

# **Chinese EFL Learners' Reading Motivation: A Dynamic Systems Theory Perspective**

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## Table of Contents

List of Figures and Tables .....	iii
Abstract .....	iv
Statement of Candidate .....	vi
Acknowledgements .....	vii
Chapter One Introduction.....	1
1.0 Introduction .....	1
1.1 Statement of the Problem .....	1
1.2 Theoretical Framework of the Present Study .....	3
1.3 Research Purpose and Research Questions .....	4
1.4 Outline of the Present Study .....	5
Chapter Two Literature Review .....	6
2.0 Introduction .....	6
2.1 A Brief Review of Theoretical Orientation towards L2 Motivational Study .....	6
2.1.1 The Social Psychological Period .....	7
2.1.2 The Cognitive-situated Period .....	8
2.1.3 The Process-oriented Period.....	10
2.1.4 Current Social-dynamic Perspectives (from a dynamic systems perspective) .....	10
2.2 Operationalization of Reading Motivation .....	17
2.2.1 Motivation for Reading Questionnaire (MRQ) .....	17
2.2.2 Operationalization of Reading Motivation by Other Scholars .....	20
2.3 Previous Studies on Chinese EFL Learners' Reading Motivation .....	25
2.4 Conceptualization of Reading Motivation in the Present Study.....	32
Chapter Three Methodology .....	37
3.0 Introduction .....	37
3.1 Research Design .....	37
3.2 Quantitative Strand.....	39
3.2.1 Participants .....	39
3.2.2 Research Instruments.....	41
3.2.3 Data Collection Procedures .....	46
3.2.4 Data Analysis Procedures.....	47
3.3 Qualitative Strand.....	49
3.3.1 Participants .....	49
3.3.2 Data Collection Instrument.....	50
3.3.3 Data Collection Procedure.....	51
3.3.4 Data Analysis.....	51
Chapter Four Results and Discussion .....	53
4.0 Introduction .....	53
4.1 Descriptive and Inferential Statistics Related to RMQ Variables .....	53
4.2 Interrelationships among RMQ variables and the Changes in Interrelationships over Time.....	57
4.3 Interrelationships between RMQ Variables and English Reading Proficiency .....	61
4.4 Descriptive and Inferential Statistics of RMQ Items.....	64

4.5 Variations over the two Administrations of RMQ .....	67
4.6 Descriptive and Inferential Statistics among RMQ Variables across Gender .....	70
4.7 Descriptive and Inferential Statistics of RMQ across Disciplines.....	75
4.8 Descriptive and Inferential Statistics of RMQ between High-achievers and Low-achievers .....	81
Chapter Five Summary and Conclusions .....	88
5.0 Introduction .....	88
5.1 Summary of the Study .....	88
5.3 Implications for Theory and Practice .....	97
5.4 Limitations of the Present Study .....	99
5.5 Suggestions for Future Research .....	100
References.....	102
Appendices.....	113
Appendix A Reading Motivation Questionnaire .....	113
Appendix B Questions Asked in the Interview .....	116
Appendix C.....	117
Table 3.1 Reliability Indices of Reading Motivation Questionnaire in the Current Study .....	117
Table 4.1 Descriptive and Inferential Statistics of Each Item in RMQ .....	118
Table 4.2 Descriptive and Inferential Statistics of RMQ across Gender .....	119
Table 4.3 Descriptive and Inferential Statistics of RMQ across Disciplines.....	120
Table 4.4 Descriptive and Inferential Statistics of RMQ for High-/Low-achiever Group .....	121
Appendix D The sample of reading comprehension section in CET-4 .....	122
Appendix E Ethics Approval Letter .....	131

## List of Figures and Tables

Figure 2.1 Simplified Version of Social Educational Model.....	8
Figure 2.2 A Hypothesized Model for the Dynamic System of Chinese EFL Learners' Reading Motivation.....	32
Figure 3.1 Conceptual Model of Cross-lagged Regression Analysis .....	48
Table 2.1 Motivation for Reading Questionnaire (MRQ) .....	18
Table 3.1 Demographic Information of the Potential Participants in the Quantitative Strand .....	41
Table 3.2 Reliability Indices of RMQ in the Pilot Study .....	42
Table 3.3 The Structure of Reading Motivation Questionnaire (RMQ) Used in the Present Study .....	44
Table 3.4 Chronology of Data Collection in Quantitative Strand of the Research .....	46
Table 3.5 Demographic Information of Participants in the Quantitative Strand of the Research ...	47
Table 3.6 Demographic Information of Interviewees in the Qualitative Strand of the Research....	50
Table 3.7 The Alignment between Research Questions and MMR Approach (QUAN-qual Design).....	52
Table 4.1 Descriptive Statistics of the Reading Motivation Questionnaire (RMQ) .....	54
Table 4.2 Inter-correlations among RMQ Variables and between RMQ Variables and Reading Comprehension Score over Two Administrations.....	57
Table 4.3 Correlation and Cross-lagged Regression Analysis between Reading Comprehension Scores and Sub-category 3.3 .....	60
Table 4.4 Correlation and Cross-lagged Regression Analysis between RMQ Variables and Reading Comprehension Scores.....	62
Table 4.5 Correlation and Cross-lagged Regression Analysis between Reading Comprehension Scores and Five Items .....	68
Table 4.6 Paired Samples T-test of RMQ among Boys and among Girls .....	73
Table 4.7 Correlation and Cross-lagged Regression Analysis between Reading Comprehension Scores and Sub-category 3.3 for Female Students .....	74
Table 4.8 Paired Samples T-test of RMQ among the Sciences and among the Arts .....	78
Table 4.9 Correlation and Cross-lagged Regression Analysis between Reading Comprehension Scores and Category 2/Sub-category 3.3 for Science Students.....	79
Table 4.10 Wilcoxon Signed-rank test of RMQ for students in High- and Low-achiever Groups .....	86

## **Abstract**

This study intended to investigate how Chinese EFL learners' reading motivation in L2 reading classrooms can be explained through the Dynamic Systems Theory (de Bot, 2008; Larsen-Freeman & Cameron, 2008). The study focused on exploring how different components of reading motivation interact with each other using a mixed method research (MMR) approach (QUAN-qual design). For the quantitative phase, a Reading Motivation Questionnaire (RMQ) and a reading comprehension test were administered to 59 freshmen Non-English major participants at Northeast Agricultural University in China. They filled out the RMQ and completed a former CET-4 reading comprehension test twice over a four-week time interval. For the qualitative phase, 10 participants were interviewed to elaborate on their reading motivation. The major findings were: (1) Chinese EFL learners were both intrinsically and extrinsically oriented to reading in English; (2) Nearly all the variables of RMQ were significantly and positively correlated with each other ranging from low to high over two RMQ administrations. Reading for grades motivation decreased significantly, which was attributable to reading outcomes and some contextual factors; (3) Reading motivation exerted no causal influence on reading outcomes but reading outcomes had a predictable influence on reading motivation. Theoretically, this study contributes to the dynamic nature and perspective of reading motivation. Practically, this study strengthens the teachers' capability in pedagogical intervention and students' understanding of their mental features to adjust different elements to enhance their language achievement.

**Key Words:** Chinese EFL learner; Dynamic systems theory; Reading motivation

## Statement of Candidate

I certify that the work in this thesis entitled “Chinese EFL Learners’ Reading Motivation: A Dynamic Systems Theory Perspective” has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree to any other university or institution other than Macquarie University.

I also certify that the thesis is an original piece of research and it has been written by me. Any help and assistance that I have received in my research work and the preparation of the thesis itself have been appropriately acknowledged.

In addition, I certify that all information sources and literature used are indicated in the thesis.

The research presented in this thesis was approved by Macquarie University Ethics Review Committee, reference number: Ref No.: 5201800114 on 5<sup>th</sup> April 2018.

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# **Chapter One Introduction**

## **1.0 Introduction**

This chapter contains four sections. It starts with the statement of the problem to be addressed by the present study. In Section 1.2, the theoretical framework of the study will be presented; followed by the research purpose and research questions in Section 1.3. The chapter will end with an outline of the thesis.

## **1.1 Statement of the Problem**

Currently, learning English as a foreign language (EFL) in China still relies strongly on written text materials, from primary school to university. This may partly be in line with Andrews' (2001) conception that English reading is a fundamental ability in the process of acquiring literacy in a target language. As such, it seems necessary to research the elements that may facilitate the development of Chinese EFL learners' reading ability. According to some researchers (Alloway & Gregory, 2013; Kane & Engle, 2002; Kendeou & van den Broek, 2007; Kintsch, 1998), cognitive factors such as working memory, prior knowledge, or reasoning ability could affect EFL learners' reading ability. Notwithstanding the importance of cognitive factors, as Davis, Tonks, Hock, Wang and Rodriguez (2018, p.122) observe, "students who disengage from reading, however, may not lack ability to read but resist reading due to a lack of motivation". This is why reading motivation has been considered to be correlated with various predictors of reading comprehension (Guthrie & Wigfield, 2000; Park, 2011;

Schiefele et al., 2012; Unrau & Schlackman, 2006). In spite of reported positive and valuable findings on the relationship between reading motivation and reading ability, prior research on reading motivation is subjected to some limitations. There are various approaches to study reading motivation, as discussed next.

Previous studies on reading motivation have not featured the comprehensive or dynamic aspects of second language motivation. Most studies on reading motivation have only been conducted at one point in time to uncover the nature of reading motivation, mostly by using Gardner's (2001) social psychological framework. Research on L2 motivation has, however, transitioned from the social psychological, cognitive-situated, or process-oriented perspectives to a social-dynamic one. Some scholars (e.g. Van Geert, 2008) have argued that Dynamic Systems Theory is not "a specific theory but it is a general view on change, change in complex systems, in particular, or, systems consisting of many interacting components, the properties of which can change over the course of time" (p.183). Based on this shift in research focus, some scholars (e.g. Dörnyei, MacIntyre & Henry, 2016) have conducted research on motivation from the perspective of Dynamic Systems Theory (DST). There have been no studies on Chinese EFL learners' reading motivation from the perspective of Dynamic Systems Theory. Prior studies addressing Chinese EFL learners' reading motivation were always on uni-variate or multi-variate variables (Yuan, 2003), which have thus failed to interpret the comprehensive interrelationships between and among the different variables of Chinese EFL learners' reading motivation and the dynamic relationship between Chinese EFL learners' reading motivation and their reading

proficiency. Therefore, there is a need evident to study Chinese EFL learners' reading motivation from a dynamic system theory perspective.

The present study was designed to investigate Chinese EFL learners' reading motivation and explore how different components of reading motivation within a Dynamic Systems Theory model interact with each other to jointly contribute to learners' reading achievement.

## **1.2 Theoretical Framework of the Present Study**

The present study uses Dynamic Systems Theory as its theoretical framework. Dynamic Systems Theory originated in disciplines such as Biology, Mathematics and Physics. Larsen-Freeman (1997) first initiated a general discussion and arguments on the features of language as a complex adaptive system and identified the similarities between DST and Second Language Acquisition (SLA). Some scholars (e.g. de Bot, Lowie & Verspoor, 2007; Dörnyei, 2009; Larsen-Freeman & Cameron, 2008) have argued that a certain system could be perceived as complex and dynamic if variables in the system are interrelated with one another and bring about change over time. Based on the elaborations on DST from Larsen-Freeman and Cameron (2008), L2 motivation could be summarized as having the features of being open, self-organized, non-linear, and multi-causal. Therefore, the complex and dynamic nature of reading motivation, a motivation in a specific context (reading context), could also be interpreted from the perspective of Dynamic Systems Theory.

From the perspective of Dynamic Systems Theory, reading motivation variables

dynamically and complexly interact with one another in the sub-systems of reading motivation to constitute an indispensably whole system. All the variables and sub-systems of reading motivation function jointly to achieve a certain level of reading proficiency, which level also affects the constituents of the system in turn.

The present study conceptualizes the variables of reading motivation on the basis of the Motivation for Reading Questionnaire (Wigfield & Guthrie, 1997; Baker & Wigfield, 1999). The Motivation for Reading Questionnaire (MRQ) was conceptualized by Wigfield and Guthrie (1997) based on both prior quantitative and qualitative investigations on reading motivation, and partially restructured by Baker and Wigfield (1999) to confirm the multi-dimensionality of the MRQ. The background information and corresponding development of the MRQ will be explained in detail in Section 2.2 of Chapter Two.

### **1.3 Research Purpose and Research Questions**

The present study investigates the complex and dynamic nature of reading motivation, with the focus on examining how the reading motivation variables interrelate with one another and with reading proficiency over time. Therefore, the following four, paired research questions are proposed:

- 1) How does Chinese EFL learners' reading motivation change over time?
- 2) What are the interrelationships between and among the variables of reading motivation?
- 3) How do the interrelationships between and among the variables of

reading motivation change over time?

4) How can the relationship between reading motivation and EFL reading achievement be explained from the perspective of Dynamic System Theory?

#### **1.4 Outline of the Present Study**

Chapter One is the introduction to research background, general theoretical framework, research purpose and the research questions. Chapter Two reviews the prior literature on reading motivation, including: the theoretical orientations toward L2 motivation research; operationalization; and empirical studies on reading motivation. It also presents the conceptualization of reading motivation in the present study. Chapter Three presents the research design for both the quantitative and qualitative strands of the project. Chapter Four presents and discusses the results of the study in terms of Chinese EFL learners' change in reading motivation over time, the interrelationships between and among reading motivation variables and the change in these interrelationships over time, the reciprocal causal relationships between reading motivation variables and reading achievement, and other findings with relevance to the reading motivation across the learners' demographic variables. Chapter Five reports a summary of the study, the main findings, theoretical and practical implications of the findings, limitations of the study, and suggestions for future research in this area.

## **Chapter Two Literature Review**

### **2.0 Introduction**

This chapter comprises four sections. It begins with a brief review of theoretical orientation towards the second language (L2) motivational study. In Section 2.2, an operationalization of reading motivation and empirical studies on reading motivation will be presented. The chapter ends with the conceptualization of reading motivation in the present study.

### **2.1 A Brief Review of Theoretical Orientation towards L2 Motivational Study**

Motivation is a construct that provides reasons for our efforts in doing certain things (Brown, 1987). As related to language learning, motivation helps learners to invest in learning L2 (Ellis, 1994), or is even considered to be the goal of our language learning (He & Mei, 1999). Motivation gives EFL learners persistence and behaviour energy in second language learning, given that language learning is a time-consuming and dedicated process. Different people have different motivations for learning a second language, such as mastering the language in order to learn more about the target language people and literature, improving their communicative skills in the target language, or learning the language for future career prospects.

Similarly, reading motivation also possesses the general characteristics of motivation towards learning an L2. Accordingly, the methodology used in motivation research can also be applied to the studies of reading motivation.

Dörnyei and Ushioda (2011) summarize the research on L2 motivation and

conclude that motivational research covers the following four typical periods:

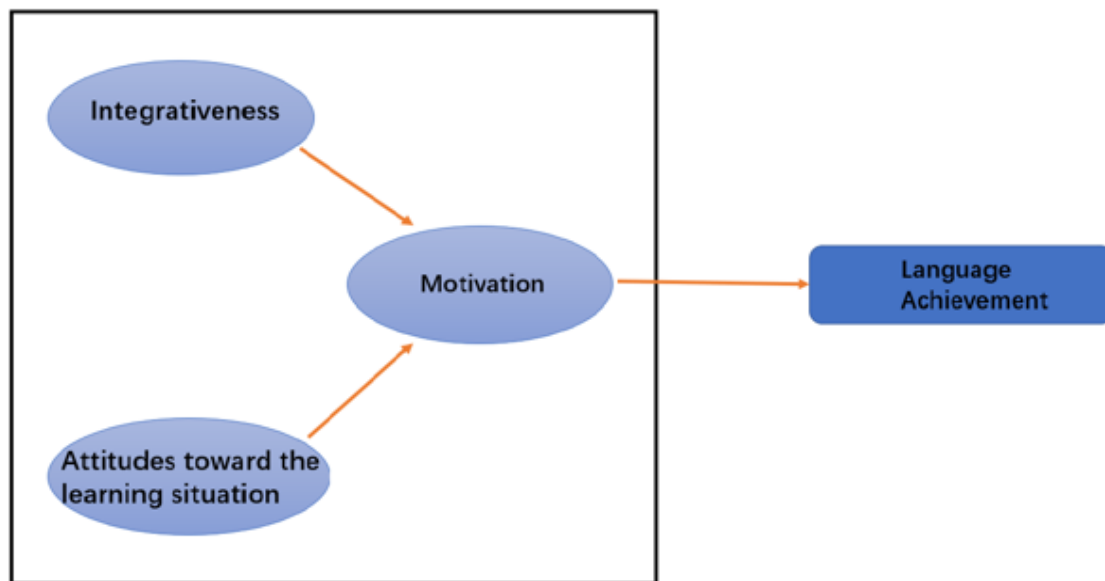
- (1) The social psychological period;
- (2) The cognitive-situated period;
- (3) The process-oriented period;
- (4) Current social-dynamic perspectives.

Each of these theoretical orientations will be briefly discussed below.

### **2.1.1 The Social Psychological Period**

Gardner and Lambert (1959) researched second language learning from the perspective of social psychology and established the social-educational (SE) model. The attitudes of EFL learners towards other language communities were considered to be of great importance in learning a second language, in addition to language aptitude and the linguistic features of the target language (Gardner, 1985; 2010; 2012).

The social-educational (SE) model (Gardner 2001) covers three elements: (1) Integrativeness, (2) Attitudes toward the Learning Situation, and (3) Motivation. The relationship between these three variables is shown in Figure 2.1. It is found in the model that the variable “Integrativeness” and the variable “Attitudes toward the Learning situation” are correlated with each other to support the variable “Motivation” which directly contributes to language achievement. In other words, these two elements (“Integrativeness” and “Attitudes toward the Learning situation”) have an indirect effect on language achievement, which effect is mediated by “Motivation”.



**Figure 2.1 Simplified Version of Social Educational Model**

Gardner adopted the social psychological approach to researching L2 motivation, attempting to explain the nature of L2 motivation based on the relationship between individuals and the target language community, which is of great significance. In addition, the social educational model presents a visible map of the structure in terms of the relationship between L2 motivation and language achievement. However, although the components in the social educational model are well defined, the interrelationship between and among the elements is not elaborated in detail.

### **2.1.2 The Cognitive-situated Period**

During the 1990s, researchers conducted research on motivation embracing many cognitive theories such as self-determination theory (Deci & Ryan, 1985), self-efficacy theory (Bandura, 1986), attributional theory (Weiner, 1986; 1992), goal theory (Ames, 1992), autonomy theory (Dickinson, 1995), and expectancy of success/incentive value theory (Eccles, 2000; Wigfield & Eccles, 2000).



Besides the above cognitive theories, there were also four models of L2 motivation during the 1990s, namely, Tremblay and Gardner's (1995) refined SE model, Keller's (1983) motivation system, Dörnyei's (1994) three-level framework, and Williams and Burden's (1997) social constructivist model. By incorporating goal theory and expectancy of success/incentive value theory, Tremblay and Gardner (1995) refined the L2 Motivation Model, adding some new concepts such as goal salience, valence, and self-efficacy, which could be taken as the mediating elements between language attitudes and motivational behavior. Similarly, Dörnyei (1994) integrated the findings of prior research and proposed an inventory of components of motivation clustered into different categories (language, learner, and learning situation).

