

An Investigation into the Reverse Transfer of Reading Strategies in an EAP Context

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INTRODUCTION

Reading strategy instruction is a common practice among first and second language reading teachers to develop learners' skills of becoming autonomous readers and to increase overall comprehension of a text. As an instructor of EAP courses in a university in Hawai'i, I have taught academic reading strategies to students using a variety of techniques described in textbooks and other resources. Often I have implemented extensive reading into the curriculum to help build fluency and nurture a habit of reading among students. Several times students have written in their course evaluations that reading extensively in English has helped them begin to enjoy reading in their first language (L1). This possible reverse transfer of an interest in reading from English to their L1 was the seed for this research. I began to wonder if students also reverse transferred strategies learned in English to their L1, especially the academic reading strategies learned in the courses taught in the EAP context where I worked.

Research has been conducted on general language transfer and the L1-L2 reading relationship (Carrell, 1991; Bernhardt & Kamil, 1995), while very few address reverse transfer of reading strategies (Salataci & Akyel, 2002). This study aims to empirically measure students' use of academic reading strategies in both English and their L1 at the beginning of the semester at a university in Hawai'i, and compare results with academic reading strategy use at the end of the term to determine whether there was a reverse transfer.

In this paper, I will highlight the literature on reading strategy instruction and will further describe the terms 'reading strategy' and 'transfer', followed by an explanation of the research question, research method and design of the study, summary of results, discussion, and pedagogical implications.

Research in Reading Strategy Instruction

Literature broadly discussing L2 reading theory and practice (Grabe, 2009), issues in reading pedagogy (Hudson, 2007), and processes of assessing reading (Alderson, 2000) reflect the widespread use and acceptance of reading strategy instruction in the L2 classroom. The resource texts devote whole chapters to the topic of reading strategies, strategy instruction, and assessing strategy use and awareness, albeit highlighting certain issues with some of the processes. Specific studies have been conducted to describe the relationship between reading strategy use and its effectiveness of improving reading comprehension (e.g., Carrell et al., 1989) including meta-analyses (Taylor et al., 2006; EPPI, 2005), which provide support for the continued practice in L2 classrooms. Additionally, research in other areas of strategy use show positive effects on language learning (Chen, 2007; Feyten et al., 1999). Frameworks for L2 strategy instruction and learning such as the CALLA, or *Cognitive Academic Language Learning Approach* (Chamot & O'Malley, 1994) have also been developed to provide teachers with instructional support and encourage strategy training. Given the wide use of reading strategies as demonstrated in the literature, it is important to first describe what exactly a 'reading strategy' is, and how it is defined in this study. The next section serves to clarify terminology used in this study, including the concept of reading strategies and transfer.

Reading Strategies Defined

Descriptions of reading strategies vary depending on the view of reading strategies as a broad process or practical application in the classroom. Grabe (2009, p. 221) describes strategies as "processes that are consciously controlled by readers to solve reading problems" and Hudson (2007, p. 107) further clarifies that reading strategies have "the goal of obtaining meaning from connected text... Strategies operate to lessen demands on working memory by facilitating

comprehension processing.” Elements in both Grabe’s and Hudson’s definitions of reading strategies fit the view of reading strategies used in this study. The point of strategies being *consciously controlled* by readers in Grabe’s statement and the aim of *obtaining meaning* from Hudson’s definition reflect the process which students in the research context are expected to learn and practice.

In their study of developing a measurement for reading strategy use and metacognitive awareness in the L2 classroom, Mokhtari and Sheorey (2002, p. 2) expressed reading strategies as the “mental plans, techniques, and actions” during reading. This broad definition only encompasses the process, but not the outcome of developing understanding from the text, as Grabe and Hudson describe. Therefore, a hybrid definition of these three sources will be used in this study to describe reading strategies as the mental plans, techniques, and actions which are consciously controlled by readers with the goal of obtaining meaning from connected text and facilitating comprehension.

Reverse Transfer

There is very little research done on the reverse transfer of reading strategies from the L2 to the L1. Traditionally, research has focused on the relationship between L1 and L2 reading but examined the effects of L2 reading proficiency as a result of reading ability in the L1 versus language proficiency in the L2 (Carrell, 1991; Bernhardt & Kamil, 1995). This takes into consideration the Language Threshold Hypothesis (Grabe & Stoller, 2002, p. 50) and the essential question Alderson (1984) posed, ‘Is second language reading a language problem or a reading problem?’ However, the aim of this study is not to address the question of reading ability in the L2 and its affect from the L1 as framed by the Language Threshold Hypothesis; rather, this study focuses on the effect of strategy instruction in the L2 and how that impacts use of the same

strategies in the L1, similar to what Salataci and Akyel (2002) found in their study of the possible effects of EFL reading strategy instruction on reading strategies in English and Turkish.

