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Self-access Strategy Instruction for Academic Writing Vocabulary: What Learners Actually Do

ISOBEL KAI-HUI WANG AND ANDREW D. COHEN

¹Institute for Language Education, The Moray House School of Education & Sport, University of Edinburgh (Holyrood Campus), Edinburgh, UK

²Professor Emeritus, University of Minnesota, Minneapolis, MN, USA

E-mail: isobel.wang@ed.ac.uk

This paper describes a close-up investigation of four advanced language learners' engagement with strategy instruction (SI) materials specially designed to enhance efforts to fine-tune comprehension and production of academic vocabulary. The learners first completed a measure of learning style, and then provided introspective and retrospective verbal report data and log entries during and after each interactive session with the SI materials over an eight-week period. The results showed that the learners' engagement in these sessions heightened their awareness of strategies for fine-tuning their comprehension and production of vocabulary. Issues also arose during their efforts at vocabulary fine-tuning—such as their doubting the results, their experiencing fatigue, and their perceived failure to strategize effectively. The study provided a look at the complex interplay of variables when the learners were attempting to extract insights from the SI materials. In particular, the data illustrated how style preferences related to the selection of strategies in academic writing. The implications for individualized approaches to the implementation of SI and for teachers' support of L2 learners' strategic performance are discussed.

1. INTRODUCTION

Strategy instruction (SI) is usually defined as explicit teaching of language learner strategies (LLS) with the view that it enables learners to become more effective users of the target language (TL) (Cohen 2011). SI has now become a popular focus for research on enhancing TL learning outcomes (Pawlak 2021). The underlying assumption is that SI, in whatever form it takes, can assist learners in becoming more strategic in their learning of the TL. Despite methodological failings and inconsistencies across studies, the finding from key meta-analyses is that SI significantly contributes to student performance, justifying this approach to enhancing language learning worldwide (Plonsky 2019). It would appear,

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however, that studies have not yet done close-order exploration of learners' actual engagement with SI materials made available to them—especially outside of the classroom setting. There is widespread agreement that engagement should be conceptualized as a multidimensional construct comprising learners' behavioral, cognitive, and affective processes of interacting with affordances or opportunities to learn (Wang and Mercer 2020). It would appear that a better understanding of how learners engage in SI (i.e. what they think, do, and feel in SI) would provide language educators insights regarding the maximization of its impact.

This paper reports on a study which provided a micro-level analysis of the engagement of four advanced-level learners in self-access SI specific to vocabulary learning situated within their writing tasks and investigated how it actually contributed to their efforts to fine-tune vocabulary. Whereas the literature has tended to provide a macro-level view of strategy use, when analyzed at the micro level, learners' processing of SI material is seen to vary in accordance with their individual differences. In particular, learning style preferences help us understand the strategies selected from the materials and the learners' performance in using them (Wang and Cohen 2021). In this study, the qualitative methods (i.e. verbal reports and reflection logs) were used to explore the complex interplay between learner characteristics (especially style preferences), strategy use, and strategy selection over time. This study aimed to contribute to a more learner-centered, personalized approach to SI.

2. LITERATURE REVIEW

2.1 Vocabulary strategy instruction

Studies over the years have highlighted the teaching of certain vocabulary learning strategies (VLSs), especially 'deep' processing strategies for memorizing vocabulary, such as through mnemonic associations and the semantic processing method (e.g. Atay and Ozbuigan 2007), and inferencing strategies for discovering the word meaning in context (e.g. Hassanzadeh et al. 2019). Some studies have even broadened the spectrum by looking at the use of multiple VLSs (such as discovery and consolidation strategies) (e.g. Gay 2022). Notwithstanding the encouraging efforts to enlarge the scope of SI studies focusing on vocabulary, there seem to have been few studies focusing on the dynamics of enhancing learners' ability to be strategic in fine-tuning their comprehension and production of vocabulary. Such fine-tuning would encompass dealing with semantic distinctions between synonymous words, making appropriate collocations, and identifying constraints on the use of words and phrases (for an exception, see Ranalli 2013).

Another issue is the extent to which teacher-led, classroom-based SI is viable. For example, the question has been raised as to whether the one-size-fits-all approach adequately serves diverse student groups (Chamot and Harris 2019). In addition, teachers are concerned they may lack class time to devote to its implementation (Ranalli 2013). Hence, teachers and learners alike may welcome

self-access SI which provides a valuable alternative or complement to classroom-based approaches. Such a self-directed approach enables learners on their own to familiarize themselves with strategies suitable for their needs. Various forms of self-directed SI have been constructed with that goal in mind—a case in point being the grammar SI website with self-access materials constructed by [Cohen et al. \(2011\)](#). Another such effort entailed the construction of online vocabulary strategy instruction (VSI) ([Ranalli 2013](#)). Empirical evidence was provided regarding the effectiveness of this VSI. The learners in the experimental group displayed statistically greater improvements in their ability to use vocabulary appropriately than did a comparison group. Despite efforts such as this one to explore the effectiveness of online VSI, there still remains a paucity of in-depth qualitative studies regarding language learners' accessing of online VSI and their perceptions as to the results.

A caveat here is that although self-directed SI appears to have the potential to enhance learning outcome and autonomy, its benefit may vary across age groups and language proficiency levels. For example, in the case of young EFL learners (i.e. ages 14–16) with limited language proficiency and knowledge of strategies, the self-directed VSI intervention did not significantly increase the experimental group's repertoire of metacognitive strategies when compared to a randomly selected control group ([Rahimi and Allahyari 2019](#)). The findings underscored the importance of teacher support and guidance for young, low-proficiency learners in raising awareness of the metacognitive function of given strategies. Based on the results, the researchers recommended the combining of self-directed and teacher-led VSI.

The reviewed studies including recent efforts (for details, see [Supplementary Materials 1](#)) have tended to investigate the effect of VSI on learning outcomes (i.e. improvement in vocabulary knowledge, vocabulary size, or both) by means of an experimental design with one group receiving strategy enhancement and the other not, in line with the [Plonsky's \(2019\)](#) meta-analyses of SI. However, this type of study does not capture the participants' real-time engagement with SI, especially the interplay of both successful and unsuccessful strategy use at an individual level. At present, there seems to be only limited empirical work looking at how learners actually engage with the SI input. An example of such empirical work is that by [Wang and Cohen \(2021\)](#), which included details as to the aspects of SI that one learner focused on and her relative success at incorporating the results of these encounters in her completion of tasks.

In addition to the learning outcomes, another emphasis in the literature (see e.g. [Supplementary Materials 1](#)) appears to be the study of how VSI impacts strategy development, especially the frequency and range of strategies used often measured by predetermined questionnaires involving self-report of non-task-specific strategy use. However, concerns about survey studies have been raised, since they often do not reveal the complex nature of strategy use, including individuality in the use of strategies, fluctuation in the functions of a given strategy ([Cohen and Wang 2018](#)), and the context-specific deployment of strategy sequences and clusters at a micro level ([Wang 2018](#)). Increasing evidence

has also shown that successful vocabulary learning is related to the quality of strategy use (i.e. appropriate combination of strategies and effective management of breakdowns in strategy use) rather than the number of strategies used (Cohen and Wang 2019).

To enhance vocabulary learning, some studies have implemented both metacognitive instruction (i.e. metacognitive control of vocabulary learning) and specific VLSs (e.g. Mizumoto and Takeuchi 2009; Rahimi and Allahyari 2019). However, only recently have researchers included explicit instruction in strategy sequences in their VSI interventions (Gay 2022). Such work has had the objective of raising learners' awareness as to the multifunctional nature of a given strategy. Regarding language proficiency levels, the impact of metacognitive instruction on low-proficiency learners has appeared to be minimal (Rahimi and Allahyari 2019). These findings suggest that such instruction might be more impactful with intermediate and advanced learners, since they might have more experience using strategies and may be better able to improve the orchestration of strategy use (Chamot 2016). Another possible reason, especially with the more advanced students, is that they may be better at using terminology metalinguistically (e.g. the metacognitive function of a given strategy) or at knowing how to respond to questionnaires. Therefore, it would be beneficial to conduct oral interviews to determine the reality. In addition, it is sometimes assumed that since advanced-level learners are likely to have a wide repertoire of strategies, they do not need SI. Nonetheless, the paucity of close-order VSI studies available would suggest the need to improve advanced-level learners' ability to manage their strategy use and develop their strategies for dealing with complex vocabulary issues (Wang and Cohen 2021).

2.2 Building the link between style preferences and strategy use in SI

The quality of strategy use tends to be related to the appropriate use of strategies for an individual learner (Cohen 2011). Hence, the need for a more learner-centered approach to SI, such as self-access SI materials and self-directed SI websites, has been increasingly recognized (Wang and Cohen 2021). An outcome of this approach is that learners tend to take more responsibility for their learning and select given strategies consistent with their learner characteristics. In particular, learning styles have been identified as one of the key learner characteristics relating to LLS in the literature, and raising learners' awareness of their own style preferences also appears to contribute to effective strategizing (Oxford 2003; Wang and Cohen 2021).

Learning style preferences are general approaches and preferred ways of learning (Oxford 2003). Whereas much of the learning style literature focuses primarily on sensory preferences (i.e. visual, auditory, and kinesthetic; see Dörnyei and Chan 2013); cognitive and personality-related preferences are also important to consider in order to get a more comprehensive picture of the learning style preferences of given learners (Cohen 2011: 39, see Figure 1).

