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A Qualitative Probe Into the Causal Relations Among Strategy Use, Motivation, and Beliefs in EFL Reading

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Abstract

Investigation of motivation and beliefs in second language reading is just beginning. Quantitative studies have reported positive relationships and various paths of development among strategy use, motivation, and beliefs in the second language reading context. However, the causal relationships among these factors have not yet been explored in depth. This study qualitatively examined the causal relationships among these three factors perceived by a group of 37 learners of English as a foreign language enrolled in a university reading course. Following an intervention to remedy a reading difficulty prevalent among this group, namely, undue emphasis on decoding, and to develop their strategy use, introspective/retrospective verbal data were collected through an open-ended questionnaire. Then, an exploratory text-mining analysis of the responses was conducted to determine perceived causal processes between the factors mentioned. The overall results support the dominance of causal relationships from strategy use to beliefs and to motivation and basically do not support potential influence of motivation on strategy use or beliefs, suggesting that successful strategy use and comprehension can mediate the causal processes of beliefs and motivation.

Key words: EFL reading, causal relationship, strategy use, motivation, beliefs

1. Introduction

Second language (L2) reading research has not so far focused much upon motivation or beliefs; instead, it has long embraced the cognitive aspects of L2 reading, such as comprehension processes, reading proficiency, and strategic reading with metacognitive awareness, as the main targets for research. It has been shown that strategy development is important for

the enhancement of L2 reading proficiency (e.g., Grabe, 2009); but some studies have recently initiated the investigation of L2 reading motivation and beliefs. Although pertinent first language (L1) findings do exist on the roles of motivation and beliefs in reading, to gain deeper insights into L2 reading more research on these factors in the L2 context will be necessary. I will briefly discuss several aspects of the roles of these factors in the L1 and L2 contexts below.

Among the previous L2 reading studies on motivation, Mori (2002) examined the motivational structure of English as a foreign language (EFL) reading, using a questionnaire based on Wigfield and Guthrie's (1997) theory of L1 reading motivation for English-speaking children. Despite major revisions in the questionnaire items and differences in the target population in Mori's study as opposed to Wigfield and Guthrie's, four factors similar to those identified in the L1 theory were identified by Mori for EFL university students: intrinsic motivation, extrinsic motivation, the importance of reading, and reading efficacy. This result implies that the motivational structure of L2 reading is close to that of L1 reading and that intrinsic and extrinsic motivation are likely to be key concepts in L2 reading as they are in L1 reading.

Takase (2007) also investigated factors that motivate EFL high school students to read in English, using a questionnaire partly based on Wigfield's (1997) study. The main finding of Takase's study, obtained through a regression analysis, was that the most influential factor for participating students' L2 reading was their intrinsic motivation, which did not correlate positively with their L1 reading motivation. Takase's (2007) findings thus show that intrinsic motivation important in L2 reading is different from intrinsic motivation in L1 reading.

In L1 reading research on motivation among English-speaking children, too, intrinsic motivation has been recognized as the most significant factor for the promotion of engaged reading. It has also been reported that students with high intrinsic motivation tend to be active readers, high achievers, and frequent users of reading strategies (e.g., Guthrie & Wigfield, 2000). This kind of positive relationships among these features suggest to L2 reading researchers the urgent need to conduct research on the relationships among motivation, proficiency, and strategy use in the L2 reading context as well.

Readers' beliefs about reading, constituting a form of metacognitive knowledge about reading, have been studied only to a limited extent in the L2 context. Devine's (1988) case study appears to have been the first of this type. It reported that the nature of L2 readers' orientation to reading can determine their reading behavior to some extent: Readers with a

meaning-centered orientation tend to focus on understanding the main idea, while those with a word-centered orientation are likely to make an elaborate effort to decode each word. Kamhi-Stein's (2003) case study derived the similar conclusion that meaning-centered readers are multi-strategic and flexible in the attempt to understand the main idea, while word-centered readers try to understand each word while reading. In Matsumoto (2006), using quantitative analyses centering on structural equation modeling (SEM), the results suggested that interactive reading, characterized by a combination of textual decoding and conceptual processing, is associated with L2 readers' orientation and beliefs. In sum, beliefs have been found influential in L2 reading by at least a few studies, but it is necessary to gain a deeper understanding of the nature of this influence by examining the relationships between beliefs and other relevant factors, in particular, intrinsic and extrinsic motivation.

A few studies have explored these interactive relationships. Matsumoto, Hiromori, and Nakayama (2013) conducted a questionnaire study among university-level EFL learners, with three scales respectively based on the Survey of Reading Strategies (Sheorey & Mokhtari, 2001), the Motivation for Reading Questionnaire (Wigfield & Guthrie, 1997), and a learner belief questionnaire (Ueki, 2002). On the basis of quantitative analyses centering on SEM, Matsumoto, Hiromori, and Nakayama reported positive relationships among strategy use, motivation, and learner beliefs in the students' EFL reading, suggesting that interdependence among these factors is a promising resource for L2 reading development. This result is consistent with some findings from L1 reading (e.g., Guthrie & Wigfield, 2000). However, although reciprocal influences across strategy use, motivation, and beliefs were confirmed, no distinct causal relationships (i.e., how the influences work) were manifest.