Their study investigated the impact of reading strategy instruction over a one-year intensive English course to eight Turkish students in a Turkish university, and used data-gathering methods such as think-aloud protocols, observations, semi-structured interviews, and background questionnaires. To measure growth in comprehension, they used a reading section of the Preliminary English Test (PET), using two different versions for the pre-test and post-test. Their general findings indicate that reading strategy instruction had a positive impact on reading strategies used in English, and also in Turkish. The study shows support for the reverse transfer of reading strategy use from the L2 (English) to the L1, but there are several limitations including the small sample size (N=8) and the issue of reactivity when using think-aloud protocols as a means for gathering data (Sanz et al., 2009; Ellis, 2001). Still, the study attempts to show the significance of reading strategy instruction transferring from the L2 to the L1 in an EFL setting, which this present study attempts to do for an ESL, EAP setting.

Research Question

To focus the research on the reverse transfer of reading strategies and not reading comprehension as a result of strategy instruction, the following research question was developed for the particular context to be studied:

Do students reverse transfer academic reading strategies learned in their EAP reading courses to their L1?

A null hypothesis was developed as a means to test for significance:

Students do not reverse transfer academic reading strategies learned in their EAP reading courses from English to their L1.

If the results indeed show a reverse transfer occurs after strategy instruction over the period of the semester, the null hypothesis can be rejected and support for the reverse transfer of reading strategies can be reported.

RESEARCH METHOD & DESIGN

This section describes the context in which the research took place, the target group of participants for the study, the testing instruments, interview questions, treatment, and method of data collection.

Context and Participants

Participants were enrolled in academic reading courses at an EAP program at a university in Hawai'i in the fall 2011 semester. The EAP program has two courses for academic reading in the curriculum: Course 72 is an intermediate-level reading course for foreign students and Course 82 is an advanced ESL reading course. Students generally take a placement test to determine which level of courses they need to enroll in for the semester. Students who place into Course 82 are generally more proficient readers than those who place into Course 72, while students who complete Course 72 and are subsequently required to take Course 82 are often at levels lower than those who initially placed into Course 82. Both courses focus on academic reading strategy instruction, with Course 72 introducing fundamental reading strategies and touching upon critical reading strategies, and Course 82 touching upon fundamental reading strategies and focusing more heavily on critical reading strategies. Both courses also have a vocabulary focus and various course requirements including reflective written assignments. For this study, only face-to-face courses were selected and online or hybrid courses were not included in the study. As a result, the courses available for participation in this research were one

section each of Course 72 and Course 82 with different instructors teaching each. Seven participants (1 male, 6 female) from Course 72 and thirteen participants (6 male, 7 female) from Course 82 consented to be a part of the study. Ten languages were represented in the participant pool: Bahasa Indonesian, Japanese, Korean, Mandarin, Pohnpeian, Tetum, Thai, Tongan, Samoan, and Vietnamese.

Testing Instruments

Two main testing instruments were developed and pilot-tested for this project: the *Survey of Academic Reading Strategy Use in the L1* and the *Survey of Academic Reading Strategy Use in English* (Appendix A). The pilot-testing included receiving feedback on draft versions of the surveys from peers in an applied linguistics course on second language reading. Details on specific wording of the strategies and clarifying and explaining the instructions were given to improve to quality of the testing instruments. Due to time constraints, survey instruments were not pilot-tested with a sample group of participants over a semester-long time period as the current study has done.

Using a 5-point Likert scale representing frequency (never, rarely, sometimes, often, always) the surveys asked participants how frequently they use specific strategies that were taught in their EAP reading courses. A version of the survey for each reading course was developed to address the different reading strategies taught in Course 72 and Course 82. Both surveys concerning reading in the L1 and reading in English for each level contained the same questions except for the last question which inquired how often one uses either their L1 or English as a resource to understand the text. Surveys were discussed with instructors in the reading curriculum area for final feedback and adjustments.

Interviews

To add qualitative depth to the survey results, interviews were conducted with several participants to discover their awareness and use of reading strategies, their prior reading instruction history, and whether they reverse transferred reading strategies and possible reasons for doing (or not doing) so. While most participants in each course consented to the interview, only four participants replied to email requests to arrange meeting times. Sample questions for the semi-structured interview at two stages of data collection are presented in Appendix B.

Treatment

Subjects enrolled in Courses 72 and 82 were given academic reading strategy instruction from their respective instructors over the course of one semester. Controlling the type of treatment is difficult due to varying instructor's teaching styles, which can play a role in how well students learn and use the strategies; however, this project aims to maintain the fact that instruction cannot be controlled for and is part of the limitation in conducting such a study. The specific strategies that are on the survey instruments, however, were instructed in each course, so students should have had exposure to the strategy and practiced it throughout the term.

Data Collection and L1 Articles

The surveys were given at the beginning and end of the fall 2011 semester. At the beginning of the semester (Time 1), surveys for reading strategy use in English were given first, followed by surveys for reading strategy use in the L1. At the end of the semester (Time 2), participants were given the survey for reading strategy use in English first, then were asked to read a 3-4 page article in their L1 before completing the second survey on reading strategy use in the L1. The articles were prepared in advance, with a similar topic of 'global warming' to control

for content and level of difficulty. However, not all articles on the same topic could be found, especially in Micronesian languages such as Samoan, Tongan, and Pohnpeian. After reading the respective L1 articles, participants were asked to reflect on the reading they just completed with the articles when completing the survey. They were also encouraged to think about what they would do in the future when reading in their L1 if they did not use a particular strategy for the given article.