Studies have looked at the link between especially sensory- and personality-related styles and strategies (e.g. Wong and Nunan 2011; Ma and Oxford 2014), and the findings of these investigations have indicated that:

- learning is likely to be enhanced when learners' strategies are compatible with their style preferences;
- learners, especially advanced ones, may style stretch beyond their comfort zone, selecting less-preferred strategies to accomplish the given task.

In addition, learners' style preferences have been found to vary along a continuum, depending on the nature of the task.

Given the interrelationship between learning styles and strategies, the two have been integrated within SI programs, in an effort to promote more personalized strategic behaviors. One of the prominent models of this integrative approach was the styles- and strategies-based instruction (SSBI) model, which focused on enhancing learners' ability to adapt their strategy use to accommodate their style preferences (Cohen et al. 2021). Teachers' understanding of this interrelationship between LLS and style preferences has been seen to contribute to SSBI results among learners (Cohen et al. 2021). Consequently, there are good reasons to add the style preference dimension into SI when designing self-access SI materials. This paper reports on an investigation of the benefits to TL writers from increased awareness as to how their style preferences contribute to their strategizing about vocabulary fine-tuning.

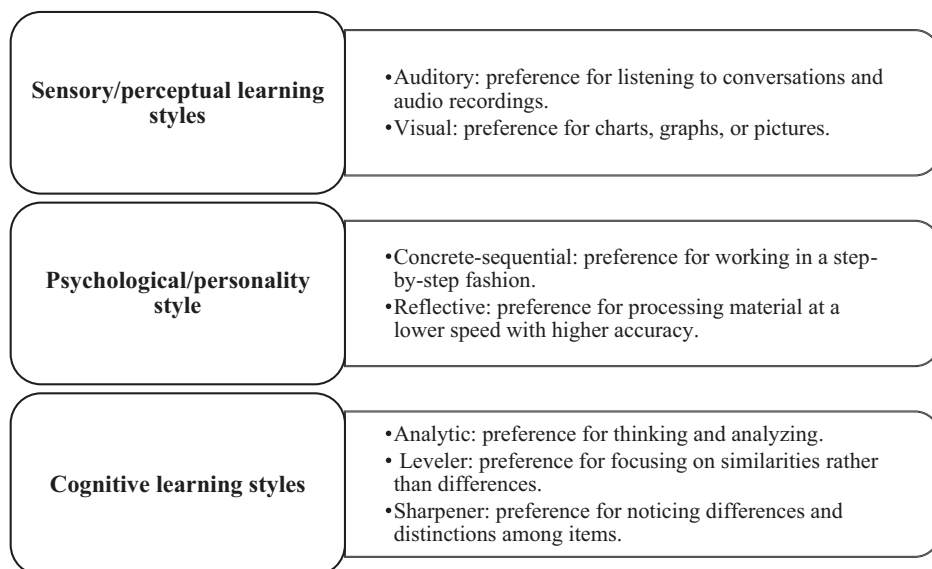


Figure 1: Learning style dimensions

2.3 Rationale for this study

The current study was informed by a framework proposed by Takač (2008), based on insights gained from theories of second language acquisition and vocabulary instruction, and findings from empirical studies on VLS. The framework encompasses individual learner differences, along with linguistic and contextual factors affecting TL vocabulary acquisition (see Figure 2).

This framework illustrates how TL learners' use of vocabulary strategies is conditioned by the interplay among various factors, such as their proficiency level and mental lexicon in the TL, the linguistic features of the given lexical items, and the specific learning tasks. The framework underscores the importance of a learner-centered approach to SI, where individual differences play a major role in strategic learning. The interrelations found in this theoretical framework also highlight the situated nature of the learner's efforts to arrive at a fine-tuned comprehension of lexical items.

The focus of the current study was on advanced Chinese learners of English who mainly learn academic vocabulary independently and require substantial vocabulary knowledge in order to perform successfully in academic writing (Higginbotham and Reid 2019). Such learners do not usually receive explicit instruction in the strategies needed to deal with the comprehension and use of specialized vocabulary (see Figure 3). Empirical evidence has shown, for example, that they are lacking teacher feedback regarding their choices of words and collocations (Dodigovic et al. 2014).

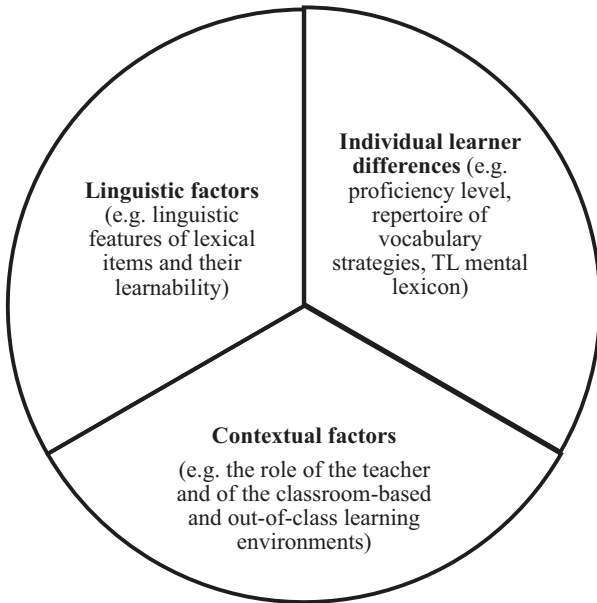


Figure 2: Factors affecting TL vocabulary acquisition

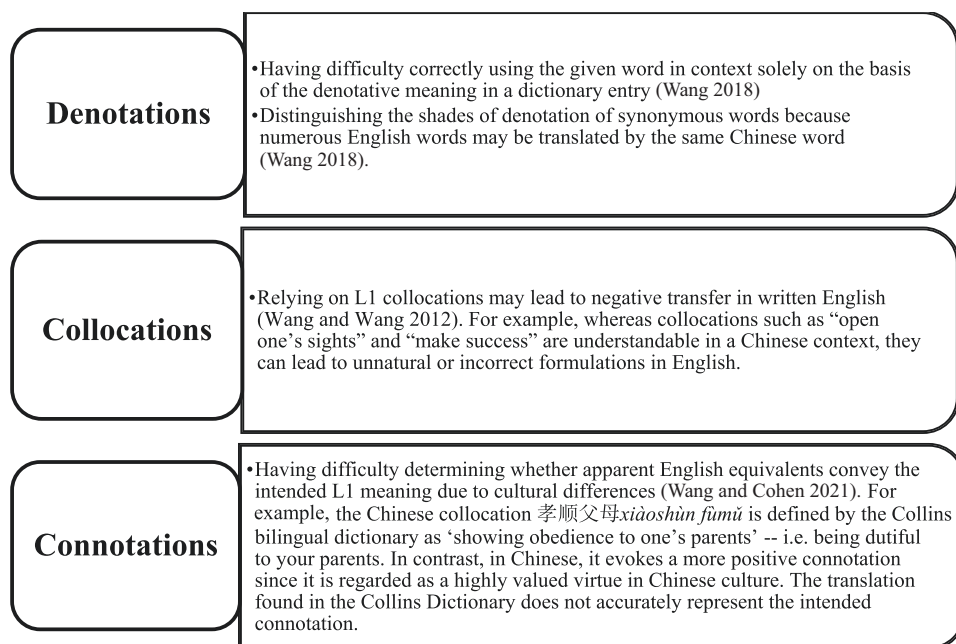


Figure 3: Issues in academic vocabulary

The area of strategizing of interest in this paper is that of the fine-tuning of vocabulary comprehension and production (Wang 2018, for details, see Figure 4). An intervention study was undertaken with the intention of enhancing the strategies that Chinese learners of English use in fine-tuning vocabulary while writing academic texts.

The takeaway from the review of literature is that there is an area regarding SI that has been largely overlooked—namely, the strategies learners use when engaging with SI materials provided to them. This study aims to address this gap in the research literature. Regarding the construct of *engagement*, drawing on insights from the literature (Wang and Mercer 2020), the concept is viewed in terms of three major dimensions: behavioral, cognitive, and affective (for details, see Figure 5).

2.4 Research questions

1. To what extent does learners’ engagement with self-access SI materials impact their fine-tuning of academic vocabulary?
2. How do the learners’ style preferences relate to their selection and use of vocabulary fine-tuning strategies?