The emergence of the cognitive theories resulted in reform or innovation in L2 motivation research and a restructuring of the L2 motivation models; and incorporating additional variables within a cognitive theory advanced research on L2 motivation. For example, in Dörnyei's (1994) three-level framework of L2 motivation, the first two levels (language level and learner level) are heavily based on the previous L2 motivation theories (Gardner, 1985; Clément, 1986; Clément et al., 1977) as well as his own findings (Dörnyei, 1990). Dörnyei (1994) conceptualized a third level (learning level) based on the reports and conclusions from Deci and Ryan (1985). However, all the above models of L2 motivation attended to L2 motivation only at a static point in time, ignoring the dynamic aspect of L2 motivation as related to the time dimension.

### **2.1.3 The Process-oriented Period**

During the last fifteen years, many motivation researchers have considered the fluctuating nature of motivation and conclude that it is not adequate to interpret motivation from a static perspective (Dörnyei, 2000, 2001; Ushioda, 2001), and that L2 learners' initial motivation is difficult to maintain and often falls along with time (Dörnyei & Csizer, 2002; Gardner et al., 2004; Tseng & Schmitt, 2008). Some researchers (Dörnyei, 2000, 2001; Pintrich & Schunk, 2002; Tseng & Schmitt, 2008) have found that motivation is multi-dimensional and always changes over time, "going through some interconnected processes" (Liu, 2013, p.13). Accordingly, therefore, Dörnyei and Ottó (1998) focused on the dimension of time and constructed a process model to depict the temporal evolution of L2 motivation.

The process model of L2 motivation marked a shift in L2 motivational research from a static perspective to a dynamic one, with the focus on investigating the developments and changes in motivation over time. However, this process model of L2 motivation still neglected the interrelationship between/among individual learners, the relations between/among different situations, and the interaction between individuals and conditions (Xu, 2015).

### **2.1.4 Current Social-dynamic Perspectives (from a dynamic systems perspective)**

Larsen-Freeman (1997) first initiated the discussion on the characteristics of language as a complex adaptive system and identified the similarities between Dynamic Systems Theory (DST) and Second Language Acquisition (SLA).

Some researchers (e.g. de Bot et al., 2007; Ellis & Larsen-Freeman, 2006; Larsen-Freeman & Cameron, 2008; Dörnyei, 2009) point out that a system could be perceived as dynamic and complex if two or more factors in the system are interrelated with each other and bring about change over time. The ongoing interrelationships between/among variables in the system lead to unpredictably dynamic and complex behaviour in the system. Therefore, Dynamic Systems Theory (DST) aims to explain how the interactive components generate the unpredictably collective behavior.

According to Larsen-Freeman and Cameron (2008), dynamic systems are complex. A great number of subsystems and components which connect and interconnect with each other constitute the dynamic systems. From the perspective of subsystems or components, they are still taken as complex dynamic systems, which further increases the system's complexity. The interconnectedness among the variables establishes "a kind of unity or wholeness about the system" (Larsen-Freeman & Cameron, 2008, p.26). Therefore, dynamic systems cannot be simply seen as the sum of components or the unity of subsystems, because the behavior of dynamic systems originates from the interrelationship of subsystems or components.

Besides this, complex dynamic systems are systems that change over time (de Bot et al., 2007). In other words, complex dynamic systems exist in the dimension of time. Therefore, things in the system are not static in real life but continuously evolve, including their subsystems and the corresponding components, because the subsystems and corresponding components are also interrelated with each other and their interrelationships are continually changing over time. The components and the ways in

which they interact with each other will change over time, which makes everything in dynamic systems possess the feature of being non-linear.

In addition, other features of complex dynamic systems are that they could be open (which means that other elements are allowed to enter) and adaptive (which means that the changes or differences that occur in one field might result in the occurrence of differences in the whole system). Therefore, complex dynamic systems consist of elements or agents that interact with each other, resulting in self-organization and emergence of new patterns at different periods and levels.

Based on the elaborations on DST from Larsen-Freeman and Cameron (2008), L2 motivation possesses the following features: 1) the L2 motivation system is open. The L2 motivation system involves the continuous interaction with other contextual elements, which makes the L2 motivation system sensitive to feedback from the context; 2) the L2 motivation system is self-organized and non-linear. L2 motivation system is continuously associated with positive or negative feedbacks (the enhancing or counteracting forces) which generate non-linear variations in motivational behavior; 3) the L2 motivation system has multi-causality. This is because motivation is determined by many elements, so that “no single element, input or force controls or causes change” (Dörnyei, MacIntyre & Henry, 2016, p.423). Combining the complexity thought modeling with the dynamic and complex features of motivation, some researchers (Csizér, & Lukács, 2010; Henry, 2016; Küpers et al., 2014; Thompson, 2017) have conducted research to investigate the dynamic and complex nature of motivation from the perspective of DST.

For instance, Henry (2016) conducted research on the investigation of the L3 motivational dynamics in Sweden from the perspective of Dynamic Systems Theory (DST). Henry (2016) first interviewed the teacher of French to research the differences in terms of the students' methods and attitudes of learning French and finally categorized three different learning profile types (A. Higher aptitude and ability/focused learning behaviour/lower anxiety; B. Higher aptitude and ability/focused learning behaviour/higher anxiety; C. Lower aptitude and ability/less focused learning behavior/higher anxiety). Then, an open-ended questionnaire was administered to twenty-two first-year upper secondary students (twelve females and ten males) who were studying CEFR A2.2 French as the third language to list the issues that made them more motivated and less motivated to study French. Finally, six participants (four females and two males) were chosen to join a series of individual semi-structured interviews (10 to 25 minutes) in Swedish between November 2011 and June 2012. One male and two female students were interviewed six separate times and the other three participants were interviewed five occasions. The methods of double hermeneutic (Ricoeur, 1970) and IPA (Smith & Osborn, 2003) were employed to analyze the transcripts. The major findings were: 1) The motivation towards learning French among all the six participants differed from one French lesson to the next. In explaining the motivational fluctuations, one female participant pointed out that some cognitive factors (such as the type and difficulty of learning task), affective factor (such as the kind of learning mood in the lesson), and social factor (such as what happened in class immediately before) might have the influence on her attitude on learning French.

However, although her motivation to learn French was different constantly, her overall attitude towards learning French remained stable across the timescale; 2) The intensity of participants' learning behaviors fluctuated during the lesson. One female participant depicted that finishing the learning task during the French lesson was very interesting and more attractive rather than the exhausting translation task. Therefore, the teaching activities in French class could play a decisive role in the motivational trajectory; 3) The attitudes towards whom the participants chose to sit next to remained different constantly. The constant interaction between social, affective, cognitive and contextual factors could be the determining element in shifting their attitudes towards whom to sit next to.

Liu (2014) conducted longitudinal research on individual differences via Mixed Method Research (MMR) from the perspective of Dynamic Systems Theory (DST). Liu (2014) administered the questionnaires covering foreign language anxiety, motivation, effort, learning strategy, learner belief and learner style and two language tests (Modern Language Aptitude Test and IELTS) to 70 participants (39 female and 31 male) of non-English major at universities. The quantitative data were collected four times between October 2012 to June 2013. Cross-lagged regression analysis was used to investigate the reciprocal relations between individual differences variables and IELTS test scores. From the strand of qualitative research, diary and in-depth interview of 42 participants were used to investigate the influences of contextual factors on the dynamic change of individual difference. The major research results towards motivation were: 1) Learners' motivation changed considerably across the research

period; 2) Learners tended to develop more positive attitudes towards the target community, learning situations and stronger interests in English language, culture and people; 3) Qualitative evidence suggested that environmental factors were what cause learners to formulate more favorable attitudes towards learning situations and the improvement in EFL performance was responsible for the changes in integrative motivation.

Furthermore, it should be emphasized that contextual elements are also a segment of dynamic systems with vital influence on motivation. The contextual elements can be broadly divided into three parts: 1) teaching environment; 2) family environment; 3) social environment. Teaching environment covers many aspects such as the teacher, classmates, teaching materials (books), teaching methods and strategies. Teaching environment has the direct influence on motivation. Teaching in the class can not only equip the learners with new knowledge or learning methods but also affect learners' cognitive factors such as learning motivation or anxiety. The family environment includes parents or children's early education. The family is always taken as the learners' primary classroom, exerting profound and sustaining influence on individuals. The social environment contains the political, economic and cultural environment, which affects the motivation of learners. Learners do not learn in isolation, because their motivations are constantly affected by the outside world (real or virtual). Therefore, their motivations are constantly affected by various elements in the context, and they are continuously responding to the active or inactive feedback from the learning context and adapting themselves to it. For instance, Dörnyei (2003) designed

a model to depict the dynamics of motivational task processing. The motivational task processing covers three parts, namely, 1) task execution, 2) task appraisal, and 3) action control. Task appraisal is the stage of constantly responding to the contextual influence on learners' performance and comparing their actual behavior in the language learning context with the expected one. Action control means the self-regulatory actions of learners which can be used to promote, assist or protect their learning actions. Therefore, in DST research, the focus of research is not only on agents or the relevant context but also, more, on relationships between agents with context or agents in context (Davis & Sumara, 2006).

In summary, Dynamic Systems Theory (DST) is a new insight into the interpretation of the complexity and dynamism of L2 motivation. As some scholars (see, e.g. Dörnyei & Ushioda, 2011; Larsen-Freeman & Cameron, 2008) have put forward, researchers could shift the research perspective of L2 motivation from conventional linear and static investigation to the focus on the dynamic and complex interrelationships between and among the various elements that may affect L2 motivation. Meanwhile, it should be emphasized that the adoption of Dynamic Systems Theory to investigate L2 motivation doesn't mean the rejection of the prior theoretical frameworks (e.g. Dörnyei's three-level framework, 1994; Dörnyei and Ottó's process model, 1998; Gardner's social educational model, 2001). On the contrary, researchers could observe some novel findings of L2 motivation research if combining these prior theoretical frameworks of L2 motivation with Dynamic Systems Theory. In other words, Dynamic Systems Theory could have enormous implications for research on motivation



or motivation in specific domains, such as reading motivation.

## **2.2 Operationalization of Reading Motivation**

### **2.2.1 Motivation for Reading Questionnaire (MRQ)**

The Motivation for Reading Questionnaire constructed by Wigfield and Guthrie (1997) could be taken as “probably the most widely used questionnaire to measure reading motivation” (Schiefele et al., 2012, p.434). The MRQ is directly (using original version) or indirectly (using a translated version) employed by many researchers (Logan, Medford & Hughes, 2011; Möller & Bonerad, 2007; Schutte & Malouff, 2007; Unrau & Schlackman, 2006; Wang & Guthrie, 2004; Wang & Li, 2016).

Wigfield and Guthrie (1995) operationalized reading motivation and constructed the Motivation for Reading Questionnaire (MRQ) to evaluate different layers of reading motivation. They compiled 82 items for the MRQ, which could help to understand the principles of motivation to read. Wigfield and Guthrie (1997) identified 11 dimensions of reading motivation in MRQ, which are efficacy, challenge, avoidance, curiosity, involvement, importance, competition, recognition, grades, social reasons, and compliance. It should be noted that the MRQ is a scale that draws on both quantitative and qualitative research. From the quantitative perspective, Wigfield and Guthrie (1997) framed the MRQ by adopting some theories such as self-efficacy (Bandura, 1977), interest (Renninger, 1992), subjective task values (Eccles et al., 1983; Wigfield & Eccles, 1992), work-avoidant goals (Nicholls et al., 1989), and social goals (Wenzel, 1991; 1996). From the qualitative perspective, Wigfield and Guthrie (1997)

considered results from previous research conducted by Guthrie, Van Meter, McCann, and Wigfield (1996). The identified categories and corresponding sub-categories of the MRQ are presented in Table 2.1.

**Table 2.1 Motivation for Reading Questionnaire (MRQ)**

	MRQ (Wigfield and Guthrie, 1997)	Refined MRQ (Baker and Wigfield, 1999)
Competence and Efficacy Beliefs	(1) · reading efficacy	(1) · reading efficacy
	(2) · reading challenge	(2) · reading challenge
		(3) · reading work avoidance
Achievement Value and Goals for Reading	Intrinsic Motivation:	Intrinsic Motivation:
	(3) · reading curiosity	(4) · reading curiosity
	(4) · reading involvement	(5) · reading involvement
	(5) · importance of reading	(6) · importance of reading
	(6) · reading work avoidance	
	Extrinsic Motivation:	Extrinsic Motivation:
	(7) · competition in reading	(7) · competition in reading
	(8) · reading recognition	(8) · reading recognition
	(9) · reading for grades	(9) · reading for grades
Social Purposes	(10) · social reasons for reading	(10) · social reasons for reading
	(11) · reading compliance	(11) · reading compliance

Wigfield and Guthrie (1997) conducted research utilizing diaries and questionnaires, investigating the relationships between children's motivation to read and the amount and breadth of their reading and examining whether there were significant differences across gender, grade, and time. 105 participants were recruited from Grade 4 and Grade 5 at the elementary school to complete the Motivation for Reading Questionnaire (MRQ) twice during an academic year. The administrators read the items to the participants in a small group of around 10 to 15 participants. The questionnaire used in this research initially covered 82 items. However, 53 items were

kept after some quantitative measuring methods (such as correlation, regression analysis, exploratory factor analysis, and skewness) were employed. The results show that the reading motivation of children was multi-dimensional and that, compared with extrinsic motivation to read, intrinsic motivation to read was more correlated with the amount and breadth of reading. For the children from different grades, there was no significant difference in terms of their reading motivation. Girls showed more positive reading motivation than boys.

Baker and Wigfield (1999) conducted research to confirm the multi-dimensional properties of motivation to read by adopting the MRQ invented by Wigfield and Guthrie (1997). They administered the MRQ to 371 participants in Grade 5 and Grade 6 at the elementary school. By adopting quantitative methodology such as confirmatory factor analysis, some items were rectified or deleted, and meanwhile, some new items were added. Baker and Wigfield (1999) also partially recategorized the structure of MRQ somewhat (also see Table 2.1). The final version of the MRQ contained 50 items altogether. The results show that, in general, the categories based on different dimensions positively related with one another and negatively with the attitude of avoiding reading.

Based on the operationalization of reading motivation by Wigfield and Guthrie (1997) and Baker and Wigfield (1999), therefore, the Motivation for Reading Questionnaire (MRQ) has been adopted by many researchers (Logan, Medford & Hughes, 2011; Möller & Bonerad, 2007; Schutte & Malouff, 2007; Unrau & Schlackman, 2006; Wang & Guthrie, 2004; Wang & Li, 2016) to investigate the features

of reading motivation. For instance, Unrau and Schlackman (2006) researched reading motivation (intrinsic and extrinsic reading motivation) and its effect on reading achievement by administering the MRQ and Gates-MacGinitie test (a reading achievement test) to nearly 2000 participants in middle school. They adopted Structural Equation Models (SEM) to investigate the interrelationship between reading motivation and reading achievement, concluding that the intrinsic reading motivation of students with Asian background showed a stronger positive correlation with their reading achievement compared with that of Hispanic students.

### **2.2.2 Operationalization of Reading Motivation by Other Scholars**

The operationalization of reading motivation by other scholars could be reviewed in terms of both qualitative and quantitative studies. From the perspective of qualitative research, “there have been few attempts to measure reading motivation by means of qualitative assessment methods” (Schiefele et al., 2012, p.432). However, the findings of reading motivation investigation from the perspective of qualitative research are still of great significance. For instance, Guthrie, Van Meter, McCann, and Wigfield (1996) interviewed 20 school participants from Grade 3 and Grade 4 at the elementary school. These participants took part in a program, “Concept-Oriented Reading Instruction” (CORI), which aimed to cultivate participants’ reading competence and their motivation to read. Guthrie et al. (1996) summarized 14 dimensions of reading motivation based on the interview data. These dimensions were efficacy, competition, challenge, social, investment, curiosity, grades, emotional tuning, work avoidance,

rewards, involvement, compliance, recognition, and utilitarian. Compared with the 11 dimensions of the MRQ invented by Wigfield and Guthrie (1997), ten dimensions are in both the MRQ and dimensions of reading motivation summarized by Guthrie et al. (1996), namely, reading efficacy, reading challenge, reading curiosity, reading work avoidance, reading involvement, competition in reading, recognition for reading, reading for grades, social reasons for reading, and reading compliance. Four dimensions (investment, emotional tuning, rewards and utilitarian) were not included in the MRQ. Nolen (2007) conducted longitudinal research (over three years) by adopting a mixed methods research approach. 67 participants from Grades 1-3 at two elementary schools in literacy activity were observed and interviewed every year towards analyzing children's reading and writing motivation. Nolen (2007) adopted the approach of the Grounded Theory to analyze the interview content, finding out "the motivations that were salient to children at each grade level in each domain" (p.219). Eight dimensions of reading motivation were identified: Interest, enjoyment, mastery, reading as school work, utility, ego, social, and avoidance.

It can be found, therefore, that the terms that were used by Nolen (2007) are fully consistent with those employed by Guthrie et al. (1996). However, the reading motivation study conducted by Guthrie et al. (1996) covered more categories, including recognition, grades, emotional tuning, rewards, and utilitarian.

From the perspective of quantitative research, most researchers have constructed and operationalized reading motivation by directly (using original version) or indirectly (using a translated version) employing or adapting the MRQ on research

reading motivation. For instance, Mori (2002) administered an adapted version of the MRQ put forward by Wigfield and Guthrie (1997) to 447 participants at a Japanese university. The adapted version of the MRQ excluded three categories (Competition, Recognition, and Social), based on Mori's previous studies, because some items of the MRQ may not be "directly applicable to university students" (Mori, 2002, p.96). Meanwhile, some new items based on integrative motivation were added to the questionnaire. The questionnaire used in Mori's research employed a 7-point Likert scale covering 30 items with a high-reliability coefficient value ( $\alpha=0.93$ ). By adopting a principal components analysis, Mori summarized four factors: Factor one is Intrinsic value of Reading with 12 items covering challenge, involvement, curiosity, and avoidance; Factor two is Extrinsic Utility Value of Reading with 6 items covering integrative motivation and curiosity; Factor three is Importance of Reading with 5 items; and Factor four is Reading Efficacy with 4 items. The results were in alignment with the finding summarized by Wigfield and Guthrie (1997) that reading motivation is multi-dimensional.

Watkins and Coffey (2004) researched the dimensions of the MRQ by directly distributing the MRQ to two groups of participants: one was a sample of 328 participants from Grade 3 to Grade 5 at suburban mid-Atlantic primary schools, and the other sample comprised 735 participants of the same grade at two suburban southwestern primary schools. By employing confirmatory factor analysis, Watkins and Coffey (2004) found eight dimensions, namely, social, grades-compliance, curiosity, competition, involvement, reading work avoidance, efficacy, and recognition.

