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<td>Wong, Kit Yi Miranda (黃潔兒)</td>
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The Relationships of Recreational and Academic Reading Behaviours, Reading Self-efficacy, and Reading Competence among Hong Kong Bilingual Undergraduates

A Report Submitted to
Department of Applied Social Studies
in Partial Fulfilment of the Requirements for
the Master of Social Sciences in Applied Psychology

by

WONG Kit Yi, Miranda

August, 2013
Abstract

Objectives. The present study investigated the relationships among recreational and academic reading behaviours, reading self-efficacy, and reading competence in Chinese as a first language (L1) and in English as a second language (ESL). In particular, the L1 and ESL reading characteristics and patterns of Hong Kong bilingual undergraduates, the influences of the recreational and academic reading contexts, and the role of reading self-efficacy would be carefully examined.

Method. The participants were 222 Chinese-English bilingual undergraduates from a university in Hong Kong including 83 males and 139 females with a mean age of 20.75. Participants were asked to fill out an English questionnaire to assess their reading frequency, reading engagement, and reading self-efficacy with regard to their L1 and ESL reading. After the completion of questionnaire, they were instructed to complete two reading comprehension tests in 20 minutes to evaluate their Chinese and English reading competence.

Results. The results of repeated measures ANOVA and paired sample t-tests showed that students read more often in English for studies but were less engaged in it. The correlation analyses revealed context-specific and cross-contextual relationships among reading behaviours. Several positive associations were also found among reading behaviours, reading self-efficacy, and reading competence within and across languages. The SEM suggested the significant contribution of recreational reading behaviours to
enhance reading self-efficacy in ESL reading. The mediating role of reading self-efficacy in both L1 and ESL reading was confirmed by the mediation analyses via bootstrapping.

Conclusions. The findings indicated that the contextual factors influenced ESL reading in which students benefited the most from recreational reading behaviours in terms of having higher reading self-efficacy. In addition, the positive association between reading behaviours and reading competence was mediated by reading self-efficacy in both L1 and ESL reading. The theoretical and practical implications of the findings were discussed.
Acknowledgments

I would like to express my deepest appreciation to all the anonymous participants who have taken part in this study. My special gratitude is extended to my supervisor Dr. Bonnie Chow for the professional guidance and the support from her Idea Incubation Project. I would also like to thank Dr. Mary Pang, the Associate Dean of the College of Business, for her permission to collect data from the participants of Student Exchange Programme and Summer Programme. My grateful thanks are also extended to Dr. Larry Ng, Ms. Ka Yee Lee, Ms. Angie Cheung, Ms. Edna Yu, and Ms. Connie Chung for their logistic support in data collection.
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Chapter 1: Introduction and Literature Review

1.1 Background

Reading has a prominent role in personal enrichment, educational achievement, social development, and civic advancement (Clark & Rumbold, 2006; OECD, 2002; Omole & Ladan, 2011). It was suggested that reading can broaden one’s horizon for navigating the increasingly complicated world (Alexander, 2005), determinate educational success by predicting students’ learning performance (Mol & Bus, 2011; Royer, Abranovic, & Sinatra, 1987), and increase the national human capital for generating various social benefits (OECD, 2002). Despite the widely documented importance of reading, the reading climate in Hong Kong is not desirable (SHKP Reading Index, 2012); only 58.2% of the population had the recreational reading habit. Younger people (aged 15 to 24) tended to read more often comparing with the older age groups, still one-fourth of them did not read in leisure time at all. In particular, the preference for reading in Chinese as a first language (L1) over reading in English as a second language (ESL) is obvious among Hong Kong students (Tung, Lam, & Tsang, 1997). The limited use of English in formal settings such as classroom environment has discouraged English recreational reading in Hong Kong (Lin, Wong, & McBride-Chang, 2012). While mastering in reading can help attaining great achievements in different aspects, it is worth investigating how reading competence, especially in English, can be enhanced in such an unfavourable reading environment.
1.2 Literature Review

1.2.1 Reading Behaviours and Reading Competence

Reading behaviours can be defined in quantity by reading frequency and in quality by reading engagement (e.g., De Naeghel, Van Keer, Vansteenkiste, & Rosseel, 2012; Stanovich & Cunningham, 1992; Wigfield & Guthrie, 1997). Research findings have revealed that reading frequency had a significant association with reading competence. In the L1 reading literature, reading frequency was found to be positively correlated with reading competence (e.g., Becker, McElvany, & Kortenbruck, 2010; De Naeghel et al., 2012; Guthrie, Wigfield, Metsala, & Cox, 1999). With the control of potentially confounding variables such as past achievement, prior topic knowledge, reading self-efficacy, and reading motivation, Guthrie et al. (1999) further pointed out that reading amount significantly predicted reading comprehension. They explained that students who read more often could gain more prior knowledge about a wide range of topics, enhance reading self-efficacy, acquire mastery of cognitive strategies to apply prior knowledge to the texts, and facilitate the coordination of cognitive and motivational goals during reading activities. These cognitive and motivational benefits obtained from the greater reading amount would turn into the increase in reading comprehension.

The significance of reading frequency in reading competence was, however, inconsistent across studies; and some alternatively suggested nonlinear relationship
between reading frequency and reading competence. For example, Becker et al. (2010) have confirmed the positive correlation between reading amount and reading literacy, but their model consisting of past achievement as well as intrinsic and extrinsic motivation failed to show the significant path from reading amount to reading literacy. The past achievement and extrinsic motivation were the strongest predictors instead. They surmised that the stability of reading competence allowed little variance in later reading literacy to be explained by reading amount. As for the negative impact of extrinsic motivation, they highlighted that the previous reading failure extrinsically motivated the students to read only when necessary, the pressure of reading eventually resulted in lower reading achievement. It was also plausible that students read below the instructional level and thus the higher reading frequency did not benefit reading achievement (Baker & Wigfield, 1999). Parallel sentiment of the nonsignificant influence of reading frequency was found in the reading studies on cross-cultural comparison and on English as a foreign language (EFL). Wang and Guthrie’s (2004) cross-cultural study demonstrated that reading amount did not significantly account for reading comprehension with the control of past achievement and motivational variables for both the U.S. and Chinese students. Han (2011) studied a group of Chinese EFL undergraduates; and the results showed that the three groups of high, medium, and low proficiency EFL readers did not differ in their reading frequency. When simply to read more did not lead to the increase in reading competence, Anderson, Wilson, and
Fielding (1988) argued that the relationship between reading frequency and reading competence was not straightforward in which the marginal returns in reading competence was diminishing with the increased time investing in reading. Their precise data on time spending on reading from 155 fifth-grade L1 readers provided a picture showing that students could improve their reading competence significantly by reading more at first, but the contribution of additional time spending on reading to reading competence would gradually decease.