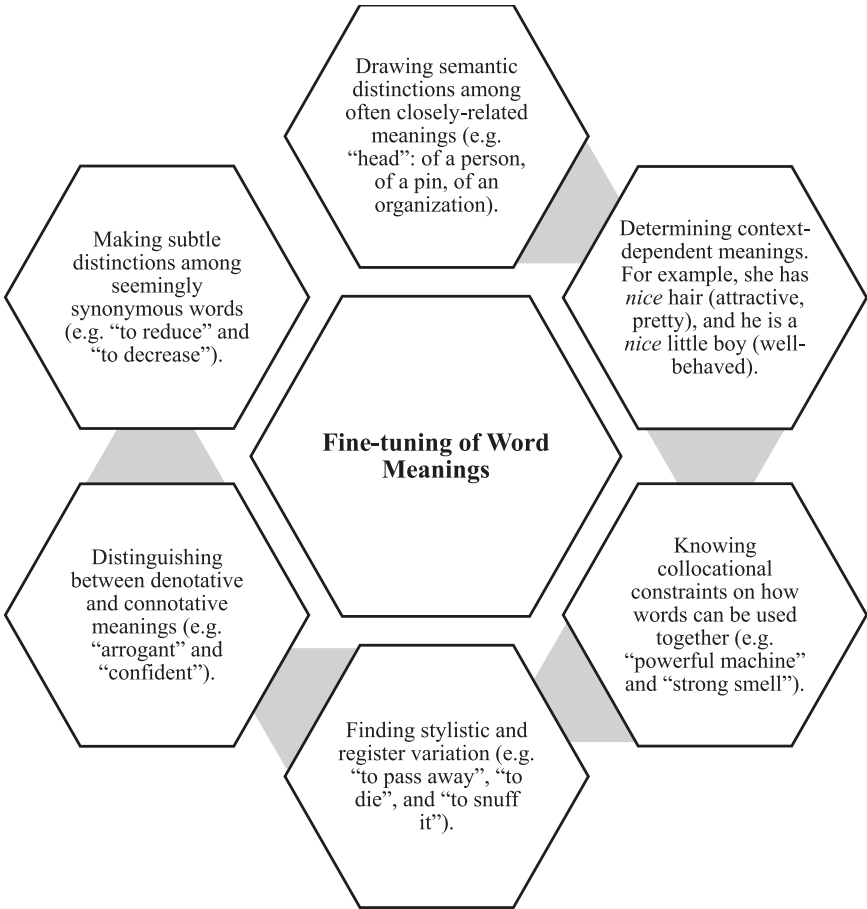


Figure 4: Vocabulary fine-tuning

3. METHODS

The present study adopted a multiple-case-study approach that utilized introspective and retrospective verbal report, reflection logs, and a measure of learning style. This approach to case-study work was deemed consistent with Takač's (2008) theoretical framework which encouraged the investigation of learners' situated interactions with SI materials—the complex interplay of individual learner characteristics, the learning situations, and the strategies selected for dealing with the given tasks. The verbal report data and log entries were collected in order to address research questions #1 and #2 above, while the style survey data were added in order to respond specifically to research question #2.

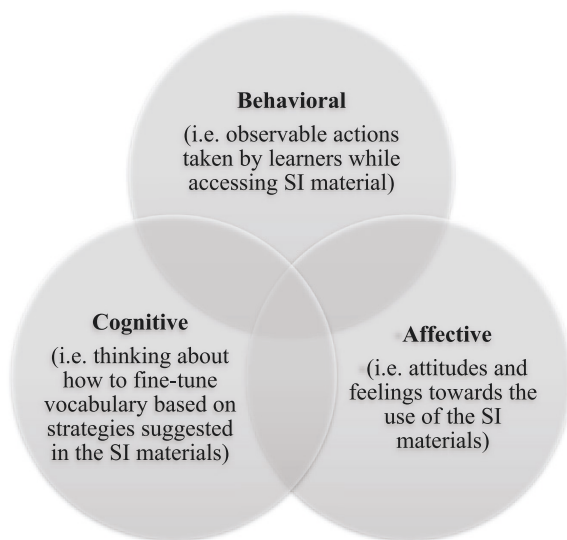


Figure 5: Conceptualization of engagement

3.1 Participants

In order to recruit participants, a letter was posted on international Chinese associations' e-forums. Fifteen students responded that they were willing to participate. From this pool, four Chinese learners of English were selected and requested to complete a vocabulary task in which they were asked to distinguish the meanings of two pairs of academic words. The criteria for inclusion in this study were (1) fairly advanced English proficiency based on iBT TOEFL or IELTS test results, (2) a seemingly limited repertoire of strategies for fine-tuning vocabulary based on their vocabulary task performance (see [Supplementary Materials 2](#)), and (3) their interest in enhancing their strategies for distinguishing word meanings in academic writing.

The four participants were all 25-year-old Chinese nationals and all doctoral students at the time of the study. Their L1 was Chinese. Three of the participants (pseudonyms Rui, Yi, and Na) were females and Kun (pseudonym) was male.

Kun noted that reduced contact with native speakers of English due to COVID-19 increased his motivation to access SI materials in order to become a more independent language user (see [Table 1](#)). Na and Yi returned from the UK to China during the pandemic. Yi reported that her limited exposure to English in China contributed to her limited academic vocabulary, and that consequently, she had to spend considerable time approximating the intended meaning through the use of more general words. Na felt that she needed to improve her ability to use academic vocabulary in more grammatically acceptable ways. Rui was motivated to increase her contact with English and to improve her language skills in order to prepare for her upcoming research visit to the UK.

Table 1: Participants' background information

Pseu-donym	Language test score	Current status	Learning context	Extent of English exposure
Kun	IELTS 8.0	A PhD student at an Austrian university	ESL	Moderate
Na	IELTS 8.0	A PhD student at a British university	ESL→EFL	Moderate
Yi	iBT TOEFL 112	A PhD student at a British university	ESL→EFL	Moderate→ Low
Rui	iBT TOEFL 102	A PhD student at a Chinese university	EFL	Low→ Moderate

3.2 The intervention: SI through self-access materials

3.2.1 The construction of the materials. The SI materials, referred to as *Vocabulary Strategy Instruction for Academic Writing*, were designed to assist Chinese university students to become more successful in fine-tuning vocabulary for academic writing (see Figure 6). The initial materials development was informed by the SSBI model (Cohen and Weaver 2006) and by pedagogical implications from two empirical studies (Cohen and Wang 2018, 2019).

Additionally, 15 Chinese-speaking ESL university students participated in three focus-group sessions which contributed to the preparation of the materials. The sessions served to highlight three areas considered problematic in the fine-tuning of vocabulary for academic writing: (1) identifying appropriate synonyms to avoid repetition, (2) forming acceptable collocations, and (3) determining lexical items conveying the desired meanings. Based on the problematic areas, scenario-based materials were created, including examples of strategies that could be used to complete the given tasks. The self-access materials consisted of four sections: (a) dictionary use, (b) scenarios modeling contextualized strategy use, (c) explanations and examples of strategy functions, and (d) the relationship between style preferences and LLS. Furthermore, a teaching avatar (i.e. a 'wise owl') was also created to provide advice on issues that students might encounter during the self-access session.

The SI materials underwent usability testing with two Chinese university students. Consistent with their feedback, the content of the materials was revised. One example of revision was the addition of alternative online resources that were accessible in China.

3.2.2 Orientation of the user to the SI materials. The two orientation sessions were conducted individually with each participant via Skype, with each session lasting approximately 40 minutes. The aim of the first session was to introduce the materials and explain how to interact with them. This session entailed a presentation provided by Wang detailing the key features (see Figure 7).

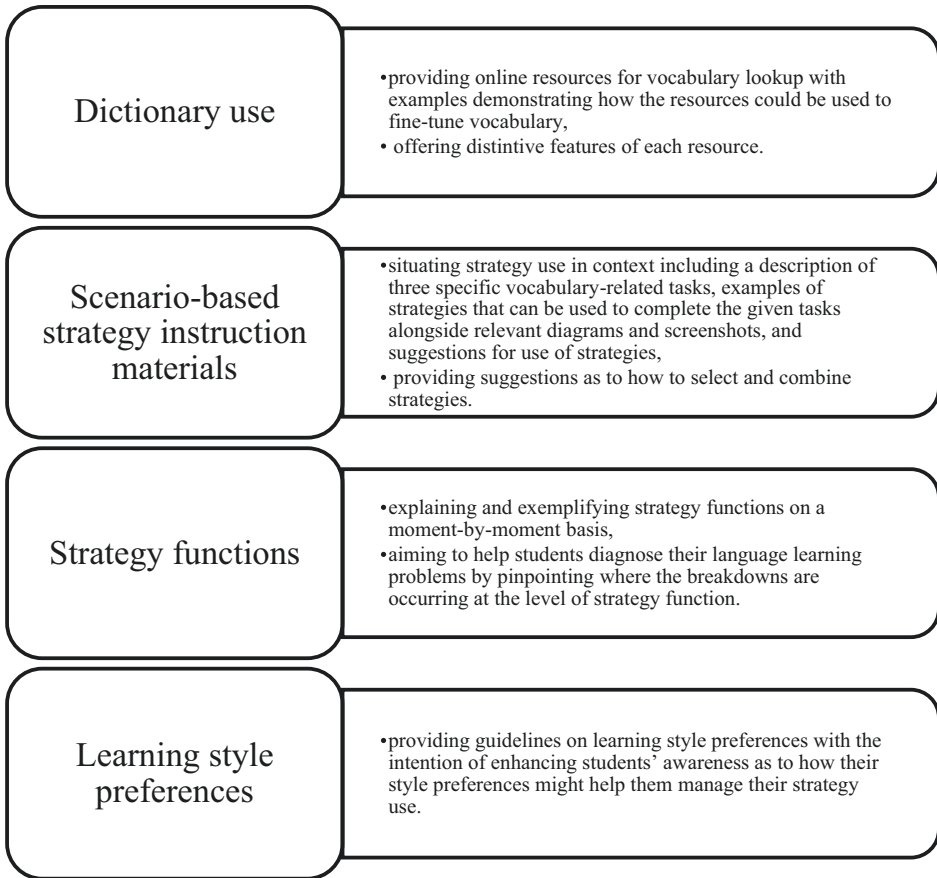


Figure 6: An overview of SI materials

In addition, the participants were encouraged to ask questions during and after the presentation. They were then requested to try out the SI materials and to ask further questions if necessary.

The aim of the second session was to familiarize the participants with the data collection procedures. Prior to the session, a five-minute video prerecorded by Wang was shown in order to demonstrate how to introspect and retrospect about strategy use in a sample task (i.e. to fine-tune the semantic distinction between two academic words). During the session, each participant was invited to provide a verbal report on a similar task by means of WeChat voice messaging. Next, they listened to the audio recording of their own verbal report and were prompted to clarify what they had provided. Wang reviewed what they had done in the task and further explained the procedures for making log entries, which would be analyzed after the SI sessions.