Retelsdorf et al. (2011) researched the influence that reading motivation had on reading performance with the control variables of cognitive skills, family background and demographic information. 1508 participants from 5<sup>th</sup> to 8<sup>th</sup> grade at secondary school in Germany joined this longitudinal study. Retelsdorf et al. (2011) administered the “Habitual Reading Motivation Questionnaire” (Möller & Bonerad, 2007) to research four categories of reading motivation (reading enjoyment, reading interest, reading competition, and reading self-concept), employed age-appropriate tests and Figure Analogies test to assess reading performance and cognitive skills and administered questionnaires to student and parent to collect the data of background information. The major findings were: 1) By means of latent growth curve modeling, the study found the positive influence of reading-concept and reading enjoyment and negative influence of reading competition on the initial level of reading performance; 2) Reading for interest had a positive and unique influence on the growth of reading performance; 3) Boosting the participants’ interest could be beneficial to the students’ reading performance.

Schaffner et al. (2016) researched the reciprocal influence between intrinsic reading motivation and reading competence by means of cross-lagged regression model. 396 fifth grade participants in Germany were recruited, of which 189 students were from three academic track schools and 207 students were from seven non-academic track schools. The participants were first tested and administered the intrinsic reading motivation questionnaire in Grade 5 and then approximately 18 months later in Grade 6. The major findings were: 1) There was a significant cross-lagged effect of intrinsic

reading motivation on reading competence only for students from academic school; 2) There was no reciprocal effect between intrinsic reading motivation and reading competence for students from non-academic school.

Based on quantitative considerations (e.g. Wigfield & Guthrie, 1997) and the ideas from previous qualitative research (e.g. Becker et al., 2010; Schiefele & Schaffner, 2013), Schiefele and Schaffner (2016) designed a new scale, namely, Reading Motivation Questionnaire (RMQ). The RMQ contained 34 items within seven sub-categories (curiosity, involvement, grades, competition, social recognition, emotional regulation, and relief from boredom) and was administered to 883 participants of Grade six at the elementary school. Schiefele and Schaffner (2016) adopted the approach of confirmatory factor analysis to support the structure of the RMQ. They identified three higher-order categories, namely, intrinsic reading motivation category, extrinsic reading motivation category, and regulatory reading motivation category; and established measurement invariance across gender and groups (higher reading competence and low reading competence).

### **2.2.3 Summary of Operationalization of Reading Motivation**

In summary, it could be concluded that reading motivation is investigated through either qualitative (MRQ; Nolen, 2007) or quantitative methods (MRQ; RMQ; Mori, 2002). From the perspective of the qualitative strand, some or even all of the dimensions achieved in the research (e.g. Nolen, 2007) are found to be similar to those in the MRQ. From the angle of quantitative strand, some scholars (e.g. Baker & Wigfield, 1999; Mori, 2002; Wang & Guthrie, 2004; Unrau & Schlackman, 2006)



directly administered the MRQ to the participants and some researchers (e.g. Möller & Bonerad, 2007; Wang & Li, 2016) used the adapted or translated version of the MRQ or even created a new questionnaire (e.g. the RMQ) by taking into consideration of the MRQ to find the inner properties of reading motivation. Therefore, the MRQ is believed to be a more comprehensive questionnaire capable of assessing more variables of reading motivation. Besides this, it is also worth mentioning that some researchers (e.g. Mori, 2002; Schutte & Malouff, 2007) have used an adapted version of the MRQ, which was mainly used to investigate reading motivation of children at elementary school, to research reading motivation of students at universities. Therefore, it is possible for the present study to research Chinese EFL learners' reading motivation by adopting the MRQ (the adapted version). In addition, prior research has investigated reading motivation at a particular point in time. Therefore, it is necessary for the present study to uncover the dynamic and complex features of reading motivation.

### **2.3 Previous Studies on Chinese EFL Learners' Reading Motivation**

Compared with international studies of reading motivation (Mori, 2002; Day & Bamford, 1998; Takase, 2007), some Chinese scholars have also attempted to research reading motivation. It should be noted in particular that all the previous studies on Chinese EFL learners' reading motivation reviewed in Section 2.3 were from China National Knowledge Infrastructure (CNKI) database. According to the description in Wikipedia, CNKI is a key national information construction project under the lead of Tsinghua University, and supported by PRC Ministry of Education, PRC Ministry of

Science, Propaganda Department of the Communist Party of China and PRC General Administration of Press and Publication. CNKI has built a comprehensive China Integrated Knowledge Resources System, including journals, doctoral dissertations, masters' theses, proceedings, newspapers, yearbooks, statistical yearbooks, e-books, patents, standards and so on.

The present study inputted the key word “reading motivation” to retrieve the relevant journal articles in CNKI between January 1st, 1990 and December 31st, 2017, finding that there were 129 relevant journal articles. 50 journal articles were deleted because these journal articles focused on the development of reading motivation in Chinese language learning. Among the remaining 79 journal articles, 48 journal articles only employed quantitative research. Only 2 journal articles employed a mixed method research through questionnaire and in-depth interview. The remaining 29 journal articles only discussed the relationship between reading motivation and reading competence or the influence of possible factors on reading motivation. Besides, all the 79 journal articles researched reading motivation at a static point. For instance, Ying and Xu (2001) conducted empirical research on the choice of English reading materials from the perspective of reading motivation. Ying and Xu (2001) administered the questionnaire covering reading motivation, expectation, and the characteristics of the students' favorite reading materials to 63 students at Zhejiang University. The result showed that the choice of reading materials should be alignment with the students' reading motivation and their learning needs. The preferred reading materials possessed the following characteristics: 1) Language in the reading material should be applicable

in daily life; 2) The topic itself should be interesting; 3) Their favorite type of reading materials is narrative; 4) The title of the material should be attractive and stimulate curiosity.

Duanmu (2001) did not conduct empirical research on reading motivation but discussed the relationship between mood and effectiveness in the process of reading from the angle of applied psycholinguistics. Duanmu (2001) pointed out that reading motivation gave rise to reading method, which affected reading interaction. Then, the interaction had an influence on mood, which determined reading results and the realization of reading purposes.

Yuan (2003) distinguished two types of reading motivation in the reading motivation model, enjoyable reading motivation and instrumental reading motivation; and investigated their relationship with reading proficiency by administering the reading motivation scale to 76 second-year students at two universities. The results reveal that Chinese EFL learners have a strong disposition towards instrumental motivation, and that enjoyable reading motivation and reading efficacy are more related. This result is partially in line with the motivation research findings by some researchers (Gholami et al., 2012; Zheng, 2010). For instance, Gholami et al. (2012) conducted empirical research on motivation with the aim to find the dominant motivation type among EFL students. Gholami et al. (2012) administered motivation test (5-point Likert Scale format) to 95 third-year (last year) Iranian male students at high school in Malaysia. The research results on motivation reveal that the dominant motivation type among EFL learners at high school is instrumental with the reports from nearly two

third of the participants (58.9%), but the integrative motivation type accounts for a considerable percentage (41.1%), which is worth noting. Besides, the motivation among students of high achievement are mostly integrative oriented. In addition, integratively motivated students significantly outperformed those who were instrumentally motivated. Zheng (2010) conducted empirical study to investigate motivation, anxiety, global awareness, and linguistic confidence, and their causal and correlational relationships to English test performance under the context of students in Chinese universities taking College English Test Band Four (CET-4). Zheng (2010) employed an MMR approach, through questionnaire (927 participants) and in-depth interview (12 participants) to examine how these psychological factors contributed to the students' language performance. The research results on motivation from in-depth interview showed that Chinese EFL learners indicated stronger instrumental orientations than integrative orientations and displayed three categories of instrumental motivation, namely, mark, further-education and job. The students from the Arts mentioned that their English proficiencies could be valued by the future employers.

Zou and Zhao (2009) conducted empirical research on reading motivation of 69 non-English major second and third-year students at Beijing Institute of Technology. Zou and Zhao (2009) employed a Mixed Method Research (MMR) covering classroom observation, questionnaire, interview, and test. The result of quantitative research showed that: 1) Reading interest and attitudes had a positive and significant influence on English reading; 2) The variables of reading motivation were correlated with each other. The correlation coefficients between reading interest and reading self-confidence

was 0.084; 3) The intensity of reading motivation was positively affected by reading score. The result of in-depth interview showed that 1) Reading interest could affect the choice of reading materials to a large extent; 2) Reading English materials could be beneficial to their language learning and future career; 3) The attitude towards reading activities was negative and some students even believed that they could get better reading score by self-learning.

Wang and Li (2016) administered the original MRQ to 320 second-year students of a major in English at three universities, finding that the reading motivation of students majoring in English showed the properties of multidimensionality. The results, which were analyzed by exploratory factor analysis, manifested that nine categories, which were reading efficacy, social reasons for reading, reading curiosity, reading involvement, reading word avoidance, reading compliance, reading for grades, reading challenge, and the importance of reading, corresponded with the sections in the MRQ. Competition in reading and recognition in reading were incorporated into reading recognition-competition. Integrative reading motivation and reading materials were the new categories found in the research.

Meanwhile, Chinese EFL learners' reading motivation presented the variation in terms of some demographic variables such as gender, discipline, and high/low reading proficiency. For instance, Xu (2011) administered questionnaire covering instrumental and integrative reading motivation variables to 60 students English major and 65 students of non-English major at university in Wuhan. The research results showed that 1) The reading motivation of non-English major students was mainly

instrumental (e.g. passing CET-4/6 test, obtaining the diploma, and going abroad for further education). Their intensity of instrumental reading motivation was significantly different from that of integrative reading motivation; 2) English major students showed the strong orientation of integrative reading motivation (e.g. reading interest and reading desire). Their intensity of integrative reading motivation was significantly different from that of instrumental reading motivation; 3) The intensity of integrative reading motivation for English major students was higher than that for non- English major students.

Wei (2011) conducted empirical research on relationship between college students' English reading motivation, English reading achievement and gender. Wei (2011) administered MRQ (Wigfield & Guthrie, 1997) to 156 first-year non-English major students, of which 27 were male and 129 were female and tested the participants' reading proficiency with the testing materials extracted from CET-4 database. The participants were categorized into high-achiever group and low-achiever group based on the criteria by Qin (2003). The research results showed that 1) There was a significant difference between the reading score of high-achiever group and that of low-achiever group; 2) The category of Competence and Efficacy Beliefs for high-achiever group showed significantly higher than that for low-achiever group; 3) Female students' reading efficacy, achievement value and social aspects for reading were significantly higher than male students.

Gong and Liu (2012) conducted empirical research on reading motivation of college English major students. MRQ (Baker & Wigfield, 1999) was administered to

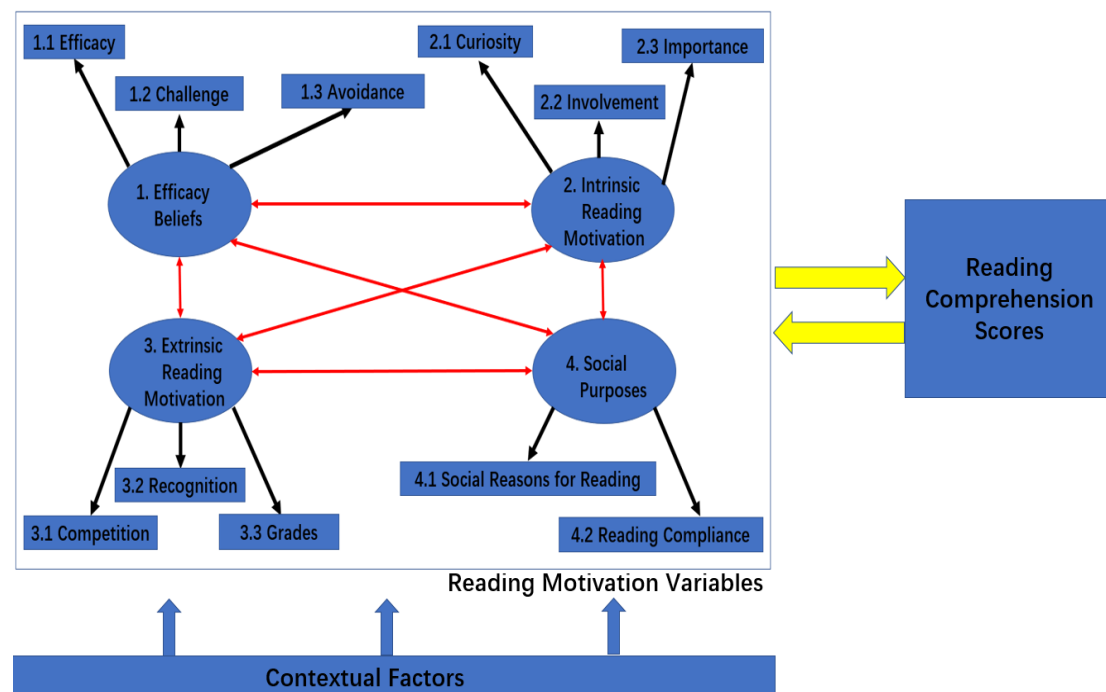
66 college students (42 first-year students and 24 second-year students). Gong and Liu (2012) also tested the students' reading proficiency with the testing materials extracted from CET-4 (reading section) and categorized the students into high-achiever group (19 students) and low-achiever group (23 students). The research results showed that 1) Compared with low-achiever group, high-achiever group showed higher intensity in overall reading motivation and all the sub-categories of reading motivation; 2) For both high-achiever and low-achiever group, the dominant type of reading motivation was external reading motivation, followed by internal reading motivation and efficacy beliefs respectively.

In summary, prior studies on Chinese EFL learners' reading motivation are still subject to some limitations. Above all, no prior studies on Chinese EFL learners' reading motivation have uncovered the dynamic feature of reading motivation. Nearly all these studies researched Chinese EFL learners' reading motivation at a static level. Furthermore, although some researchers (Yuan, 2003) investigated Chinese EFL learners' reading motivation by means of one or more variables, they still failed to explore the interrelationships between and among reading motivation variables and the reciprocal influence between reading motivation and reading outcome. In addition, most studies were conducted by employing a questionnaire to research Chinese EFL learners' reading motivation, while very few scholars (Zou & Zhao, 2009) have adopted a qualitative research method such as in-depth interview. However, the previous studies on Chinese EFL learners' reading motivation give the present study a hint that Chinese EFL learners' reading motivation can also be investigated the dynamic and complex

change in terms of some controlling variables such as gender, discipline, high-/low-achiever. In order to fill these research gaps, therefore, the present study investigates the dynamism and complexity of Chinese EFL learners' reading motivation by adopting a mixed methods research (MMR) approach and Dynamic Systems Theory as the theoretical framework, with the focus on the interrelationships between and among reading motivation variables and the changes in these interrelationships over time.

## 2.4 Conceptualization of Reading Motivation in the Present Study

The present research designs a hypothesized model for the dynamic system of Chinese EFL learners' reading motivation (see Figure 2.2) to uncover the dynamic properties of motivation to read and its dynamic interrelationship with reading comprehension.



**Figure 2.2 A Hypothesized Model for the Dynamic System of Chinese EFL Learners'**

**Reading Motivation**



The conceptualization of reading motivation in the present study is based on the following principles:

1) Although the MRQ is mainly used to investigate reading motivation of children at elementary school, it is also employed by some researchers (Mori, 2002; Schutte & Malouff, 2007; Wei, 2011; Gong & Liu, 2012) to research reading motivation of students at universities.

2) Although some scholars (e.g. Schiefele et al., 2012; Schiefele & Schaffner, 2016) have held the idea that some dimensions (e.g. efficacy, importance, challenge, and social reasons) should be deleted because these dimensions are not genuine variables but the “antecedents and/or consequences of reading motivation” (Schiefele & Schaffner, 2012, p.223), “including a variety of constructs in reading motivation scale” (Davis et al., 2018, p.175) could be useful to investigate the multi-dimensional nature of reading motivation. Accordingly, and based on the above two principles, the present study adapts the MRQ (Baker & Wigfield, 1999).

3) As mentioned in Section 2.3, the major research gaps of previous studies on Chinese EFL learners’ reading motivation could be summarized into: 1) Nearly all previous studies on Chinese EFL learners’ reading motivation were the snapshot researches, which could not uncover the dynamic and complex nature of reading motivation; 2) No studies explored the correlation relationships between and among reading motivation variables and the reciprocal influence between reading motivation and reading outcome over time; 3) Most studies were conducted by employing a questionnaire to research Chinese EFL learners’ reading motivation and very few

scholars (Zou & Zhao, 2009) have adopted a Mixed Method Research (MMR) approach such as questionnaire and in-depth interview.

In order to fill the first two research gaps on Chinese EFL learners' reading motivation, the present study introduces the Dynamic Systems Theory to uncover the complex, dynamic, adaptive properties of reading motivation. The research design in present study is based on the research results from previous studies on motivation and reading motivation. On the one hand, reading motivation is the motivation in a specific domain, which means that reading motivation possesses the properties of motivation such as dynamism, complexity, nonlinearity, openness, and dependence on the initial conditions. Previous studies on motivation from the DST (Dörnyei, 2003; Dörnyei et al., 2016; Henry, 2016; Liu, 2014) give the present study confidence in researching reading motivation based on DST. On the other hand, some prior studies on reading motivation also state the interrelated properties of different variables of motivation to read and the relationships between motivation to read and reading comprehension, which are also the typical properties of DST. For instance, Baker and Wigfield (1999) found that the correlations between and among the different categories of reading motivation were positive with significant differences at 0.01 level or better, and that the category (Reading Work Avoidance) was negatively correlated with all the other categories (except category: Competition in Reading). Retelsdorf et al. (2011) conducted a longitudinal study on reading motivation, finding that reading enjoyment and competition for reading, rather than reading curiosity, were the predictors of reading comprehension.

Therefore, based on the previous studies on motivation from the perspective of DST and the ones involving the interrelationship between and among the reading motivation variables and the reciprocal relationship between reading motivation and reading outcome, the present study draws a formulation, as presented in Figure 2.2. In Figure 2.2, the double headed arrows between and among reading motivation represent correlation and the single headed arrows between reading motivation and reading outcomes represent causal relationships. This formulation aims to answer the four research questions in Section 1.3 of Chapter One.

4) To fill the last gap of previous studies on Chinese EFL learners' reading motivation, the present study aims to employ in-depth interview to justify the results from the quantitative research and the influence of contextual factors on reading motivation. Since the contextual factors are a part of complex systems, the present study should consider the influence of contextual factors on reading motivation. Therefore, some contextual factors such as teaching environment, family environment, and social environment should be considered. Teaching environment covers teachers, teaching methods, teaching materials, classmates, classrooms, etc. The family environment includes the influence of parents, early education, etc. Social environment involves the factors of politics, economy, and culture. Therefore, as can be seen in Figure 2.2, the single headed arrows between contextual factors and reading motivation represent the influence of contextual factors on reading motivation.

5) The cross-lagged regression model employed by some prior studies (Schaffner et al., 2016; Liu, 2014) can also be used in the present study to investigate

the reciprocal causal relationships between reading motivation variables and reading comprehension scores over time.

## **Chapter Three Methodology**

### **3.0 Introduction**

This chapter comprises three sections. It begins with the research design of the present study and explains the longitudinal approach used to investigate Chinese EFL learners' reading motivation in light of the Dynamic System Theory. The longitudinal approach included a mixed methods research (MMR) approach (QUAN-qual design) in which both quantitative and qualitative data and analyses were employed. In Sections 3.2 and 3.3, each of the quantitative and qualitative strands of the study are presented and explained.

