimental group outperformed the control group in both the recognition and production of English derivational affixes. The participants in the experimental group

demonstrated a higher level of accuracy and fluency in recognizing and producing English derivational affixes than the participants in the control group. The study suggests that processing instruction can be an effective approach for teaching English derivational affixes to EFL learners.

This shows how Processing Instruction can be a practical way to teach procedural knowledge in language learning. This approach involves providing learners with input that highlights the processing requirements of a particular language structure or pattern (Baleghizadeh et al., 2014). The aim is to help learners develop procedural knowledge of the language by encouraging them to attend to the processing demands of the language and to make conscious decisions about how to use it. Processing Instruction can be practical because it focuses on the process of language use rather than just the product, which can help learners develop a more thorough and automatic understanding of the language (Baleghizadeh et al., 2014). Additionally, by providing learners with input that highlights the processing requirements of the language, they can better understand the procedural steps involved in using the language form or structure correctly. By incorporating these elements into the instruction, language teachers can provide learners with a comprehensive and engaging learning experience that helps them develop procedural knowledge in a practical and effective way.

**Form-Focused Instruction.** Form-focused instruction (FFI) is an approach used in language teaching that places a primary emphasis on teaching and learning the formal aspects of a language, such as grammar, syntax, and vocabulary. It involves explicit instruction and practice in understanding and using these language elements correctly, which aims to improve learners' accuracy in language use and provides them with a solid foundation in the structural aspects of the language (Tomita & Spada, 2013). Form-focused instruction can be beneficial for learners who need to develop a strong grasp of the language's structure, particularly in the early stages of language learning, but it is often most effective when combined with meaning-focused activities to create a balanced language learning experience (Spada & Lightbown, 2008).

Tomita and Spada's (2013) article discusses the relationship between FFI and learner investment in second language (L2) communication. The study involved 24 high school students in Japan, where two Japanese teachers of English collaborated to teach four 50-minute lessons. Within each lesson, a 15-minute exclusively meaning-focused activity and a 15-minute form-focused activity that emphasized both form and meaning were included, and all students participated in both types of activities. Various data collection methods, including classroom observations, video-recorded classroom interactions, stimulated recalls, interviews, questionnaires, and diaries, were utilized to gather data, which were then analyzed quantitatively and qualitatively. According to the findings, FFI created social contexts that allowed learners to establish their identities as L2 learners, resulting in a greater investment in L2 communication. FFI and learner investment are therefore argued to be interrelated and both are considered to be important for effective L2 learning. The authors suggest that teachers should strive to integrate FFI into meaningful communication tasks and promote learner investment in the L2.

FFI can be a practical way to teach procedural knowledge in L2 learning. Just like Tomita and Spada's (2013) study, one practical way to use FFI to teach procedural knowledge is to integrate it into meaningful communication tasks, such as teacher design activities that require learners to use the target language in a communicative context while also focusing on specific language forms. This approach can help learners see the relevance and usefulness of the language forms they are learning and how they can be used in authentic communication (Tomita & Spada, 2013). Additionally, FFI can be combined with other practical methods, such as guided practice and feedback, to help learners develop procedural knowledge of the language. By providing learners with opportunities to use the language forms in context in conjunction with feedback and

correction, they can gradually develop their ability to use the forms automatically and accurately, subsequently affecting learners' procedural knowledge in L2 learning.

**Spaced Distribution.** Spaced distribution, often referred to as spaced repetition or spaced practice, is a learning strategy that involves spreading out study or practice sessions over time rather than massed presentation, commonly referred to as “cramming” (Miles, 2014). The psychological principle of the spacing effect suggests that information is better retained and learned more effectively when it is reviewed or practiced in intervals with increasing gaps between each review (Chukharev-Hudilainen & Klepikova, 2016). Thus, spaced distribution allows learners to revisit and reinforce their knowledge or skills at precise intervals, enhancing long-term retention and understanding.