To explore the development of strategy use, motivation, beliefs, and proficiency in L2 reading, Hiromori, Matsumoto, and Nakayama (2012) conducted a longitudinal study employing the same three-scale questionnaire as Matsumoto, Hiromori, and Nakayama (2013), as well as an in-house reading test, with EFL university students. By applying several statistical tests to results from four clustered groups with different learner characteristics (e.g., high versus low achievement), they identified multiple developmental paths, suggesting that more than one route exists to successful L2 reading. Matsumoto, Nakayama, and Hiromori, (2013) conducted a similar study among other university-level EFL students, in which intergroup and intragroup comparisons among four clustered groups with different combinations of salient features (e.g., high strategy use, high motivation, intermediate beliefs, and high proficiency) showed that such features can influence the subsequent interaction and development of strategy use, motivation, beliefs, and proficiency. However, causal processes in

reading development still remain to be explored.

In summary, L2 reading research needs a more holistic approach across its subdomains, including examination of strategy use as a cognitive factor necessary for effective reading, motivation as an affective factor believed to be the most important for eager and committed reading, and beliefs as metacognitive knowledge considered to be quite influential in actual reading behavior. I believe that understanding the causal processes underlying the relationships between these factors in different dimensions will provide significant insights into L2 learners' reading development.

2. The Study

2.1 Methodological Approach and Design

The objective of this study was to qualitatively investigate the causal relations in perception among EFL readers' strategy use, motivation, and beliefs, using a strategy intervention. Qualitative research aims to explain a given phenomenon on the basis of the detailed study of particular instances (Mackey & Gass, 2012), and is discovery oriented (Dörnyei, 2007). Causal processes in L2 reading are considered psycholinguistic phenomena, and as such, I attempted to explain them by analyzing introspective/retrospective information (i.e., perceptions) in the form of written responses to an open-ended questionnaire, through a text-mining procedure. The basic assumption of the introspective/retrospective method is that informants can access their internal thought processes and verbalize them. Despite several limitations discussed so far in the language research field, this method has been applied (e.g., Brown & Rodgers, 2002; Dörnyei, 2007) because of its usefulness for unraveling the psycholinguistic processes underlying language performance (Kormos, 1998).

The qualitative analysis in the present study was performed in three consecutive steps. First, questionnaire responses were grouped into categories using a text-mining procedure. That is, the frequency of certain keywords in the responses was counted and preliminary categories constructed on a quantitative basis. Next, these preliminary categories were reconstructed into final categories on the basis of an interpretive analysis of the relationships among the categories. In other words, I tried to abstract key concepts from the responses. In this stage, I examined the overall relationships among the significant categories (strategy use, motivation, beliefs, and others). Finally, I picked out the responses for causal relations within this tripartite framework, that is, among the three categories or factors. Response analysis based upon text-mining enabled responses to be examined from the perspective of categorical confirmation (i.e., abstraction of key concepts) and thus provided rigor in

handling the qualitative data.　This approach, although exploratory, appears promising for the exploration of causality.

2.2 Participants

The participants were 37 Japanese EFL university students majoring in economics (13 female, all 18 years old and Japanese natives), who had enrolled in an elective first-year reading-centered English course at the upper-intermediate level.　On a prior reading place-ment test (Lesley, Hansen, & Zukowski-Faust, 2008), almost all the participants had higher than medium reading proficiency and decent decoding ability ($M = 14.74/20$, $SD = 3.24$, $SEM = .53$, Maximum $= 19$, Minimum $= 6$).　On the basis of impressionistic observation, they seemed to be keen on learning English, moderately eager to improve their English reading proficiency and increase their vocabulary, and serious about reading their assignments and engaging in in-class activities.

2.3 Intervention

The intervention performed among the participants consisted of instruction in several reading strategies, designed to achieve two interconnected purposes.　First was to help remedy their *text-boundedness* (Carrell, 1988), or undue insistence on decoding and parsing, which was found in their initial EFL reading.　Text-boundedness may relate to the reader's beliefs.　Among several potential causes for this kind of biased processing, beliefs about reading might be one important reason in the L2 learning context.　This is because in many EFL classrooms in Japan, it appears that approaches to reading that focus on decoding individual words and parsing sentences have been overemphasized and that the activity of 'reading text' has been utilized mainly in decoding and parsing tasks rather than to foster comprehension of the meaning of text.　This teaching practice may influence beliefs in EFL reading, leading to text-boundedness.

The other purpose of this intervention was to foster strategy use centering on under-standing the main idea, which is advantageous for several reasons: because strategy use can be taught (e.g., Carrell, 1998), developing strategy use can enhance proficiency (e.g., Plonsky, 2011), and strategy use for main idea comprehension is associated with motivation and beliefs (Matsumoto, Hiromori, & Nakayama, 2013).　Thus, I expected that the intervention would positively influence the process of L2 reading.

To reduce levels of word-for-word decoding and sentence-for-sentence parsing, three general proposals were made to the participants and reiterated during the intervention

process, for confirmation and reconfirmation. The proposals were 1) to prioritize paragraph-based comprehension over word- and sentence-based processing, 2) to try to understand the main idea of each paragraph rather than the details dispersed across the paragraph, and 3) to develop fluency rather than accuracy in reading. Through these proposals, I aimed to decrease the rate of text-boundedness by affecting the participants' beliefs about L2 reading. Specifically, for the first-time reading, I advised participants to read a paragraph within a self-determined period of time, without looking up any words, and to write down the main idea shortly after reading.