In view of the mixed findings of the relationship between reading frequency and reading competence, researchers attempted to analyse reading behaviours in quality in terms of reading engagement to explain reading competence. Reading engagement is a multidimensional construct including behavioural, motivational/emotional, and cognitive aspects (Appleton, Christenson, & Furlong, 2008; Wigfield, Guthrie, Perencevich, Taboada, Klauda, McRae, & Barbosa, 2008) which is about the immersion experience when readers interact with the texts (Guthrie et al., 2004). Engaged readers tend to read independently and attentively (behavioural), feel confident in reading (motivational), enjoy reading (emotional), and process deeply during the reading activities (cognitive). Research findings have reported significant correlation between reading engagement and reading competence (De Naeghel et al., 2012; Wigfield et al., 2008). Furthermore, De Naeghel et al. (2012) indicated that reading engagement significantly predicted reading competence even with the control of reading motivation,
reading self-concept, and reading frequency, suggesting its substantial contribution to reading competence in relation to other reading variables. With respect to the research on the motivational intervention of Concept-Oriented Reading Instruction (CORI), which is designed to increase students’ reading competence by means of enhancing their reading engagement, a meta-analysis of 11 CORI studies revealed that the intervention had positive impacts on reading motivation, reading frequency, and reading competence (Guthrie, McRae, & Klauda, 2007). To specifically investigate the effect of CORI on reading engagement and reading competence, Wigfield et al. (2008) regarded reading engagement as the covariance and subsequently discovered its mediating role in the association between instructional conditions and reading competence. When students receiving CORI performed significantly better in reading comprehension test than did those receiving strategy instruction or traditional instruction, the difference in the effectiveness across instructional conditions was significantly mediated by reading engagement. It should be noted, however, that the growing body of evidence showing the positive relationship between reading engagement and reading competence was mainly found in L1 reading studies, which indicates that reading engagement may be an unexplored aspect in ESL reading studies.

Among the studies on reading behaviours, an area that has received less attention is the contexts where reading behaviours may take place (De Naeghel et al., 2012). Although reading contexts were implicated to intertwine with reading attitude,
reading motivation, and reading purpose to induce reading behaviours (De Naeghel et al., 2012; Linderholm, Cong, & Zhao, 2008; McKenna & Kear, 1990), few studies were conducted to explicitly examine the contribution of contextual factors on various reading variables in a systematic manner. It has been identified that reading can occur in recreational and academic contexts for students (De Naeghel et al., 2012; McKenna & Kear, 1990; Wang & Guthrie, 2004), but most of the research failed to address the contextual factors by either combining the reading activities happened in both contexts into individual reading variables (e.g., Becker et al., 2010; Guthrie et al., 1999; Pečjak, Podlesek, & Pirc, 2011) or only measuring the reading activities for a single context (e.g., Baker & Wigfield, 1999; Kim, 2007; Wigfield et al., 2008). For the limited studies on reading in both recreational and academic contexts, the researchers examined the contextual factors in separate models which did not allow direct comparison (De Naeghel et al., 2012) or did not highlight the features of reading in the particular context (Wang & Guthrie, 2004). The limitations cause the existing literature unable to project the issue of when or in which context to read is more effective in enhancing reading competence.

1.2.2 The Role of Self-efficacy in Reading

Self-efficacy refers to the beliefs in one’s capabilities to perform a specific task at a designated level (Bandura, 1982, 1997; Pajares, 1996). Given its nature of self-evaluation, it was found that self-efficacy is related to various academic
performances such as reading, writing, and mathematics (see Pajares, 1996). Although there are conceptual similarities, self-efficacy is different from other self-concepts and outcome expectancy in the sense that it is a context- and task-specific assessment of personal performance capabilities (Pajares, 1996; Zimmerman, 2000). In this regard, reading self-efficacy is defined as the judgement in one’s capabilities to perform well in a reading task (Schunk, 2003; Schunk & Zimmerman, 1997). The widely documented empirical evidences have suggested that reading self-efficacy was positively associated with reading behaviours and reading competence in the L1 reading context (e.g., Baker & Wigfield, 1999; Katzir, Lesaux, & Kim, 2009; Shell, Murphy, & Bruning, 1989).

Reading self-efficacy is most often to be regarded as one of the motivational components (e.g., MRQ; see Wigfield & Guthrie, 1997) to influence reading competence directly (e.g., Guthrie, Hoa, Wigfield, Tonks, Humenick, & Littles, 2007; Solheim, 2011; Taboada, Tonks, Wigfield, & Guthrie, 2009) or indirectly via the manipulation of reading behaviours, metacognitive factors, and the use of reading strategies (De Naeghel et al., 2012; Lau & Chan, 2003; Pečjak et al, 2011). The results pointed out that students with higher reading self-efficacy achieved greater reading competence because they were motivated to be more engaged in reading activities, applied metacognitive skills better during reading activities, and were skilful to use more reading strategies.

In the context where English as a second language (ESL) or as a foreign
language (EFL), reading self-efficacy is a relatively new construct to be studied in relation to English reading competence (Huang & Chang, 1998). Most ESL or EFL reading research examined the correlations between reading self-efficacy and various reading variables. For example, Sani and Zain (2011) found that the positive associations were moderate among reading self-efficacy, reading attitude, and reading ability for adolescents in North Malaysia, where the use of ESL is not supportive and is limited in the classroom setting. Ghonsooly and Elahi (2011) took reading anxiety into account to investigate EFL reading among 150 Persian sophomores; they indicated a strong negative correlation between reading self-efficacy and reading anxiety while students with great reading achievement tended to be highly efficacious in EFL reading.

Studying on 80 Iranian EFL learners (Naseri & Zaferanieh, 2012), the results of the correlation analyses evidenced that the highly efficacious students employed more reading strategies during the reading activities and performed better in the reading comprehension test. As in L1 reading, reading self-efficacy was also categorised as the motivational subcomponent in EFL reading. For example, Lin et al. (2012) conducted the research on Hong Kong Chinese-English bilingual fifth graders, they suggested that reading self-efficacy, as a motivational subcomponent, was positively correlated with reading comprehension, but the regression analyses failed to conclude the significant predictive effect of reading self-efficacy on reading comprehension in both L1 and EFL reading.
Although self-efficacy is commonly regarded as a constituent of motivational constructs in reading literature (Guthrie et al., 1999), it is important to point out that subsuming self-efficacy under reading motivation may underestimate its unique contribution in which the differences in self-beliefs may be shadowed by other motivational constructs (Pajares, 1996). Given that there are conceptual and psychometric differences between self-efficacy and related motivational constructs (Zimmerman, 2000), it is necessary to separate self-efficacy from other motivational constructs for examining its unique influence on reading, especially in ESL reading, where the investigation on self-efficacy is still in its infancy. Moreover, when self-efficacy is antecedent to behaviours and performances on the one hand, it should not be overlooked that self-efficacy is a dynamic concept which can also be affected by previous behaviours and performances on the other hand (Schunk, 2003; Schunk & Zimmerman, 1997). In fact, it is an ongoing process of evaluation of one’s capabilities; as students read, they may be informed of their progress and thus their self-efficacy beliefs may change to act on their goals. Since self-efficacy is about the execution of integration and application of the knowledge and skills obtained from previous experiences (Bandura, 1982; Shell et al., 1989), it was suggested that self-efficacy may play a mediating role in the relationship between self-regulatory learning and subsequent attainment (Zimmerman, Bandura, & Martinez-Pons, 1992). In view of this, the potential mediating effect of reading self-efficacy on the association between
reading behaviours (i.e., where students can gain the sources of self-efficacy information and exert self-regulatory learning) and reading competence (i.e., the subsequent attainment) should be investigated.