Miles (2014) investigates the effectiveness of spaced vs. massed distribution instruction for L2 grammar learning. The study involved 48 participants who were assigned to one of two groups: the spaced distribution group, which received instruction over a three-week period, and the massed distribution group, which received instruction over a one-week period. Both groups received instruction on the same L2 grammar rules and were tested immediately after the instruction and again one month later. The results showed that the spaced distribution group outperformed the massed distribution group on both immediate and delayed post-tests. The study concludes that spaced distribution instruction is more effective than massed distribution instruction for L2 grammar learning. The author suggests that the effectiveness of spaced distribution instruction may be due to the spacing effect, which suggests that learning is more effective when it is spaced out over time rather than massed together. These findings have implications for L2 instruction, as teachers can use spaced distribution instruction to enhance L2 grammar learning.

By spacing out practice activities and exercises, learners have more opportunities to consolidate and internalize the knowledge or skills they are learning (Miles, 2014). Spaced distribution is effective in developing procedural knowledge because it allows for the repetition of skills or tasks at intervals over time. By spacing out practice sessions, learners are able to consolidate their learning and commit acquired information to long-term memory (Miles, 2014). This is because the brain needs time to process and strengthen the neural connections associated with the learned skill (Morgan-Short & Ullman, 2014) and spaced repetition helps with this process. Additionally, spaced repetition helps to prevent cognitive overload and fatigue, allowing learners to better retain and apply what they have learned (Miles, 2014; Morgan-Short & Ullman, 2014). Through this process, learners gradually become more proficient in the skill, which leads to the development of procedural knowledge that can be applied automatically and fluently. For example, by providing regular review sessions, assigning homework tasks, and encouraging learners to practice the target language regularly in various contexts, learners will develop procedural knowledge.

**Negotiation Through Transcription.** Negotiation through transcription is a language teaching and learning technique that involves the collaborative process of transcribing and analyzing spoken language, often in a classroom or educational setting (Mennim, 2012). Learners work together to transcribe authentic spoken language, such as recorded conversations or interviews. This process encourages students to actively engage with spoken language, improve their listening skills, and gain a deeper understanding of spoken discourse features like intonation, stress patterns, and colloquial expressions (Mennin, 2012). By negotiating the transcription collectively, learners can discuss and resolve uncertainties or difficulties in understanding, promoting a more comprehensive grasp of spoken language nuances. This technique is particularly useful for enhancing listening comprehension and promoting interactive language learning.

Mennim's (2012) study explores the act of negotiating the form of a language by helping learners identify gaps in their developing L2 and find ways to fill them more



accurately. One awareness-raising exercise that encourages such negotiation is self-transcription, where learners collaborate to find language errors in recordings of their own spoken output. This paper analyzes the problem-solving efforts of a group of Japanese students, 13 intermediate-level students, as they engaged in an English transcription exercise. The study describes the various resources the students utilized while tackling L2 problems and explores some of the cognitive processes that underlie their decision-making. Through recordings of their discussions, the study shows how these learners effectively negotiated L2 form without teacher intervention. The findings demonstrate a depth of cognitive processing that is thought to be beneficial for language development. Moreover, collaborative negotiation of L2 form can enhance learners' awareness of language structure and support their language development.

Negotiation of language form through transcription exercises are an effective way to teach procedural knowledge in second language acquisition. By collaborating with peers to transcribe and analyze their own speech, learners are able to identify gaps in their knowledge and work to fill them in a way that is more accurate and target-like (Mennim, 2012). This approach promotes the development of self-monitoring skills, which are essential for acquiring procedural knowledge in a second language (DeKeyser, 2007). Furthermore, the negotiation process encourages learners to engage in deeper cognitive processing by analyzing their language output and making strategic decisions to improve accuracy (Mennim, 2012). This leads to a more active engagement in the learning process and can lead to a deeper understanding of the language. In addition, the negotiation process also promotes a social aspect of learning, as learners work together to identify errors and improve their language skills. This social aspect can lead to increased motivation and investment in the learning process, creating procedural knowledge.