### **3.1 Research Design**

Since all the variables or components within the dynamic system imply an ongoing interaction, longitudinal methods of data collection appear to be a better option for researchers to investigate the dynamic and complex nature of phenomena such as reading motivation. As Larsen Freeman and Cameron (2008) observe, longitudinal approaches have the capability of capturing the variability of complex systems at different levels and timescales. Dörnyei (2005, p.242) also points out that “it is difficult to imagine a dynamic systems study that does not have a prominent longitudinal aspect”.

The present study intends to adopt a longitudinal design to research the dynamic and complex development of reading motivation. The point should be made here that a longer time interval and more observation time points would have better met the purpose of a longitudinal study. The present study on dynamism and complexity of

reading motivation should assess reading motivation and reading proficiency at more time points to observe more waves of data. But the time limit (only 10 months) for the completion of this Master of Research Project could not afford a longer time interval and more observation time points to research the dynamic and complex development of reading motivation. However, as reviewed in Section 2.1.4 of Chapter Two, Henry (2016) pointed out that the motivation towards learning French could be different from one French lesson to the next and the intensity of participants' learning behaviors fluctuated during the lesson. Based on the time limit of the project and the Henry's (2016) research results, therefore, the present study established a hypothesis that Chinese EFL learners' reading motivation might change to some extent (e.g. overall reading motivation intensity and/or some sub-categories) with a time interval of four weeks. Thus, the present study adopts a longitudinal design in which the variables of reading motivation were observed over two points in time with a time interval of four weeks. As such, the same group of participants were observed, tested and interviewed to track their reading motivation over four weeks.

As part of the longitudinal research, both quantitative and qualitative data and analyses were employed in this study. As for the quantitative part, descriptive and inferential statistical analyses comprising independent and paired samples t-test, Mann-Whitney U test, Wilcoxon Signed-rank test, correlations, and cross-lagged regression analysis were used to map the reading motivation trajectories and to depict the participants' reading motivation change over time. In addition to quantitative methods, qualitative interviews were used with a sub-sample to provide further insights into the

reading motivation of Chinese EFL learners. It should be noted that since the time for completion of this Master of Research Project is rather limited (only 10 months), the present study was mainly based on the analysis of quantitative data to investigate the dynamic change of reading motivation, the interrelationships between and among reading motivation variables, change of these interrelationships over time, and the reciprocal influence of reading motivation and reading proficiency. The data analysis collected from qualitative research approach were only used to justify the analysis results of quantitative research and supplement the influence of contextual factors on reading motivation. Therefore, the present study adopted a mixed methods research (MMR) approach (QUAN-qual design) with a triangulation purpose (Riazi & Candlin, 2014; Riazi, 2017) to examine the dynamic nature of reading motivation. In the following sections, each strand of the MMR study will be explained.

### **3.2 Quantitative Strand**

This section reports the quantitative strand of the MMR design of the study, including participants, research instruments, and data collection and analysis procedures.

#### **3.2.1 Participants**

The required quantitative data were collected from Chinese EFL Non-English major students at Northeast Agricultural University in China. The reasons for selecting this cohort of participants are as follows:

- (1) They could commit themselves to continuing participation in this study,

especially because data were needed to be collected twice over a four-week time interval;

(2) The students were involved in the reading courses for a semester, which means that they were already familiar with curriculum objectives, assessment criteria, and that they were eager to improve their English proficiency in a comprehensive way in light of future career ambitions;

(3) These students could provide data for the present study which needed to collect data in the second semester (also called Spring Semester) in March 2018. In addition, at the end of the Spring Semester, the students were taking College English Test Band Four (CET-4) which is a language achievement test for students of a non-English major in China. Successful completion of CET-4 certifies Chinese students to find a decent job.

Potential participants were recruited by using advertisements, which introduced the purpose, significance and the procedures of the study. In line with codes of ethics, potential participants were also informed that:

(1) their participation in this study is totally voluntary;

(2) their responses to the questionnaires and the in-depth interview would only be used for the research purpose;

(3) their personal information would be kept entirely confidential;

(4) they could quit anytime during the research period; and

(5) they would be provided with an incentive to compensate for their time investment in the project.



102 potential participants signed the consent forms, of which 49 were boys and 53 were girls. Their age range was from 18 to 21, with a mean of 19. These participants were majoring in a range of fields comprising law, accounting, management, biology, civil engineering and hydraulic engineering. Table 3.1 provides the demographic information of the potential participants in the study.

**Table 3.1 Demographic Information of the Potential Participants in the Quantitative Strand**

Field of study	Male	Female	Total
Law	3	9	12
Management	3	11	14
Accounting	5	14	19
Biology	11	5	16
Civil engineering	15	9	24
Hydraulic engineering	12	5	17
Total	49	53	102

### **3.2.2 Research Instruments**

The quantitative research instrument used in the present study is the Reading Motivation Questionnaire (RMQ) discussed in Chapter Two, which is an adapted version of the Motivation for Reading Questionnaire (MRQ) (Baker & Wigfield, 1999), and the reading comprehension section of College English Test band 4 (CET-4). These two instruments were used to measure the Chinese EFL learners' reading motivation variables as well as their reading in English performance. Each of these two instruments are explained below.

#### **3.2.2.1 Reading Motivation Questionnaire (RMQ) in the Present Study**

The present study adapted the Motivation for Reading Questionnaire (MRQ) (Baker & Wigfield, 1999) to investigate the Chinese EFL learners' reading motivation.

Some items of the MRQ were rectified in order to make it more suitable for the Chinese EFL context, and so the adapted questionnaire was named the Reading Motivation Questionnaire (RMQ). The first part of the RMQ includes items related to participants' background information, such as name, gender, date of birth, major and their contact numbers or emails. The second part of the scale includes four major categories and eleven corresponding sub-categories. The total number of items is 59; all being related to reading motivation in English as a Foreign Language. The items use a five-point Likert format, ranging from 1 (strongly disagree) to 5 (strongly agree). In order to minimize the misunderstanding due to language, all the items in the questionnaire were presented in Chinese, the participants' native language. The RMQ was piloted with 90 participants before it was used in the main study. Table 3.2 presents the reliability indices of the different sections of the questionnaire in the pilot study.

**Table 3.2 Reliability Indices of RMQ in the Pilot Study**

RMQ/Category/Sub-category	Cronbach's $\alpha$	No. of Items
Whole Questionnaire (RMQ)	0.935	59
1. Efficacy Beliefs	0.750	15
1.1 Reading Efficacy	0.723	5
1.2 Reading Challenge	0.768	5
1.3 Reading Work Avoidance	0.685	5
2. Intrinsic Reading Motivation	0.840	17
2.1 Reading Curiosity	0.695	5
2.2 Reading Involvement	0.739	5
2.3 Importance of Reading	0.763	7
3. Extrinsic Reading Motivation	0.855	15
3.1 Competition in Reading	0.697	5
3.2 Recognition for Reading	0.728	5
3.3 Reading for Grades	0.728	5
4. Social Purposes	0.739	12
4.1 Social Motivation for Reading	0.693	7
4.2 Reading Compliance	0.459	5

As can be seen from Table 3.2, the reliability coefficient of the whole questionnaire is 0.935 and the values of Cronbach's  $\alpha$  of the four major categories are all over 0.7. The values of Cronbach's  $\alpha$  of all sub-categories except section 4.2 (reading compliance) are also over 0.6. According to Qin (2003), the reliability coefficient of the

whole questionnaire needs to be over 0.8, and the reliability coefficient of each category is suggested to be over 0.7 but will be acceptable within the range of 0.6-0.7. Based on the criterion put forward by Qin (2003), the Reading Motivation Questionnaire (RMQ) in the present study fulfills the reliability criteria.

However, it could also be seen in Table 3.2 that the Cronbach's  $\alpha$  value of sub-category Reading Compliance is 0.459, far below 0.6, which means that this section is not reliable and needs further consideration. When the items of this section were checked, it was found that all the items in this sub-scale are related to external goal or requirement for reading. For example, some items are "I always do my reading work exactly as the teacher wants it, not based on my own interest or initiative" or "I always finish reading tasks assigned by teachers on time because I will be scored based on them". When interviewing some participants in the pilot study, it was revealed that college teachers seldom assigned reading tasks to the students. Therefore, the participants in the pilot study seemed to be confused about the items in this section. Accordingly, and in order to improve the reliability of the whole questionnaire, sub-category 4.2 "Reading Compliance" was deleted from the questionnaire for the main study. Therefore, the categories and corresponding sub-categories of the Reading Motivation Questionnaire (RMQ) used in the present study are as presented in Table 3.3.

**Table 3.3 The Structure of Reading Motivation Questionnaire (RMQ) Used in the Present**

Study	
<b>Competence and Efficacy Beliefs</b>	(1) Reading efficacy
	(2) Reading challenge
	(3) Reading work avoidance
<b>Achievement Value and Goals for Reading</b>	Intrinsic Motivation:
	(4) Reading curiosity
	(5) Reading involvement
	(6) Importance of reading
	Extrinsic Motivation:
	(7) Competition in reading
	(8) Reading recognition
	(9) Reading for grades
<b>Social Purposes</b>	(10) Social reasons for reading

As such, the final Reading Motivation Questionnaire (RMQ) used in the study comprised four major categories with ten corresponding sub-categories and 54 items overall (See Appendix A for a copy of the questionnaire).

The RMQ was administered to the participants twice, at a time interval of four weeks. The descriptive statistics of Reliability Indices of RMQ are presented in Appendix C-3.1 with the number of corresponding items, Cronbach's  $\alpha$  value, and variance value. As can be seen in Appendix C-3.1, Cronbach's  $\alpha$  values for the whole questionnaire were all over 0.8, which indicates that the overall scale is reliable. In addition, all Cronbach's  $\alpha$  values of its categories and corresponding sub-categories (excluding sub-category 1.1: Reading Efficacy for the first time) were over 0.6. Although the reliability coefficient of sub-category 1.1 (Reading Efficacy) for the first time was 0.556, it increased to 0.663 in the second time. Therefore, based on Qin's

(2003) criteria, it could be concluded that the RMQ used in the present study is a reliable scale.

### **3.2.2.2 Reading Comprehension Test**

The present study also adopted the reading comprehension section of CET-4. College English Test (CET) aims to evaluate Chinese college, non-English major students' English achievement. This test is designed at two levels, CET-4 (band 4), a lower testing level of English achievement, and CET-6 (band 6), a higher level of English achievement. The reading comprehension section of CET-4 contains three parts, namely, gap filling (ten blanks), paragraph matching (ten questions), and in-depth reading (two passages with five questions each), accounting for 5%, 10% and 20%, respectively, of the whole CET-4 total score. Students are required to finish the reading comprehension section within 40 minutes. The present study assessed Chinese EFL learners' reading proficiency twice over a time interval of four weeks with two reading tests of same format but different testing contents, which were extracted from reading comprehension section in CET-4 database. The students were not assessed with these two reading tests before, which guaranteed the authenticity of students' reading proficiency and the data analysis of quantitative research. The sample of reading comprehension section in CET-4 is attached in Appendix D. According to the grouping standard (Qin, 2003), 25% of participants from the top were considered as high achievers (High-achiever group) and 25% of participants from the bottom were considered as low achievers (Low-achiever group). The present study intends to investigate the dynamism and complexity of

reading motivation with the controlling variable “high-/low-achievement”, which is discussed in detail in Section 4.8 of Chapter Four.

### 3.2.3 Data Collection Procedures

The data collection of the present study covered a time span of four weeks from April 16th, 2018 to May 14th, 2018. The questionnaire and reading comprehension section of CET-4 were administered twice, with a time interval of 4 weeks. The whole process of data collection covered four stages, as shown in Table 3.4.

**Table 3.4 Chronology of Data Collection in Quantitative Strand of the Research**

Stage	Time	Data Source
1	16th April 2018	RMQ-Round 1
2	19th April 2018	CET-4 Round 1 (Reading Comprehension Section)
3	13th May 2018	RMQ-Round 2
4	14th May 2018	CET-4 Round 2 (Reading Comprehension Section)

All the initial 102 participants completed the questionnaire and the reading comprehension section of CET-4 during the regular teaching period in their classes. However, in the first round, 10 participants missed some items of RMQ, and 4 participants only ticked one option for all the items in the RMQ. In the first round of CET-4, 7 participants did not hand in the Reading Comprehension Test. To guarantee the data validity, the data provided by the above 21 participants were excluded. Besides, before the second administration of the RMQ, 10 participants dropped out due to various reasons. In addition, 6 participants missed some items of the questionnaire or completed the questionnaire inappropriately, and 6 students didn't submit their Reading Comprehension Test in the second round of the RMQ and CET-4 administration. Eventually, a total of 59 participants provided full data by completing the questionnaire

and Reading Comprehension Test twice over a time interval of four weeks. Table 3.5 provides information regarding these participants.

**Table 3.5 Demographic Information of Participants in the Quantitative Strand of the Research**

Field of study	Male	Female	Total
Law	1	6	7
Management	1	8	9
Accounting	2	10	12
Biology	5	4	9
Civil engineering	8	6	14
Hydraulic engineering	5	3	8
Total	22	37	59

### 3.2.4 Data Analysis Procedures

All the data obtained from the questionnaire and scores from reading comprehension test were analyzed using SPSS 17.0. The data analysis included:

(1) Independent Samples t-test: Used to assess whether there were any statistical differences in mean scores of reading motivation variables between male or female students and between Science's students and Arts' students at one point in time;

(2) Paired Samples t-test: Used to assess whether there were any statistical differences in mean scores of reading motivation variables among the participants in same group over two points in time with a time interval of four weeks;

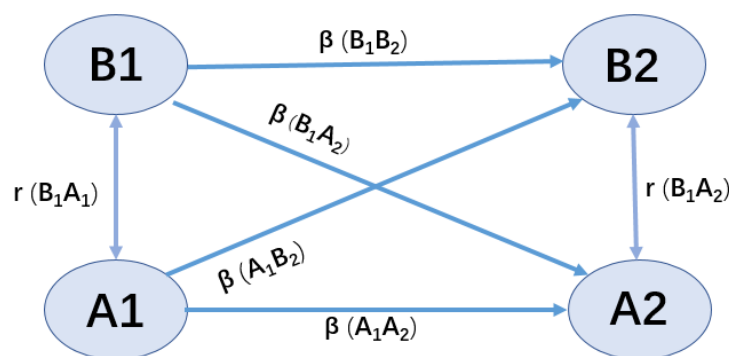
(3) Mann-Whitney U test (non-parametric test): Used to assess whether there were any statistical differences in mean scores of reading motivation variables between High-achievers and Low-achievers at one point in time;

(4) Wilcoxon Signed-rank test (non-parametric test): Used to assess there

were any statistical differences in mean scores of reading motivation variables among the participants in High-/Low-achiever group at two points in time with a time interval of four weeks;

(5) Correlation: Used to indicate the degree of relationship between different sub-categories of reading motivation variables and between reading motivation variables and reading achievement;

(6) Cross-lagged Regression Analysis: Used to reflect the reciprocal relationship between reading motivation variables and reading achievement in the longitudinal study. It is employed to evaluate the directional influence that variables (reading motivation variables and reading achievement) have on each other over time. The hypothesis in theory for cross-lagged regression analysis is that “causal relationships between variables are characterized by temporal precedence” (Liu, 2014, p.54), which is depicted in the conceptual model shown in Figure 3.1.



**Figure 3.1 Conceptual Model of Cross-lagged Regression Analysis**

If variable B (independent variable, for example, reading motivation) is the cause of variable A (dependent variable, for example, reading performance), the effect



of variable B (independent variable) at Time 1 ( $B_1$ ) on variable A (dependent variable) at Time 2 ( $A_2$ ), namely,  $\beta (B_1A_2)$ , should be stronger than the effect of variable A (dependent variable) at Time 1 ( $A_1$ ) on variable B (independent variable) at Time 2 ( $B_2$ ), namely,  $\beta (A_1B_2)$ . Therefore, the present study hypothesized that 1) Reading proficiency at Time 1 contributes to reading motivation at Time 2 when controlling for reading motivation at Time 1; 2) Reading motivation at Time 1 contributes to reading proficiency at Time 2 when controlling for reading proficiency at Time 1.

### **3.3 Qualitative Strand**

The qualitative strand of this mixed methods research aimed to elaborate on the quantitative findings via in-depth interviews with a sub-sample of the participants. This section will report the participants, research instrument, and data collection and analysis procedures of the qualitative strand.

#### **3.3.1 Participants**

17 participants volunteered to take part in the interview after the second administration of the RMQ and Reading Comprehension test. In Selecting the participants to answer the in-depth interview questions, the present study fully considered the total number of participants in quantitative research ( $N=59$ ) and three demographic measures (gender, discipline, and reading achievement), as presented in Table 3.5. The criteria are: 1) Since the students' number of high-achiever group and low-achiever group are the same (15 students in each group), the ratio between the number of interviewed high-achievers and the one of interviewed low-achievers should

be around 50% to 50%; 2) 59 participants joined quantitative research, of which 22 were boys and 37 were girls. The ratio between the number of interviewed boys and the one of interviewed girls should be around 37.2% to 62.7%; 3) 59 participants took part in the quantitative research, of which 28 students major in the Arts and 31 students major in the Sciences. The ratio between the number of interviewed Arts' students and the one of interviewed Sciences' students should be around 47.5% to 52.5%. Finally, the present study finally chose a sub-sample of 10 participants to take part in the individual interviews from 16th May to 22nd May 2018. Table 3.6 shows further information of the participants who took part in the qualitative interviews.

**Table 3.6 Demographic Information of Interviewees in the Qualitative Strand of the Research**

Participants	Gender	Discipline	High-/Low-achiever
1	Male	Science	Low-achiever
2	Male	Arts	High-achiever
3	Male	Science	Low-achiever
4	Female	Arts	High-achiever
5	Female	Arts	High-achiever
6	Female	Arts	Low-achiever
7	Female	Science	High-achiever
8	Female	Arts	Low-achiever
9	Female	Science	Low-achiever
10	Female	Arts	Low-achiever

Accordingly, based on Table 3.6, the participants in the qualitative interviews comprised three male and seven female students, four from sciences and six from arts, and four high- and six low-achievers in terms of their reading performance.

### **3.3.2 Data Collection Instrument**

The purpose of the Interviews was to give the participants the opportunity to elaborate on different components of the RMQ and how their reading motivation might

have affected their language achievement.

The interview was semi-structured with some core open-ended questions. Altogether, there were nine core questions including some specific questions related to reading motivation such as “How do you interpret your answer to the questions you finished in the questionnaire?”. To investigate the contextual issues, the participants were asked how certain contextual factors might have affected their reading motivation, such as “How do you feel about your teacher of English?”. The list of interview questions can be found in Appendix B.

### **3.3.3 Data Collection Procedure**

The interviews were conducted in Chinese, the participants’ native language, to prevent any language barriers and to give the participants the opportunity to express themselves and their ideas clearly. The whole process of the interview for each individual took about 40 to 60 minutes and was audio-recorded with their permission. After interviewing the participants, the data in the recorded audio files were transcribed for data processing and analysis.