1.3 The Present Study

The aims of the present study were threefold. First, there was an attempt to generalise the previous L1 reading research findings to the field of ESL reading, in hopes of understanding how the characteristics and patterns of ESL reading may be similar to or different from those of L1 reading and exploring the potential cross-language relations. Specifically, the relationships among reading behaviours, reading self-efficacy, and reading competence would be carefully examined in both L1 and ESL reading for preliminary comparison. Second, reading behaviours would be studied in the recreational and academic contexts to address the contextual factors in reading and their implications for enhancing reading self-efficacy and reading competence. It was hypothesised that students may benefit more from the reading activities in a certain context in terms of having higher reading self-efficacy and greater reading competence. Third, this study distinguished self-efficacy from other motivational constructs and determined whether reading self-efficacy would mediate the relationship between reading behaviours and reading competence. The hypothesised theoretical model is illustrated in Figure 1 to project the relationships among the reading variables in which reading self-efficacy is more directly tied to reading competence than
do reading behaviours. In this model, reading self-efficacy serves as the mechanism to explain how reading behaviours taking place in different contexts may influence reading competence.
Figure 1. Hypothesised theoretical model regarding the relationships among recreational and academic reading behaviours, reading self-efficacy, and reading competence.
Chapter 2: Methodology

2.1 Participants and Data Collection

Participants were 222 Chinese-English bilingual undergraduates from a university in Hong Kong. There were 83 males and 139 females, whose age ranged from 18 to 25, with a mean age of 20.75 (SD = 1.60). They were from a wide range of study domains in which 47.7% majored in Business, 33.8% majored in Arts and Social Studies, and 18.5% majored in Sciences and Engineering. Their mean GPA was 3.19 with a standard deviation of .35.

There were two phases of data collection. In the first phase, invitation emails were sent to the representatives of the College of Business and the College of Liberal Arts and Social Studies at the University. Data collection was conducted during the lectures and workshops which were launched from November 2012 to February 2013. In this phase, 81 participants were recruited and they were given a small gift as a token of appreciation for taking part in the study. In the second phase, 141 participants were recruited via the internal email that was sent to all undergraduates in the University in February 2013. A series of research sessions were conducted in February and March 2013 for data collection. Each participant in the second phase received a $20 book coupon as the compensation for their participation in the study.

2.2 Materials

2.2.1 Reading Frequency
Participants were asked to assess their recreational and academic reading frequency in L1 and ESL reading. For each reading conditions, they indicated their reading frequency on a single-item 5-point Likert scale ranging from 1 for “never” to 5 for “always” (“In general, how often do you read Chinese/English texts for pleasure/studies?”). The items were adapted from the reading frequency item in Scales and Rhee’s (2001) Reading Habits and Reading Patterns Questionnaire for Adults as well as the items used by Becker et al. (2010). Despite the concern of reliability issue, this type of single-item measure as a global scale was compared favourably with the multifaceted scale since it demonstrated acceptable minimum estimates of reliability, implied higher face validity, and was more cost-effective (Ironson, Smith, Brannick, Gibson, & Paul, 1989; Nagy, 2002; Wanous, Reichers, & Hudy, 1997). Besides, participants were asked to rate on a 5-point Likert scale ranging from 1 for “never” to 5 for “always” to specifically assess their Chinese and English reading frequency of different reading materials. This multifaceted scale, including questions on four leisure-related reading materials and three academic-related reading materials, was adapted from Han’s (2011) Frequency of English Reading Questionnaire that provided descriptive information of reading frequency relating to the types of reading materials (see Appendix A).

2.2.2 Reading Engagement

Participants responded to four statements indicating their level of reading
engagement on a 5-point Likert scale ranging from 1 for “not true” to 5 for “very true” (e.g., “I work hard in reading”) for each reading condition. The items were adapted from the Reading Engagement Index-Revised (Wigfield et al., 2008) to reflect the behavioural, motivational/emotional, and cognitive characteristics of engaged reading. It was originally a teacher-rated measure but it was used as a self-reported measure in the present study. The internal consistencies of the four-item measure were not desirable across the four reading conditions, so Item 1 was deleted for generating higher reliabilities. The Cronbach’s alphas of the three-item measure were acceptable at .68, .69, .72, and .71 for Chinese recreational reading, Chinese academic reading, English recreational reading, and English academic reading, respectively.

2.2.3 Reading Self-efficacy

The EFL Learners’ Self-efficacy Scale in Reading Comprehension (Ghonsooly & Elahi, 2011) was adapted to measure participants’ reading self-efficacy in L1 and ESL reading. The authors stated that this new scale was developed on the basis of the Persian Adaptation of General Self-efficacy Scale (Nezami, Schwarzer, & Jerusalem, 1996), the Morgan-Links Student Efficacy Scale (Jinks & Morgan, 1999), and the Beliefs about Language Learning (Horwitz, 1988); the face validity and content validity of the scale were carefully examined. The scale contains 11 items answering on a 5-point Likert scale ranging from 1 for “strongly disagree” to 5 for “strongly agree” (e.g., “I believe that my Chinese/English reading comprehension proficiency improves every day”).
Item 11 was deleted in the present study to increase the internal consistency. The Cronbach’s alphas of the 10-item scale were satisfactory at .73 and .80 for Chinese and English reading self-efficacy, respectively.

2.2.4 Reading Competence

In the present study, reading competence was operationalised by the standardised reading comprehension tests. The Chinese reading comprehension test was adapted from the sample reading comprehension test of Hanyu Shuiping Kaaoshi (HSK) while the English reading comprehension test was adapted from the past reading comprehension test of Graduate Management Admission Test (GMAT). Each test consisted of a short passage (Chinese: 793 words; English: 422 words) and eight multiple-choice questions. The topic of the Chinese passage was “The Economic Supportive Relation within a Family” and the topic of the English passage was “Literature in the Classroom.”

2.3 Procedures

Participants’ consents were sought prior to distributing the study materials. They were informed of the research purpose, procedure, compensation, confidentiality, and their voluntary participation. For the participants from the College of Business in the first phase of data collection, they were also informed that the study was independent from the College of Business. Then all the participants were asked to fill out an English questionnaire to assess their reading frequency, reading engagement, and reading
self-efficacy with regard to their L1 and ESL reading. After the completion of
questionnaire, they were instructed to complete two reading comprehension tests in 20
minutes to evaluate their Chinese and English reading competence. Their participation
in the study took approximately 25 minutes.