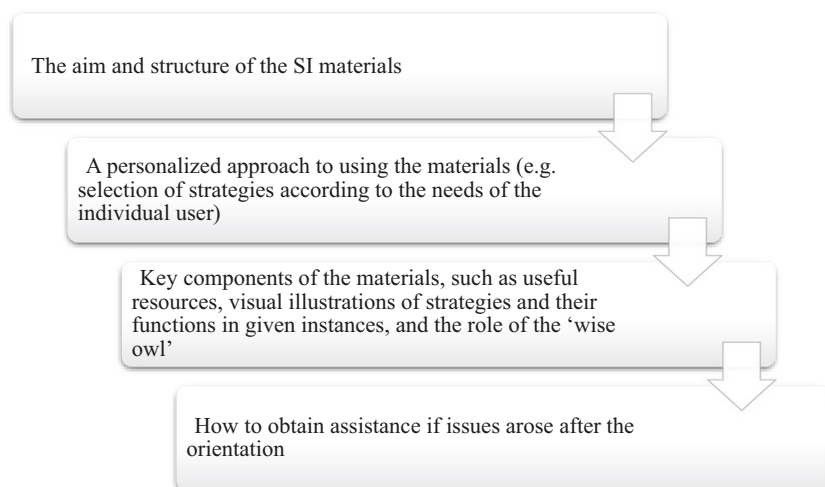


Figure 7: An orientation session to introduce the key features of the SI materials

3.3 Instrumentation

3.3.1. *Measure of learning style preference.* Participants took the self-scored *Learning Style Survey* developed by Cohen et al. (2002) in order to get a sense of their style preferences for learning English.

3.3.2. *Real-time voice messaging.* Participants were requested to provide verbal report on their engagement with the SI materials in the form of both introspection (i.e. within 20 seconds of a given instance of strategic behavior) and immediate retrospection (i.e. after 20 seconds, and thus a memory of the mental event).

3.3.3. *Reflection log.* On average, participants kept a log of their sessions every nine days as prompted by a checklist created to assist them in maintaining a record of how they engaged in self-access sessions (see [Supplementary Materials 3](#)). The aim was to gather detailed information from participants as to their behavioral, cognitive, and affective engagement (for details, see [Figure 8](#)).

3.4 Data collection

On average, each participant engaged in seven self-access sessions over a two-month period. The following steps were taken to collect the data, which were all collected online rather than in person:

1. Participants completed and self-scored the *Learning Style Survey*.
2. They chose their own writing tasks, accessed the SI materials according to their needs, and used WeChat voice messaging to provide verbal report of their sessions.

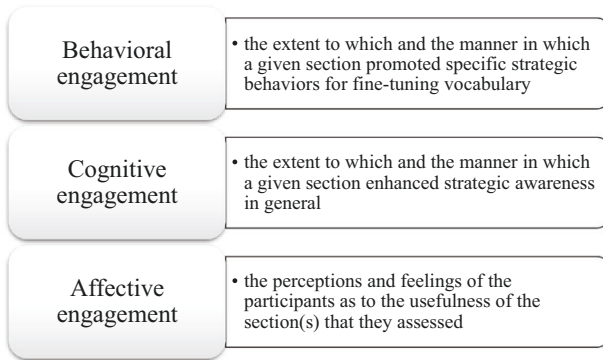


Figure 8: Information gathered from reflection logs

3. After each session, they used the checklist as an aid in preparing log entries.
4. Upon receiving their log entries, when deemed necessary, the co-investigator emailed them requests for clarification and elaboration regarding the usefulness of given strategies and changes in strategy use over time.
5. They provided detailed information in response to the co-investigator's queries.
6. The co-investigators responded to the participants' queries in their log entries, such as doubts about their fine-tuning results and strategies for dealing with unsuccessful attempts.

3.5 Data analysis

Multiple levels of analysis were conducted in order to better understand the findings, so as to interpret them more accurately. The first analysis of the data was conducted instrument by instrument. The data were analyzed based on the participants' actual language, Chinese, since this approach allowed the analysis to remain faithful to the participants' original ideas. Only the quoted sections of the data were translated into English. The participants were invited to check if the English translation conveyed their original ideas.

Participants' style preferences were identified based on their self-scoring of the *Learning Style Survey*. General patterns were detected based on a direct analysis of the verbal report data and the log entries. Special attention was given to the screenshots of the materials accessed and to information regarding the perceived usefulness of particular sections in the materials gathered from the log entries. Next, a thematic analysis of the verbal report data and log entries was conducted by a qualitative analysis software, *ATLAS.ti*. The major advantages of using *ATLAS.ti* were that it enabled Wang to work directly with the data in Chinese characters, and create multiple and overlapping codes while retaining the given context (Lewis 2004).

The verbal report data were first coded in terms of the learners' actual engagement with the SI materials. The log entries were then coded with a focus on the participants' perceptions of the SI sessions, and links were also made to the verbal report data, especially pertaining to experiences in the sessions that they viewed as noteworthy, along with any issues that arose during their efforts at vocabulary fine-tuning. Coding was refined and synthesized across different data sources using *ATLAS.ti*, resulting in the identification of emerging themes.

A range of key themes emerged relating to learner engagement with the SI materials, such as the use of resources, strategic awareness, learning styles, moments of doubt regarding the results, and perceived failure in strategy use. Wang and Cohen conceptualized the underlying connections between different themes, which generated three categories of strategizing while the learners engaged with the SI materials: behavioral, cognitive, and affective. Emerging style preferences related to the reported strategy use were also grouped into three categories: cognitive, personality, and sensory styles. The multiple waves of coding were conducted for each case and then were compared across the four cases.

3.6 Researcher positionality

The study design inevitably transmitted to participants the attitude that strategizing was more complex than the research literature would suggest. In fact, the study design called for heightening participants' awareness as to the complex dynamics of SI in vocabulary fine-tuning. We acknowledge that the very nature of our intervention may have encouraged them to engage in more rigorous efforts than the average learner would expend. Nonetheless, given that the study was more about the nature of the processing of SI, rather than success at doing so, any reactive effects of the intervention were interpreted as bolstering the findings, rather than prejudicing them. In order to enhance the trustworthiness of the findings, we conducted member checking and triangulation (Richards 2003) by means of:

- seeking on a regular basis the participants' corroboration as to what interpreted as findings in the data;
- which course (verbal report data, the reflection logs, responses on the style survey).

4. RESULTS

4.1 The extent to which learners' engagement with self-access to SI materials impacted their fine-tuning of vocabulary

The findings regarding engagement with the SI materials can be viewed from three perspectives: behavioral (B), cognitive (C), and affective (A).

4.1.1 Participants' takeaway from a behavioral perspective

4.1.1.1 *Exploration and utilization of resources (B)*. Before engaging in the self-access sessions, the four advanced learners indicated using a limited range of resources in dealing with vocabulary. They tended to rely on one single resource rather than multiple ones. In their SI sessions, they experimented with a variety of dictionaries and online resources. For example, Na had been relying primarily on an online dictionary, called *Youdao*, which provided instant bilingual translations. After accessing the bilingualized Cambridge dictionary as suggested in the SI materials, she commented about it in the first log (for its original Chinese and English translation, see [Figure 9](#)).

Yi and Rui both had the realization that they needed to access more examples from formal written discourse rather than just from spoken discourse in order to effectively fine-tune vocabulary in writing. Rui commented on this in her second log (see [Figure 10](#)):

《剑桥词典》提供的例句来自更可靠的来源。有道的例句来自维基百科。我们都知道维基百科的信息可能是不准确的。

Sample sentences provided by the Cambridge Dictionary are drawn from more reliable sources. Youdao's sample sentences are drawn from Wikipedia. We know that the information from Wikipedia might not be accurate.

Figure 9: Excerpt presented in original Chinese and English

Bing提供的例句 [[she used it in the past]] 通常来自小说，广告和电影。当我想要看看如何使用学术词汇时，谷歌学术可能对我更有帮助。

Sample sentences provided by the Bing [[she used it in the past]] were often taken from novels, advertisements, and movies. Google scholar could be of greater assistance to me when I need to find how to use academic words.

Figure 10: Excerpt presented in original Chinese and English

Through ongoing interactions with the SI materials, the four learners became aware of how best to utilize each resource. For instance, Na commented that the thesaurus dictionary suggested to her could provide synonyms for individual words, but not for phrases. Yi reported in the fifth log that the collocation dictionary helped her deal with multiple demands and consequently saved her time (see the excerpt in Figure 11).

Before accessing the SI materials, Kun tended to use only one monolingual dictionary to deal with all vocabulary issues, but it was not always helpful. After trying the dictionaries suggested by the SI materials, Kun reported that while the collocation dictionary was limited to collocations, the Oxford learner’s dictionary offered more word information, including grammatical usage. He reported in the third session how he was utilizing multiple resources for determining word meaning (see Figure 12).

搭配词字典建议了可以与“shortage”结合的同义词，例如“acute”，“serious”，和“severe”。因此，它不仅帮我找到了一个令我满意的搭配，还帮助我发现了具有类似含义的搭配。

The collocation dictionary suggested synonymous words that could used in collocation with the word “shortage”, such as “acute”, “serious”, and “severe”. Therefore, it helped me find not only one acceptable collocation, but also collocations with a similar meaning.