RESULTS

This section will discuss findings in two parts: first a review of the quantitative research method using survey results and statistical analysis will be presented, followed by a qualitative analysis of interview transcriptions from four participants. Several emergent themes from the interview data will be analyzed to complement the results from the quantitative data and shed light on possible explanations for reading strategy reverse transfer in the L1.

Reliability

In order to test whether the survey instruments were consistent in measuring reading strategy use, reliability tests using Cronbach's alpha were used for each version of the survey instrument for both Time 1 and Time 2 phases of data collection. Overall the results show that the survey instruments were quite reliable despite the limited number of participants in the study. Course 72 surveys of reading in English at both Time 1 ($\alpha = 0.850$) and Time 2 ($\alpha = 0.803$) and reading in the L1 at Time 2 ($\alpha = 0.839$) have higher reliability at values above 0.80, while the reading in the L1 at Time 1 survey shows a slightly lower reliability rate ($\alpha = 0.689$). Course 82 surveys all had reliability rates above 0.75, with reading in English at Time 2 ($\alpha = 0.849$) and

reading in the L1 at Time 1 ($\alpha = 0.869$) surveys more reliable than English at Time 1 ($\alpha = 0.760$) and reading in the L1 at Time 2 ($\alpha = 0.758$) surveys.

Quantitative Results

To address the research question of whether participants reverse transfer academic reading strategies learned in their EAP reading courses to their L1, survey data was collected and analyzed for significant differences in the means of reading strategy use in both English and the L1 over time. Table 1 shows the mean, standard deviation, and *t*-test paired samples comparison results for each survey. The means for strategy use in English are higher than strategy use in the L1 for students in both Courses 72 and 82. Strategy use in the L1 before instruction for Course 82 is the lowest mean ($M=2.95$); subsequently, the largest increase in scores is between this lowest mean and the Time 2 mean for strategy use in the L1 in Course 82 ($M=3.44$).

Table 1
Mean Scores, SD and T-Test Values for Surveys of Strategy Use

		<i>Mean</i>		<i>SD</i>		<i>T-Test value</i>
		Time 1	Time 2	Time 1	Time 2	
Course 72 (N=7)	English	3.79	3.89	0.54	0.48	-0.64
	L1	3.48	3.42	0.44	0.62	0.273
Course 82 (N=13)	English	3.62	3.69	0.47	0.51	-0.427
	L1	2.95	3.44	0.77	0.55	-2.967*

* $p < 0.05$

The table also displays results of comparisons made in this study to identify whether reading strategy use in English and the L1 change over time for each course, and whether these

changes are statistically significant. In Course 82, Time 1 and Time 2 comparisons of reading strategy use in the L1 highlight a key significant difference in mean scores over time, indicating that although instruction of reading strategies was in English, participants significantly increased use of reading strategies in their L1 in Course 82.

The comparison of survey results indicate that for both Course 72 and 82, there was no significant difference in reading strategy use in English over the course of the semester. This is curious, as one may expect that instruction would help increase usage of reading strategies over time. However, as will be discussed later in this paper, participants were encouraged to consider that not everyone uses all of the strategies listed in the survey to help them understand a text. This emphasis on ‘use what works for you’ may have had an affect on the frequency of strategy use in English.

In contrast, while there was also no significant difference in reading strategy use in the L1 for Course 72 (perhaps due to the small sample size or because participants may not have reverse transferred reading strategies in their L1), Course 82 demonstrated a significant difference in L1 strategy use over time. This provides support that, although instruction of reading strategies was in English, participants reverse transferred reading strategies to their L1 over time, rejecting the null hypothesis.

Interview Results

In order to add depth to the quantitative data, interviews were conducted with the subset of four participants who consented to meet during the beginning and end of the semester. Summaries and highlights of the interviews with the four participants will be discussed in the following section.

Table 2 below displays an overview of the participants' backgrounds, including the academic reading course they were enrolled in, their degrees and majors, L1, and a brief summary of English reading instruction prior to the current reading course.

Table 2
Participant Profiles

Name*	Reading Course	Degree Program / Major	L1	Prior Reading Strategy Instruction
Pham	72	M.A./ Anthropology	Vietnamese	4 month integrated skills IELTS test preparation course in Vietnam
Shiho	72	B.A. Exchange Student / Travel Industry Management	Japanese	4 month integrated skills English course in US study abroad program
Hasanudin	82	M.A. / Geography	Bahasa Indonesian	Summer integrated skills TOEFL test preparation course in Indonesia
Mariko	82	M.A. / Second Language Studies	Japanese	High school English class in Japan, semester-long English course in Japanese university, semester-long US study abroad program

*Pseudonyms

In order to more fully understand the kind of reading strategy instruction each participant experienced during the English test preparation courses or study abroad programs described above, the participants were asked to articulate what specific reading strategies they encountered or were instructed on in English prior to enrolling in the current academic reading course. In addition, they were asked whether they use any of the strategies for reading in their L1. Table 3 lists the various reading strategies participants described. It is important to note that the responses given are at Time 1 (approximately Week 3 in the semester when they were all enrolled in the academic reading course), and not at the end of the semester.