2.4 Statistical Analyses

All statistical analyses were conducted with SPSS 20 and Amos Version 20. The
paired sample t-tests, repeated measures ANOVA, and correlation analyses were
performed for exploring the characteristics and simple relationships among reading
behaviours, reading self-efficacy, and reading competence where the contextual factors
were taken into account. With respect to the research aims, structural equation
modelling (SEM) was performed with Amos Version 20 to examine the influence of
contextual factors on reading outcome variables and the role of reading self-efficacy on
the relationship between reading behaviours and reading competence for L1 and ESL
reading. As recommended by Hooper, Coughlan, and Mullen (2008), the model fits
were evaluated on the basis of the chi-square test statistic and the $p$ value, the
root-mean-square error of approximation (RMSEA), the standardised root-mean-square
residual (SRMR), and the comparative fit index (CFI). Acceptable model fit is indicated
by nonsignificant $\chi^2$ statistic, RMSEA values less than .06, SRMR values less than .08,
and CFI values greater than .95. Bootstrapping was applied to test the indirect effects of
reading behaviours on reading competence via the mediation of reading self-efficacy.
Chapter 3: Results

3.1 Comparisons of Reading Behaviours and Reading Self-efficacy

Table 1 summarises the descriptive statistics and comparisons of reading behaviours, reading self-efficacy, and reading competence across languages and contexts. In terms of reading behaviours, the results of repeated measures ANOVA showed that participants had very different views towards L1 and ESL reading across contexts. They often read in English in academic context but seldom did so in recreational context ($p < .001$); in contrast, they performed more recreational reading than academic reading in Chinese ($p < .001$). While they read in English for studies more often than in Chinese for both pleasure ($p < .001$) and studies ($p < .001$), their level of engagement in English academic reading was significantly lower than that in Chinese recreational ($p < .001$) and academic reading ($p = .002$). The difference between Chinese recreational and academic reading engagement was not statistically significant ($p = .134$). Comparing the four reading conditions (i.e., Chinese recreational reading, Chinese academic reading, English recreational reading, and English academic reading), the frequency and engagement of English recreational reading were found to be the lowest, implying that participants rarely read in English for pleasure in a deeply engaged manner. Regarding the reading self-efficacy in L1 and ESL reading, the result of paired sample t-test indicated that participants had significantly greater confidence in Chinese reading that in English reading ($p < .001$).
Table 1

Descriptive Statistics and Comparisons of Reading Behaviours, Reading Self-efficacy, and Reading Competence across Languages and Contexts

<table>
<thead>
<tr>
<th>Variable</th>
<th>Chinese</th>
<th>English</th>
<th>F (3, 663)</th>
<th>Comparison^a</th>
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<tr>
<td></td>
<td>Recreational</td>
<td>Academic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading frequency</td>
<td>3.81 (0.97)</td>
<td>3.14 (1.01)</td>
<td>108.90***</td>
<td>EA &gt; CR &gt; CA &gt; ER</td>
</tr>
<tr>
<td>Reading engagement</td>
<td>3.52 (0.72)</td>
<td>3.45 (0.72)</td>
<td></td>
<td>CR = CA &gt; EA &gt; ER</td>
</tr>
<tr>
<td></td>
<td>Chinese</td>
<td>English</td>
<td>t (221)</td>
<td>Comparison^a</td>
</tr>
<tr>
<td>Reading self-efficacy</td>
<td>3.41 (0.52)</td>
<td>3.25 (0.55)</td>
<td>3.55***</td>
<td>Chinese &gt; English</td>
</tr>
<tr>
<td>Reading competence</td>
<td>5.54 (1.37)</td>
<td>4.18 (1.77)</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

Note. ^a All comparisons are significant at .05 level.

CR = Chinese recreational reading; CA = Chinese academic reading; ER = English recreational reading; EA = English academic reading. 
*** p < .001.
3.2 Correlations among Reading Behaviours, Reading Self-efficacy, and Reading Competence

3.2.1 Relationships among Reading Behaviours

The correlation analyses showed similar patterns of the relationships among reading behaviours, reading self-efficacy, and reading competence across L1 and ESL reading (see Table 2). The relationships among reading behaviours can be context-specific and cross-contextual. Context-specific associations were found between reading frequency and reading engagement within languages. Reading frequency was positively and moderately correlated with reading engagement in recreational (Chinese: \( r = .51, p < .001 \); English: \( r = .47, p < .001 \)) and academic contexts (Chinese: \( r = .37, p < .001 \); English: \( r = .42, p < .001 \)). The results suggested that participants who read more often in a context tended to be more engaged when reading in the corresponding context. In addition, the weak correlations between recreational reading frequency and academic reading engagement (Chinese: \( r = .28, p < .001 \); English: \( r = .29, p < .001 \)) as well as between academic reading frequency and recreational reading engagement (Chinese: \( r = .30, p < .001 \); English: \( r = .30, p < .001 \)) further evidenced that the relationships between reading frequency and reading engagement may be more context-specific instead of cross-contextual.

When separately investigating reading frequency and reading engagement across contexts, different magnitudes of the cross-contextual associations could be observed.
There were weak yet positive relationships between recreational and academic reading frequency in Chinese ($r = .27, p < .001$) and in English ($r = .16, p = .015$), while the positive relationships were moderate between recreational and academic reading engagement in Chinese ($r = .53, p < .001$) and in English ($r = .59, p < .001$). Given that the high reading frequency may not be generalised across contexts, reading engagement was comparatively a more sustainable internal quality in the sense that participants would be engaged similarly in reading activities in both recreational and academic contexts.

3.2.2 Relationships between Reading Behaviours and Reading Self-efficacy as well as Reading Competence

While the inter-context dynamics complicated the relationships among reading behaviours, the magnitudes of correlations between reading behaviours and reading self-efficacy as well as reading competence were more consistent across contexts. Reading frequency and reading engagement in both recreational and academic contexts were positively and moderately correlated with reading self-efficacy in Chinese ($rs$ ranged from .48 to .58, $p < .001$) and in English ($rs$ ranged from .39 to .62, $p < .001$), but the recreational reading behaviours had the slightly higher associations with reading self-efficacy than did academic reading behaviours. In other words, for both Chinese and English reading, participants who read more often and more engaged tended to be more efficacious in reading.
Different from the consistently moderate correlations between reading behaviours and reading self-efficacy, the relationships between reading behaviours and reading competence were weak across contexts. All reading behaviours in recreational and academic contexts, except academic reading frequency (Chinese: $r = .10, p = .121$; English: $r = .12, p = .085$), were positively and weakly associated with reading competence in Chinese ($r$s ranged from .13 to .16, $p < .05$) and in English ($r$s ranged from .18 to .19, $p < .01$). It was also found that reading self-efficacy was related to reading competence with relatively small magnitudes in Chinese ($r = .13, p = .046$) and in English ($r = .28, p < .001$). The weak associations indicated that higher reading frequency, greater reading engagement, and stronger reading self-efficacy were correlated with higher reading competence to a small extent.

3.2.3 Cross-language Relations between Chinese and English

The cross-language relations are noteworthy in bilingual studies; and a number of cross-language relations between Chinese and English were observed in the present study as well. First, there were positive relationships of recreational and academic reading engagement across languages. As noted above, recreational and academic reading engagement were associated moderately within language, this cross-contextual relationship was also found across languages; however, the positive relationships between Chinese recreational reading engagement and English academic reading engagement ($r = .16, p = .016$) as well as between Chinese academic reading
engagement and English recreational reading engagement \( (r = .28, p < .001) \) were weak.