To understand the main idea, several specific strategies were proposed and practiced: checking the title of a text, locating the topic sentence and/or concluding sentence of a paragraph, drawing on discourse markers (e.g., in short to indicate a conclusion), and identifying elements of the organization of a paragraph (e.g., cause and effect). Other than these main idea strategies, reasoning strategies (prediction and interpretation) and monitoring strategies (ongoing and post-reading checkups for comprehension) were taught. I aimed to enhance the participants' proficiency and also to influence their motivation and beliefs by developing their strategy use.

2.4 Instrument

For the text-mining analysis, verbal data were gleaned from a three-item open-ended questionnaire, which asked about changes in the participants' strategy use, motivation, and beliefs.

(a) Do you recognize any changes in your behavior and/or attitudes while reading in English? ［Asking about strategy use］

(b) Do you recognize any changes in your willingness to read in English? ［Asking about motivation］

(c) Do you recognize any changes in your ways of thinking about reading in English? ［Asking about beliefs］

2.5 Procedure

The goal of the course was to improve students' academic reading skills in English. The course consisted of 15 class sessions of 90 minutes each, beginning with an orientation class and ending with a final examination. The intervention aimed at combating undue emphasis on decoding and parsing was implemented within the course, using the course textbook (Huntley & Shidara, 2008). Topics in the textbook included cooperative learning, the impact

of the Industrial Revolution, and renewable alternative energy sources. The questionnaire, written in Japanese to ensure the participants' understanding, was conducted in the second-last class and took approximately 30 minutes. I asked them to respond honestly and to address the items specifically, adding that their responses would not affect their grades. The goal of this instruction was to reduce the risk of researcher or social effects (i.e., to control for any participant impulse to provide desirable reactions) and to encourage the recall of directly retrievable changes in behavior or recognition in reading (i.e., to avoid abstraction or generalization). The participants wrote their responses in Japanese and they were subsequently translated into English by the author.

2.6 Data Analysis

The verbal data, or digitized responses, were reduced to categories by the use of SPSS Text Analytics for Surveys 4.0.1. This text-mining software counted the frequency of words in the data segments and abstracted 26 preliminary categories in a quantitative manner, that is, on the basis of keywords that appeared five times or more. Then, on the basis of an interpretive analysis of the preliminary category labels as descriptors (i.e., representative words), I rendered them into six integrated categories, each representing a key concept: (a) *strategy use*, (b) *motivation*, (c) *beliefs*, (d) *reading English*, (e) *learning English*, and (f) *course selection*. Finally, according to the resulting distribution of respondents by descriptor, I analyzed these responses to identify causal relations from the perspectives of strategy use, motivation, and beliefs.

3. Results

3.1 Overall Relationships

Table 1 shows the total distribution of respondents across each of the six integrated categories, based on which descriptors were reflected in their data. All the respondents wrote any of the following descriptors for their English reading material ($N = 37$): (*English*) *passage*, (*English*) *sentence*, and (*when*) *reading English*. For the other categories, any of the following descriptors were provided: (*main idea/content/paragraph*) *comprehension*, *inference*, and *interpretation* for strategy use ($n = 27$); *willingness* for motivation ($n = 17$); *consciousness*, *translation*, and *dictionary use* for beliefs ($n = 26$); *studying*, *homework,* and *preparation* for learning English ($n = 22$); and *course*, *class*, and *textbook* for course selection ($n = 20$).

Figure 1 is a categorical representation of the relationships among the six categories. The following are the numbers for intersection of descriptors among categories: (a) for

Table 1 Total Distribution of Respondents by Descriptor

| Categories	Respondents	Percentage
Strategy Use	27	73
Motivation	17	46
Beliefs	26	70
Reading English	37	100
Learning English	22	59
Course Selection	20	54

Note. $N = 37$.
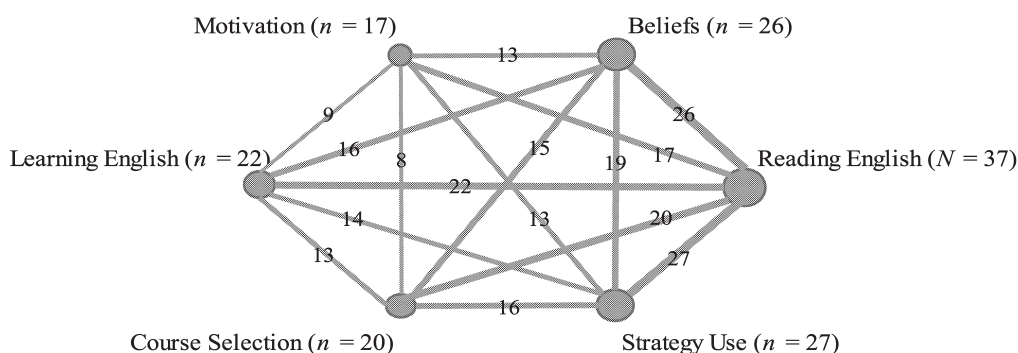
Figure 1 Relationships among the six categories by number for intersections of descriptors.

strategy use, 19 with beliefs, 16 with course selection, 14 with learning English, and 13 with motivation; (b) for motivation, 13 with beliefs, nine with learning English, and eight with course selection; (c) for beliefs, 16 with learning English and 15 with course selection; (d) for learning English, 13 with course selection.