**Feedback and Noticing.** Feedback and noticing are two key components of the language learning process. Feedback refers to the information and guidance provided to learners about their language performance, whether it's written or oral, and it helps learners understand their errors, areas for improvement, and reinforces correct language use (Li, 2013). Noticing, on the other hand, pertains to learners' ability to consciously recognize and pay attention to language features in input and their own output, and it involves the awareness of grammar, vocabulary, pronunciation, or discourse elements in context (Izumi & Bigelow, 2000). Effective language learning often involves a cycle where learners receive feedback, leading to increased noticing, which, in turn, informs future language use and improvement. Both feedback and noticing play vital roles in the development of language proficiency and accuracy (Mackey, 2006).

Mackey's (2006) article focuses on the role of feedback and noticing in instructed second language learning. This study explores the relationship between feedback, instructed ESL learners' noticing of L2 form during classroom interactions, and their subsequent L2 development. The study provided interactional feedback to learners in response to their production problems with questions, plurals, and past tense forms. Learners' noticing was assessed through on-line learning journals, introspective comments while viewing classroom videotapes, and questionnaire responses. The results suggest a positive relationship between interactional feedback, learners' reports about noticing, and their learning of L2 question forms. The study suggests that interactional feedback is associated with L2 learning because it prompts learners to notice L2 forms. The findings highlight the importance of providing feedback during classroom interactions to facilitate L2 learning and the usefulness of noticing as a means of capturing the internal mechanisms of instructed L2 learning. Mackey's article further highlights the importance of feedback and noticing in instructed second language learning and emphasizes the need for feedback that is individualized, targeted, and promotes self-monitoring and metacognitive awareness.

Feedback and noticing are effective ways to teach procedural knowledge because they can prompt learners to attend to the form and structure of the language they are

learning. Feedback, whether it is provided through explicit correction or implicit cues, can help learners notice their errors and learn from them (Mackey, 2006). Noticing, on the other hand, involves the learners' ability to pay attention to salient linguistic features, and this can be facilitated by providing appropriate feedback (Mackey, 2006). Instructors can help learners develop their noticing skills by directing their attention to specific forms or structures during classroom interactions and feedback sessions. This can lead to greater awareness of form and structure, which can be applied to future language use, creating a comprehensive approach to teaching procedural knowledge.

### *Automaticity*

**Task Repetition.** Task repetition is a language teaching and learning technique that involves having learners perform the same or similar language tasks multiple times, often with variations or adjustments to the task parameters (Lambert et al., 2017). The purpose of task repetition is to enhance language acquisition by providing learners with the opportunity to revisit and refine their language skills. It allows learners to build on their prior experiences and knowledge, leading to increased fluency and proficiency in the target language (Thai & Boers, 2016).

Lambert et al. (2017) explores the correlation between the repetition of oral monologue tasks and the immediate advancement of L2 fluency. The research evaluates the effect of same task repetition on speech rate, pause frequency, and self-corrections during different task types and proficiency levels. The results are linked to specific L2 speech production stages, such as conceptualization, formulation, and monitoring. The study involved 32 Japanese learners of English who completed three oral communication tasks (i.e., instruction, narration, and opinion) six times. The findings showed that same task repetition immediately contributed to fluency improvement in all proficiency levels and task types. The largest improvement in speech rate was observed in the first three performances of each task type but the gains continued until the fifth performance. However, clause-final pauses reduced until the second performance, mid-clause pauses reduced up to the fourth, and self-repairs reduced only after the fourth performance. This suggests that task repetition might have had a differential impact on specific speech production stages.