In terms of the context-specific relationships of reading engagement across languages, the relationships were also weak but were comparatively stronger than the cross-contextual relationships. Positive associations were found between Chinese and English recreational reading engagement \( (r = .25, p < .001) \) as well as between Chinese and English academic reading engagement \( (r = .38, p < .001) \). Second, Chinese academic reading engagement was associated with English reading self-efficacy \( (r = .21, p = .002) \) and English reading competence \( (r = .15, p = .022) \), respectively. Although the relationships were weak, Chinese academic reading engagement was the only Chinese reading behavioural variable that was associated with the English reading outcome variables. Participants who were deeply engaged in Chinese reading for studies were likely to have higher English reading self-efficacy and greater English reading competence. Third, reading outcome variables were positively correlated across languages. Chinese and English reading self-efficacy were weakly correlated \( (r = .20, p = .002) \), while Chinese and English reading competence were moderately correlated \( (r = .34, p < .001) \). The associations suggested that reading self-efficacy and reading competence seemed to be generalised across L1 and ESL reading.
Table 2

Correlations among Age, GPA, Recreational and Academic Reading Behaviours, Reading Self-efficacy, and Reading Competence in L1 and ESL

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Note. CRF = Chinese recreational reading frequency; CAF = Chinese academic reading frequency; ERF = English recreational reading frequency; EAF = English academic reading frequency; CRE = Chinese recreational reading engagement; CAE = Chinese academic reading engagement; ERE = English recreational reading engagement; EAE = English academic reading engagement; CSE = Chinese reading self-efficacy; ESE = English reading self-efficacy; CRead = Chinese reading competence; ERead = English reading competence.

* p < .05. ** p < .01. *** p < .001.
3.3 Models of Relationships among Reading Behaviours, Reading Self-efficacy, and Reading Competence

Structure equation modelling (SEM) was applied to examine the extent to which reading competence was predicted by reading behaviours and whether their relationship was mediated by reading self-efficacy. Figures 2 and 3 illustrated the models regarding the relationships among recreational and academic reading behaviours, reading self-efficacy, and reading competence in L1 and ESL reading. Both the Chinese and English reading models demonstrated good fits to the data: $\chi^2 (4) = 4.69, p = .321$, RMSEA = .03, with 90% CI [.000, .109], SRMR = .03, CFI = 1.00; $\chi^2 (4) = .961, p = .916$, RMSEA < .001, with 90% CI [.000, .037], SRMR = .01, CFI = 1.00, respectively. Given the Chinese-English transfer of reading competence was evidenced in the literature (Chuang, Joshi, & Dixon, 2012; Haynes & Carr, 1990; Jiang, 2011) and in the present study ($R^2 = .12, p < .001$), the English reading competence in the English reading model was computed as the residual scores after controlling the Chinese reading competence.

The impacts of reading behaviours and reading self-efficacy on reading competence were different in L1 and ESL reading. In the Chinese reading model, reading frequency and reading engagement in recreational and academic contexts positively predicted reading self-efficacy. No individual reading behavioural variable outperformed others in influencing reading self-efficacy; and their contributions were
statistically significant ($\beta$s ranged from .23 to .26, $p < .01$). After controlling the reading behaviours, the impact of reading self-efficacy on reading competence was statistically significant in a positive direction ($\beta = .13, p = .032$). The Chinese reading model accounted for 52% of the variance in reading self-efficacy and 2% of the variance in reading competence. Regarding the mediation of the association between reading behaviours and reading competence through reading self-efficacy, the mediation analysis via bootstrapping suggested that there were statistically significant indirect effects of reading behaviours on reading competence through reading self-efficacy ($\beta$s ranged from .03 to .04, $p < .05$). No statistically significant direct effects of reading behaviours were found on the association. As a result, reading self-efficacy fully mediated the relationship between reading behaviours and reading competence in Chinese reading.

In the English reading model, all reading behaviours positively predicted reading self-efficacy. The recreational reading behaviours had the stronger associations with reading self-efficacy than did academic reading behaviours, in which recreational reading frequency was the strongest predictor ($\beta = .38, p = .002$), followed by recreational reading engagement ($\beta = .26, p = .004$), academic reading engagement ($\beta = .22, p = .001$), and academic reading frequency ($\beta = .16, p = .002$). After controlling the reading behaviours, the positive impact of reading self-efficacy on reading competence was statistically significant ($\beta = .29, p = .003$). The English reading model
accounted for 57% of the variance in reading self-efficacy and 8% of the variance in reading competence. The mediation analysis via bootstrapping suggested that reading behaviours only indirectly influenced reading competence through reading self-efficacy ($\beta$s ranged from .07 to .11, $p < .01$). The absence of direct effects of reading behaviours on reading competence hence indicated that their association was fully mediated via reading self-efficacy in English reading.
Figure 2. Standardised parameter estimates and correlation coefficients of the model regarding the relationships among recreational and academic reading behaviours, reading self-efficacy, and reading competence in Chinese.

χ² (4) = 4.69, p = .321, RMSEA = .03, with 90% CI [.000, .109], SRMR = .03, CFI = 1.00.

* p < .05. ** p < .01. *** p < .001.
Figure 3. Standardised parameter estimates and correlation coefficients of the model regarding the relationships among recreational and academic reading behaviours, reading self-efficacy, and reading competence in English.

Note. The English reading competence in this model was computed as the residual scores after controlling the Chinese reading competence. 

χ² (4) = .961, p = .916, RMSEA < .001, with 90% CI [.000, .037], SRMR = .01, CFI = 1.00.

* p < .05. ** p < .01. *** p < .001.
Chapter 4: Discussion and Conclusions

4.1 Discussion

The present study examined the relationships of recreational and academic reading behaviours, reading self-efficacy, and reading competence among Hong Kong Chinese-English bilingual undergraduates. The results of repeated measures ANOVA and paired sample t-tests portrayed the different characteristics of reading in L1 and ESL. In addition, the correlation analyses revealed that there were similar patterns in the relationships among recreational and academic reading behaviours, reading self-efficacy, and reading competence across L1 and ESL reading. Notable Chinese-English relations were also found among the reading variables. On the other hand, the SEM suggested that reading in ESL differed from that in L1 in the sense that recreational reading behaviours had the stronger predictive effects to reading self-efficacy in ESL reading while reading behaviours in different contexts equally contributed to reading self-efficacy in L1 reading. Finally, the mediation analyses via bootstrapping have confirmed the mediating role of reading self-efficacy in the association between reading behaviours and reading competence in both L1 and ESL reading.

4.1.1 Characteristics of Reading in Chinese and English

As implicated in the previous study (Lin et al., 2012), students performed more academic reading in English and recreational reading in Chinese. Since Hong Kong education, especially the higher education, emphasises English heavily, it is not
surprising that students read more often in English for studies than for pleasure.