Figure 2 is a schematic representation of the intersection of the respondents who wrote the descriptors for strategy use, motivation, and beliefs as proportions of the total distribution: 19 respondents between strategy use and beliefs, and 13, between strategy use and motivation and also between motivation and beliefs.   All these results indicate the general tendency of connection among strategy use, motivation, and beliefs, involving reading English, learning English, and course selection.   Then I probed the responses for the causal relationships from the perspectives of strategy use, motivation, and beliefs.
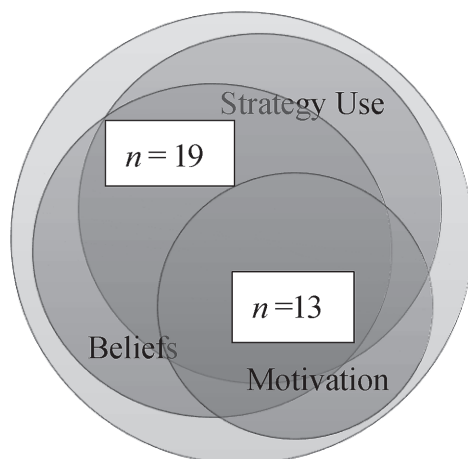
Figure 2　Intersection of respondents who wrote descriptors for strategy use, motivation, and beliefs.

3.2 Causal Relationships Derived From Strategy Use

Table 2 shows the strategy-based distribution of the 27 respondents who provided descriptors for their strategy use.　Of these respondents, 13 shared motivation and 19 shared beliefs.　Both motivation and beliefs were shared by 10 respondents.

Table 2　Strategy-Based Distribution of Respondents by Descriptors

Categories	Respondents	Percentage
Strategy Use	27	100
Motivation	13	48
Beliefs	19	70

Note. $n=27$.

I identified 13 responses indicating causal relationships from strategy use to motivation and to beliefs: (a) five respondents reported an effect on motivation, (b) four respondents reported an effect on beliefs, and (c) the remaining four respondents reported effects on both motivation and beliefs.　In the quoted passages from the data below, the parts indicating effects are underlined for clarity.

With regard to (a), four out of the five respondents reporting an effect on motivation ascribed this enhancement to their use of strategies such as understanding the main idea, making an extra effort to focus on difficult parts (a strategy not directly taught but concerned with reasoning and monitoring strategies), inferring the meaning of passages, and

using prior knowledge (an uninstructed strategy regarded as a kind of reasoning strategy). Motivation enhancement was evidenced by their positive comments on their enjoyment of reading and their willingness to read without coercion. Further, from their comments, it appears that comprehension success mediated between their strategy use and their motivation. For example, one of them reported a successful attempt at improving his reading speed by attempting to understand the main idea, and another mentioned comprehension improvement via the use of prior knowledge. On the other hand, the remaining respondent showed demotivation to read or study English after entering university (that is, after the push to study English hard in the effort to do well in his entrance exams). His comprehension success, which came about as a result of a shift from sentence-based to passage-based comprehension, is also regarded as a change of beliefs but did not contribute to motivation. This indicates that factors other than comprehension success can affect motivation to read in some cases.

> I feel my reading speed has improved drastically because I tried to understand the main idea directly. Doing this has made reading novels and newspaper articles fun.

> I try to find the topic sentence of each paragraph and to understand the main idea. I also focus on the meaning of difficult or unfamiliar parts. I've come to feel willing to read English, though I felt forced to read it at first.

> When I read a difficult English passage and my guess about its meaning was right, I felt happy and more willing to read more.

> I read English using my prior knowledge to the full: That's why my understanding and willingness to read English have improved.

> I've changed my English reading from sentence-based understanding to focus on passage-based comprehension. It was a great success. However, since completing the entrance exam, I feel like my desire to read English has dropped off a little.

Next, regarding (b), four respondents attributed the formation or change of beliefs on their part to their use of various reading strategies (many of which were similar in nature) for the identification of the main idea. The strategies included finding the topic sentence;

reading important parts carefully (a combination of strategies, not directly taught, for identifying the main idea and monitoring comprehension); focusing on the main idea; changing the pace of reading (a kind of monitoring strategy, not directly taught); translating into natural expressions in Japanese (a strategy not taught) instead of engaging in literal, word-for-word reading; applying prior knowledge and experiences (an uninstructed strategy regarded as a reasoning strategy); and interpreting passages. Formation or change of beliefs, implying that the participants in question recovered from text-boundedness, manifested itself in a few ways. Namely, participants reported noticing that strategic reading is effective (combining strategies makes reading easier), that fast reading is facilitated by focusing on the main idea (and conversely, that word-for-word reading is inefficient), and that interpretation of the text is important. It also appears that their comprehension success mediated between their strategy use and their beliefs.