Table 3
Participants' Summaries of Reading Strategy Instruction

Name	Reading Strategies in English	Reading Strategies Used in L1
Pham	-Previewing: reading titles, subtitles, topic sentences, or conclusion. -Scanning and skimming. -Reading faster training.	-No strategy training in Vietnamese. -Does not use many strategies like in English, but reads the titles, subtitles and looks at pictures as a habit, not a strategy for reading, in Vietnamese.
	-Previewing: Skimming and scanning,	-High school Japanese instructor in Japan

Shiho	reading first and last sentence to get the main idea. -Identifying signal or transition words ('whereas', 'however'). -How to read fast.	taught strategy of finding main ideas/topic sentences at the beginning or end of a paragraph for Japanese text. -Generally does not use strategies in L1.
Hasanudin	-Previewing: reading headings, subtitles, looking at pictures and charts, reading the first and last sentence of each paragraph. -Skimming to find the main idea, scanning texts. -Guessing the meaning of the word in context. -How to find inference questions.	-“Maybe just skim and scan. I just read.”
Mariko	-Skimming, scanning, mapping (arrange elements such as who, why, what in a kind of map). -Vocabulary: predicting unknown words from sentences, looking at parts of speech, studying academic word lists. -Identifying metaphors, hyperboles in texts. -Timed reading using computer screens that highlight text at specific reading rates.	-Generally does not use strategies in L1 but uses some previewing strategies such as looking at headings and pictures.

Reverse Transfer of Reading Strategies to the L1

Interviews with individual participants brought to surface some of the reasons a possible reverse transfer of reading strategy use from English to the L1 can occur, and also some restrictions preventing certain strategies to transfer to the L1. This section will describe from participants' experiences and reflections what they thought allowed or restricted them from transferring strategies learned in English to their L1.

Possible Reasons for Reverse Transfer

While difficult to measure precisely and concretely whether a strategy has been used, participants' reflections on their actual reading of respective L1 articles explain reasons for using a particular strategy in the L1, providing support for such a reverse transfer to occur. Several

themes emerged from the data that provide possible reasons for reverse transfer: utility, cognitive ‘space’, conscious effort, and habit-formation.

Utility

Two participants, Hasanudin and Pham, mentioned that they used previewing reading strategies when reading in their L1 in order to be selective about what they read and how much time they spend during a reading task. For example, when reading the selected L1 articles they read the title, article subheadings, quickly noticed pictures and charts, and applied skimming to understand the main idea of the text as a whole. There is a practical benefit to using the strategies, one of which is saving time and the other which is to aid memory. Hasanudin mentioned he used previewing strategies because he did not have time to read entire texts, and since this strategy helped him in English, he applied it to reading in his L1. He said he became more aware of the time it took him to read something, so this consciousness may have played a role in applying the strategy to reading in his L1.

Pham explained her reasons for using the strategies in her L1:

“When I have so many things I want to look at which are important for me, so I will choose this part to read first. And because it’s many—I don’t have much time so I just focus on the important thing.”

Her emphasis on filtering the important points to read first in order to save time was a reason for applying the strategy to her L1. In addition, she said she has “a bad memory” so reading quickly and previewing text helped her retain information in both her L1 and English.

Cognitive ‘Space’

Another possible reason for a reverse transfer to occur is the capacity for one to cognitively process the use of strategies as well as reading in the L1 or English. As Mariko stated

during her interview, she felt she has the ability to use critical reading strategies learned from Course 82 in her L1, but not quite yet in English:

“I noticed when I read articles in Japanese I use more strategies for critical reading because I had ‘room’ to think about it, [such as thinking about the] author’s qualifications, what’s omitted. The author’s opinion was opposite from mine, so I could think about the position at the same time as I read.”

Interestingly, she stated that in English she did not use the same strategy of thinking critically: *“I would like to, but I don’t think I have ‘room’ for that, still. When I read in English I feel like I’m using my every—entire brain for understanding the entire article.”* She felt reading in English took up cognitive ‘space’ to understand the text, and applying the critical reading strategies to understand the text was an added cognitive task which she may not have been prepared for. What is striking is that she said she learned the critical reading strategies from Course 82 (i.e., thinking about an author’s qualifications, identifying author’s opinions) and perhaps practiced applying the strategies in class exercises, yet felt she could not do it in English but could in her native tongue.