Through the years of formal education, students have associated English with academic context and thus seldom perceive English reading as entertainment. In contrast, Chinese as the major medium of daily communication in Hong Kong, most of the leisure-related reading materials such as novels and magazines are written in Chinese, so students are more likely to read in Chinese for pleasure. Although students read in English for studies more often than in Chinese for pleasure, they were more engaged in Chinese recreational reading than in English academic reading. One explanation is that students are more familiar with Chinese as L1 and thus they can understand more about the content when reading in Chinese; this may in turn facilitate their cognitive and emotional involvement in Chinese recreational reading which contributes to greater reading engagement as suggested by Wigfield and his colleagues (2008). Another explanation concerns the nature of academic reading; it may be more difficult for students to be engaged in academic reading when the subject itself is difficult or the students do not have enough confidence in handling the subject. The perceived difficulties in the subject and ESL reading may be intertwined to decrease the reading engagement in English academic reading. As for English recreational reading, the situation was the reverse of Chinese recreational reading, the lowest reading engagement in English recreational reading can be attributed to the unfamiliarity with ESL which hinders the cognitive and emotional involvement during reading. Consistent
with previous finding (Lin et al., 2012), students demonstrated higher reading self-efficacy in Chinese than in English. It is possible that students possess more linguistic and vocabulary knowledge in Chinese as L1 and they get used to read Chinese in their daily life. As a result, students may feel more confident in reading Chinese as compare with reading English.

4.1.2 Similar Correlation Patterns among Reading Variables across Languages

The correlation patterns among recreational and academic reading behaviours, reading self-efficacy, and reading competence in Chinese and English reading were similar in several ways. First, the reading frequency in recreational context was not highly associated with that in academic context. As noted in the previous section, students read in Chinese and in English for different purposes, i.e., reading Chinese for pleasure and reading English for studies. When students read for fulfilling particular goals, it is not likely that reading more often in a context will necessarily lead to the higher reading frequency in another context. Second, the relationship between reading frequency and reading engagement was context-specific. In this regard, students read more often in a context were likely to be more engaged in reading in the corresponding context. In line with the rationale that students read for particular goals, they may not only read more often, but also adjust their engagement level in reading activities accordingly in order to achieve their reading goals (Lorch, Lorch, & Klusewitz, 1993). The goal orientation in reading may therefore explain the context-specific relationship
between reading frequency and reading engagement. Third, there was moderate association between recreational and academic reading engagement. This result has indirectly proved that reading engagement is a multidimensional construct since the in-depth cognitive processing of texts during academic reading (Linderholm et al., 2008; Linderholm & van den Broek, 2002) did not necessarily lead to a significantly higher academic reading engagement and a weak correlation between recreational and academic reading engagement. While reading engagement is a function of cognitive, motivational/emotional, and behavioural involvements (Wigfield et al., 2008), the higher emotional involvement (e.g., enjoyment) in recreational reading may balance off the superficial cognitive processing and thus resulted in the equivalent engagement level in both recreational and academic reading contexts. In fact, reading for pleasure was found to be more likely to create *optimal experience* or *flow* than did school and required reading (McQuillan & Conde, 1996), suggesting that there may be intense engagement during recreational reading. Besides, it is also plausible that students have internalised the reading processes via frequent practices, so they are engaged similarly in different reading contexts. Fourth, while reading behaviours were closely related to reading self-efficacy, their associations with reading competence were relatively weak. The moderate relationships between reading behaviours and reading self-efficacy may be due to the fact that behaviours are the sources of self-efficacy information (Schunk, 2003; Schunk & Zimmerman, 1997). As for the weak relationships between reading
behaviours and reading competence, given the aforementioned mixed findings in
correlation studies on reading frequency and reading competence, their weak
association found in the present study is not unexpected. The confounding factors such
as past achievement, extrinsic motivation, and reading below instructional level can
contribute to the weak correlation (Baker & Wigfield, 1999; Becker et al., 2010). On the
other hand, the present study failed to replicate the moderate correlation between
reading engagement and reading competence (e.g., De Naeghelet et al., 2012; Guthrie,
Hoa, Wigfield, et al., 2007; Wigfield et al., 2008). This may be attributed to the
methodological issues. Since reading engagement was rated by the teachers in the
previous studies, it is possible that the teacher expectancy effects occurred in which
teachers may unconsciously communicate their expectations to the students and in turn
the students may act on teachers’ expectations (Brophy & Good, 1970). This
teacher-student interaction may strengthen the correlation between teacher-rated reading
engagement and reading competence in the previous studies. In contrast, reading
engagement was rated by the participants in the present study; this kind of self-reported
measure is, however, vulnerable to social desirability bias. Their overestimation towards
reading engagement may thus weaken its association with their actual reading
competence. Moreover, given that the nonlinear relationship between reading frequency
and reading competence had been observed in the literature (Anderson et al., 1988), it
should not be excluded the possibility that the association between reading engagement
and reading competence was also not straightforward in which the linear correlation was not implied. Further elaboration of the relationships among reading behaviours, reading self-efficacy, and reading competence in L1 and ESL reading would be presented in the following sections to address the contextual factors and the mediating effect of reading self-efficacy.

4.1.3 Cross-language Relations between Chinese and English

The cross-language relations of reading engagement across L1 and ESL reading manifested that reading engagement is a sustainable quality which can be internalised as the habitual reading processes. In other words, when reading becomes a habit, students may automatically concentrate their attention to the texts and totally devote to the reading activities. Although the lack of linguistic and vocabulary knowledge as well as other psychological barriers such as anxiety in ESL reading may prevent students from fully engaging in English reading activities (Burgoyne, Kelly, Whiteley, & Spooner, 2009; Ghonsooly & Elahi, 2011), they may still habitually involve in English reading activities if they are already the engaged Chinese readers; and thus there were cross-language relations of reading engagement across L1 and ESL reading. This finding is of theoretical importance to build up the engagement literature since engagement, particularly reading engagement, is a newborn construct which requires more in-depth examination (Appleton et al., 2008).

Among the Chinese reading behavioural variables, only Chinese academic
reading engagement was associated with English reading outcome variables, i.e., English reading self-efficacy and English reading competence. These results may indicate that there is cross-language transfer from L1 to ESL reading in terms of background knowledge and metacognitive knowledge. Background knowledge and metacognitive knowledge were found to be important to L1 reading comprehension (Taboada et al., 2009; van Gelderen, Schoonen, de Glopper, Hulstijn, Simis, Snellings, & Stevenson, 2004) and it is suggested that the background knowledge and the metacognitive knowledge gained from L1 reading also played a significant role in the second language (L2) reading comprehension while they activated the top-down informational processing and the application of metacognitive skills during L2 reading activities (Droop & Verhoeven, 1998; McElvain, 2010; Nassaji, 2007; van Gelderen, Schoonen, Stoel, de Glopper, & Hulstijn, 2007). When students are engaged in Chinese academic reading, it is surmised that they acquire more background knowledge which can benefit them to increase their understanding of the English academic reading materials. Once they have more relevant background knowledge, they are more likely to process the English academic reading materials in a higher order, and thus they are less influenced by the deficiencies in English linguistic and vocabulary knowledge at the lower-order informational processing. As a result, their English reading self-efficacy and English reading competence will be improved. Regarding the metacognitive knowledge, since the greater reading engagement signals the in-depth cognitive
processing (Wigfield et al., 2008), it may in turn facilitate their development of metacognitive knowledge. As the metacognitive knowledge developed in the Chinese academic reading transfers to the English reading context, it may increase the English reading self-efficacy and the English reading competence of the students. One may argue that if Chinese reading engagement matters in English reading outcomes, it is also possible that Chinese recreational and academic reading engagement contribute similarly. The fact that Chinese recreational reading engagement was not associated with English reading outcome variables in the present study, however, disapproves of this opinion. It is plausible that students read for a wide range of topics in Chinese recreational reading context, and hence the gained background knowledge is less likely to be relevant to the English reading materials which they mostly approach to (e.g., textbooks). The lower relevance may limit the application of background knowledge gained from Chinese recreational reading to English reading context. In addition, although L1 recreational reading was found to contribute to EFL learning, it was not free from negative effects (Aydin, 2011); low-proficiency English learners can even be more vulnerable to the interferences and confusions created by L1 recreational reading. These factors may combine to result in the inconclusive contribution of Chinese recreational reading engagement to English reading self-efficacy and English reading competence.