> I am sure that reading English is easier if I can find the topic sentence of a paragraph, read important parts carefully, focus on the main idea, and make my own interpretations of my reading.

> I changed my English reading pace between the important parts and the unimportant parts. By doing so, I was able to spend more time trying to understand the meaning of the important parts. Now I understand that I can read faster by concentrating on the overall meaning of a passage.

> By translating English into natural Japanese, I can grasp the whole meaning of sentences. My present idea about the best way to read English is to interpret a passage, not to engage in word-for-word reading.

> I made it a habit to apply my experiences and knowledge to abstract expressions in the text. I've found that just translating English is not the same as understanding English. It's important to make my own interpretation!

Last, regarding (c), the final four respondents described the effects of successful strategy use on their motivation and beliefs, which demonstrated their recovery from text-boundedness (however, two of them reported unchanged motivation). In the responses that expressed changes in motivation, identifying the main idea by finding important parts (an

uninstructed strategy, as mentioned) and looking for the topic sentence appear to have affected both motivation and beliefs.   With regard to order of influence, formation or change of beliefs was felt to be logically more likely to precede change in motivation: That is, noticing that comprehending the main idea through the topic sentence was important presumably promoted reading motivation, not vice versa. With regard to the fixed-motivation respondents, their successful use of the strategy of finding the main idea did create beliefs about the importance of text organization and main idea comprehension, even though it did not improve their motivation.   Given their responses, it seems likely that one of them was already motivated sufficiently, that is, that his motivation was saturated, while the other respondent probably regarded reading in English as an insufficiently effective practice for the achievement of his goal of gaining proficiency in English.

> I always try to find important parts in each paragraph without translating the entire paragraph.   Now that I know I can understand long English passages by getting the main idea, I'd like to read new books and websites in English.

> Looking for the topic sentence in a paragraph has become my routine approach when reading English.   I've found that understanding the topic sentence is important to understand the following sentences and paragraphs, and because of my improved confidence, I have begun working on complicated passages by focusing on doing so.

> By gaining the main idea of each paragraph, I've become aware of the connection between sentences, which is very important for deeper understanding.   But my desire to read English is unchanged, since I already had enough motivation.

> I can read English a little more fluently than before by focusing on finding the main idea without caring about the details.   I used to think that translating sentences perfectly meant learning English, but now I feel it's unnecessary to translate everything if I get the main idea.   Anyway, nothing has changed about my desire to read English, since it's still hard for me to learn English just by reading it.

In sum, the responses indicated the existence of causal relationships from the strategy of identifying the main idea to motivation and to beliefs.   The effect on beliefs was more apparent than the effect on motivation, in that demotivation and unchanged motivation were

reported in some cases.　It appears that successful strategy use and comprehension mediate the causal processes of motivation and beliefs, and that beliefs psychologically precede motivation in the causal order.

3.3 Causal Relationships Derived From Motivation

Table 3 shows the motivation-based distribution of the 17 respondents who provided descriptors for motivation.　Strategy use and beliefs were each shared with motivation by 13 respondents, and 10 respondents shared strategy use and beliefs.

Table 3　Motivation-Based Distribution of Respondents by Descriptors

Categories	Respondents	Percentage
Strategy Use	13	77
Motivation	17	100
Beliefs	13	77

Note. n=17.

I found only one response indicating a causal relationship from motivation to strategy use and beliefs, quoted below.　This extrinsically motivated respondent, in order to achieve his goal of scoring high on proficiency tests, was likely to employ a passage-based approach (an extension of the paragraph-based comprehension strategy that was taught), instead of a sentence-based approach, as he had formerly used.　In addition, his beliefs about reading English appear to have changed as he became conscious of the effectiveness of his new passage-based approach for achieving his goal.　In general, if an individual's reading and/or learning goals are explicit, this kind of change in strategy use and beliefs caused by change in motivation should be expected in any language learning context, even though there was only one instance in this study.

I'm already motivated to get good scores on English tests like the TOEIC.　So I've stopped reading English sentence by sentence and begun reading as fast as possible to understand the gist of passages.

3.4 Causal Relationships Derived From Beliefs

Table 4 shows the belief-based distribution of the 26 respondents who gave descriptors for beliefs.　Strategy use and motivation were shared with beliefs by 19 and 13 respondents,

respectively, and 10 respondents shared strategy use and motivation.

Table 4 Belief-Based Distribution of Respondents by Descriptors

Categories	Respondents	Percentage
Strategy Use	19	73
Motivation	13	50
Beliefs	26	100

Note. $n=26$.

I found four responses informing us of causal relationships from beliefs to motivation, although I must acknowledge that some of the several responses indicating relationships leading from strategy use to beliefs that were identified in this study also involved the formation of beliefs. The four respondents reported that changes in their beliefs about reading styles (word-for-word reading versus comprehension-centered reading), text structure, and vocabulary knowledge for reading contributed to their increased motivation. It appears that their beliefs helped improve their motivation by enhancing their reading efficacy and along with it their expectation of successful reading. It is also probable that the intervention to remedy text-boundedness and develop strategy use also fostered the creation of their beliefs.

I had a fixed idea that I must translate English words into Japanese words one by one, with effort, when reading English.   But, now I feel that they don't correspond to each other in a simple way.   I want to read English more comfortably and easily.