Conscious Effort

While cognitive capacity may prevent usage of reading strategies in one language and promote usage in another, effort to apply strategies is also a factor. One interesting statement made by Pham was that she consciously attempted to use the reading strategies learned previously to reading in her L1. At the beginning of Course 72, Pham said she rarely used reading strategies in Vietnamese because she understands the language and does not need to use strategies as she did in English. For the L1 article reading at the end of Course 72, Pham said she still did not use reading strategies in Vietnamese much, but for the given article she read the title, abstract, noticed subheadings, and skimmed quickly to obtain the general idea of the text. When

asked why she thought she did so, she stated, “*Now I just tried to practice—is it useful or not.*” She added that she learned previewing strategies from her previous IELTS test preparation course in Vietnam and also in Course 72, so she decided to use the strategies consciously, to apply them to any text she read including those in her L1. She also concluded that using the strategies was helpful for her to understand the L1 text quickly.

Habit-Formation

A final factor that was reported to support usage of reading strategies in the L1 is the development of a habit of using reading strategies, regardless of the kind of text. Shiho said she had instruction in reading in both English and Japanese at various points in her life: during elementary school in Japan she learned about parts of *kanji* (Chinese characters) to identify the meaning of characters she did not know; in California where she studied abroad for a semester during college she learned reading strategies such as skimming, scanning, and finding main ideas; and after Course 72 she learned a variety of new strategies such as previewing articles and looking at text patterns (e.g., chronological, comparison/contrast). When she read the L1 article provided, Shiho said she skimmed the text to get the main idea, tried to understand what the author wanted to say, and looked at the *kanji* to decipher vocabulary she did not know. But rather than stating that she reverse transferred the strategies from reading in English to her L1, she stated these strategies seem to be a part of her reading technique—they have now become a habit for her.

Shiho’s case is unique in that she had multiple opportunities to apply strategies in different contexts, and mentioned that when she studied abroad in California and returned to Japan (before attending University of Hawai’i) she used the reading strategies learned in English to reading in Japanese to help her understand the L1 text. This previous experience with reading

strategy use seems to have developed a habit of transference for her. In the Discussion section I will discuss how forming a habit of applying reading strategies may be the ‘next logical step’ for L2 learners.

Restrictions for Reverse Transfer

Participants’ reflections also point out the difficulties for reverse transfer to occur. One possibility is the structure of writing texts and patterns between English and various L1, and another is the lack of metacognitive awareness of using reading strategies in the L1 because of the automatic nature in which one processes text in their first language.

English vs. L1 Writing Patterns

Three of the four interviewed participants expressed that they cannot transfer particular strategies because of the nature of the text they read. For example, Pham described how she could not apply all strategies to her L1 because the text was inherently different from English:

“In Vietnamese I don’t look at the topic sentence because maybe we don’t have the same style as in English. We don’t focus much on the topic sentence.” Hasanudin also stated he could not transfer some strategies because of the structure of the Indonesian text compared to English text:

“I cannot apply the ‘read the first sentence in each paragraph’ because Indonesian style is ‘round round round round’ [gestures with hand] and then enter the point, but before I enter the point, even they already enter the topic sentence, they make it implied, they make it very elegant, like they use a lot of idiom.”

The use of idioms in Bahasa Indonesian and the absence of a direct topic sentence or main idea in paragraphs may be factors for being unable to apply particular strategies to the L1 text. Shiho also mentioned how the strategy of ‘finding main ideas’ in Japanese texts are difficult because the main ideas may be implied or do not exist in paragraphs as in many English texts. However,

she brought up a point that, despite the differences, she thinks she can apply the strategies somehow:

“Japanese text or article is like more hiding the meaning and hiding what they want to say. So a little bit harder [to use the strategy], but I can pick the key words so I think I can transfer from English to Japanese... English is more, I don’t know how to say but, the main point is really clear. They have thesis statement in each article. So it’s more easier...But basically it’s the same thing. So, I can transfer the reading strategies from English to Japanese and Japanese to English.”

Without delving too deeply into the issue of contrastive rhetoric and whether rhetorical patterns do or do not exist between language texts, it is important to note that what the participants stated is a reflection of their perception of text structures, writing styles, and approaches to written communication between languages. Therefore, this study acknowledges that a difference does exist, as it impacts the application and use of strategies that participants say they were or were not able to reverse transfer when reading in their L1.

Automaticity of L1 Reading

Another possible factor that affects an awareness of reverse transfer of reading strategies is the automatic nature of reading in one’s L1. While not necessarily restricting a reverse transfer to occur, lack of metacognitive awareness during the reading process may prevent participants from self-reporting accurately. In our post-test interview, Hasanudin described this phenomenon when he stated, *“Maybe because the strategy in how to read in Indonesian is already embedded in my—I mean, sometimes I didn’t realize that I used that strategy.”* He explained further that he may or may not have been aware of using the reading strategies in his L1 because when he read the process occurred automatically.

Shiho also mentioned this concern at the beginning of the term, when reflecting about reading in English:

“I think learning the strategies is really helpful to student and--including me--but I want to know more about how can I use it?... Actually, when I reading something, I confuse or I don't know I'm using the strategy or not...Maybe I'm using unconsciousness? Unconscious-ly?”

If readers were unaware that a process was in fact occurring, it is difficult to report that a particular strategy was being used. In terms of reading in one's first language, the participants stated they may have been using the strategy but the process happened so automatically that it was difficult to assess.