### **3.3.4 Data Analysis**

The audio-recorded interviews were transcribed and translated into English first. Then, all the data were coded sentence by sentence by using the definitions of each sub-category in the reading motivation questionnaire, which aimed to consider all the features of data. Since the present study investigates the dynamic and complex nature of reading motivation, the identification of the interrelationships between and among

different reading motivation variables and the possible factors affecting the development of reading motivation and language proficiency were coded in particular. Based on the Dynamic Systems Theory (DST) and reading motivation theory, all the coded sentences were summarized into themes. Then, all these themes grouped into categories to be aligned with research purpose of the present study. The quotes in Chapter Four could justify the data analysis of quantitative research on the dynamic change of reading motivation among Chinese EFL learners and the potential influence of contextual factors on reading motivation. Since the time for further analysis of the data was limited, the present study only extracts the relevant quotes in the database to support the arguments presented by the quantitative results.

Table 3.7 presents the alignment between research questions, instruments, and role of quantitative and qualitative data. The results of the quantitative and qualitative data and data analysis are presented in the next chapter.

**Table 3.7 The Alignment between Research Questions and MMR Approach (QUAN-qual Design)**

Research Type	Instrument	Research Questions	Role
Quantitative Research	MRQ	1, 2, 3	Present the dynamic and complex development of reading motivation via statistical data analysis
	Reading Comprehension Section in CET-4	4	
Qualitative Research	In-depth Interview	1, 2, 3, 4	1) Justify the analysis results of quantitative research; 2) Supplement the influence of contextual factors on reading motivation

## **Chapter Four Results and Discussion**

### **4.0 Introduction**

This chapter subsumes eight sections. It starts with the descriptive and inferential statistics of the variables in the Reading Motivation Questionnaire (RMQ). In subsequent parts, interrelationships among RMQ variables and the changes of these interrelationships over time, the relationships between RMQ variables and participants' reading comprehension proficiency, descriptive and inferential statistics of RMQ items, and variations of RMQ items over two administrations will be presented. The chapter will end with presentation of the descriptive and inferential statistics of the RMQ variables across gender, discipline, and high- vs. low-achievers. The present study adopts a longitudinal design in which the variables of reading motivation were observed only over two points in time with a time interval of four weeks. The reciprocal influence of reading motivation and reading outcome was mainly analyzed by cross-lagged regression analysis in quantitative research. Qualitative data, which will be presented in *italic* in each section, provide the evidence for the discussion of the findings with the aim to justify the analysis result of quantitative research and supplement the influence of contextual factors on the dynamism and complexity of reading motivation. Discussion of the findings is also presented in each section.

### **4.1 Descriptive and Inferential Statistics Related to RMQ Variables**

The descriptive and inferential (results of t-test) statistics of the whole RMQ, four major categories and corresponding sub-categories are presented in Table 4.1.

These include the number of items in each category and corresponding sub-categories and mean and standard deviation values over the two administrations of RMQ. The last column presents the significance level of the paired samples t-test, which compared the mean values over two administrations of RMQ categories and sub-categories.

**Table 4.1 Descriptive Statistics of the Reading Motivation Questionnaire (RMQ)**

Variables	No. of Items	RMQ (First Time)		RMQ (Second Time)		Sig.
		Mean Value	SD	Mean Value	SD	
Whole Questionnaire	54	3.58	.421	3.52	.432	.355
1. Efficacy Beliefs	15	3.41	.388	3.37	.400	.603
1.1 Reading Efficacy	5	3.47	.519	3.44	.595	.699
1.2 Reading Challenge	5	3.59	.569	3.49	.591	.259
1.3 Reading Work Avoidance	5	3.16	.735	3.18	.710	.807
2. Intrinsic Reading Motivation	17	3.78	.511	3.70	.533	.270
2.1 Reading Curiosity	5	3.59	.640	3.49	.597	.307
2.2 Reading Involvement	5	3.68	.678	3.60	.654	.416
2.3 Importance of Reading	7	4.08	.547	4.02	.630	.440
3. Extrinsic Reading Motivation	15	3.71	.567	3.62	.554	.247
3.1 Competition in Reading	5	3.79	.658	3.78	.734	.917
3.2 Recognition for Reading	5	3.36	.634	3.32	.663	.656
3.3 Reading for Grades	5	3.97	.665	3.77	.610	.008
4. Social Reasons for Reading	7	3.41	.551	3.39	.554	.689

The mean values of the whole RMQ in Table 4.1 were 3.58 and 3.52 over the first and the second administration of the questionnaire, respectively. The mean values show that Chinese EFL learners generally have a relatively strong motivation to read in English. As for the four categories, intrinsic reading motivation ranked highest (3.78/3.70) all the time, followed by extrinsic reading motivation (3.71/3.62), social reasons for reading (3.41/3.39), and efficacy beliefs (3.41/3.37). Results show that Chinese EFL learners tend to read English for both intrinsic and extrinsic purposes and they firmly believe that being able to read in English is critical (the sub-category 2.3:

Importance of Reading ranked highest for both times with mean values of 4.08 and 4.02, respectively). This finding is not fully in line with some previous studies (e.g. Gholami et al., 2012; Zheng, 2010), which conclude that learners' instrumental motivation is the dominant type of motivation among Chinese EFL learners, who tend to consider English as a tool or instrument for practical purposes, such as finding a good job with a high score in CET-4/6. While extrinsic reading motivation was indeed reported by these participants, they also revealed an intrinsic motivation for reading in English. When participants were interviewed about their motivation to read in English, one participant replied:

*Compared with English listening, speaking, and writing, English reading, in my mind, is the most important language skill because it is the foundation of the whole language learning. Only by developing my English reading ability continuously can I improve the other language skills. For example, I could only write fluently after I remember more words and understand different expressions. Meanwhile, reading scores, in my mind, can mirror my real level of English reading ability. So, I can improve myself in English reading to score highly in CET-4.*

Overall, based on Table 4.1, Chinese EFL learners' reading motivation appeared to decrease over the two RMQ administrations. To be more specific, the four categories and nine of ten sub-categories (excluding sub-category 1.3: Reading Work Avoidance) weakened to some degree. This result echoes the finding by Dörnyei (2005, p.83) who stated that motivation is "a dynamic factor that displays continuous fluctuation". When interviewing the participants about the reasons why their reading motivation decreased,

one participant answered:

*Entering the session 2 of this academic year, our focus will be on CET-4. Therefore, the teacher of English emphasizes the interpretation of reading comprehension in CET-4. Some activities such as group discussion, debate, presentation, or role-play are cut down and the interesting stories about foreign countries are fewer than before, which makes us feel a bit bored. I feel that the class of English at university is quite similar to the one at Middle School. Therefore, many classmates, including me, did not take the initiative to read English materials but only follow the tasks or assignments by the teacher of English. However, we do not need to worry about the upcoming CET-4 too much because we have finished many reading tasks during the reading lesson. I am sure that I could score highly in reading comprehension section of CET-4.*

Regarding the paired samples t-test results, as shown in Table 4.1, no significant differences were found for the overall RMQ and the four major categories. This result reflects that, over four weeks, the participants' perceived reading motivation generally weakened but did not result in significant changes. The degree of variation for Category 3 (Extrinsic Reading Motivation) ranked highest (Mean 1= 3.71, Mean 2= 3.62), followed by Category 2 (Intrinsic Reading Motivation) (Mean 1=3.78, Mean 2=3.70), Category 1 (Efficacy Beliefs) (Mean 1=3.41, Mean 2=3.37), and Category 4 (Social Reasons for Reading) (Mean 1=3.41, Mean 2=3.39).

However, as can be seen in Table 4.1, there was a significant change ( $p < 0.01$ ) in the sub-category 3.3 (Reading for Grades) over the two RMQ administrations. Although the difference between the two means is not very high (Mean 1= 3.97, Mean



2= 3.77), this shows that Chinese EFL learners believed that grades for reading were not as important as they initially thought.

## 4.2 Interrelationships among RMQ variables and the Changes in Interrelationships over Time

Table 4.2 displays the correlation indices of inter-correlations among RQM variables and between RMQ variables and reading comprehension scores over two administrations.

**Table 4.2 Inter-correlations among RMQ Variables and between RMQ Variables and Reading Comprehension Score over Two Administrations**

Variables	RMQ	1	1.1	1.2	1.3	2	2.1	2.2	2.3	3	3.1	3.2	3.3	4	Score
RMQ	1	.788**	.675**	.659**	.264*	.869**	.696**	.673**	.790**	.857**	.773**	.774**	.612**	.842**	.230
1	.865**	1	.707**	.665**	.572**	.644**	.586**	.454**	.559**	.594**	.543**	.557*	.399**	.517**	.212
1.1	.761**	.788**	1	.553**	-.013	.547**	.419**	.458**	.475**	.627**	.603**	.599**	.380**	.432**	.361**
1.2	.754**	.708**	.698**	1	-.108	.639**	.611**	.470**	.494**	.486**	.551**	.502**	.178	.469**	.174
1.3	.197	.441**	-.087	-.220	1	.142	.162	.033	.169	.124	.009	.073	.227	.153	-.052
2	.869**	.698**	.566**	.709**	.117	1	.823**	.849**	.790**	.636**	.682**	.568**	.354**	.642**	.032
2.1	.757**	.587**	.497**	.620**	.061	.878**	1	.529**	.483**	.464**	.468**	.503**	.205	.488**	.121
2.2	.668**	.494**	.346**	.582**	.062	.809**	.544**	1	.525**	.453**	.580**	.403**	.162	.498**	-.164
2.3	.794**	.704**	.607**	.607**	.177	.864**	.713**	.498**	1	.680**	.649**	.507**	.556**	.615**	.152
3	.862**	.742**	.734**	.633**	.114	.661**	.532**	.427**	.731**	1	.866**	.856**	.795**	.615**	.349**
3.1	.795**	.720**	.657**	.633**	.139	.621**	.465**	.430**	.689**	.897**	1	.677**	.503**	.485**	.193
3.2	.703**	.532**	.686**	.596**	-.168	.520**	.457**	.377**	.494**	.796**	.598**	1	.487**	.594**	.296*
3.3	.616**	.568**	.454**	.303**	.327*	.481**	.385**	.230	.617**	.765**	.576**	.353**	1	.471**	.391**
4	.794**	.557**	.525**	.525**	.068	.582**	.563**	.522**	.404**	.512**	.461**	.510**	.279**	1	.176
Score	.441**	.474**	.445**	.388**	.105	.246	.245	.117	.271**	.490**	.370**	.456**	.391**	.310*	1

Note: above the diagonal is the correlation coefficients for Time 1, below is the ones for Time 2.

\*,  $p \leq .05$ , two-tailed; \*\*,  $p \leq .01$ , two-tailed.

As can be seen in Table 4.2, the overall reading motivation (RMQ) was positively and statistically correlated with all the categories and sub-categories in the RMQ (except sub-category 1.3: Reading Work Avoidance for the second time) for both times. The overall reading motivation had the strongest correlation with Category 2 (Intrinsic Reading Motivation) over two RMQ administrations, and with sub-category

2.3 (Importance of Reading) at Time 1 and sub-category 3.1 (Competition in Reading) at Time 2, respectively. This result indicates that, the more the students perceived the importance of English reading and were inclined to compete with their classmates, the higher their motivation towards reading was, and vice versa.

Four major categories of RMQ were all positively and statistically correlated with each other ranging from low to high over two RMQ administrations. The strongest correlated relationships were between Category 1 (Efficacy Beliefs) and Category 2 (Intrinsic Reading Motivation) at Time 1 and between Category 1 (Efficacy Beliefs) and Category 3 (Extrinsic Reading Motivation) at Time 2. This result may attest to the hypothesis that reading motivation is a dynamic and complex construct, and that different reading motivation variables shouldn't be investigated in isolation but should be interpreted within a dynamic and complex model of reading motivation.

On the other hand, the above results are in line with the findings reported by Wigfield and Guthrie (1997) and Baker and Wigfield (1999), that “[m]ost of the relations were positive and ranged from low to high” (Wigfield & Guthrie, 1997, p.425), although the participants in these two experiments were elementary school students. Besides this, sub-categories 1.2 (Reading Challenge), 1.3 (Reading Work Avoidance), and 2.1 (Reading Curiosity) were not statistically correlated with 3.3 (Reading for Grades) at Time 1 but were positively and statistically correlated at Time 2. This result also reflects the dynamic and complex nature of the interrelationships between and among the variables of RMQ.

The correlated relationships between sub-category 1.3 (Reading Work

Avoidance) and other RQM sub-categories were more complex. Sub-category 1.3 (Reading Work Avoidance) was positively but not statistically correlated with other sub-categories over two RMQ administrations (except sub-categories 1.1: Efficacy Beliefs and 1.2: Reading Challenge at Time 1 and sub-categories 1.1: Efficacy Beliefs, 1.2: Reading Challenge and 3.2: Recognition for Reading at Time 2). This result doesn't support the findings by Wigfield and Guthrie (1997) and Baker and Wigfield (1999), who stated that "[t]he Work Avoidance Scale related negatively to all of the other scales except Competition" (Baker & Wigfield, 1999, p.463). Meanwhile, sub-category 1.3 (Reading Work Avoidance) and sub-category 3.3 (Reading for Grades) were not statistically correlated at Time 1 but were positively and statistically correlated at Time 2. This result indicates that, the more the students like reading English materials with difficult words, long sentences or complicated plots, the weaker the students' attitudes towards a high score in reading comprehension test are, and vice versa. The inter-correlation between RMQ variables and reading comprehension scores will be discussed in detail in Section 4.3.

As mentioned in Section 4.1, the results of paired samples t-test showed that sub-category 3.3 (Reading for Grades) was found to be significantly different over the two RMQ administrations. Next, attempts were made to identify the attributable factors for the variation of sub-category 3.3 (Reading for Grades). Based on the hypothesized model in the present study (see Section 2.4), we hypothesized that reading comprehension proficiency and reading motivation are reciprocally caused. The correlation and cross-lagged regression analysis between reading comprehension scores

and sub-category 3.3 are displayed in Table 4.3.

**Table 4.3 Correlation and Cross-lagged Regression Analysis between Reading Comprehension Scores and Sub-category 3.3**

Variables	Correlation		Cross-lagged Regression Analysis	
	$r (A_mB_n)$		$\beta (B_1A_2)$	
Reading Comprehension Score (B)	$r (A_1B_1)$	$r (A_2B_2)$	F	Sig.
sub-category 3.3 (Reading for Grades) (A)	.391**	.391**	8.905	.004

As can be seen in Table 4.3,  $r (A_mB_n)$  refers to the correlation coefficient between variable A (sub-category 3.3: Reading for Grades) at Time m and variable B (Reading Comprehension Scores) at Time n. It could be found from  $r (A_1B_1)$  and  $r (A_2B_2)$  that reading comprehension scores were positively and statistically correlated with sub-category 3.3 (Reading for Grades) at both points in time. In addition, in the third column,  $\beta (B_1A_2)$  refers to the standardized regression coefficient for the effect of B (Reading Comprehension Score) at Time 1 on A (sub-category 3.3: Reading for Grades) at Time 2. The result of cross-lagged regression analysis indicates that reading comprehension scores could have predictive directional influence on the development of sub-category 3.3 (Reading for Grades). However, in reality, reading comprehension scores increased significantly over the two RMQ administrations, and the intensity for sub-category 3.3 (Reading for Grades) decreased significantly at the two points in time, which appears contradictory to the statistical findings. However, it should be emphasized that the present study is only “exploratory in nature and that the significant lagged regression parameters suggest but do not prove causation. These findings do, however, provide a number of viable contributions to the construction of more complex causal models and to subsequent hypothesis testing” (Bateman & Strasser, 1983, p.443).

When interviewing the participants, some contextual factors such as the shift in criteria of evaluating reading ability, limited time, and the cliché teaching methods, seemed to be the potential sources affecting sub-category 3.3 (Reading for Grades). One student, for example, answered:

*The score of reading comprehension is still important but not as important as before, because the reading comprehension test could only examine my understanding of specific knowledge, not the comprehensive knowledge. I intend to be a person with better comprehensive reading abilities.*

Another student replied:

*I'm still interested in English reading, although I have to impart the time to study other subjects. But I won't check the details of an interesting story told by the teachers after class because I don't have enough time to read English as before. Also, my interest in English reading is not as strong as before, because the teaching methods and contents are not so diverse as before. Besides, other subjects are also important. I need make more effort to get high scores in these subjects.*

#### **4.3 Interrelationships between RMQ Variables and English Reading Proficiency**

During the time interval of four weeks, 59 participants of the non-English major took the reading comprehension tests from the CET-4 database. The mean values of reading comprehension tests were 60 and 66.87 at the first (ranging from 32 to 83) and second times (ranging from 41 to 85), respectively. Paired samples t-test results show that there was a significant difference between these two reading comprehension tests

( $t = -11.224$ ,  $p < .001$ ). The correlation and cross-lagged regression analysis between RMQ variables and reading comprehension scores are displayed in Table 4.4.

**Table 4.4 Correlation and Cross-lagged Regression Analysis between RMQ Variables and Reading Comprehension Scores**

Variables	Correlation		Cross-lagged Regression Analysis			
	$r (A_m B_n)$		$\beta (A_1 B_2)$		$\beta (B_1 A_2)$	
Reading Comprehension Scores (B)	$r (A_1 B_1)$	$r (A_2 B_2)$	F	Sig.	F	Sig.
Overall RMQ (A)	.230	.441**	.469	.641	3.462	.001
1. Efficacy Beliefs	.212	.474**	.386	.701	3.822	.000
1.1 Reading Efficacy	.361**	.445**	1.875	.067	3.661	.001
1.2 Reading Challenge	.174	.388**	.157	.876	2.953	.005
1.3 Reading Work Avoidance	-.052	.105	-1.059	.295	.718	.476
2. Intrinsic Reading Motivation	.032	.246	-1.652	.104	1.649	.105
2.1 Reading Curiosity	.121	.245	1.121	.268	1.831	.072
2.2 Reading Involvement	-.164	.117	-1.427	.159	.445	.658
2.3 Importance of Reading	.152	.271**	-.236	.815	2.002	.050
3. Extrinsic Reading Motivation	.349**	.490**	1.293	.202	3.976	.000
3.1 Competition in Reading	.193	.370**	-.051	.959	2.834	.006
3.2 Recognition for Reading	.296*	.456**	.376	.708	3.672	.001
3.3 Reading for Grades	.391**	.391**	1.660	.103	2.984	.004
4. Social Reasons for Reading	.176	.310*	.384	.703	2.425	.018

As can be seen in Table 4.4,  $r (A_m B_n)$  refers to the correlation coefficient of variable A (RMQ variables) at Time m and variable B (Reading Comprehension Scores) at Time n. At Time 1,  $r (A_1 B_1)$  shows that reading comprehension scores were not significantly correlated with the overall RMQ but were positively and statistically correlated with sub-category 1.1 (Reading Efficacy) and Category 3 (Extrinsic Reading Motivation), and more specifically, sub-categories 3.2 (Recognition for Reading) and 3.3 (Reading for Grades). However, at Time 2,  $r (A_2 B_2)$  shows that reading comprehension scores were positively and statistically correlated with the overall RMQ and nearly all RMQ categories (except Category 2: Intrinsic Reading Motivation) and

sub-categories (except sub-category 1.3: Reading Work Avoidance, 2.1: Reading Curiosity and 2.2: Reading Involvement). It appears that, after a four-week interval, the relationship between reading comprehension scores and RMQ variables was more integrated.