I've got a feeling that it's better to read English fast than to read it carefully with the use of a dictionary, which was my previous idea.   Using this approach, I'd like to read novels by myself.

I've become aware of matters of text structure like the connection between paragraphs, to which I didn't pay any attention before.   I've also noticed that familiar words sometimes have several different meanings or usages.   I'd like to learn more vocabulary and be able to read English as fast as I read Japanese.

I used to assume the first meaning of a word in the dictionary or the familiar meaning already in my vocabulary when reading English.   But now I've learned that there are

unfamiliar meanings for the words I already know. So I work on my reading homework earlier than ever to check the meaning of the words in it.

3.5 Consolidation

The results of this study and suppositions based on them can be summarized as follows.

(a) Causal relationships from strategy use to beliefs and to motivation were identified more often than the causal relationships from motivation to strategy use and to beliefs.   Thus, it appears that the former kind of causation was more powerful than the latter in the participants' perspective.

(b) The effect of strategy use on beliefs was more apparent than the effect of strategy use on motivation, since a few cases showed demotivation or unchanged motivation.

(c) It is likely that strategy use centering on understanding the main idea influenced beliefs and motivation, which reduced the degree of text-boundedness.

(d) Causal relationship from beliefs to motivation might have stemmed from prior strategy use because of the possibility of an intervention effect: Quite a few cases where this seemed to be the case appeared in this study.

(e) It appears that successful strategy use and comprehension mediated the processes causing beliefs and motivation.

(f) Logically, formation or change of beliefs was psychologically likely to precede the promotion of motivation.

(g) Formation or adoption of desirable beliefs was likely to help enhance motivation by improving the efficacy of successful reading.

(h) Only one instance of a causal relationship from motivation to strategy use and to beliefs was found in this study.   Although this is only slight evidence, this pattern of causation is presumed to be possible in the language learning context if the learner's goal is determined.

4. Discussion

In L1 reading research for English-speaking children, it has generally been considered that reading motivation, in particular intrinsic motivation, influences choice and use of strategies (e.g., Guthrie & Wigfield, 2000; Guthrie, Wigfield, & Perencevich, 2004).   Yet the possibility of the opposite influence cannot be excluded, and indeed, relationships among strategy use, motivation (in particular, intrinsic motivation), and proficiency have been reported in a study among L1 Chinese children (Lau & Chan, 2003).   In L2 reading research

with university students, relationships have been reported among strategy use, motivation, beliefs, and proficiency, including interactive development across them (Hiromori, Matsumoto, & Nakayama, 2012; Matsumoto, Hiromori, & Nakayama, 2013; Matsumoto, Nakayama, & Hiromori, 2013). Kamhi-Stein (2003) and Matsumoto (2006) also support the influence of beliefs on strategy use among L2 university students. Furthermore, a plethora of studies have supported the proposition that motivation in L2 learning positively affects strategy use (Chen, 1999; Ehrman & Oxford 1989; O'Malley & Chamot 1990; Oxford & Nyikos, 1989; Wharton, 2000). Horwitz (1988) and Yang (1999) also report influence of L2 learner beliefs on actual strategy use. However, some studies propose influence in the opposite direction, from learners' strategy use to their motivation (Chamot & Kupper, 1989; Chamot & O'Malley, 1994; Hiromori, 2004; Nunan, 1997). Yang (1999) suggests the possibility that learners' strategy use can influence their beliefs as well as their motivation. In sum, the results regarding causal relationships among strategy use, motivation, and beliefs are mixed, although the influence of motivation and beliefs on strategy use appears to have been stronger than the influence of strategy use on motivation and beliefs.

From the perspective of the participants in the present study, their strategy use influenced their motivation and beliefs more strongly than their motivation did their strategy use and beliefs, although motivation seems to be potentially strong in the EFL context if the reader's goals are predetermined. In a broad sense, it is unlikely that the results of the present study contradict, per se, the mixed findings of previous research in L2 reading and learning and even in L1 reading. However, given the dominant influence of motivation and beliefs on strategy use according to the literature, the results of the present study seem to present new insights into L2 reading research.

To explain these results, I assume that two factors were particularly influential. The first is the lack of established individual goals (i.e., motivations) for English reading and/or learning, even though the participants were informed of the course aim. That is, motivation was less apt to affect the participants' L2 reading because they did not have explicit goals. The other factor was the presumed intervention effect (of remedying text-boundedness and developing strategy use centering on main idea comprehension) on the participants' beliefs and motivation, although the purpose of this study was not to measure it. Rather than motivation, strategy use seemed to be the main influence on their L2 reading in the interventional process. Thus, there is the possibility of different results from a motivation-based intervention via goal-setting for reading or learning English (e.g., a dominant influence of motivation on strategy use and beliefs, an influence the literature has generally supported).

Given these possibilities, I can argue that the causal relationships among strategy use, motivation, and beliefs seem to depend on what characteristics may emerge or change in the reader's behavior and recognition, affecting his or her L2 reading. In other words, the causal processes in L2 reading are considered to be dynamic in that influential factors like those discussed above interact.