Task repetition is a practical way of teaching automaticity in language learning because it allows learners to develop the necessary procedural knowledge and reduce cognitive load associated with a specific task, leading to improved fluency and accuracy (DeKeyser, 2020). According to Skill Acquisition Theory, learners go through different stages of skill development, with automaticity being the ultimate goal (DeKeyser, 2007). By repeating the same task, learners can move from the cognitive stage, where they are focused on understanding and completing the task, to the associative stage, where they can start to identify patterns and refine their performance, and finally to the autonomous stage, where they can perform the task automatically without thinking (DeKeyser, 2020). Through task repetition, learners can also develop their metacognitive skills, such as self-monitoring and self-correction, which are crucial for autonomous language use (Lambert et al., 2017). Additionally, task repetition can increase learners' confidence and motivation, as they see tangible improvements in their performance over time, thus increasing automaticity. However, it is important to note that task repetition should be balanced with variety and novelty to avoid boredom and maintain learner engagement.

**Study Abroad Programs.** Study abroad programs are educational initiatives that offer students the opportunity to live and study in a foreign country, typically for a specified period, often a semester or academic year (King & Young, 1994). These programs are designed to provide students with a rich cultural and educational experience by immersing them in a different country's language, culture, and academic environment (Leonard & Shea, 2017). Study abroad programs are offered by educational institutions

worldwide and are popular among students seeking to broaden their horizons, gain a deeper understanding of global issues, and improve their language skills through immersive experiences (King & Young, 1994).

Leonard and Shea (2017) investigate the development of L2 speaking skills during study abroad programs, focusing on fluency, accuracy, and complexity, as well as the underlying cognitive factors contributing to this development. They used a longitudinal design with 41 participants who spent one semester in Spain and measured the participants' oral proficiency three times (pre-departure, mid-semester, and end-semester). The authors used automated analyses to investigate the speech characteristics of fluency, accuracy, and complexity. Results revealed significant improvements in all three categories of oral proficiency, with fluency showing the greatest gains. The authors also investigated the cognitive factors underlying these gains by analyzing working memory capacity, attentional control, and inhibitory control. Results suggest that working memory capacity may play a role in gains in fluency and complexity, while inhibitory control may be related to gains in accuracy. The study highlights the positive effects of study abroad programs on L2 speaking development and the importance of cognitive factors in this process.

This shows that studying abroad is considered practical in developing student automaticity in a second language. The immersion in the target language and culture provides the learners with ample opportunities to use the language in real-life situations (Leonard & Shea, 2017), which in turn can lead to a more automatic use of the language. DeKeyser (2020) mentions that automaticity is achieved through extensive practice and feedback. Study abroad can provide an ideal context for such practice, as learners are exposed to a wide range of input and receive feedback from native speakers in various communicative contexts (Leonard & Shea, 2017).

## Conclusion

Skill Acquisition Theory suggests that individuals acquire and develop skills through three different processes: declarative, procedural, and automaticity. However, while DeKeyser (1997, 2007, 2020) proposed this theory, he did not provide insight into how to teach these processes. To address this gap, this paper reviewed previous literature to explore different ways of enhancing second language learning.

The review revealed that declarative knowledge can be developed through inductive and deductive instruction and by revising genre-based studies. This is because inductive instruction involves providing learners with examples and asking them to identify patterns or generalizations, whereas deductive instruction involves presenting learners with rules or principles and asking them to apply them to specific examples (Cerezo et al., 2016). Both inductive and deductive instruction can be effective in developing declarative knowledge by providing learners with explicit knowledge of rules and patterns. Additionally, revising genre-based studies can help learners develop declarative knowledge by providing them with exposure to different types of texts and the features and conventions associated with those genres (Alinasab et al., 2021). Through this exposure, learners can develop a deeper understanding of the structures and patterns that underlie the language used in those texts, which can contribute to the development of their declarative knowledge.

Next, procedural knowledge can be developed through processing instruction, form-focused instruction, spaced distribution, negotiation through transcription, and feedback and noticing. Processing instruction involves providing learners with input that is designed to promote the acquisition of a specific linguistic structure (Baleghizadeh et al., 2014). Form-focused instruction, on the other hand, is an explicit instruction approach that aims to draw learners' attention to a specific feature of the language (Tomita & Spada, 2013). Spaced distribution involves distributing practice sessions over time to promote long-term retention of information (Miles, 2014).