4.1.4 The Contribution of Recreational Reading Behaviours in ESL Reading
The contextual influences were more prominent in the English reading model than in the Chinese reading model, which partially supported the hypothesis that students may benefit more from the reading activities in a certain context. It is noted that recreational reading behaviours had the greater effectiveness in enhancing reading self-efficacy in ESL reading than did academic reading behaviours. Specifically, the recreational reading frequency was the strongest predictor of reading self-efficacy in the English reading model, whereas reading engagement, both in recreational and academic contexts, also had significant contribution to reading self-efficacy.

In ESL reading, recreational reading behaviours can be beneficial to reading self-efficacy in various aspects. When students perform more English recreational reading with an engaging manner, they may have a sense of control over the selection of reading materials and the way they process the reading materials (e.g., the application and integration of various reading strategies and knowledge during the comprehension of the texts). This kind of perceived sense of control and self-regulatory learning can help increase their self-efficacy beliefs in ESL reading (Margolis, 2005; Schutte & Malouff, 2007). As they read more often in English recreational context, they may have more opportunities to accumulate mastery reading experiences in which they have successfully mastered the English self-selected texts. While mastery experiences are expected to be the major source of self-efficacy information (Zimmerman, 2000), the higher frequency in English recreational reading may thus imply the stronger reading
self-efficacy in ESL reading. It is also possible that the more often they read in English during leisure time, the more likely their horizon is expanded by the increasing English background knowledge in terms of linguistic concepts, vocabulary and grammatical skills, content information, and cultural knowledge (e.g., Droop & Verhoeven, 1998; McElvain, 2010; Nassaji, 2007); these various kinds of knowledge and skills may facilitate their understanding of new reading materials and contribute to their improvement of reading self-efficacy in ESL reading. Another feature of recreational reading signals the higher level of reading enjoyment as students usually choose the reading materials that interest them. Research findings have constantly reported the advantages of reading enjoyment in L1 reading. For example, in a large-scale study comparing 199,097 fifteen-year-old students in 43 countries (Chiu & McBride-Chang, 2006), reading enjoyment was found to be one of the significant predictors of reading achievement. In ESL reading, reading enjoyment gained from recreational reading may also play an important role in enhancing reading self-efficacy. Constantino (1995) reflected on her experience in engaging the ESL adult readers in recreational reading. The readers were instructed to read in English as if they read in their native language without focusing on the vocabulary and grammar. With these instructions in mind, they were more likely to enjoy the recreational reading activities and perceived less difficulty in English reading as they were not upset by the unknown words and grammar.

According to Zimmerman (2000), physiological reactions such as stress and anxiety can
inform the students of their capabilities, which may influence their self-efficacy beliefs correspondingly. During the ESL recreational reading, students may enjoy more and feel less anxious, they may therefore interpret these feelings as the signs of their increasing reading competence in ESL reading (Margolis, 2005). As a result, they may have higher ESL reading self-efficacy. Along the same line of thought, ESL academic reading has the less contribution to reading self-efficacy for a number of reasons, including the lower level of perceived control, reading failure which may be partly caused by the incompetence in academic subject, and less enjoyment of reading academic materials.

An additional note should be given on the equivalent contribution of recreational and academic reading behaviours in Chinese reading. Although recreational reading was beneficial to reading self-efficacy in ESL reading, the Chinese reading model did not show that there was unique contribution of recreational reading to reading self-efficacy. It is possible that the proficient L1 readers can utilise their reading skills and strategies better in L1 reading and thus they are likely to benefit equally from both recreational and academic reading contexts by applying the reading skills and strategies appropriately. The results of a meta-analysis of 99 studies (Mol & Bus, 2011) suggested another possibility that recreational reading is more important for low-ability readers than for high-ability readers. Since the present study did not distinguish between low- and high-ability readers, the contribution of recreational reading behaviours to reading self-efficacy for a particular group of readers was therefore unexplored.
4.1.5 The Mediating Role of Reading Self-efficacy

Both SEM models and mediation analyses via bootstrapping in Chinese and English reading confirmed the hypothesised mediating role of reading self-efficacy in the relationship between reading behaviours and reading competence, suggesting that reading behaviours only influenced reading competence indirectly through reading self-efficacy. When students engage in different reading activities, they may apply and integrate their knowledge and skills to achieve their reading goals (Shell et al., 1989). As self-efficacy concerns the execution of courses of action to attain a specific goal (Bandura, 1982), highly efficacious readers are expected to perform better in reading tasks because they are able to regulate their use of knowledge and skills (Zimmerman et al., 1992). Empirical evidence was shown by Solheim’s (2011) study in which 217 fifth graders were categorised into two groups according to their reading self-efficacy. The group with higher reading self-efficacy (HRE) and the group with lower reading self-efficacy (LRE) did not differ in word reading ability, listening comprehension, and nonverbal ability, but their performances in reading comprehension tests were significantly different. Solheim (2011) attributed the poor performances of the LRE group to their poor use of capabilities. Since the readers with lower self-efficacy may be uncertain of their ability, this kind of self-doubt may cause them to withhold their effort by the poor application and integration of knowledge and skills and thus turns into their poor reading performance (Bandura, 1997). The operation of self-efficacy in academic
learning has been portrayed to suggest that self-efficacy has different roles during the process of academic learning (Schunk, 2003; Schunk & Zimmerman, 1997). It can be surmised that higher self-efficacy beliefs motivate students to read. When they are frequently engaged in reading activities, they also process the self-evaluation to assess their current reading competence. The high reading self-efficacy sourced from the evaluation of their reading behaviours may sustain their motivation to achieve greater reading performance by the better application and integration of their knowledge and skills. While the previous studies often focus on how self-efficacy beliefs motivate student to read (e.g., Baker & Wigfield, 1999; De Naeghel et al., 2012; Wigfield & Guthrie, 1997), the present study focus on how reading behaviours signal the reading self-efficacy beliefs of the students to influence their reading competence. It is found that both the Chinese and English reading models support this hypothetic process by manifesting the mediating role of reading self-efficacy in the relationship between reading behaviours and reading competence.