The purpose of the present study was to explain a phenomenon under focus (namely, causal processes in a setting of EFL reading) through the careful analysis of particular cases. I can explain the causal processes that emerged here (as perceived by the participants under our strategy-based intervention) as follows. Successful strategy use and comprehension help EFL readers form or change their beliefs, their reading self-efficacy, and eventually their motivation. In other words, EFL readers' strategic behavior can change their mindset. Beliefs are likely to be affected by strategy use because they are a form of metacognitive knowledge, of learning (i.e., reading) itself and of learning strategies (e.g., Wenden, 1999). Feeling success in strategy use and comprehension is apt to enhance motivation, in that the development of intrinsic motivation strongly depends on learners' competence (here, reading competence) (Deci, Vallerand, Pelletier, & Ryan, 1991). I infer that this possible causal process unfolds chronologically from strategy use to beliefs and motivation, since a certain amount of time is needed to feel success in strategy use; but also that it psychologically (as opposed to chronologically) runs from beliefs to motivation. That is, I recognize only the logically causal relationship from beliefs to motivation, and cannot determine any time difference between them.

The present study underscores the fact of the continued existence among EFL readers of the fallacy that careful and precise reading is essential to read in a foreign language (in fact, this is a valid belief at the early stage of learning to read), a fallacy that it is hard for them to reject all by themselves. In other words, text-boundedness remains an unfinished problem in EFL reading and a barrier against fluent reading. I deduce that our participants formed or adopted *desirable beliefs* that paragraph- and passage-based comprehension is effective (and conversely, that word-for-word reading is ineffective), that comprehending the main idea is important, and that fluency should be developed steadily. These new or revised beliefs seemed to help reduce the degree of their text-boundedness and enhance their motivation for effective EFL reading. I also infer that the participants' control over the abstract strategy of understanding the main idea became possible by their use of a range of specific strategies for main idea comprehension (i.e., checking the title, looking for the topic sentence and/or concluding sentence, recognizing discourse markers, identifying text organization, and any

other possible strategies not directly taught).

5. Conclusion and Implications

Some quantitative research has reported reciprocal relationships among strategy use, motivation, and beliefs in EFL reading. In this study, I tried to probe into the causal processes among three factors influencing EFL reading (strategy use, motivation, and beliefs) through an exploratory text-mining approach, a qualitative method. A serious limitation of the present study is that a single method of data collection, an open-ended questionnaire, was employed. Employing multiple approaches, including in-depth interviews and behavioral observations, will be necessary to strengthen our findings. Nevertheless, for three reasons, the current study appears to have yielded some convincing and valid explanations for the causal processes. First, some studies on beliefs (e.g., Wenden, 1999) and motivation (Deci, Vallerand, Pelletier, & Ryan, 1991) have provided supporting evidence. If beliefs are metacognitive knowledge of reading strategies, they are likely affected by actual strategy use. Motivation strongly depends on the reader's competence: Thus, a feeling of success in comprehension due to strategy use can enhance motivation. Second, the present study qualitatively validated and triangulated positive relationships among strategy use, motivation, and beliefs, as also seen in some quantitative studies (e.g., Matsumoto, Hiromori, & Nakayama, 2013), suggesting that strategy use can help shape motivation and beliefs. Last, despite limited generalizability of qualitative study, the causal processes that emerged here are plausible at least in EFL classrooms with similar student populations — classrooms which do exist in abundance.

I can glean two important pedagogical implications for EFL reading classrooms. First, strategy use can be a practical learner behavior that is beneficial for learner beliefs and motivation. EFL reading teachers can exploit learners' successful strategy use, which can lead to comprehension and foster desirable beliefs and stronger motivation. Second, main idea comprehension must be emphasized among EFL readers as a way of developing their reading fluency. EFL reading teachers should demonstrate to their students that a series of specific strategies for identifying the main idea (e.g., looking for the topic sentence) can contribute in combination to controlling the abstract strategy of main idea comprehension.

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References

Brown, J. D., & Rodgers, T. S., (2002). *Doing second language research*. Oxford University Press.

Carrell, P. L. (1988). Text-boundedness and schema interference. In P. L. Carrell, J. Devine & D. E. Eskey (Eds.), *Interactive approaches to second language reading* (pp.101-113). Cambridge University Press.

Carrell, P. L. (1998). Can reading strategies be successfully taught? *The Language Teacher Online, 22,* 1-9.

Chamot, A. U., & Kupper, L. (1989). Learning strategies in foreign language instruction. *Foreign Language Annals, 22*, 13-24.

Chamot, A. U., & O'Malley, J. M. (1994). Language learner and learning strategies. In N. C. Ellis (Ed.), *Implicit and explicit learning of languages* (pp.371-392). London: Academic Press.

Chen, Y. (1999). *Motivation and language learning strategies in learning English as a foreign language.* Unpublished Doctoral Dissertation, University of Washington.

Deci, E. L., Vallerand, R. J., Pelletier, L. G., & Ryan, R. M. (1991). Motivation and education: The self-determination perspective. *Educational Psychologist, 26,* 325-346.

Devine, J. (1988). A case study of two readers: Models of reading and reading performance. In P. L. Carrell, J. Devine & D. Eskey (Eds.), *Interactive approaches to second language reading* (pp.127-139). Cambridge University Press.