DISCUSSION

The results from the surveys show that reading strategy use in English did not increase over time for both courses, but increased for reading strategy use in the L1 for Course 82. The reasons for strategy use in English remaining the same over time can be possibly attributed to several factors: 1) the emphasis on 'use what works for you' impacting actual strategy usage, 2) a lack of metacognitive awareness of strategy use, and 3) an increase in English language proficiency and decreased dependence of reading strategies to understand a text.

As part of the instructions on the surveys indicate, participants were encouraged to consider that reading strategies are what people do to help them understand a text, and that not everyone uses all the strategies listed in the survey. Thus, participants who reported no change in strategy use in English over time may possibly find a particular strategy ineffective for their needs. They may not report an increase in usage over time if they do not use it. Secondly, as Hasanudin and Shiho highlighted during their post-test interviews, not knowing when they use strategies for reading impacts their self-assessment of reading strategy use, whether it is in the L1 or English. If participants in Course 72 and 82 were not particularly aware of their own strategy use, they may not report using it.

Finally, an interesting finding from the quantitative results shows that dictionary usage actually decreased in the survey report for Course 72. This possibly indicates that while the dependence on dictionaries to understand a text may have decreased, English proficiency may actually have increased over time. Shiho stated in her post-test interview that she actually decreased her usage of dictionaries when reading in English, which also was one of her personal reading goals for the semester. As one's English develops, the need to rely on strategies to understand the language may lessen and the capacity for language processing maybe become more automatic.

Another point of discussion to raise is that reading reverse transfer seems to occur repeatedly over time and interdependently between languages. Shiho's case reflects this notion. It became apparent even from her pre-test interview that she had prior experience transferring reading strategies from Japanese to English and English to Japanese each time she felt a particular strategy was 'transferable' and appropriate to the text. She described her use of strategies as a 'habit', which she mentioned she may not necessarily be conscious of. By the end of the study, however, Shiho did mention in her post-test interview that her reading had improved compared to the beginning of the semester. She feels she is much more aware of using reading strategies, stating, *"I can use these strategies, and also I begin to think about using reading strategies."* As mentioned above in the Results section, perhaps the formation of a habit to use reading strategies unconsciously, automatically, and appropriately when reading in the L2 is the key to an effective language learner.

LIMITATIONS

Upon conducting the research it became clear that the type of text used in such a study can impact the ability to use a strategy or not. For example, if a text has no pictures, charts, or

headings, one cannot use the previewing strategy of understanding of the text's contents or structure prior to in-depth reading by viewing those textual items. Similarly, if there is no author's opinion discussed in the text, it is difficult to analyze an author's point of view and then report whether that particular strategy was used.

In collecting the L1 articles to provide opportunities for reverse transfer to occur, it was brought to my attention that particular languages hold inherent characteristics that are quite different from English text. A Samoan man who provided the article pointed out that Samoan language uses many proverbial sayings in academic texts, which often cannot be translated in English. A Thai woman explained that Thai language does not have many difficult vocabulary or technical language as English does. Thus, strategies such as 'using context clues to find the meaning of a word' may not be as applicable in Thai as in English. In future studies, the type of L1 text should be normed in areas where possible such as content, reading level, and degree of academic language.

As surfaced from the research results, the levels of awareness of one's reading processes can play a role in determining how they report using reading strategies. A way to measure awareness and use the information to categorize or group participants by awareness levels may impact analysis of results for a similar study.

Lastly, the limitations of time may impact the results of the study. As the research inquired whether academic reading strategies taught in participants' EAP courses reverse transferred to reading in the L1 in an ESL context, there may have been a lack of opportunity to sufficiently apply strategies learned in English to reading in the L1. The interviewed participants said they did not have many opportunities to read in their L1 during the entire semester, except

for several online news websites. A longitudinal study to chart progress from this ESL context to the participants' L1 contexts may add color to the current research canvas.

CONCLUSION

The research purpose was to empirically measure reading strategy use in an EAP context and determine whether participants reverse transferred the academic reading strategies learned in English to reading in their L1. Quantitative results show that reading strategy use in the L1 did not change significantly for Course 72, but the change in reading strategy use in the L1 for Course 82 was significant. This means participants reverse transferred reading strategies to their L1 even though instruction for strategy use was only for reading in English. Interview data highlight possible reasons for reverse transfer such as participants' feelings and attitudes toward the effectiveness or utility of the reading strategy to help aid text comprehension and save time, mental capacity or cognitive 'space' available to think critically about a text while understanding its contents, conscious effort to use the reading strategies in the L1, and the development of a habit of using strategies regardless of the language of the text. Several factors restricting the reverse transfer of reading strategies are the different text structures between English and other languages which prevent application of particular strategies, and the automaticity of first language reading comprehension which may lessen the need to use particular reading strategies. In sum, survey results and qualitative data provide partial support for the reverse transfer of reading strategies to the L1, rejecting the null hypothesis.