4.2 Limitations and Future Studies

Four limitations should be addressed in the present study. First, the measures of reading self-efficacy and reading engagement have not been validated in the Chinese population. Both the EFL Learners’ Self-efficacy Scale in Reading Comprehension (Ghonsooly & Elahi, 2011) and the Reading Engagement Index-Revised (Wigfield et al., 2008) are the newly developed scales to specifically measure the constructs in limited
cultural backgrounds. It is possible that the measures were not well-adapted to the Chinese culture and thus minimised their effectiveness to capture the operational meanings of the constructs. Due to the unavailability of Chinese validated measures of the relatively new constructs, future studies should validate the borrowed measures in the Chinese population or develop new scales for the Chinese population. Second, most of the measures applied in the present study were self-reported measures. As mentioned, self-reported measures are vulnerable to social desirability bias in which students may tend to respond as engaged readers who read very often. To increase the objectivity, observers’ data from various sources, such as their parents, teachers, peers, and trained researchers, should be collected for reference. Interviews can also be conducted to collect qualitative information which allows students to elaborate their opinions. Third, the relationships among the reading variables suggested in the present study should be interpreted with cautions since the results and discussion were based on the cross-sectional data. The possible casual relationships should be further examined in the longitudinal-designed studies. Besides, future studies should include reading motivation in the model to provide a completed picture by explaining both the antecedences and consequences of reading. Fourth, although reading behaviours were claimed to be the sources of self-efficacy information, the present study did not include the measure to assess the sources of reading self-efficacy, including mastery experience, vicarious experience, verbal persuasion, and physiological states (Zimmerman, 2000). Future
studies should apply the related measure to articulate how students are informed of their reading self-efficacy by evaluating their reading behaviours. Such kind of information can gain more insights into the dynamic of reading processes.

4.3 Conclusions

It is acknowledged that reading competence will be the essential ability for us to navigate the new knowledge disseminated via texts in the 21st century (OECD, 2013). In this regard, the present study aimed to investigate the relationships among recreational and academic reading behaviours, reading self-efficacy, and reading competence in L1 and ESL reading. It was found that the contextual factors influenced ESL reading in which students benefit the most when they read in recreational context in the sense that they gained more reading self-efficacy in recreational reading. In addition, the association between reading behaviours and reading competence was mediated by reading self-efficacy in both L1 and ESL reading. The implications of the findings are theoretical and practical. Theoretically, the present study helps furnish the literature of reading engagement and reading self-efficacy in L1 Chinese and ESL reading. The findings indicated that reading engagement is a sustainable quality across contexts and languages. Reading self-efficacy was also found to play a significant role in enhancing reading competence. It is, therefore, necessary for practitioners to design and implement reading intervention programmes to facilitate students’ reading engagement and reading self-efficacy, such as the CORI (Guthrie, 2004) and the
Transactional Literature Circles (TLC) programme (McElvain, 2010). The present study also contributes to the lifespan perspective of reading development. While there are enormous studies concerning the reading among children, less attention is paid to understand the characteristics and development of adolescent and adult readers (Alexander, 2005). The present study tried to fill this literature gap by addressing the reading characteristics and patterns of undergraduates at their early adulthood. Such information may provide insights into the design of adult reading intervention programmes which can better accommodate the needs of adult readers. In particular, the contextual factors were taken into account in the present study. Although adults read primary for leisure, they did not appreciate the value of recreational reading (Smith, 1990). As for adult ESL readers, their reading purposes may be more instrumental to discourage them from reading for pleasure (Constantino, 1995). The present study acknowledged the importance of recreational reading to enhance reading self-efficacy for ESL reading, and even suggested that reading in L1 for studies was associated with reading self-efficacy and reading competence in ESL reading. Therefore, educators should be aware of the adult reading characteristics and the contextual factors when delivering reading intervention programmes to adult ESL readers.
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### Appendices

**Appendix A: Descriptive Statistics and Comparisons of Reading Activities across Languages**

<table>
<thead>
<tr>
<th>Reading Activity</th>
<th>Chinese Mean (SD)</th>
<th>English Mean (SD)</th>
<th>t (221)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Leisure-related materials</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Newspapers</td>
<td>3.72 (1.08)</td>
<td>2.64 (0.93)</td>
<td>12.86***</td>
</tr>
<tr>
<td>Magazines</td>
<td>3.24 (1.16)</td>
<td>2.37 (0.96)</td>
<td>10.71***</td>
</tr>
<tr>
<td>Novels</td>
<td>3.08 (1.16)</td>
<td>2.41 (1.01)</td>
<td>7.56***</td>
</tr>
<tr>
<td>Advertisements, brochures or</td>
<td>3.87 (1.00)</td>
<td>3.05 (0.91)</td>
<td>11.11***</td>
</tr>
<tr>
<td>instructions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Academic-related materials</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Textbooks</td>
<td>2.68 (0.99)</td>
<td>4.11 (0.96)</td>
<td>-14.99***</td>
</tr>
<tr>
<td>Exams preparation books</td>
<td>2.55 (1.09)</td>
<td>3.79 (1.07)</td>
<td>-13.65***</td>
</tr>
<tr>
<td>Academic texts related to the major</td>
<td>2.80 (1.13)</td>
<td>4.12 (0.93)</td>
<td>-13.31***</td>
</tr>
</tbody>
</table>

*Note.* Given their weak to moderate correlations with the general reading frequency measured by the single-item scales, these items may not cover enough relevant reading activities and did not take the weight of time distribution of each activity into account. As a result, the items in this scale were not combined as the composite scores for the calculation of recreational and academic reading frequency in the present study.

*** $p < .001$. 

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Appendix B: Scales Used in the Present Study

**English Reading Self-efficacy Scale**

Below are statements that relate to your reading self-efficacy. Please indicate the degree to which you agree or disagree with the statements by circling the numbers that best apply to you.

<table>
<thead>
<tr>
<th>When thinking of my <strong>English</strong> reading experience, …</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>No Idea</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I have the ability to focus all my concentration on the content of <strong>English</strong> text I am reading.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I believe that my <strong>English</strong> reading comprehension proficiency improves every day.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I am capable of improving my <strong>English</strong> reading comprehension skill.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Reading <strong>English</strong> texts is stressful.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. My instructor believes that I am proficient in <strong>English</strong> reading comprehension.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I enjoy practicing reading <strong>English</strong> texts with a proficient friend.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. I believe that by more practice of reading <strong>English</strong> texts, I can improve the course grades.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. At university, I am always voluntary to answer the questions regarding the <strong>English</strong> texts we have read.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. I am among the best readers at university.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Although my world knowledge is good, I have problems in <strong>English</strong> reading comprehension.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. I don’t care who does well in <strong>English</strong> reading comprehension among my schoolmates.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
English Recreational Reading Engagement Scale

Below are statements that relate to your involvement level during reading activities. Please indicate your feelings towards the statements by circling the numbers that best apply to you.

<table>
<thead>
<tr>
<th></th>
<th>Not True</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Very True</th>
</tr>
</thead>
<tbody>
<tr>
<td>When I am reading <strong>English</strong> texts for <strong>pleasure</strong>, I …</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>1. Am easily distracted in self-selected reading.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. Work hard in reading</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. Am a confident reader.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. Use comprehension strategies well.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>