From Table 4.4,  $\beta (A_1B_2)$  refers to the standardized regression coefficient for the effect of A (RMQ variables) at Time 1 on B (Reading Comprehension Scores) at Time 2.  $\beta (A_1B_2)$  shows that the overall reading motivation, together with its four major categories and corresponding ten sub-categories, exerted no influence on reading comprehension scores. These results indicate that RMQ variables couldn't predict the development of reading comprehension scores, which is in line with findings in the investigation by Liu (2014), who states that "motivation has no significant effect on proficiency" (p.142). Meanwhile, some researchers (Guthrie et al., 1999; Schaffner et al., 2013) argue that reading motivation indirectly predicts English reading proficiency, which is mediated by the amount or breadth of reading. Liu (2014) also puts forward that some learner variables such as effort, anxiety, and learning strategy are the mediators of the effect that motivation has on EFL proficiency. Therefore, the present study establishes a hypothesis that reading motivation indirectly predicts reading proficiency with some potential mediators (reading amount, effort, anxiety, and reading strategy) in the dynamic and complex system, which needs further investigation in future research.

In addition,  $\beta (B_1A_2)$  refers to the standardized regression coefficient for the effect of B (Reading Comprehension Scores) at Time 1 on A (RMQ variables) at Time

2.  $\beta$  ( $B_1A_2$ ) shows that reading comprehension scores could exert a predictive influence on the overall reading motivation. More specifically, the developments of sub-categories 1.1 (Reading Efficacy), 1.2 (Reading Challenge), 2.3 (Importance of Reading), 3.1 (Competition in Reading), 3.2 (Recognition for Reading), 3.3 (Reading for Grades) and Category 4 (Social Reasons for Reading) could be predicted by reading proficiency. These results manifest that, with the better score in students' English reading, they are more confident in reading English texts, are more inclined to read difficult and challenging articles in English, realize the importance of English reading, compete with other classmates, receive the feedback from teachers or peers, get high scores in English reading, and discuss with their classmates about the English reading stories than they used to be. The predictive effect of reading proficiency on reading motivation was partially reflected in the variation in mean values of the RMQ for students in the High-achiever group (see Appendix C-4.4), shown in Section 4.8. Besides this, individuals' reading motivation could also be affected by contextual factors, as hypothesized in Chapter Two (Section 2.4) and the elaborations of participants' interviews in Sections 4.1 and 4.2 in Chapter Four. Therefore, it could be summarized that reading motivation is affected by the joint efforts of reading proficiency and contextual factors.

#### **4.4 Descriptive and Inferential Statistics of RMQ Items**

The descriptive and inferential statistics of all the 54 items in the scale are presented in Appendix C-4.1. These include mean values over two RMQ



administrations as well as the results of paired samples t-tests.

As can be seen in Appendix C-4.1, 14 items' (6, 9, 11, 18, 26, 27, 28, 30, 32, 34, 43, 48, 49, and 54) mean values were over 4, accounting for nearly 25% (14/54 items) for the first RMQ administration, and 8 items' (6, 9, 11, 26, 27, 34, 43, and 48) mean values were also over 4, accounting for nearly 15% (8/54 items) for the second RMQ administration. By grouping the items whose mean values were over 4 at both times, it is found that items 6, 34, 43, 48 belong to Category 2 (Intrinsic Reading Motivation), and more specifically, sub-category 2.3 (Importance of Reading). Items 9, 26, and 27 belong to Category 3 (Extrinsic Reading Motivation), and more specifically, sub-category 3.1 (Competition in Reading, item 26), sub-category 3.2 (Recognition for Reading, item 27), and sub-category 3.3 (Reading for Grades, item 9). Item 11 belongs to sub-category 1.1 (Reading Efficacy). These results show that Chinese EFL learners were confident in reading English materials, attached importance to English reading, and would like to make efforts to compete with other classmates, gain the recognition from the teachers and the classmates, and obtain high scores in English reading, as elicited over a time interval of four weeks.

In addition, the mean values of 8 items (2, 8, 10, 20, 22, 31, 36, 45) were below 3 over both times. In general, items 8, 36, and 45 belong to sub-category 3.2 (Recognition for Reading), and items 22 and 31 belong to sub-category 1.3 (Reading Work Avoidance). This finding could be related to the following two points. The first point is that Chinese teachers or peers seldom give feedback to the students regarding their performance on English reading. This point is clarified in the following quotes

from two participants:

*Our teacher of English is excellent. He could convey the language knowledge to us in every class. He could also teach us some skills for reading comprehension, some interpretations of difficult words and some methods of splitting the long and complex sentence. However, he never talked with me about my recent performance. I guess that it is because I'm quite ordinary, seldom showing my superiority in front of the classmates, or my reading score is only the intermediate level, thereby seldom drawing his attention.*

Another participant answered:

*There is no need for me or my classmates to give feedback on the reading scores. I seldom communicate with my classmates about our scores for reading comprehension. But I will compare my score for reading comprehension with other classmates in private. I never complimented someone by saying that you did a great job this time in reading comprehension.*

The other point is that Chinese EFL learners are facing a paradoxical situation when reading English texts. On the one hand, they would like to read complicated stories or novels with many characters (item 22 and 31 in RMQ). On the other hand, they avoid reading stories or novels with difficult words and long sentences (item 3, 13, and 40 in RMQ). The following quote elaborates on this point:

*I find that reading English texts is more and more interesting because I could restructure the situation of the stories in my mind like a movie. I even want to finish reading the English texts in one breath when I read some stories with complicated but attractive plots. However, some difficult words and sentences always cost the time. I must*

*guess the word meaning and re-read the sentences, which will discourage my reading. If only I knew all the words and better understood the sentences.*

In summary, data analysis of quantitative research and qualitative research indicate that the attitudes towards reading English materials for Chinese EFL learners are fine in general. The attitudes towards the importance of reading and their confidence in reading are positive, so that they would like to commit more efforts to compete with other classmates, gain the recognition from the teachers and classmates, and obtain high scores in English reading. On the other hand, the possible factors that might impede the positive attitudes towards reading are: 1) The students received few feedbacks from teachers or peers in their performance on English reading; 2) The attitudes towards reading English materials with difficult words and long sentences are passive. Therefore, the teacher should give more encouragements to the student in reading English materials. Besides, the teacher should survey the factors that might impede the students in reading difficult words and long sentences. Based on the survey, the teacher could add more explanations for difficult words and long sentences or design some relevant activities such as spelling bee in reading lesson.

#### **4.5 Variations over the two Administrations of RMQ**

Paired sample t-test results in Appendix C-4.1 show that five items (2, 12, 39, 40, and 49) were found to be significantly different in terms of mean values over the two RMQ administrations. Next, attempts were made to identify whether reading comprehension scores were the potential attributable factor for the variation in these

five items. The correlation and cross-lagged regression analysis between five items and reading comprehension scores are displayed in Table 4.5.

**Table 4.5 Correlation and Cross-lagged Regression Analysis between Reading**

**Comprehension Scores and Five Items**

Variables	Correlation		Cross-lagged Regression Analysis	
	$r (A_m B_n)$		$\beta (B_1 A_2)$	
Reading Comprehension Score (B)	$r (A_1 B_1)$	$r (A_2 B_2)$	F	Sig.
Item 02 (A)	-.084	.106	.731	.396
Item 12 (A)	.102	-.025	.025	.875
Item 39 (A)	-.189	.094	.377	.542
Item 40 (A)	-.025	.182	1.672	.201
Item 49 (A)	.261*	.028	.022	.882

As can be seen in Table 4.5,  $r (A_1 B_1)$  and  $r (A_2 B_2)$  show that reading comprehension scores were only significantly correlated with item 49 at Time 1 (correlation coefficient is .261\*). Besides this, the results of cross-lagged regression analysis, namely,  $\beta (B_1 A_2)$  indicates that reading comprehension scores were not the predictors affecting the significant changes in these five items over the two RMQ administrations. Therefore, some contextual factors might be the potential elements affecting these five items. The discussions are displayed in the following points.

Item 2 (I like to read difficult and challenging articles in English), item 12 (I would like to read even difficult English materials if the topic is interesting to me) and item 39 (I am interested in reading English materials (e.g. stories and novels) even though they may have a complicated plot) belong to the sub-category 1.2 (Reading Challenge). Item 2 increased significantly (from 2.54 to 2.88), while items 12 and 39 decreased significantly (from 3.73 to 3.44 for item 12 and from 3.90 to 3.51 for item 39). These results indicate that Chinese EFL learners had a strong motivation to

challenge themselves by reading difficult or even original English texts, but that this desire for challenging texts decreased slowly. When interviewed, one participant referred to some contextual factors such as the limited time or pressure from other subjects as the potential reasons for this decrease:

*In recent days, I find that the contents of nearly all subjects are much more than before. For example, the teacher of Math once taught us nearly 40 pages of Advanced Mathematics in a single class. I have to review the contents after the class; so are the Physics and other subjects. I have no extra time to read more English texts. Therefore, I would like to read some texts which are equivalent to my English reading proficiency, because I don't need to check the difficult words or re-organize the plots of the materials.*

Item 40 (I don't like reading when the sentences are too long) received a higher and significant attention from 3.49 to 3.83. This shows that long and complicated sentences continued to be considered as a difficulty by Chinese EFL learners. Although they were confident in their reading abilities and would like to challenge themselves in reading some difficult books or original English texts, they were still unwilling to face the texts with long sentences. For example, one participant mentioned:

*At the beginning of this semester, I tried to challenge myself on some English materials with long and complex sentences under the guidance from the teacher of English, although I didn't like reading such materials. But at present, I still believe that long and complex sentences are still the big obstacles for me. This situation might continue for some time.*

Item 49 (I believe I can earn peer respect and liking by reading more books)

decreased from 4.14 to 3.75, which indicates that Chinese EFL learners believed that the relationship among the students is less defined by the number of books to be read. When interviewing the students, one elaborated:

*In my mind, there isn't a strong relationship between the amount of reading and the degree of earning peer respect and liking anymore now. I can be indeed admired via reading more English texts, but peers' respect and liking will be more attributable to my personality, what I do, or how I behave.*

In summary, cross-lagged effect of reading proficiency on item 2, 12, 39, 40, and 49 is not significant, which proves the complexity of reading motivational development reversely. The contextual factors such as limited time and pressure from other subjects could be the potential factors to contribute to the significant variation of item 2, 12, and 39. Therefore, teachers should dynamically adjust the curriculum of reading lesson based on the dynamic changes of learners' learning situation. Besides, reading materials with long sentences should be the teaching focus in future teaching activities. In addition, teachers should design more activities in reading class such as group debate or reading club to help students establish a close relationship.

#### **4.6 Descriptive and Inferential Statistics among RMQ Variables across Gender**

In the present research, the RMQ was administered to 59 participants twice, of which 22 were male and 37 were female. The descriptive and inferential statistics (results of t-test) of the RMQ across gender are presented in Appendix C-4.2. These include mean values across gender over the two RMQ administrations, as well as the

results of independent sample t-tests.

As can be seen in Appendix C-4.2, the intensities of reading motivation for both male and female were quite similar in terms of the whole RMQ and four major categories for the first time. As for the corresponding ten sub-categories, boys indicated more that they would like to receive recognition from teachers or classmates than girls did (sub-category 3.2: Recognition for Reading). However, girls seemed to be a bit more confident in English reading (sub-category 1.1: Reading Efficacy), accepted the texts with more difficult words or longer sentences (sub-category 1.3: Reading Work Avoidance), were more likely to believe that English is important in their future careers and useful for their self-development (sub-category 2.3: Importance of Reading), and considered grades to be the effective methods to prove their strengths in English reading (sub-category 3.3: Reading for Grades) more than did boys. However, after the second administration of the RMQ, the mean values of variables for boys were all slightly lower than those for girls in terms of the whole RMQ, four major categories, and ten sub-categories (except sub-category 1.3: Reading Work Avoidance).

Regarding the results of independent sample t-test in Appendix C-4.2, no significant differences were found in RMQ variables across gender for the first time. However, a significant difference was found in terms of sub-category 2.3 (Importance of Reading) ( $p < 0.05$ ) between boys and girls for the second time. In fact, the mean value of sub-category 2.3 (Importance of Reading) for girls remained stable for both times, but it decreased to some extent for boys. When interviewing a female student, she answered:

*I believe that English is very important for me all the time. The knowledge of Business English acquired in our English class could be used in my future job. Therefore, I will continue studying English during the whole four-year college life.*

But a male student showed his attitude to be the opposite way:

*I think that English is important, but not as important as before. Especially after CET-4, I should stop studying English a bit first and focus on other subjects. My major is law and I don't believe that I could use the knowledge acquired from the class of English in my future job.*

In addition, as can be seen in Appendix C-4.2, the mean values of RMQ for boys over the two administrations dropped slightly in terms of the whole RMQ, four major categories and corresponding ten sub-categories. Compared with boys, girls showed a diversity in the variation of RMQ variables. Sub-category 1.1 (Reading Efficacy), 2.1 (Reading Curiosity), and 2.3 (Importance of Reading) remained relatively stable for girls during the time span of four weeks. Nevertheless, the mean values of sub-category 1.2 (Reading Challenge), 2.2 (Reading Involvement), and 3.3 (Reading for Grades) declined slightly for girls four weeks later, while the mean values of sub-category 1.3 (Reading Work Avoidance), 3.1 (Competition in Reading), and 3.2 (Recognition for Reading) went up slightly for girls over the two RMQ administrations. Results of paired samples t-test of RMQ among boys and among girls over the two RMQ administrations are displayed in Table 4.6.



**Table 4.6 Paired Samples T-test of RMQ among Boys and among Girls**

	RMQ among Boys			RMQ among Girls		
	t	df	Sig. (2-tailed)	t	df	Sig. (2-tailed)
Whole RMQ	.908	21	.374	.145	36	.886
1. Efficacy Beliefs	.761	21	.455	-.248	36	.806
1.1 Reading Efficacy	.206	21	.839	.382	36	.704
1.2 Reading Challenge	.699	21	.492	.956	36	.345
1.3 Reading Work Avoidance	.954	21	.351	-1.306	36	.200
2. Intrinsic Reading Motivation	1.118	21	.276	.144	36	.886
2.1 Reading Curiosity	1.379	21	.182	.477	36	.636
2.2 Reading Involvement	.682	21	.503	.058	36	.954
2.3 Importance of Reading	1.033	21	.313	.058	36	.954
3. Extrinsic Reading Motivation	1.176	21	.253	.235	36	.816
3.1 Competition in Reading	.523	21	.606	-.695	36	.491
3.2 Recognition for Reading	1.085	21	.290	-1.000	36	.324
3.3 Reading for Grades	1.812	21	.084	2.165	36	.037
4. Social Reasons for Reading	.354	21	.727	.106	36	.917

As can be seen in Table 4.6, no significant changes of RMQ among boys were found over the four weeks' interval. In other words, reading motivational intensities for boys declined slowly, but not significantly. Compared with boys, sub-category 3.3 (Reading for Grades) was found to be significantly different among girls over the two RMQ administrations. The mean value of sub-category 3.3 (Reading for Grades) for girls decreased from 4.03 to 3.88 over the four weeks' interval. This result manifests that girls perceived the significance of grades to be lower than before.

The correlation and cross-lagged regression analysis between reading comprehension scores and sub-category 3.3 (Reading for Grades) for female students are displayed in Table 4.7. Since male and female students were taught in the same class, the female students' perceived reading motivation concerning grades might be influenced by the reading comprehension scores for both boys and girls.

**Table 4.7 Correlation and Cross-lagged Regression Analysis between Reading**

**Comprehension Scores and Sub-category 3.3 for Female Students**

Variables	Correlation		Cross-lagged Regression Analysis	
	$r (A_m B_n)$		$\beta (B_1 A_2)$	
Reading Comprehension Score (B)	$r (A_1 B_1)$	$r (A_2 B_2)$	F	Sig.
Sub-category 3.3 (A)	.121	.031	.076	.785

As shown in Table 4.7,  $r (A_1 B_1)$  and  $r (A_2 B_2)$  show that reading comprehension scores for both boys and girls were not correlated with the girls' perceived reading motivation regarding grades. The coefficient of cross-lagged regression analysis, namely,  $\beta (B_1 A_2)$  also indicates that reading comprehension scores for both boys and girls couldn't predict the development of girls' perceived reading motivation regarding grades. However, when interviewing some female participants, they referred to the shift in criteria for assessing reading proficiency as a potential source of affecting sub-category 3.3 (Reading for Grades). One female participant, for instance, stated:

*I thought that a high score in English reading was an effective method for evaluating my English reading proficiency. However, at present, it could only assess whether I seek the correct information in the text to answer the subsequent questions. This couldn't prove that I understand the writers' real intentions. Therefore, the criteria of evaluating my reading comprehension should be the combination of testing, writing the summary, etc.*

In summary, compared with boys who remained relatively stable in the attitudes towards reading, girls showed the fluctuations in the variation of reading motivation over two MRQ administrations. Besides, the influence of students' reading scores on their development of reading motivation across gender is not significant. Therefore,

teachers should fully consider the different and typical characteristics across gender towards reading motivation, especially the relatively stable attitudes towards reading among boys, when designing the tasks or activities of reading class. For instance, teacher of English reading could choose reading materials with interesting topics that boys might be interested in such as game or sports.

#### **4.7 Descriptive and Inferential Statistics of RMQ across Disciplines**

In the present research, the RMQ was administered to 59 participants twice, of which 31 were from the Science and 28 were from the Arts. The descriptive and inferential statistics (results of t-test) of the RMQ across disciplines are presented in Appendix C-4.3. These include mean values over the two RMQ administrations as well as the results of independent sample t-tests.

As can be seen in Appendix C-4.3, students from both disciplines reflected their strong attitudes towards the importance of English reading (mean values for students from the Science and the Arts are 4.10 and 4.06, respectively) for the first time. In addition, all the mean values of the RMQ (except sub-category 3.3: Reading for Grades) for students from Science were higher than those from the Arts. This result manifests that students from Science were more motivated to read than those from the Arts. More specifically, students from Science preferred to compete with other classmates (sub-category 3.1: Competition in Reading) and would like to receive more recognition from teachers of English or peers (sub-category 3.2: Recognition for Reading) than did those from the Arts. However, the extent of appreciation of the English materials with difficult

words, long sentences, or complicated plots for students from the Arts was slightly higher than that for those from Science (sub-category 1.3: Reading Work Avoidance). This result indicates that, in general, the English reading skills for students from the Arts were slightly better than those for students from the Sciences. Lastly, although the mean values of sub-category 3.3 (Reading for Grades) for students from the Sciences was slightly lower than those for students from the Arts, both groups of students strongly believed that a score in English reading comprehension was an effective method for evaluating their reading performance.

However, all the mean values of the RMQ (except sub-category 1.3: Reading Work Avoidance) for students from the Sciences were lower than those for students from the Arts over the second administration of the RMQ. However, students from both disciplines still agreed on the importance of English reading, such as broadening their views towards the world via English reading or applying the knowledge acquired from the English reading class in their future jobs.