Negotiation through transcription involves the negotiation of meaning during conversational interaction, which facilitates L2 acquisition (Mennim, 2012). Feedback and noticing, meanwhile, focus on providing learners with feedback on their production problems and prompting them to notice L2 forms (Mackey, 2006). Overall, these strategies work by providing learners with opportunities to engage in the use and practice of the target language in meaningful ways, while also drawing attention to specific linguistic features. By doing so, they help to build learners' procedural knowledge and enable them to use the language more automatically and fluently.

Finally, automaticity can be developed through task repetition and study abroad programs. Task repetition involves performing the same task multiple times, which can help learners to automate the process and increase their fluency. This process has been shown to improve learners' speech rate, frequency of pauses, and self-repairs across different task types and proficiency levels (Lambert et al., 2017). Study abroad programs, on the other hand, provide learners with a natural environment to practice their language skills and engage in authentic communication. The immersion in the target language and culture can also promote the development of automaticity by providing learners with ample opportunities to use the language in various social situations (Leonard & Shea, 2017). Study abroad participants have been found to show improvements in their oral proficiency, fluency, and accuracy (Leonard & Shea, 2017). Overall, task repetition and study abroad programs offer learners opportunities to engage in meaningful communication, which is essential for developing automaticity in a second language. This paper has highlighted various ways in which these three processes can be developed and suggests that language teachers can utilize these methods to facilitate language learning along with L2 learners through declarative knowledge, procedural knowledge and automaticity.

## References

- Alinasab, M., Ahmadian, M. J., & Hatami, H. (2021). Genre-based revising strategies of graduate students in applied linguistics: Insights from term papers. *Journal of English for Academic Purposes*, 50, 100941.  
<https://doi.org/10.1016/j.jeap.2020.100941>
- Baleghizadeh, S., Hashemi, M. R., & Eslami-Rasekh, A. (2014). The impact of processing instruction on the recognition and production of English derivational affixes among EFL learners. *SAGE Open*, 4(3), 2158244014551930.  
<https://doi.org/10.1177/2158244014551930>
- Cerezo, L., Caras, A., & Leow, R. (2016). The effectiveness of guided induction versus deductive instruction on the development of complex Spanish gustar structures: An analysis of learning outcomes and processes. *Studies in Second Language Acquisition*, 38(2), 265–291. doi:10.1017/S0272263116000139
- Chapelle, C. A. (2009). The relationship between second language acquisition theory and computer-assisted language learning. *The Modern Language Journal*, 93, 741–753.  
<http://www.jstor.org/stable/25612271>
- Chukharev-Hudilainen, E., & Klepikova, T. A. (2016). The effectiveness of computer-based spaced repetition in foreign language vocabulary instruction: a double-blind study. *CALICO Journal*, 33(3), 334–354.  
<https://www.jstor.org/stable/90014364>
- DeKeyser, R. M. (1997). Beyond explicit rule learning: Automatizing second language morphosyntax. *Studies in Second Language Acquisition*, 19(2), 195–221.  
<http://www.jstor.org/stable/44488683>
- DeKeyser, R. (2007). Skill acquisition theory. In B. VanPatten & J. Williams (Eds.), *Theories in second language acquisition: An introduction* (pp. 97–113). Lawrence Erlbaum Associates Publishers.