As a reading instructor, this research was the first step into understanding the complex process of reading as it occurs in students' minds. I hope future research can contribute to the growing pool of knowledge for reading reverse transfer, so both instructors and researchers can grasp the phenomena that impact transference of strategies between languages.

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APPENDIX A

Survey of Academic Reading Strategy Use in the L1 (Course 72)

The purpose of this survey is to collect information about the various reading strategies you use when you read. Reading strategies are what readers do to understand a text better. For example, looking up words in the dictionary, etc.

Below is a list of strategies that are used for reading. Not everyone uses these strategies. People use different strategies that match their style and needs. We would like to know which strategies you are familiar with, and how frequently you use them.

Directions: Circle the number that reflects how frequently you use the strategy.

When reading academic texts (journal articles, scholarly newspapers or magazines, textbooks, etc.) in your **first language**, do you...

1. Preview the material before reading? (Previewing is looking at the title, headings, pictures and charts to get a general understanding of the text before reading in detail.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

2. Skim the text to get the general idea? (Skimming is reading quickly to get the overall idea of a text. When you skim, you do not try to understand everything or read every detail.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

3. Find main ideas in paragraphs?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

4. Look for the topic sentence(s)?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

5. Scan to find particular information in the text? (Scanning is moving your eyes quickly and skipping words or sections of a text to find specific information. When you find the information, you stop and read.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

6. Take notes while reading? (Taking notes includes highlighting, outlining, writing notes or questions on the side or in the text, circling important words, etc.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

7. Use context clues to help you understand a word you don't know? (For example, looking at the surrounding words in a sentence to figure out the meaning of an unknown word.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

8. Think about the author's purpose for writing the text?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

9. Identify supporting details in paragraphs? (Supporting details are details or examples that support main ideas.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

10. Identify implied main ideas? (Implied main ideas are not clearly written in paragraphs. The reader must try to find main ideas by reading details in the paragraphs.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

11. Use a dictionary (paper or electronic) while reading?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

12. Identify word parts (prefixes, suffixes, root words, etc.) to help you understand the meaning of unknown words?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

13. Make inferences as you read? (When you infer something, you are making a guess about what you read by using information in the text and your own knowledge to help you.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

14. Identify paragraph patterns (also called ‘text patterns’) to help you understand the text? (For example, texts may compare or contrast something, show chronological order, explain cause and effect, describe problems and solutions, etc.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

15. Identify the author’s tone (feelings or attitude) in the text?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

16. Use English to help you understand the text?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

Survey of Academic Reading Strategy Use in English (Course 72)

The purpose of this survey is to collect information about the various reading strategies you use when you read. Reading strategies are what readers do to understand a text better. For example, looking up words in the dictionary, etc.

Below is a list of strategies that are used for reading. Not everyone uses these strategies. People use different strategies that match their style and needs. We would like to know which strategies you are familiar with, and how frequently you use them.

Directions: Circle the number that reflects how frequently you use the strategy.

When reading academic texts (journal articles, scholarly newspapers or magazines, textbooks, etc.) in **English**, do you...

1. Preview the material before reading? (Previewing is looking at the title, headings, pictures and charts to get a general understanding of the text before reading in detail.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

2. Skim the text to get the general idea? (Skimming is reading quickly to get the overall idea of a text. When you skim, you do not try to understand everything or read every detail.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

3. Find main ideas in paragraphs?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

4. Look for the topic sentence(s)?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

5. Scan to find particular information in the text? (Scanning is moving your eyes quickly and skipping words or sections of a text to find specific information. When you find the information, you stop and read.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

6. Take notes while reading? (Taking notes includes highlighting, outlining, writing notes or questions on the side or in the text, circling important words, etc.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

7. Use context clues to help you understand a word you don't know? (For example, looking at the surrounding words in a sentence to figure out the meaning of an unknown word.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

8. Think about the author's purpose for writing the text?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

9. Identify supporting details in paragraphs? (Supporting details are details or examples that support main ideas.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

10. Identify implied main ideas? (Implied main ideas are not clearly written in paragraphs. The reader must try to find main ideas by reading details in the paragraphs.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

11. Use a dictionary (paper or electronic) while reading?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

12. Identify word parts (prefixes, suffixes, root words, etc.) to help you understand the meaning of unknown words?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

13. Make inferences as you read? (When you infer something, you are making a guess about what you read by using information in the text and your own knowledge to help you.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

14. Identify paragraph patterns (also called ‘text patterns’) to help you understand the text? (For example, texts may compare or contrast something, show chronological order, explain cause and effect, describe problems and solutions, etc.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

15. Identify the author’s tone (feelings or attitude) in the text?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

16. Use your first language to help you understand the text?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

Survey of Academic Reading Strategy Use in the L1 (Course 82)

The purpose of this survey is to collect information about the various reading strategies you use when you read. Reading strategies are what readers do to understand a text better. For example, looking up words in the dictionary, etc.

Below is a list of strategies that are used for reading. Not everyone uses these strategies. People use different strategies that match their style and needs. We would like to know which strategies you are familiar with, and how frequently you use them.

Directions: Circle the number that reflects how frequently you use the strategy.