Figure 11: Excerpt presented in original Chinese and English

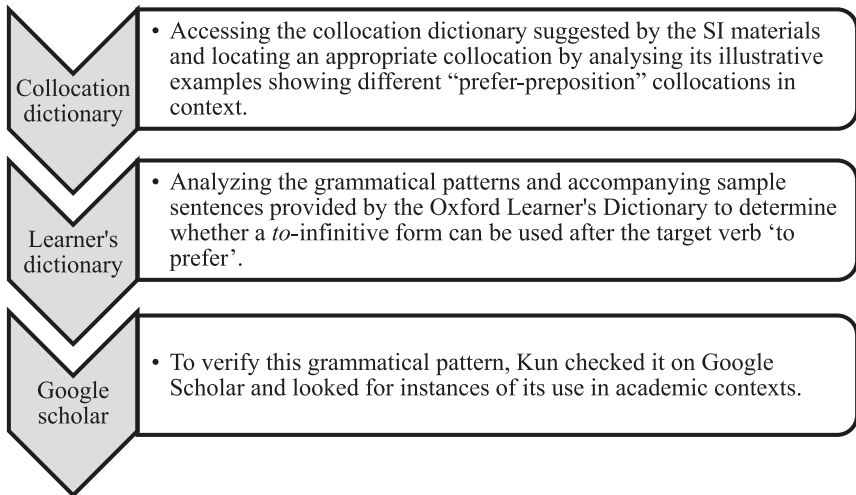


Figure 12: The strategic use of multiple resources

4.1.2 Participants' takeaway from a cognitive perspective

4.1.2.1 *Fine-tuning vocabulary in context (C)*. The learners also expanded their repertoire of strategies for checking whether the English word that they selected conveyed their desired meaning. Yi, Kun, and Rui explained that they had been accustomed to determining the meaning of an English word by means of reading its definition and sample sentences. Through interacting with the SI materials, they learned to fine-tune by analyzing not only the *immediate context* for the target word (e.g. sample sentences provided by a dictionary), but also relating it to the *broader context*—semantic constraints, register, and the formality of the language. For instance, Rui attempted to determine whether the word 'to console' could be used to express 慰问 *wèiwèn*. For starters, she used a sample sentence provided by the Oxford dictionary (i.e. 'Never mind', *Anne consoled her.*) to gain a general understanding of its meaning 'to comfort someone who is unhappy'. Nonetheless, as noted in the fifth log, she was unsure whether it accurately conveyed her intended meaning (see [Figure 13](#)).

As indicated above, the dictionary's sample sentence alone did not provide Rui enough clues for her to determine whether the word conveyed the connotational meaning of 慰问 *wèiwèn*. Consequently, she made further efforts to identify its register and stylistic constraints by analyzing more instances of its use in Google.

4.1.3 Participants' takeaway from both behavioral and cognitive perspectives

4.1.3.1 *Awareness of strategies (B, C)*. From the third self-access session, the four participants increasingly underscored in their logs that the SI materials provided them ideas as to how to be more strategic about fine-tuning their understanding of sometimes subtle semantic distinctions among seemingly synonymous words. For example, in her second session, Na focused almost exclusively on

慰问 *wèiwèn* 这个词就深于文化之中。当上级（比如说老板）正式探望有困难的人（例如员工）对他们深表同情时，我们会经常使用它。但是我无法从例句中确定“console”是否具有这种含义。

慰问 *wèiwèn* is culturally rooted. It is often used when superiors (e.g. boss) pay a formal visit to someone (e.g. an employee) who faces difficult times, and extend their sympathy. Yet, I couldn't determine from the sample sentences if “console” could have that meaning.

Figure 13: Excerpt presented in original Chinese and English

我几乎很少去斟酌这个词，它是否是一个合适的同义词来代替它。持续使用这个资料有助我意识到我需要通过更严谨的词义分析来提高我对单词的理解。

I rarely thought whether it was an appropriate synonym to substitute for the target word. Keeping access to the SI materials helped me realize that I needed to fine-tune my understanding through a rigorous semantic analysis.

Figure 14: Excerpt presented in original Chinese and English

similarities among the three terms ‘ethical considerations’, ‘ethical principles’, and ‘ethical standards’.

She considered that they were interchangeable since she had not made a more nuanced analysis of their semantic distinctions. Her third log, however, showed that her continuous access to SI materials had heightened her awareness of strategies to assist her in fine-tuning vocabulary (B, C). Figure 14 (i.e. transcript in both Chinese and English) demonstrates how accessing SI materials was beneficial.

4.1.3.2 *The enhancement of the participants’ strategy repertoire (B, C)*. In most cases, participants were able to find a synonym or a collocation by means of the suggested resources. Yet, they were uncertain whether they had successfully identified an appropriate one for the given context. As a consequence, their verbal report data and logs showed that the most popular section of the SI materials was the one which provided guidance on how to verify word meaning in context. Kun, Yi, and Rui all reported that their repertoire of strategies for dealing with those critical situations had been limited before accessing the SI materials, and that many of the strategies suggested by the materials for fine-tuning vocabulary were new to them, such as the following one: *Determining whether a collocation is commonly used by analyzing instances of its use on Google Scholar*. While Na indicated that she had some experience with strategizing about vocabulary use (i.e. using Google Scholar to check how words were used in academic contexts), she noted in the first session that the SI materials taught her how to utilize different resources to ensure that the words were used appropriately in writing.

The verbal report data indicated that the four learners tended to try out the suggested strategies during the first two sessions. Although learners varied considerably in how they processed the SI materials, their continued interaction with the materials explicitly fostered the use of certain strategies for verifying

Dictionary use	Analysis of instances of use	Verification
<ul style="list-style-type: none"> utilizing different kinds of word information gleaned from dictionary entries 	<ul style="list-style-type: none"> looking for the target word's instances of use from multiple resources and performing a careful analysis of their semantic appropriateness and/or constraints on vocabulary use 	<ul style="list-style-type: none"> verifying the accuracy of lexical inferencing through crosschecking information obtained from different sources

Figure 15: Strategies for successfully fine-tuning vocabulary

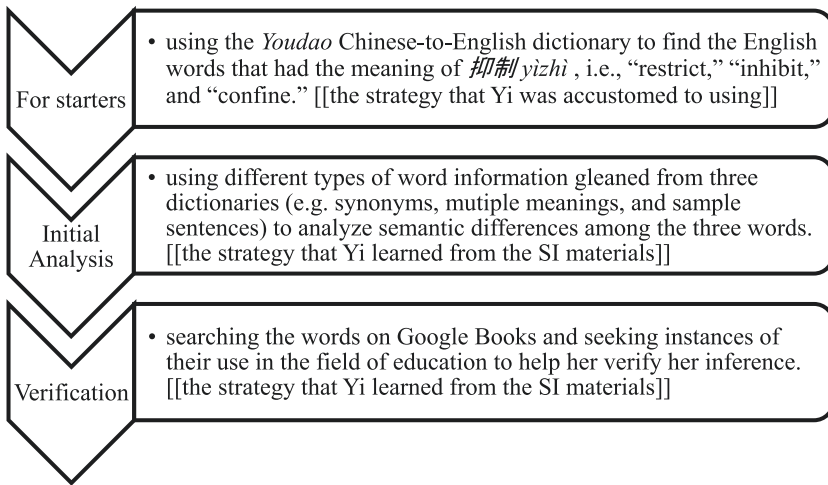


Figure 16: A strategy sequence deployed by Yi

their vocabulary fine-tuning (B, C). In particular, Figure 15 shows the strategies from the SI materials contributed to their successful fine-tuning.

The learners also developed their ability to enlist certain strategies together in an effort to fine-tune vocabulary. For example, to find the best English word that expressed the idea 抑制 (*to inhibit*, referring to ‘the development of the skills that migrant students value’), the third verbal report of Yi showed that thanks to the SI materials she employed a step-by-step approach, and combined the strategies that she had learned through SI with a strategy that she had devised on her own as being suitable for the vocabulary fine-tuning task (see Figure 16).

4.1.4 Participants’ takeaway from both cognitive and affective perspectives

4.1.4.1 Managing breakdowns in strategy use (C, A). Na, Rui, and Kun highlighted the importance of understanding strategy functions on a moment-by-moment basis. They all reported that the SI materials helped them to be more flexible in

orchestrating appropriate strategies by pinpointing where the breakdowns were occurring at the strategy-function level. For example, when the use of a strategy's cognitive function (i.e. *analyzing how frequently the given phrase occurs in the academic articles*) was not able to help her determine whether it was an acceptable collocation, Na then activated the strategy's metacognitive function—planning further action involving another strategy (i.e. *checking the core word rather than the whole phrase on Google Scholar*). Rui stated in her verbal report that the strategy of *evaluating one's own strategy use* took on more than one function. At one moment, while monitoring her progress, she activated the metacognitive function of the strategy by realizing that she needed to perform a more nuanced analysis of the information provided by different dictionaries. At another moment, she noted that the same strategy assumed an affective function when she experienced the positive emotion of 'genuine curiosity', which prompted her to take further strategic action.

4.1.5 *Fine-tuning issues from a cognitive perspective*

4.1.5.1 *Doubting the results (C)*. In a few instances, learners reported being unsure if their fine-tuning was accurate even after deploying a series of suggested verification strategies. For example, although Google Scholar was recommended, Yi noted in her log that she was uncertain whether instances of its use (e.g. 'to reduce the capacity...') helped her identify an appropriate usage of the word because the sample text was not from her field and not written by a native. She reported being somewhat frustrated when the collocations that her PhD supervisor would suggest differed from those that she had painstakingly derived through Google Scholar. Facing a similar situation, Na reported using an avoidance strategy whereby instead of trying to fine-tune the meaning of the word or phrase that she wanted to use, she used a paraphrase that she was sure of—so that it would at least be acceptable, although not exactly what she had intended. Unlike Na, Rui tried to seek input from a native-English-speaking co-investigator in her fine-tuning efforts, although she had limited access to this person. She stressed that the co-investigator's input helped her reach a clear understanding of stylistic and register restrictions that were imposed on the words—restrictions that she was not likely to find in dictionaries.