- DeKeyser, R. M. (2020). Skill acquisition theory. In S. M. Gass & A. Mackey (Eds.), *The Routledge handbook of second language acquisition* (pp. 83–104). Routledge.
- Ellis, N. C. (2011). Implicit and explicit SLA and their interface. In C. Sanz & R. P. Leow (Eds.), *Implicit and explicit language learning: Conditions, processes, and knowledge in SLA and bilingualism* (pp. 35–48). Georgetown University Press.  
<http://www.jstor.org/stable/j.ctt2tt7ko.8>
- Hyon, S. (1996). Genre in three traditions: Implications for ESL. *TESOL Quarterly*, 30(4), 693–722. <https://doi.org/10.2307/3587930>
- Izumi, S., & Bigelow, M. (2000). Does output promote noticing and second language acquisition? *TESOL Quarterly*, 34(2), 239–278. <https://doi.org/10.2307/3587952>
- King, L. J., & Young, J. A. (1994). Study abroad: Education for the 21st Century. *Die Unterrichtspraxis / Teaching German*, 27(1), 77–87.  
<https://doi.org/10.2307/3531477>
- Lambert, C., Kormos, J., & Minn, D. (2017). Task repetition and second language speech processing. *Studies in Second Language Acquisition*, 39(1), 167–196.  
doi:10.1017/S0272263116000085
- Li, S. (2013). The interactions between the effects of implicit and explicit feedback and individual differences in language analytic ability and working memory. *The Modern Language Journal*, 97(3), 634–654. <http://www.jstor.org/stable/43651697>
- Leonard, K. R., & Shea, C. E. (2017). L2 speaking development during study abroad: Fluency, accuracy, complexity, and underlying cognitive factors. *The Modern Language Journal*, 101(1), 179–193. <http://www.jstor.org/stable/44981015>
- Mackey, A. (2006). Feedback, noticing and instructed second language learning. *Applied Linguistics*, 27(3), 405–430. <https://doi.org/10.1093/applin/ami051>
- Mennim, P. (2012). Learner negotiation of L2 form in transcription exercises. *ELT Journal*, 66(4), 452–461. doi: 10.1093/elt/ccr018.
- Miles, T. R. (2014). Spaced vs. massed distribution instruction for L2 grammar learning. *System*, 44, 108–119. <https://doi.org/10.1016/j.system.2014.01.014>
- Morgan-Short, K., & Ullman, M. T. (2014). The neurocognition of second language. In S. M. Gass & A. Mackey (Eds.), *The Routledge handbook of second language acquisition* (pp. 282–299). Routledge.
- Shaffer, C. (1989). A comparison of inductive and deductive approaches to teaching foreign languages. *The Modern Language Journal*, 73(4), 395–403.  
<https://doi.org/10.2307/326874>
- Spada, N., & Lightbown, P. M. (2008). Form-Focused instruction: Isolated or integrated? *TESOL Quarterly*, 42(2), 181–207. <http://www.jstor.org/stable/40264447>
- Thai, C., & Boers, F. (2016). Repeating a monologue under increasing time pressure: Effects on fluency, complexity, and accuracy. *TESOL Quarterly*, 50(2), 369–393. <http://www.jstor.org/stable/43893824>
- Tomita, Y., & Spada, N. (2013). Form-Focused instruction and learner investment in L2 communication. *Language Learning*, 63(3), 435–462.  
<https://doi.org/10.1111/j.1540-4781.2013.12031.x>
- VanPatten, B. (2005). Processing instruction. In C. Sanz (Ed.), *Mind and context in adult second language acquisition: Methods, theory, and practice* (pp. 267–281). Georgetown University Press. <http://www.jstor.org/stable/j.ctt2tt6xc.13>
- VanPatten, B., & Cadierno, T. (1993). Explicit instruction and input processing. *Studies in Second Language Acquisition*, 15(2), 225–243.  
<http://www.jstor.org/stable/44487619>
- Vogel, E., Detweiler, J., Lafford, B., & Halter, R. (2011). Effectiveness of a guided inductive versus a deductive approach on the learning of grammar in the intermediate-level college French classroom. *Foreign Language Annals*, 44(1), 64–83. <https://doi.org/10.1111/j.1944-9720.2011.01152.x>
- Williams, J. N. (1999). Memory, attention, and inductive learning. *Studies in Second Language Acquisition*, 21(1), 1–48. <http://www.jstor.org/stable/44486415>