When reading academic texts (journal articles, scholarly newspapers or magazines, textbooks, etc.) in your **first language**, do you...

1. Preview the material before reading? (Previewing is looking at the title, headings, pictures and charts to get a general understanding of the text before reading in detail.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

2. Skim the text to get the general idea? (Skimming is reading quickly to get the overall idea of a text. When you skim, you do not try to understand everything or read every detail.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

3. Find main ideas in paragraphs?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

4. Look for the topic sentence(s)?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

5. Scan to find particular information in the text? (Scanning is moving your eyes quickly and skipping words or sections of a text to find specific information. When you find the information, you stop and read.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

6. Take notes while reading? (Taking notes includes highlighting, outlining, writing notes or questions on the side or in the text, circling important words, etc.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

7. Use context clues to help you understand a word you don't know? (For example, looking at the surrounding words in a sentence to figure out the meaning of an unknown word.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

8. Think about the author's purpose for writing the text?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

9. Recognize the difference between facts and opinions?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

10. Think about the author's point of view about an issue?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

11. Evaluate the evidence the author uses to support his/her claim?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

12. Think about why an author might leave out information on purpose?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

13. Evaluate an author’s qualifications for writing the text? (Do you think about how qualified the author is to write the text? For example, if the author has a PhD related to the topic, or is a well-known researcher, etc.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

14. Identify text patterns to help you understand the text? (‘Text patterns’ are ways to organize information in a text. For example, texts may compare or contrast something, show chronological order, explain cause and effect, describe a process, etc.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

15. Use English to help you understand the text?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

Survey of Academic Reading Strategy Use in English (Course 82)

The purpose of this survey is to collect information about the various reading strategies you use when you read. Reading strategies are what readers do to understand a text better. For example, looking up words in the dictionary, etc.

Below is a list of strategies that are used for reading. Not everyone uses these strategies. People use different strategies that match their style and needs. We would like to know which strategies you are familiar with, and how frequently you use them.

Directions: Circle the number that reflects how frequently you use the strategy.

When reading academic texts (journal articles, scholarly newspapers or magazines, textbooks, etc.) in **English**, do you...

1. Preview the material before reading? (Previewing is looking at the title, headings, pictures and charts to get a general understanding of the text before reading in detail.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

2. Skim the text to get the general idea? (Skimming is reading quickly to get the overall idea of a text. When you skim, you do not try to understand everything or read every detail.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

3. Find main ideas in paragraphs?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

4. Look for the topic sentence(s)?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

5. Scan to find particular information in the text? (Scanning is moving your eyes quickly and skipping words or sections of a text to find specific information. When you find the information, you stop and read.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

6. Take notes while reading? (Taking notes includes highlighting, outlining, writing notes or questions on the side or in the text, circling important words, etc.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

7. Use context clues to help you understand a word you don't know? (For example, looking at the surrounding words in a sentence to figure out the meaning of an unknown word.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

8. Think about the author's purpose for writing the text?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

9. Recognize the difference between facts and opinions?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

10. Think about the author's point of view about an issue?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

11. Evaluate the evidence the author uses to support his/her claim?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

12. Think about why an author might leave out information on purpose?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

13. Evaluate an author’s qualifications for writing the text? (Do you think about how qualified the author is to write the text? For example, if the author has a PhD related to the topic, or is a well-known researcher, etc.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

14. Identify text patterns to help you understand the text? (‘Text patterns’ are ways to organize information in a text. For example, texts may compare or contrast something, show chronological order, explain cause and effect, describe a process, etc.)

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

15. Use your first language to help you understand the text?

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

APPENDIX B

Qualitative Section – Individual Interview

BEGINNING OF STUDY (Week 3):

(Strategy inventory)

1. Do you know much about reading strategies? What kinds of reading strategies do you know? (Please explain.)
2. Have you ever had reading strategy instruction before? What kind of reading strategy instruction? (Please describe as detailed as possible.) (When, where, who was instructor, what was taught, in your L1 or English, or both?)
3. If yes to #2, do you use the reading strategies you learned in your L1 to reading in English? How about English to your L1?
4. Do you think learning reading strategies is helpful or effective?
5. Do you have reading goals for this semester? What kind? (Please be specific.)
Rationale: If students explain that their goals include improving their reading rate or increasing reading comprehension, they may be motivated to learn reading strategies to accomplish their goals.

END OF THE STUDY (Week 14-16):

(Strategy Inventory and Transfer)

1. What do you know about reading strategies from your ELI 72/82 class?
2. Can you describe the reading strategy instruction for your class?
Rationale: To see if instruction had an impact on their learning of the strategy. For example, if the instructor explained it well, scaffolded with several examples, recycled the reading strategies throughout the semester, etc.
3. Do you use any reading strategies from your class? If yes, which strategies do you use now (in English)? Do you use these same strategies in your first language? Why?
4. Do reading strategies in English help you read more effectively?
5. Do reading strategies in English help you to read in your first language more effectively? Why or why not?
6. You mentioned your reading goals for this semester were _____. Did you meet your reading goals during this semester? Why or why not?