4.1.5.2 *Being unaware of an incorrect result (C)*. The participants' verbal report data also indicated that sometimes they were unaware that their efforts at fine-tuning had failed. For example, in one particular session, Yi first found an acceptable collocation 'first-hand account' by means of the collocation dictionary. In order to avoid repeatedly using the word 'account' in her writing, she used a thesaurus dictionary to find a synonym (i.e. 'story') for 'account', and believed that 'first-hand story' and 'first-hand account' were interchangeable. However, even though 'story' was a synonym for 'account', unbeknownst to Yi, 'first-hand'

and ‘story’ did not collocate. A more acceptable expression in English would be ‘to hear the story first-hand or on a first-hand basis’.

4.1.6 *Fine-tuning issues from both behavioral and cognitive perspectives*

4.1.6.1 *Coping with the impact of L1 (B, C).* In some of their sessions, the four learners tended to start by thinking through their ideas in Chinese and then searching out appropriate equivalents in English. Consequently, both Yi and Kun reported that whereas the SI materials suggested consulting an actually English-to-Chinese dictionary, it would be more beneficial to suggest high-quality Chinese-to-English dictionaries (see Yi’s fourth log, [Figure 17](#)).

They also reported difficulties in finding translation equivalents just through using the bilingual dictionaries suggested by the SI materials, especially if the words/phrases were associated with the Chinese culture or a particular field/discipline (B, C). For example, Rui reported that she could not find an English equivalent for a Chinese idiomatic expression 食言而肥 from a bilingual dictionary. She needed to use additional bilingual resources (e.g. news articles and forums) in order to find the best English equivalent ‘to renege’.

Another issue raised by Kun and Na was that they were prone to produce grammatical errors or inappropriate collocations in their writing due to the impact of their native language (B, C). For example, Na directly translated 开创一个新的维度 as ‘open up a new dimension’. She stated that engaging in the SI sessions heightened her awareness as to the importance of verifying her translation. She first checked ‘open up a new dimension’ in Google Scholar to see if it was commonly used. She also searched ‘a new dimension’ and analyzed its instances of use. She found that the verb ‘to add’ was more frequently used with it than ‘to open up’. She confirmed that her original collocation was not a strong one. Hence, she decided to use ‘add a new dimension’, even though she felt that it was not the best collocation for conveying her intended meaning.

英汉词典可以帮我检查一个英文单词是否表达了我想要说的，但这通常是我的第二步。首要的是应该有一本好的汉英词典，针对中文词语，提供给我一些潜在的英文对应词。

The English-to-Chinese dictionary could help me check whether an English word conveys my meaning, but this is often my second step. The first thing I need is a good Chinese-to-English dictionary which can provide potential English equivalences for the L1.

Figure 17: Excerpt presented in original Chinese and English

4.1.7 Fine-tuning issues from both behavioral and affective perspectives

4.1.7.1 *Experiencing fatigue from accessing multiple resources (B, A)*. A further issue, raised by Kun in his last log, was that vocabulary fine-tuning could be time consuming, and, in addition, the strategic effort invested in the process, such as cross-checking dictionary entries and comparing cross-linguistic equivalences (B), could interfere with his train of thought while writing. Consequently, rather than employing one of the verification strategies involving the use of dictionaries, he would try out the words or phrases that he was unsure about and then ask his PhD supervisor for help. After several unsuccessful attempts at vocabulary fine-tuning, Rui and Yi also reported that they would experience frustration or fatigue—at times leading them to forego the task altogether (A). Yi noted that she used another strategy for handling this arduous fine-tuning task—namely, she would write down her ideas while still fresh in her mind and would underline the words that she intended to check up on afterwards.

Rui noted that the suggestions provided by the ‘Wise Owl’ in the SI materials served as a ‘tutor’ to boost her motivation by underscoring the value of performing such fine-tuning efforts. For example, she noted that a particular quip (Figure 18) encouraged her to think about how else she could fine-tune in the given instance, thus motivating her to complete the task. Hence, the Wise Owl feature in the materials triggered the affective function associated with strategies found in the SI materials that supported her in finishing the task.

Note: While this process may take you some extra time, the good news is that you are likely to come away from it with a better understanding of vocabulary options for academic writing. Specifically, you are likely to have a better sense of the various options for using these words the next time you encounter them.



The image is taken from Pixabay (a royalty-free website).

Figure 18: Motivating learners to fine-tune vocabulary. The image is taken from Pixabay (a royalty-free website)

4.2 Style preferences related to the selection and use of fine-tuning strategies

This section reports on results from the self-scored learning style preference survey (see Figure 19).

The findings showed consistency between what learners reported to be their sensory, cognitive, and personality-related style preferences on the one hand, and their selection and use of vocabulary fine-tuning strategies on the other. The following are examples by learning style category.

4.2.1 Sensory styles

4.2.1.1 *Preference for being visual.* In keeping with her self-identification as a visual learner, Rui's verbal report data indicated that she *visualized the image in*

Subjects \ Styles	Rui	Yi	Kun	Na
Part 1				
Visual	35/40	32/40	31/40	28/40
Auditory	20/40	25/40	21/40	22/40
Kinesthetic	0/40	10/40	15/40	15/40
Part 2				
Random-intuitive	14/24	19/24	19/24	14/24
Concrete-sequential	23/24	12/24	15/24	14/24
Part 3				
Closure-oriented	15/16	15/16	16/16	8/16
Open-oriented	10/16	5/16	5/16	14/16
Part 4				
Impulsive	3/12	7/12	12/12	5/12
Reflective	12/12	12/12	8/12	5/12
Part 5				
Synthesizing	16/20	17/20	18/20	17/20
Analytic	10/20	8/20	7/20	9/20
Part 6				
Sharpeners	10/12	9/12	11/12	3/12
Levelers	4/12	2/12	5/12	9/12
Part 7				
Deductive	12/12	11/12	12/12	9/12
Inductive	5/12	3/12	2/12	3/12

NOTES

- Participants' total points for each style preference category are bolded, while the maximum number of points per category is provided unbolded.
- For example, if participants came out as more concrete-sequential than random-intuitive (i.e., by a margin of 3 or more points between categories in Part 2), then they were seen as preferring to deal with tasks in sequence in a concrete manner, rather than just going with the flow, unconcerned about what the specific order would entail.
- The explanation of the different style preferences appearing in this figure can be found at https://carla.umn.edu/maxsa/documents/LearningStyleSurvey_MAXSA.pdf

Figure 19: Learning style preferences reported by the four participants

her mind as she read the word origin for 'attenuate', as well as visualizing the situation in her mind to help understand the word 'attenuation'.

4.2.2 Cognitive styles

4.2.2.1 *Preference for being a leveler versus a sharpener* (see the explanation of these two styles in Figure 1). Na reported that she preferred the *leveler* (as opposed to the *sharpener*) approach when seeking out appropriate synonyms for the given words during their first two sessions. When she found possible synonyms, she tended to focus on the similarities shared by the three words rather than looking for fine-tuned differences, as exhibited in her second verbal report (see Figure 20).

By contrast, verbal report data from Rui, Kun, and Yi showed that they were making considerable efforts to explore the subtle nuances of semantic distinctions, consistent with their self-scored style preference of being sharpeners. For example, Figure 16 demonstrated a series of strategies and multiple resources that Yi used to fine-tune her understanding of three synonymous words 'restrict', 'inhibit', and 'confine'.

4.2.2.2 *From analysis to synthesis*. Na, Rui, and Yi all indicated that whether they chose to be more analytic or more synthesizing in their approach depended in large measure on the given situation. For example, in Na's third session, she reported that she chose to be analytical in the process of vocabulary fine-tuning by employing different strategies to analyze the instances of use in Google Scholar. At the end of the session, as demonstrated in her third verbal report (see Figure 21), Na chose to be a synthesizer by integrating the information gleaned from different resources in order to arrive at a conclusion.

4.2.2.3 *Preference for being concrete sequential versus random intuitive*. Consistent with her response in the survey, Rui's verbal report showed that she preferred a concrete-sequential approach to orchestrating strategies, employing strategies in

我在 Google 学术搜索框中输入“ethical”。我打字时，我看到预测出现，如“ethical principles”和“ethical standards”。我认为这两个词非常相似，并且与“ethical considerations”有关。我可以换着用它们。

I'm typing "ethical" in the Google Scholar search box. While I'm typing, I see predictions appear such as "ethical principles" and "ethical standards". I think both of them are very similar and related to "ethical considerations". I could use them interchangeably.

Figure 20: Excerpt presented in original Chinese and English

我想写“削弱合作的价值”。我谷歌搜索它，看看“weaken”是否可以与“value”一起使用[...]在前三页，我找不到任何学者把它和“value”一起用。让我查一下Collins词典中“weaken”的同义词。它显示“diminish”。我来查查“diminish the value”，确实能看到它被用在许多地方。虽然它没有显示“diminish the value of collaboration”，但在这儿能看到“diminish the value of innovation”，所以我认为“diminish”也可以在我这儿。

I wanted to write 削弱合作的价值 “weaken the value of collaboration”. I'm googling it to see whether “weaken” can be used with “value” [...] I couldn't find any scholars who used it with “value” in the first three pages. Let me check the synonym of “weaken” in the Collins dictionary. It shows “diminish”. Let me check “diminish the value”, and it does show many instances of it. Although it does not show “diminish the value of collaboration”, it has “diminish the value of innovation” here, so I think “diminish” could be used in my context too.