Dörnyei, Z. (2007). *Research methods in applied linguistics: Quantitative, qualitative and mixed methodologies*. Oxford University Press.

Ehrman, M., & Oxford, R. L. (1989). Effects of sex differences, career choice, and psychological type on adults' language learning strategies. *The Modern Language Journal, 73,* 1-13.

Grabe, W. (2009). *Reading in a second language: Moving from theory to practice*. Cambridge University Press.

Guthrie, J. T. (2004). Classroom contexts for engaged reading: An overview. In J. T. Guthrie, A. Wigfield, & K. C. Perencevich (Eds.), *Motivating reading comprehension: Concept-oriented reading instruction*. Mahwah, NJ: Lawrence Erlbaum Associates.

Guthrie, J. T., & Wigfield, A. (2000). Engagement and motivation in reading. In M. L. Kamil, P. B. Mosenthal, P. D. Pearson & R. Barr (Eds.), *Handbook of reading research, volume 3* (pp.403-422). Mahwah, NJ: Lawrence Erlbaum Associates.

Guthrie, J. T., Wigfield, A., & Perencevich, K. C. (2004). *Motivating reading comprehension: Concept-oriented reading instruction*. Mahwah, NJ: Lawrence Erlbaum.

Hiromori, T. (2004). Motivation and language learning strategies of EFL high school students: A preliminary study through the use of panel data. *JACET BULLETIN, 39,* 31-41.

Hiromori, T., Matsumoto, H., & Nakayama, A. (2012). Profiling individual differences of successful and unsuccessful L2 readers. *The Journal of Asia TEFL, 9,* 49-70.

Horwitz, E. K. (1988). The beliefs about language learning of beginning university foreign language students. *The Modern Language Journal, 72,* 283-294.

Huntley, H., & Shidara, K. (2008). *Introduction to academic reading: Acquiring the essential academic vocabulary*. Tokyo: Cengage Learning.

Kamhi-stein, L. D. (2003). Reading in two languages: How attitudes toward home language and beliefs about reading affect the behaviors of "underprepared" L2 college readers. *TESOL Quarterly, 37,* 35-71.

Kormos, J. (1998). Verbal reports in L2 speech production research. *TESOL Quarterly, 32,* 353-358.

Lau, K. L., & Chan, D. (2003). Reading strategy use and motivation among Chinese good and poor readers in Hong Kong. *Journal of Research in Reading, 26,* 177-190.

Lesley, T., Hansen, C., & Zukowski/Faust, J. (2008). *Placement and evaluation package: Interchange* (3rd Edition). Cambridge University Press.

Mackey, A., & Gass, S. M. (Eds.) (2012). *Research methods in second language acquisition: A practical guide*. Chichester: Wiley Blackwell.

Matsumoto, H. (2006). The formation of interactive reading conception as a facilitator to L2 reading performance. *JACET BULLETIN, 42,* 23-51.

Matsumoto, H., Hiromori, T., & Nakayama, A. (2013). Toward a tripartite model of L2 reading strategy use, motivations, and learner beliefs. *System, 41,* 38-49.

Matsumoto, H., Nakayama, A., & Hiromori, T. (2013). Exploring the development of individual difference profiles in L2 reading. *System, 41,* 994-1005.

Mori, S. (2002). Redefining motivation to read in a foreign language. *Reading in a Foreign Language, 14*. Retrieved from http://nflrc.hawaii.edu/RFL/October2002/mori/mori.html

Nunan, D. (1997). Strategy training in the language classroom: An empirical investigation. *RELC Journal, 28,* 56-81.

O'Malley, J. M., & Chamot, A. U. (1990). *Learning strategies in second language acquisition*. Cambridge University Press.

Oxford, R. L., & Nyikos, M. (1989). Variables affecting choice of language learning strategies in an intensive foreign language program in the United States. *System, 23,* 359-386.

Plonsky, L. (2011). The effectiveness of second language strategy instruction: A meta-analysis. *Language Learning, 61,* 993-1038.

Sheorey, R., & Mokhtari, K. (2001). Differences in the metacognitive awareness of reading strategies among native and non-native readers. *System, 29,* 431-449.

Takase, A. (2007). Japanese high school students' motivation for extensive L2 reading. *Reading in a Foreign Language, 19*. Retrieved from http://nflrc.hawaii.edu/rfl/april2007/takase/takase.html

Ueki, R. (2002). Structure of high-school students' beliefs about learning. *Japanese Journal of Educational Psychology, 50,* 301-310.

Wenden, A. L. (1999). An introduction to metacognitive knowledge and beliefs in language learning: Beyond the basics. *System*, *27*, 435-441.

Wharton, T. (2000). Language learning strategy use of bilingual foreign language learners in Singapore. *Language Learning, 50,* 203-243.

Wigfield, A. (1997). Children's motivations for reading and reading engagement. In J. T. Guthrie & A. Wigfield (Eds.), *Reading engagement* (pp.14-33). Newark, Delaware: Reading Association.

Wigfield, A., & Guthrie, J. T. (1997). Relations of children's motivation for reading to the amount and breadth of their reading. *Journal of Educational Psychology, 89,* 420-432.

Yang, N. D. (1999). The relationship between EFL learners' beliefs and learning strategy use. *System, 27,* 515-535.