Regarding the independent samples t-test results in Appendix C-4.3, no significant changes were found in terms of the whole RMQ, four major categories, and ten sub-categories between Science students and Arts students over the two RMQ administrations. The biggest differences of the RMQ across disciplines were sub-category 3.1 (Competition in Reading) for the first time and sub-category 2.3 (Importance of Reading) for the second time. In other words, Science students preferred to compete with other classmates than did Arts students for the first time, and Science students' attitudes towards the importance of English reading were weaker than those

of Arts students for the second time. When interviewing the participants, one student from Science at Time 1 answered:

*I like competing with other classmates not only in English reading but in other subjects or sport activities such as basketball or table tennis as well. I could find the sense of achievement if I can answer the difficult questions during the class period or finish reading the English texts with the least amount of time.*

A student from the Arts at Time 2 said:

*English reading, in my mind, is important all the time. Since my major is finance, I need to read many relevant successful cases in this field, which requires me to be equipped with a better reading ability. Otherwise, I can't acquire the up-to-date knowledge of management.*

In addition, as can be seen in Appendix C-4.3, the reading motivation intensity for the students from Science in terms of the overall scale, four major categories and corresponding ten sub-categories dropped. Category 2 (Intrinsic Reading Motivation) was the dominant type of the RMQ for both times for Science students. However, students from the Arts showed diversity in the change of the RMQ, with 8 sub-categories (1.1, 1.3, 2.1, 2.2, 2.3, 3.1, 3.2, and 4) going up and 2 sub-categories (1.2 and 3.3) going down. This result indicates that the attitudes towards English reading for students from the Arts are more complex and diverse than those from the Sciences. Paired samples t test of RMQ variables over the two administrations among the students from both disciplines are displayed in Table 4.8.

**Table 4.8 Paired Samples T-test of RMQ among the Sciences and among the Arts**

	RMQ among the Science			RMQ among the Arts		
	t	df	Sig. (2-tailed)	t	df	Sig. (2-tailed)
Whole RMQ	1.515	30	.140	-.717	27	.480
1. Efficacy Beliefs	.708	30	.485	-.17	27	.867
1.1 Reading Efficacy	.924	30	.363	-.573	27	.571
1.2 Reading Challenge	.865	30	.394	.73	27	.471
1.3 Reading Work Avoidance	.048	30	.962	-.407	27	.687
2. Intrinsic Reading Motivation	2.135	30	.041	-.787	27	.438
2.1 Reading Curiosity	1.763	30	.088	-.307	27	.761
2.2 Reading Involvement	1.845	30	.075	-.53	27	.600
2.3 Importance of Reading	1.999	30	.055	-1.239	27	.226
3. Extrinsic Reading Motivation	1.915	30	.065	-1.019	27	.317
3.1 Competition in Reading	1.293	30	.206	-2.016	27	.054
3.2 Recognition for Reading	1.324	30	.195	-1.472	27	.153
3.3 Reading for Grades	2.478	30	.019	1.297	27	.206
4. Social Reasons for Reading	.864	30	.394	-.478	27	.637

As can be seen in Table 4.8, no significant changes were found in terms of the variations of the RMQ among students from the Arts over the four-week interval. However, significant differences were found in Category 2 (Intrinsic Reading Motivation) (mean value ranging from 3.82 to 3.6) and sub-category 3.3 (Reading for Grades) (mean value ranging from 3.94 to 3.66) after four weeks among students from the Sciences. Although the corresponding three sub-categories in Category 2 (Intrinsic Reading Motivation) didn't present any significant changes over the two RMQ administrations, the t-values were nearly critical.

Correlation and cross-lagged regression analyses between reading comprehension scores and Category 2 (Intrinsic Reading Motivation)/sub-category 3.3 (Reading for Grades) for Science students are displayed in Table 4.9. Since the students from the Sciences and the Arts were taught English separately, the students from the Sciences could be only affected by the interaction with the participants from the same

discipline.

**Table 4.9 Correlation and Cross-lagged Regression Analysis between Reading Comprehension Scores and Category 2/Sub-category 3.3 for Science Students**

Variables	Correlation		Cross-lagged Regression Analysis	
	$r (A_m B_n)$		$\beta (B_1 A_2)$	
Reading Comprehension Scores (B)	$r (A_1 B_1)$	$r (A_2 B_2)$	F	Sig.
Category 2 (A)	.121	.259	4.477	.043
Sub-category 3.3 (A)	.375*	.317	2.531	.122

As can be seen in Table 4.9, although  $r (A_1 B_1)$  and  $r (A_2 B_2)$  show that reading comprehension scores and the perceived intrinsic reading motivation for Science students (Category 2: Intrinsic Reading Motivation) were not significantly correlated over the two RMQ administrations,  $\beta (B_1 A_2)$  presents that reading comprehension scores could still positively predict the development of perceived intrinsic reading motivation for Science students. However, in reality, the perceived intrinsic reading motivation for Science students decreased significantly ( $p < 0.01$ ) and reading comprehension scores for Science students increased significantly ( $p < 0.05$ ), which appears contradictory to the statistical results. As mentioned in Section 4.2 in Chapter Four, the result of cross-lagged regression analysis could only explain the possibility that one variable has the predictive directional influence on another variable. Therefore, there must be other factors which could affect Category 2 (Intrinsic Reading Motivation). When interviewing the participants from the Sciences, some contextual factors such as limited time and boring materials were the potential sources contributing to the decrease of Category 2 (Intrinsic Reading Motivation). For instance, one participant said:

*In recent weeks, I'm busy doing the experiment, spending most of my time in the laboratory. So, I seldom study with my classmates in the library, not to mention the discussion with them about the English texts. I also feel that the topics of recent units in the English textbook are not interesting, which makes me feel bored.*

In addition, as can be seen in Table 4.9, reading comprehension scores were only significantly correlated with sub-category 3.3 (Reading for Grades) for students from the Sciences at Time 1. However, the result of cross-lagged regression analysis shows that the reading comprehension scores was not the antecedent of sub-category 3.3 (Reading for Grades) for students from the Sciences. When interviewing Science students, they referred to their lack of confidence as the potential factor causing the significant decrease of sub-category 3.3 (Reading for Grades). For instance, one student replied:

*I find that there are many unknown words and complex sentences in the English texts recently, which leads to a situation that I can't seek the right the information to answer the subsequent questions. This will lower my confidence in English reading. My present focus should be to try to remember those words and their expressions and understand the complex structure of sentences, not to pursue the score for reading comprehension.*

In summary, compared with the Science students whose reading motivation intensity decreased to some extent, the Arts students reflected more complex and diverse variation in reading motivation intensity over two MRQ administrations. Besides, contextual factors such as limited time and boring materials could contribute



to the significant decrease of intrinsic reading motivation. Lack of confidence could contribute to the significant decrease of variable (Reading for Grades) among the Science students. Therefore, teachers should fully consider the different and typical characteristics across discipline towards reading motivation, when designing the tasks or activities of reading class to students of different disciplines. For instance, teacher of English reading could design some short reading contests such as spelling bee for the Science students.

#### **4.8 Descriptive and Inferential Statistics of RMQ between High-achievers and Low-achievers**

The reading comprehension section of CET-4 (College English Test, Band 4) was administered to 59 participants of the non-English major twice over a four-week interval. According to the grouping standard (Qin, 2003), 25% of participants from the top were considered as high achievers (High-achiever group) and 25% of participants from the bottom were considered as low achievers (Low-achiever group). Therefore, 15 participants were in each group. The mean values of reading comprehension tests were 77.2 for High-achievers (ranging from 72 to 83) and 42.13 for the Low-achiever group (ranging from 32 to 52), respectively, at the first time, and 77.53 (ranging from 74 to 85) and 53.8 (ranging from 41 to 60), respectively, at the second time. Since the number of participants in both groups is under 30 samples, the data didn't meet the minimum conditions of the parametric test but could be analyzed via a non-parametric test. Therefore, descriptive statistics and inferential statistics of the RMQ between these two groups are presented in Appendix C-4.4. These include mean values over the two

administrations as well as the results of the non-parametric test (Mann-Whitney U test).

As can be seen in Appendix C-4.4, all the mean values of reading motivation intensities for students in the High-achiever group were higher than those in the Low-achiever group in terms of the overall RMQ, four major categories, and corresponding ten sub-categories (except sub-category 1.3 and sub-category 2.2 for the first time) over the two RMQ administrations. These results manifest that students in the High-achiever group were generally more motivated to read English texts than those in the Low-achiever group. Although students in both groups showed similar attitudes towards sub-category 1.3 (Reading Work Avoidance) at the first time, this situation was different over the second RMQ administration with an increase for students in the High-achiever group (from 3.11 to 3.37) and decrease for students in the Low-achiever group (from 3.13 to 2.91). Besides this, students in the Low-achiever group seemed to get more enjoyment in reading English texts than those in the High-achiever group at the first time. However, the mean value of sub-category 2.2 (Reading Involvement) for students in the Low-achiever group declined dramatically from 3.84 to 3.41, lower than 3.60 for students in the High-achiever group at the second time.

Regarding the results of the Mann-Whitney U test presented in Appendix C-4.4, there were significant differences in the overall RMQ variables between the two groups at both times. In addition, both groups showed a significant difference in Category 3 (Extrinsic Reading Motivation) over both times, and in Category 1 (Efficacy Beliefs) only at Time 2. In addition, both groups were significantly different in categories 1.1 (Reading Efficacy), 3.1 (Competition in Reading), 3.2 (Recognition for Reading) and

3.3 (Reading for Grades) at both times, in sub-category 1.2 (Reading Challenge) at Time 2, and 2.3 (Importance of Reading) at Time 1. These results reflect that students in the High-achiever group developed more confidence in reading English texts and were more inclined to read difficult and challenging English materials, compete with other classmates, receive feedback from teachers and other classmates, and focus on the scores of reading comprehension tests more than those in the Low-achiever group. Meanwhile, the attitudes towards the importance of reading between these two groups turned out to be aligned over time. These results are parallel with the elaborations from interviewees. For instance, a student in the High-achiever group reported:

*In my mind, the score of the English reading comprehension test could prove my reading ability. Also, I feel that a high score in reading comprehension could guarantee my confidence to challenge myself with some difficult English articles.*

Another student, in the Low-achiever group, answered:

*My English reading ability is not good, and I feel it difficult to read some English texts. This always makes me feel disappointed. I don't dare to compare my score in English reading with others, because there is a big difference between us.*

Overall, reading motivation intensity for students in the High-achiever group remained stable. As for specific variables, Category 4 (Social Reasons for Reading) went up slightly. A similar situation appeared in Category 1 (Efficacy Beliefs) but with slight decrease of sub-category 1.1 (Reading Efficacy), dramatic increase of sub-category 1.3 (Reading Work Avoidance), and stability of sub-category 1.2 (Reading Challenge). These results indicate that the students in the High-achiever group

established a better relationship with their classmates to share the meanings obtained from reading English texts, and although their confidence was not as strong as before in reading English texts with difficult words, long sentences or twisted plots, they still had a strong attitude to challenge themselves. When interviewing the participants in the High-achiever group, one student said:

*In recent weeks, the articles in our textbook are a bit more difficult with more professional words and complex theories, which makes me feel it to be difficult. But I still want to continue reading, especially after checking the dictionary and background knowledge. Sometimes, I could discuss some sections with my classmates, which could help me understand a bit quicker.*

Besides this, Category 2 (Intrinsic Reading Motivation) and corresponding three sub-categories for students in the High-achiever group remained stable. However, Category 3 (Extrinsic Reading Motivation) dropped slightly with a dramatic decrease of sub-category 3.3 (Reading for Grades), slight increase of sub-category 3.1 (Competition in Reading), and stability of sub-category 3.2 (Recognition for Reading). At the same time, the dominant category of perceived reading motivation over the two RMQ administrations for students in the High-achiever group was extrinsic reading motivation with the mean values of 4.03 and 3.95, respectively. However, the dominant sub-category over the two RMQ administrations were different, namely, sub-category 3.3 (Reading for Grades) with the mean value of 4.39 at the first time and sub-category 2.3 (Importance of Reading) with the mean value of 4.25 at the second time. These results manifest that, although the students in the High-achiever group were still

instrumentally oriented, they were experiencing the preliminary stage of dynamic transition from being extrinsically oriented to being intrinsically oriented.

For students in the Low-achiever group, however, the attitudes towards overall reading motivation declined slightly. Meanwhile, the mean values for nearly all categories and corresponding sub-categories of the RMQ for students in the Low-achiever group dropped to some extent. They held stable perceptions towards sharing the meanings obtained from English reading with their classmates (Category 4: Social Reasons for Reading). In addition, it appears that they had no ideas about receiving recognition from their teacher of English or classmates (sub-category 3.2: Recognition for Reading). When interviewing the students in the Low-achiever group, one student replied:

*My English reading proficiency is bad all the time even with slight improvements.*

*The teacher of English or my classmates seldom gave me the feedback or commented on my English reading. My learning efficiency in English reading is low all the time. I don't know how to improve myself or what kind of questions I can ask to my teacher or my classmates, either.*

In addition, for students in the Low-achiever group, the dominant category and sub-category at both times remained the same, namely, intrinsic reading motivation with mean values from 3.73 to 3.5, respectively and sub-category 2.3 (Importance of Reading) with the mean values from 3.93 to 3.83, respectively. This result is contradictory to that for students in the High-achiever group. Students in the Low-achiever group were intrinsically oriented all the time, although this perceived attitude

went down as time passed.

The non-parametric test (Wilcoxon signed-rank test) of the RMQ among the students in the High-achiever group and in the Low-achiever group over the two RMQ administrations are displayed in Table 4.10.

**Table 4.10 Wilcoxon Signed-rank test of RMQ for students in High- and Low-achiever Groups**

	Low-achiever Group		High-achiever Group	
	Z	Sig. (2-tailed)	Z	Sig. (2-tailed)
Whole RMQ	-.170	.865	-.057	.955
1. Efficacy Beliefs	-.768	.442	-.524	.600
1.1 Reading Efficacy	-.200	.841	-.629	.529
1.2 Reading Challenge	-.701	.483	-.256	.798
1.3 Reading Work Avoidance	-.778	.437	-.875	.382
2. Intrinsic Reading Motivation	-.511	.609	-.398	.691
2.1 Reading Curiosity	-.798	.425	-.126	.899
2.2 Reading Involvement	-1.654	.098	-.210	.833
2.3 Importance of Reading	-.175	.861	-.158	.875
3. Extrinsic Reading Motivation	-.142	.887	-.630	.529
3.1 Competition in Reading	-.094	.925	-.727	.467
3.2 Recognition for Reading	-.283	.777	-1.117	.264
3.3 Reading for Grades	-.700	.484	-1.742	.081
4. Social Reasons for Reading	-.118	.906	-.665	.506

As can be seen in Table 4.10, no significant changes were found in terms of the RMQ for students in both High-achiever and Low-achiever groups over the two RMQ administrations. The intensities of perceived reading motivation for both two groups fluctuated after four weeks but didn't change significantly. The main variations were in sub-category 3.3 (Reading for Grades) for students in the High-achiever group and sub-category 2.2 (reading Involvement) for students in the Low-achiever group. When interviewing the students in the High-achiever group about the reasons for the decrease of mean values in sub-category 3.3, they referred to similar contextual factors such as the shift in criteria for assessing English reading proficiency as the potential source, as

stated in Section 4.6. When interviewing the students in the Low-achiever group about the changes, they referred to boring reading materials as the potential element. One student, for instance, answered:

*Recently, the materials that I read are mostly the ones in the domain of science and technology, from which I couldn't gain pleasure. Instead, I still prefer to read some mysterious articles because I could visualize when reading.*

In summary, compared with the students in high-achiever group whose reading motivation intensity remained relatively stable, the reading motivation intensity of students in low-achiever group decreased to some extent. Besides, the intensity of reading motivation for the students in high-achiever group is significantly higher than that for the students in low-achiever group. Therefore, teachers should fully consider the different characteristics towards reading motivation across reading achievements, especially paying more attention to the low and decreased attitudes towards reading among the students in low-achiever group. Teachers could shift the teaching method during the reading lesson, such as asking the student of low-achiever group to translate some simple English sentence into Chinese during the reading lesson.

## **Chapter Five Summary and Conclusions**

### **5.0 Introduction**

This chapter comprises five sections. It starts with a summary of the whole study, including the research purposes and questions, research methods, main results and implications in general. In Section 5.2 and 5.3, conclusions of the present study and implications for theory and practice will be presented in detail. The chapter will finally end with the limitations of the research and the suggestions for future research.

### **5.1 Summary of the Study**

The present study investigated how Chinese EFL learners' reading motivation in L2 reading classrooms can be explained through Dynamic Systems Theory (de Bot, 2008; Larsen-Freeman & Cameron, 2008; Mitchell, 2009). The research focused on exploring how different components of reading motivation interact with each other. Therefore, the research questions centered on the change in Chinese EFL learners' reading motivation over time, interrelationships among the components of reading motivation and the changes of these interrelationships over time, and the reciprocal causal relationships between the dynamic and complex system of reading motivation and reading proficiency.

The study adopted a longitudinal design in which the variables of reading motivation were observed twice over a four-week time interval. A mixed methods research (MMR) approach (Riazi & Candlin, 2014; Riazi, 2017) (QUAN-qual design) was employed. For the quantitative strand, a Reading Motivation Questionnaire (RMQ)



and the reading comprehension section of CET-4 were administered to 59 non-English major first-year students at Northeast Agricultural University in China. They filled out the RMQ and completed a previous CET-4 reading comprehension test twice during a time span of four weeks. For the qualitative strand, a sub-sample of 10 participants were given the opportunity to join the in-depth interviews to elaborate on their reading motivation, which was audio-recorded. These audio-recorded files were then transcribed, translated and coded with a focus on the identification of the interrelationship between and among different reading motivation components, and on the possible factors affecting the development of reading motivation and reading proficiency.

The significant findings are:

(1) In answering Research Question 1: Chinese EFL learners were both intrinsically and extrinsically oriented to reading in English, while their reading for grades motivation decreased significantly.

(2) In answering Research Question 2 and 3: Nearly all the variables of RMQ were significantly and positively correlated with each other, ranging from low to high over the two RMQ administrations. Reading comprehension scores and some contextual factors were the attributable factors for the variation of Chinese EFL learners' reading for grades motivation.

(3) In answering Research Question 4: Reading comprehension scores were correlated with only three sub-categories of the RMQ at Time 1 but with seven sub-categories at Time 2. Reading motivation exerted no causal influence on reading

comprehension scores but reading comprehension scores had a predictable influence on reading motivation.

In addition to the above results, the present study found other results with the three controlling variables, namely, gender, discipline, and reading achievement level.

(4) No significant differences were found across gender in terms of RMQ variables over the first RMQ administration, but a significant difference was found in terms of sub-category 2.3 (Importance of Reading) across genders over the second RMQ administration. Males' overall reading motivation declined but not significantly over the two RMQ administrations. Females' reading for grades motivation changed significantly at two points in time, which is attributable to the shift in criteria for assessing reading proficiency.

(5) No significant differences were found between the Science and Arts students in terms of RMQ variables over the two RMQ administrations. Arts students' reading motivation increased to some extent but not significantly during the time span of four weeks. Science students' intrinsic reading motivation and reading for grades motivation declined significantly over the two RMQ administrations, with the causal reasons of limited time, boring materials, and lack of confidence.