Figure 21: Excerpt presented in original Chinese and English

虽然新策略是根据这三种情况介绍的，但我不会只在这三种情况下使用它们。我发现设想的情况一中的一些策略可以与情况二/三中的一些策略结合使用。例如，我在同义词库字典中找到了“complicated”一词的同义词（例如“complex”）。然后，我对比它们在Google学术搜索中的使用实例，以确定“complex”是否传达积极或消极的含义。

Although the new strategies are introduced according to the three scenarios, I wouldn't use them only for these three situations. I found some strategies from Scenario One could be used in combination with strategies from Scenario Two/Three. For example, I found a synonym (e.g. “complicated”) for the word “complex” in the thesaurus dictionary. Then I compared their instances of use in Google Scholar to determine whether “complex” conveyed a positive or negative connotation.

Figure 22: Excerpt presented in original Chinese and English

sequences. In contrast, Yi reported not tending to follow the strategy sequences suggested by the SI materials. And, in fact, she displayed her preference for being more random intuitive. As attested to in her third log (see Figure 22), Yi identified the novel strategies that worked best for her and combined them with flexibility according to her needs.

4.2.3 Personality-related styles

4.2.3.1 *Preference for being reflective.* Their verbal reports and logs indicated that Yi and Rui used strategies throughout their sessions in line with their preference

我实际上背了许多学术单词，但是当我需要使用它们时，我经常记不住它们的确切含义。这让我一直在思考我应该做些什么使我的学习更有效。例如，除了背单词之外，我还需要采取更多的策略来巩固我对这些词汇的理解。

Actually, I have memorized many academic words, but when I need to use them, I often can't remember their exact meaning. This has made me keep thinking about what I should do to make my learning more effective. For example, in addition to memorizing words, I need to use more strategies for consolidating my understanding of these words.

Figure 23: Excerpt presented in original Chinese and English

to be more reflective than impulsive. For example, in each session, Yi preferred to reflect on the progress that she had made in her strategy development—for example, the extent to which she had mastered novel strategies. Rui reflected that previously she had memorized word lists as part of her daily routine, she had the realization (noted in her fourth log; [Figure 23](#)) that she needed to refine her strategies for more effective learning.

4.2.4 Style stretching Reading about style preferences in the SI materials also prompted the four learners to consider stretching beyond their existing styles. For example, Yi reported making deliberate attempts at style stretching, which consequently influenced her strategy use. For example, whereas in the survey she had indicated a preference for being random intuitive, she commented that the materials provided her fresh insights into the usefulness of a step-by-step (i.e. concrete sequential) approach to vocabulary fine-tuning (see [Figure 6](#)). Her verbal report data clearly showed that she planned key steps in seeking out appropriate wording, and that she then deployed strategies in sequences, even though she had previously disfavored this approach. In contrast, Rui appeared to adopt a more random-intuitive approach by the sixth session, although on the survey she had expressed a preference for being concrete sequential. In order to achieve an in-depth understanding of vocabulary items, her verbal report showed that she tended to use strategies in clusters rather than in sequences (see an example in [Figure 24](#)). Thus, she style shifted to accommodate the given tasks and became more intuitive to make further connections among the strategies rather than only using them consecutively.

Engaging in the SI sessions also helped the learners expand their approach to learning. For example, the responses of Kun and Rui to the survey showed

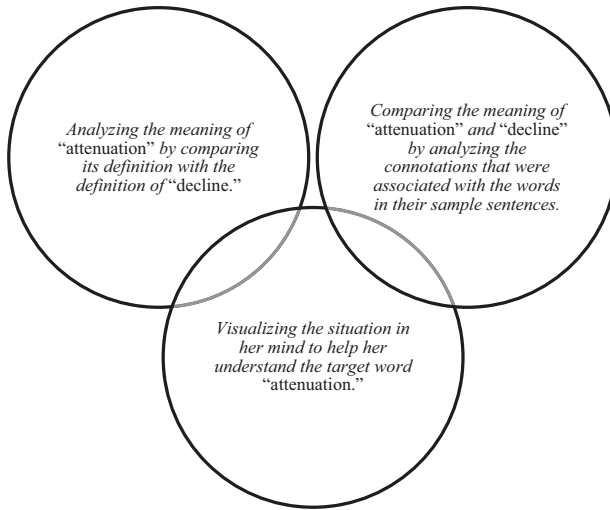


Figure 24: A strategy cluster deployed by Rui

that they favored a closure-oriented approach to writing, focusing on the completion of written assignments. Through interactions with the SI materials, they became more open-oriented towards learning over time. In the case of Rui, for example, not only did she deploy strategies for finding appropriate collocations, but she also enjoyed exploring strategies for expanding her word knowledge. Rather than relying upon a single dictionary in order to determine the word meaning, Kun discovered other possible resources, such as thesaurus dictionaries, collocation dictionaries, and the Google search engine.

Na was encouraged to practice style stretching. For instance, in order to find an acceptable collocation, not only did she consult a collocation dictionary, she also performed a rigorous analysis of possible collocations appearing in Google Scholar—more typical of a leveler, then of the sharpener that she tended to be. As the four learners progressed from one session to another, their data also indicated that they became more flexible in selecting strategies to accommodate their style shifting.

5. DISCUSSION

5.1 Summary of findings

The current study focused on four advanced-level learners' interaction with self-access SI materials for their own purposes on given tasks over an eight-week period. Regarding the first research question, while the learners differed in how they processed the materials, they were found to derive similar benefits (see Figure 25).

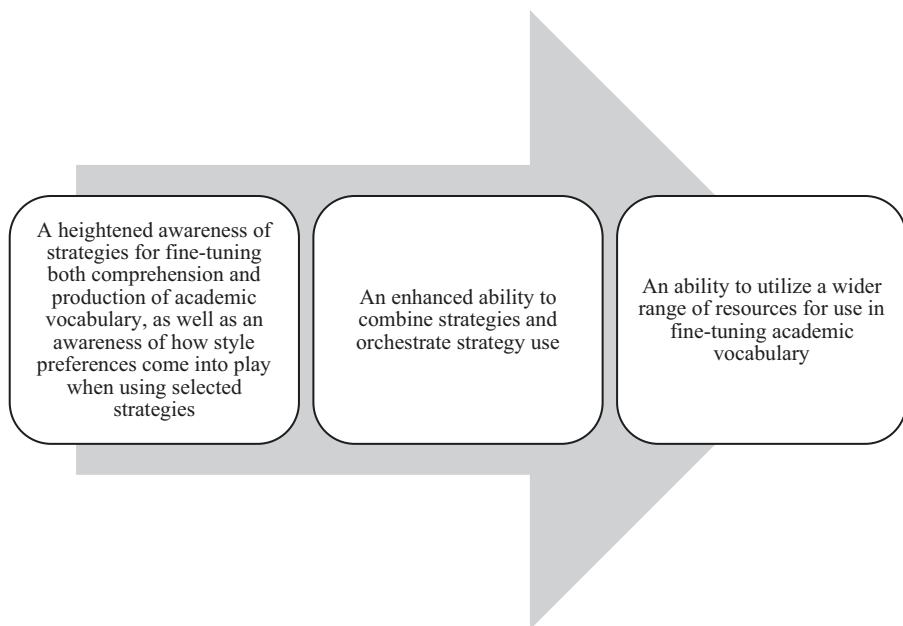


Figure 25: The benefits of SI materials

This close-order study revealed difficulties that participants encountered despite their best efforts at strategizing effectively, including being uncertain as to whether vocabulary fine-tuning was successful. Furthermore, the processing of the SI materials was time consuming and at times interfered with the flow of the writing.

With respect to the second research question, the learners' style preferences were found to play a significant role in their choice of strategies when accessing the SI materials. Their learning about style preferences prompted them to style stretch beyond their regular preferences, which in turn prompted them to select strategies that they may in the past have avoided.

5.2 Limitations

The study was limited in that participants were not required to provide a screen-capture recording of their interaction with the SI materials. Whereas they provided introspective verbal report, it is possible that the data did not fully capture processes a video recording might have revealed. For example, participants' facial expressions could be linked to their emotions, shedding more light on the nature of their engagement. Another possible limitation is that this study focused only on Chinese learners of English, and therefore did not allow for comparisons of English language learners from differing L1 backgrounds accessing such SI materials.

5.3 Interpretation

Despite the limitations, the study nonetheless helped to reveal how some learners actually process self-access materials aimed at enhancing their ability to be strategic in the performance of authentic tasks. Given that the literature has tended to provide more of a macro-level picture of the effect of SI within a controlled experimental setting, a study such as this one provides a helpful complement in that it involved a micro-level look at the interactions of advanced learners of English (all doctoral students) with such materials over time.

Whereas this investigation found that the four learners did, in fact, expand their strategy repertoire for vocabulary fine-tuning, efforts at fine-tuning nonetheless were seen to produce mixed results. Fortunately, the rich data collected through this multiple-case study provided a window onto the specific factors contributing to the mixed results (see [Figure 26](#)).

The study demonstrated how qualitative methods using verbal report and reflection logs could assist researchers in performing an individual-level analysis of learner engagement with SI material, especially the interplay of both successful and daunting moments involved in their SI sessions. Previous studies had tended to focus on the positive impact of VSI, but to our knowledge, little research had up until now closely examined the issues arising from efforts to strategize in vocabulary fine-tuning. This study offered examples of the real-time challenges that some learners may encounter while engaging with SI material, such as doubting the results and failures in their effort to strategize. In addition, the findings provided insights into the dynamic processes of strategizing from multiple perspectives (i.e. behavioral, cognitive, and affective) at the micro level of strategy use. The data revealed not only the highly flexible combination of multiple strategies in use according to learners' individual needs, but also the fluctuation in strategy functions within strategy clusters (see also [Cohen and Wang 2018](#)).

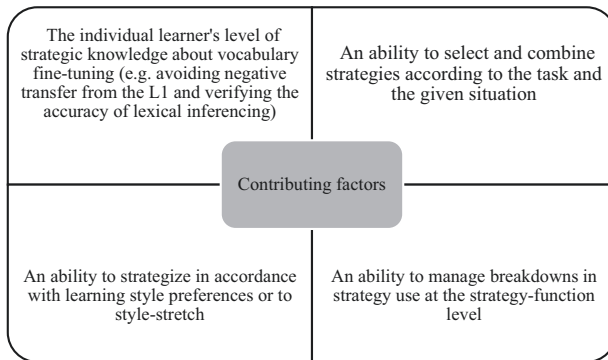


Figure 26: Factors contributing to vocabulary fine-tuning

This study suggests that a self-directed, integrative approach could offer greater potential for learners to personalize SI outside the classroom, subsequently contributing to their willingness to engage in strategy-enhancing activities. Such materials have been found through meta-analysis to be particularly beneficial for advanced-level learners in that they more easily integrate novel strategies into language learning than lower level learners (Plonsky 2019). Consistent with that finding, the advanced learners in this study also demonstrated that they learned to use novel strategies that enhanced their fine-tuning performance after just two or three self-access sessions.

Aside from finding that benefits accrued to learners simply from their own efforts at accessing the online resources suggested by the SI materials, it was encouraging to receive positive feedback that the numerous prompts and suggestions in the SI materials were reportedly helpful to the participants—for example, how to orchestrate strategies effectively and how to deal with frustration.

It should also be pointed out that while attempts have been made to improve metacognitive and affective management of learning for intermediate- and upper intermediate-level learners (Bielak and Mystkowska-Wiertelak 2020; Teng and Zhang 2020), this kind of support is not commonly provided to advanced-level learners. This study demonstrated ways that advanced-level learners are challenged, in this case, in their academic writing—by issues of semantic appropriateness, collocational restrictions, and grammatical accuracy. This study also provided empirical examples of how advanced learners may have breakdowns in strategy use and may experience negative emotions (e.g. fatigue) while attempting to fine-tune their vocabulary. This finding would speak to the benefit of improved guidance as to remedial actions learners can take when breakdowns in the fine-tuning process are encountered. This guidance could include suggested ways for learners to regulate their emotions (e.g. through style stretching and through the activation of the effective function for a strategy, respectively) (Cohen and Wang 2018)

This study revealed how contributing factors determined the nature of the participants' engagement with the SI materials—such as the interplay between the moment-to-moment events occurring in the given learning context and the participants' fluctuating motivational level. For example, the close-order analysis of the fine-tuning behavior for one EFL learner, Rui, revealed that her accessing of the SI materials sparked high motivation. It appeared that the materials filled a significant gap for her because she had not been receiving support regarding the fine-tuning of vocabulary, and certainly not at a high level of semantic precision. In contrast, the other three ESL learners reported being able to seek language support from their PhD supervisors virtually (a common phenomenon during the pandemic).

Needless to say, the differential effects of learner characteristics played a role in this study of four participants, as has been pointed out in an earlier study just looking at one of them (Wang and Cohen 2021). The current study would suggest that even advanced learners such as the participants in this study can benefit from continuing practice and engagement in the development of their

strategy repertoire. In addition, it would seem that learners need to be especially open, proactive, and self-regulated in order to fully exploit the affordances that self-access strategy-enhancing materials offer (see also Wang and Mercer 2020). The study added evidence as to the role played by sensory, cognitive, and personality-related style preferences in the selection and use of strategies and in the processing of SI materials, such as being more analytic and/or being more of a synthesizer.

5.4 Suggestions for future research

Crowdsourcing could be used in amassing a diverse international dataset on advanced-level learners' perceptions of challenges associated with vocabulary fine-tuning. In addition, it may be beneficial to look at fine-tuning strategies across types of vocabulary being fine-tuned—for example, general academic vocabulary, culturally specific vocabulary, or highly technical vocabulary.

In addition, it would be beneficial to explore the long-term effects of self-access SI materials through video-recorded verbal report and other process-oriented methods (e.g. eye tracking) in order to better understand the relationship of strategies, style preferences, and learning contexts. Such research could provide yet further insights into the use of SI materials by language learners working autonomously.

5.5 Pedagogical implications

The findings of this study would speak in favor of an integrative approach to SI (see Figure 27).

In addition, teachers are encouraged to assist advanced-level learners in expanding their strategies for (1) fine-tuning semantic distinctions, (2) forming acceptable collocations, (3) finding words that precisely convey their intended meaning, and (4) verifying their word choices. Based on findings from this study, teachers would be advised to point out in SI that strategies are usually

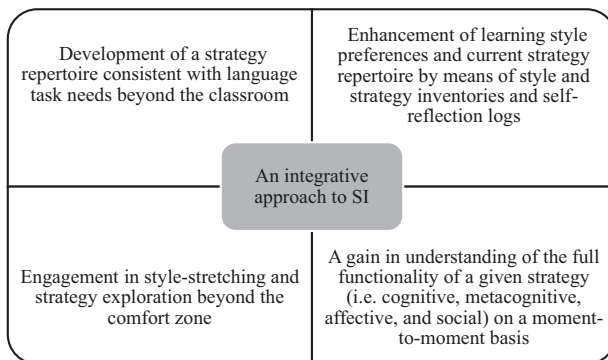


Figure 27: An integrative approach to SI

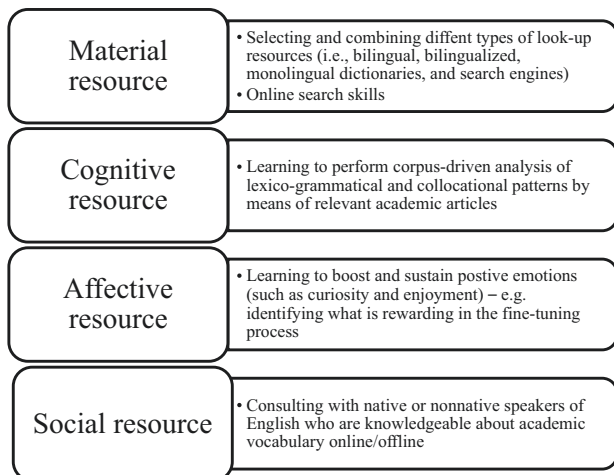


Figure 28: Pedagogical suggestions on resources for vocabulary fine-tuning

combined in the completion of language tasks, for example, strategy pairs, strategy sequences, and strategy clusters. In addition, teachers would be advised to coach learners in the utilization of resources to remediate breakdowns in strategy use (for details, see Figure 28). Workshops or summer institutes could be useful in heightening teachers' awareness as to the benefits of SI (see Cohen et al. 2021), especially with regard to ensuring their facility with the metalanguage needed to describe strategies and their various functions.

6. CONCLUSIONS

This multiple-case study provided an opportunity to see the various ways SI materials can impact learners' strategy use for fine-tuning of vocabulary. In this particular study, the participants gained an understanding of how strategies function dynamically in clusters and how they can orchestrate strategy use consistent with style preferences or if necessary to style stretch. Although this study focused on advanced ESL learners, the in-depth, situated nature of qualitative data provides rich insights into SI that can extend beyond these learners to those at other proficiency levels and even to learners of other languages.

SUPPLEMENTARY DATA

Supplementary material is available at *Applied Linguistics* online.

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NOTES ON CONTRIBUTORS

Isobel Kai-Hui Wang is Assistant Professor in Language Education and Programme Director (MSc TESOL) at the University of Edinburgh, UK. Her research interests lie in the areas of language learner strategies, second language vocabulary acquisition, and learner engagement. She is the author of *Learning Vocabulary Strategically in a Study Abroad Context*, published by Palgrave Macmillan. Her recent publications include a coauthored article on strategy instruction (with Andrew Cohen, *System*, 2021) and a book chapter on self-regulation in the *Routledge Handbook* series (2022).

Address for correspondence: Institute for Language Education, The Moray House School of Education & Sport, University of Edinburgh (Holyrood Campus), Charteris Land, Holyrood Road, Edinburgh, EH8 8AQ, UK. !o <isobel.wang@ed.ac.uk>

Andrew D. Cohen, Professor Emeritus - U Minnesota, was a Peace Corps Volunteer with the Aymara Indians, Bolivia (1965–67), taught in the ESL Section, UCLA (1972–1975), in Language Education, Hebrew University, Jerusalem (1975–1991), a Fulbright Lecturer/Researcher at the PUC, São Paulo, Brazil (1986–87), and professor of L2 Studies, U Minnesota (1991–2013). His current research interests lie in second-language learners strategies and in pragmatics. He co-edited *Language learning strategies* with Ernesto Macaro (OUP, 2007), co-authored *Teaching and learning pragmatics* with Noriko Ishihara (Routledge, 2nd ed., 2022), and authored *Strategies in learning and using a second language* (Routledge, 2011), and authored *Learning pragmatics from native and nonnative language teachers* (Multilingual Matters, 2018). Current address: 1555 Lakeside Drive #182, Oakland, CA 94612 USA. <adcohen@umn.edu>