(6) Significant differences were found between High-achiever and Low-achiever group in the overall RMQ and Category 3 (Extrinsic Reading Motivation) at both times and Category 1 (Efficacy Beliefs) over the second RMQ administration. High-achievers' reading motivation remained stable but Low-achievers' reading motivation went down slightly. No significant differences for both groups were found

over the four-week time interval.

Theoretically, this study contributes to the dynamic nature of and perspective on reading motivation. The move towards a more dynamic and complex system in analyzing Chinese EFL learners' reading motivation is more likely to overcome limitations in prior studies and uncover the underlying mechanisms of reading motivation. Practically, this study strengthens the teachers' capability in pedagogical intervention and students' understanding of their reading motivational orientations. Both groups may use the results to adjust various elements to enhance their language achievement.

## **5.2 Conclusions**

As previously stated in Chapter One, the present study was conducted to answer four specific research questions. Therefore, this section will present the answers to these research questions.

Research Question 1: How does Chinese EFL learners' reading motivation change over time?

The overall Chinese EFL learners' reading motivation, together with its corresponding four categories, decreased to some extent, but not significantly, over four weeks. Likewise, nine of ten sub-categories (excluding sub-category 1.3: Reading Work Avoidance) of the RMQ weakened, but only sub-category 3.3 (Reading for Grades) went down significantly over the two RMQ administrations, which indicates that Chinese EFL learners believed that grades for reading were not as important as they initially thought. As for the variation in specific items in the RMQ, the results of paired

samples t-test show that there were significant differences in terms of mean values of five items (2, 12, 39, 40, and 49) over the four-week time span. Items 2, 12, and 39, the items in sub-category 1.2 (Reading Challenge), were found to be significantly different over the two RMQ administrations, which indicates that Chinese EFL learners had a strong motivation to challenge themselves by reading difficult or even original English texts, but that this desire slowly decreased. Item 40 increased significantly between Time 1 and Time 2, indicating that Chinese EFL learners were increasingly disinclined to read English materials with long sentences. Item 49 reflects that the criteria towards the evaluation of relationships among Chinese EFL learners (by the number of books to be read) changed significantly between the two points in time.

Research Question 2: What are the interrelationships between and among the variables of reading motivation? and

Research Question 3: How do the interrelationships between and among the variables of reading motivation change over time?

The results show that the overall reading motivation was positively and significantly correlated with all the RMQ categories and sub-categories (except sub-category 1.3: Reading Work Avoidance for the second time) at both times. In addition, the four major categories of RMQ were all positively and significantly correlated with each other, ranging from low to high over the two RMQ administrations. These results are an indication of the internal consistency of the RMQ. The strongest correlated relationships were between Category 1 (Efficacy Beliefs) and Category 2 (Intrinsic Reading Motivation) at Time 1 and between Category 1 (Efficacy Beliefs) and Category

3 (Extrinsic Reading Motivation) at Time 2. Besides this, nearly all the RMQ sub-categories (except sub-category 1.3: Reading Work Avoidance) were positively and significantly correlated over the two RMQ administrations. Sub-categories 1.2 (Reading Challenge), 1.3 (Reading Work Avoidance) and 2.1 (Reading Curiosity) were not statistically correlated with 3.3 (Reading for Grades) at Time 1 but were positively and statistically correlated at Time 2. This result reflects the dynamic and complex nature of the interrelationships among different components, an issue that points towards the necessity and significance of studies such as the present one investigating the dynamic and complex development of reading motivation.

The results of correlation and cross-lagged regression analysis between reading comprehension scores (independent variable) and sub-category 3.3 (Reading for Grades) (dependent variable) indicate that reading comprehension scores could have a predictive directional influence on the development of sub-category 3.3. In addition, some contextual factors such as the shift in criteria of evaluating reading ability, limited time, and the cliché teaching methods were also conceived to be attributable factors for the variation of sub-category 3.3. The same method was adopted to examine the causal relationship between reading comprehension scores and five RMQ items (2, 12, 39, 40, and 49) which were found to be significantly different via the paired samples t-test over the two RMQ administrations. The results manifest that reading comprehension scores were not a predictor for the significant changes in these five items over the two RMQ administrations. However, contextual factors such as the limited time or the pressure from other subjects were conceived to be potential causes of the significant difference

in terms of students' desire to read challenging English materials (item 2, 12, 39). English texts with long sentences were still difficult for Chinese EFL learners, though they were confident in their reading abilities and would like to read some challenging English texts (item 40). The criteria for defining the relationship among Chinese EFL learners shifted from the number of books to be read to the comprehensive consideration of one's personality, what one does and how one behaves (item 49).

Research question 4: How can the relationship between reading motivation and EFL reading achievement be explained from the perspective of Dynamic Systems Theory?

The results of the paired-samples t-tests show that the mean values of reading comprehension scores were significantly different over the two administrations of CET-4. Next, the correlation and cross-lagged regression analysis between RMQ variables and reading comprehension scores show the potential reciprocal causal relationships. The correlation results manifest that reading comprehension scores were only correlated with three sub-categories (1.1, 3.2, and 3.3) at Time 1 but with nearly all the sub-categories (except sub-categories 1.3, 2.1, and 2.2) at Time 2. This shows that the relationship between reading comprehension scores and RMQ variables was more integrated over a four-week time interval. The results of cross-lagged regression analysis show that the whole reading motivation, together with its four major categories and corresponding ten sub-categories, exerts no directional influence on reading comprehension scores, but that reading comprehension scores could have predictable relations with the overall reading motivation, but more specifically, for sub-categories

1.1, 1.2, 2.3, 3.1, 3.2, 3.3, and Category 4. Combining the significant findings, it could be summarized that Chinese EFL learners' reading motivation was affected by the joint efforts of reading proficiency and contextual factors.

In addition to the above results, there were some other findings related to the three demographic variables (gender, discipline, and reading achievement level).

To begin with, the mean values of RMQ variables for both male and female were quite similar at Time 1, and no significant differences were found between the two genders. However, the mean values of RMQ variables for males were all slightly lower than those for females, except sub-category 1.3 (Reading Work Avoidance), and a significant difference was found in terms of sub-category 2.3 (Importance of Reading) across genders at Time 2. The results of the paired samples t-test show that reading motivation among males declined slowly, but not significantly, but sub-category 3.3 (Reading for Grades) was found to be significantly different among females over the two RMQ administrations. Meanwhile, reading comprehension scores for both males and females were not correlated with females' perceived reading motivation regarding grades, and couldn't predict the development of females' attitudes towards reading for grades. However, the contextual factor (the shift in criteria for assessing reading proficiency) was the potential source affecting sub-category 3.3 (Reading for Grades).

Secondly, both Science and Arts students revealed their strong attitudes towards the importance of English reading over the two RMQ administrations. The Science students preferred to compete with other classmates and would like to receive more recognition from teachers of English or peers. However, the Arts students preferred to

read English materials with difficult words, long sentences, or complicated plots. The results of the independent samples t-test show that no significant differences were found between the Science and Arts students in terms of RMQ variables over the two RMQ administrations. In addition, the results of the paired samples t-test show no significant changes in terms of variations of RMQ variables among Arts students for the four-week interval. However, there were significant changes in Category 2 and sub-category 3.3 among Science students over the two RMQ administrations. Reading comprehension scores were not correlated with Category 2 at both Time 1 and Time 2 but could predict its development. By contrast, reading comprehension scores were only correlated with sub-category 3.3 for the first time, but couldn't have a predictive influence on it. By interviewing the participants, some contextual factors such as limited time, boring materials, and lack of confidence were found to be the potential reasons for the variation of both RMQ items.

Lastly, students in the High-achiever group were generally more motivated to read English texts than those in the Low-achiever group over the two RMQ administrations. The results of the Mann-Whitney U test indicate that significant differences were found between these two groups in the overall RMQ at both times, in: Category 3 (Extrinsic Reading Motivation), more specifically, sub-categories 3.1 (Competition in Reading), 3.2 (Recognition for Reading) and 3.3 (Reading for Grades) over two administrations; and Category 1 (Efficacy Beliefs) only at Time 2 (but sub-category 1.1: Reading Efficacy over both times). There was also a significant difference in sub-category 1.2 (Reading Challenge) at Time 2 and 2.3 (Importance of Reading) at



Time 1. These results reflect that students in the High-achiever group developed more confidence in reading English texts and were inclined to read difficult and challenging English materials, compete with other classmates, receive feedback from teachers and other classmates, and focus on the scores of reading comprehension tests, more than those in the Low-achiever group. Meanwhile, the attitudes towards the importance of reading between these two groups turned out to be aligned over time. Reading motivation for students in the High-achiever group remained stable, but the RMQ for students in the Low-achiever group declined slightly between Time 1 and Time 2. The results of the Wilcoxon signed-rank test show that there were no significant differences in both groups over the time interval of four weeks. Nevertheless, the shift in criteria for assessing English reading proficiency and boring reading materials were conceived to be the reasons for the change of RMQ variables for the High- and Low-achiever groups between Time 1 and Time 2.

### **5.3 Implications for Theory and Practice**

Theoretically, the present study uncovers the internal relationships among reading motivation components. Reading motivation variables, which are interconnected, constitute an inseparable and integrated entity. As components of a dynamic system, reading motivation variables co-function to exert joint effect on reading outcome. Prior studies on reading motivation, ignoring the dynamic and interconnected nature of reading motivation over time, have resulted in some divergent conclusions. Therefore, the present study focused on examining the dynamic and

complex interrelationships between and among reading motivation variables and the reciprocal influence between reading motivation variables and reading outcome. The perspective of Dynamic Systems Theory in the present study demonstrates the interactive, dynamic and integrated nature of learners' reading motivation and gives new insights into the investigation of reading motivation, which could overcome the limitations in prior studies. It also accounts for how reading motivation interact with contextual factors to contribute to reading achievements. Furthermore, the attempts to analyze Chinese EFL learners' reading motivation based on Dynamic Systems Theory keeps pace with contemporary trends in examining issues in Second Language Acquisition by adopting the DST approach (Ellis & Larsen-Freeman, 2006).

Practically, Chinese, and more broadly EFL, teachers of English could realize that English reading is a dynamic and complex process which involves the interrelations and interaction of multiple variables of reading motivation and the reciprocal influence between reading motivation and reading outcome. This implies that, to improve Chinese, and more broadly EFL, learners' reading motivation, teachers should not focus on any single reading motivation variable and ignore the other reading motivation variables which may play a different but significant role in their pedagogical intervention. Therefore, the interrelationships between and among reading motivation variables and the reciprocal influence between reading motivation and reading outcome should be taken into consideration when designing second language reading curricula and instructional materials, which could improve the teachers' ability to perform more efficient interventions. In addition, contextual factors, such as those mentioned by the

participants of the present study, should be given special attention. EFL teachers are reminded of the uniqueness of each individual learner and how they could assist them in overcoming their individual reading problems by adjusting some contextual elements, such as giving them more positive approval or encouragement and adopting more flexible teaching methods in teaching reading. This may require a shift of role for EFL teachers, from knowledge holders and knowledge imparters to reading advisors who could guide students to read in a more efficient and effective way. Likewise, students could be equipped with knowledge about their English reading, thereby helping them to adjust and coordinate different reading motivation variables in order to improve their reading efficiency, which could enhance their reading achievements by focusing on some principal factors. The research findings of present study could assist the students in paying attention to the reading acquisition on the whole system as well as the variables of particular importance.

#### **5.4 Limitations of the Present Study**

Firstly, the generalizability of the results of the present study is limited, because the participants were chosen exclusively from Northeast Agricultural University. In addition, the number of the participants is limited due to the longitudinal nature of the research. The conclusions will be more generalizable if larger and more diverse participants are involved.

Secondly, the current longitudinal research investigated Chinese EFL learners' reading motivation twice over a period of four weeks. The fact that the present study

failed to identify the significant changes in some reading motivation variables such as Category 4 (Social Reasons for Reading) might be due to the short span of the research. Extending the time interval between the two RMQ administrations might be useful to uncover the dynamic and complex interrelationships between and among reading motivation variables.

Lastly, the data analysis of the quantitative approach in the present study still has its own limitations for examining the dynamic and complex nature of reading motivation. The statistical procedures such as independent/paired samples t-test, Mann-Whitney U test, Wilcoxon signed-rank test, correlation, and cross-lagged regression model are all based on linear relationships, rather than on non-linear relationships. More effort needs to be spent to develop data analytical methods which transcend the traditional linear research paradigm, toward researching reading motivation from a DST perspective.

### **5.5 Suggestions for Future Research**

Firstly, the present study could be replicated by choosing other types of participants such as students of an English major at other universities, or Chinese EFL learners at other universities. The results could then be collated to present the dynamic developmental trajectories of reading motivation among Chinese EFL learners at different stages of English reading acquisition.

Secondly, future research could examine how different contextual factors are interrelated with each other to jointly contribute to the variation of reading motivation.

The contextual elements could also be ranked in order based on their contributions to the change in reading motivation over time. This could enable teachers' pedagogical intervention and EFL learners' reading ability by taking control of contextual factors.

Lastly, diversified research instruments should be adopted to collect data for future longitudinal research such as diaries and classroom observation, which could provide more complementary information regarding the fluctuations in reading motivation variables. Besides this, more research variables such as the time allocated to reading, effort, anxiety, and reading strategy, could be added into future research to investigate whether these could mediate between reading motivation and reading proficiency.

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## Appendices

### Appendix A Reading Motivation Questionnaire

#### Reading Motivation Questionnaire (RMQ)

Dear student:

Thank you very much for your participation in this study. This questionnaire intends to investigate the effect of reading motivation on reading teaching and learning. Please fill the forms one by one based on your own actual situation. The whole information you provide will be confidential. The questions have no right or wrong or good or bad answers. This questionnaire has nothing to do with your test score. The results are only for academic research. Thank you for your support and cooperation.

Part One Individual Information (Please complete this part)

1. Gender:    1) Male            2) Female
2. Class:
3. Age:
4. Field of study:
5. Contact (email or others only for in-depth interview):

#### Part Two Reading Motivation Questionnaire (RMQ)

For the following items, please tick (✓) one number (5,4,3,2,1) according to your actual situation, indicating the degree of your agreement with each item.

**5= fully agree; 4= generally agree; 3= neither agree nor disagree; 2= generally disagree; 1= fully disagree. (Please note that each item has a corresponding number and only one number)**

N	Item	5	4	3	2	1
1	I am good at reading in English					
2	I like to read difficult and challenging articles in English					
3	I don't like reading something when the words are too difficult					
4	If the teacher of English discusses an interesting topic, I might read more relevant materials in English to improve my understanding of the topic					
5	I read fantasy stories in English and have a feeling of actually being there					
6	Developing reading skills in English is very important to me					
7	I like to be the only person who can answer questions related to something we've read					
8	My classmates think that I am a good reader					
9	I am concerned about my scores on reading comprehension section of English test and so I do my best to improve my English reading					
10	I always go to the library with my friends or classmates to read					
11	I believe that I will be better and better in reading					

12	I would like to read even difficult English materials if the topic is interesting to me					
13	I don't like vocabulary questions in reading tests					
14	I like to read more about my favorite subjects in English					
15	I visualize (make pictures in my mind) when I read texts such as stories					
16	Compared with other English skills, reading is very important to me					
17	I like to be the best at reading in English					
18	I like to get compliments for my reading					
19	I like sharing with/talking to my friends or classmates about what I've read recently					
20	I learn more from reading than many students do in the class					
21	I'm interested in reading those English articles that make me think deeper and further					
22	Complicated stories are not fun to read					
23	Through reading English materials, I want to know more things about lifestyles and cultures of English-speaking countries (for example, UK, Australia, and the USA)					
24	I feel like I could resonate with people in the books I read					
25	One of the main reasons for learning English is for improving my reading ability and afterward seeking more information online					
26	I try to get more answers right when we are doing reading exercises					
27	I am happy when someone recognizes my reading performance					
28	I read English materials mainly because I want to score highly in CET-4, or CET-6					
29	Compared with other English skills (e.g. writing/listening/speaking), I do not consider my reading to be weak.					
30	I learn things by reading original English texts					
31	I don't like to read stories or novels when there are too many characters in the story					
32	I read to learn new information about topics of my interest					
33	I like mysterious materials (articles, newspapers, novel, etc.) because they evoke my interest					
34	I hope that I could apply the knowledge acquired from English reading class in my future job					
35	I like to finish my reading before other students					
36	My teacher of English sometimes tells me what a good job I am doing in reading					
37	I like to help my friends solve their problems in English reading assignment					
38	I would continue reading as far as I can even if I failed in reading and understanding some parts of the English texts					
39	I am interested in reading English materials (e.g. stories and novels) even though they may have a complicated plot					
40	I don't like reading when the sentences are too long					
41	I take the initiative to read English materials because I'm interested in the English					

	language						
42	When reading interesting English stories, I feel I am immersed in the story						
43	Learning to read in English is important because it will broaden my view						
44	I am willing to work hard on my reading to perform better than my friends or classmates might do						
45	My teacher of English sometimes tells me where I did a good job in reading						
46	Scores in English reading is an effective criterion for assessing my reading proficiency						
47	I like reading books which are recommended by my friends						
48	I think learning to read in English will be conducive to my future development						
49	I believe I can earn peer respect and liking by reading more books						
50	Right after each English test, I always look forward to finding out my reading score						
51	My level of loving reading is similar to that of my friends						
52	I read mainly because I want to get higher scores in English reading						
53	I sometimes like reading a book that my friends are reading						
54	Learning to read in English is important because it will be helpful for me to find a good job						

**Please check whether you mis-choose/select some items.**  
**Thank you very much for your support and cooperation.**

## **Appendix B Questions Asked in the Interview**

- A. How do you interpret your answer to the questions you finished in the questionnaire?
- B. What is the major purpose or goal for you to read English?
- C. Are you interested in reading English?
- D. How do you feel about foreigners and foreign culture?
- E. Do you have any intention to live abroad in future?
- F. Do you like making friends with foreigners?
- G. How do you feel about your teacher of English?
- H. How do you feel about your reading class?
- I. What factor do you think can most effectively motivate you to work hard?

## Appendix C

**Table 3.1 Reliability Indices of Reading Motivation Questionnaire in the Current Study**

Variables	No.	RMQ (First Time)		RMQ (Second Time)	
		Cronbach's $\alpha$	Variance	Cronbach's $\alpha$	Variance
Whole Questionnaire	54	0.918	0.250	0.932	0.197
1. Efficacy Beliefs	15	0.634	0.281	0.638	0.228
1.1 Reading Efficacy	5	0.556	0.306	0.663	0.346
1.2 Reading Challenge	5	0.633	0.356	0.659	0.161
1.3 Reading Work Avoidance	5	0.681	0.198	0.628	0.223
2. Intrinsic Reading Motivation	17	0.844	0.144	0.894	0.114
2.1 Reading Curiosity	5	0.686	0.173	0.692	0.115
2.2 Reading Involvement	5	0.678	0.071	0.779	0.031
2.3 Importance of Reading	7	0.751	0.082	0.857	0.050
3. Extrinsic Reading Motivation	15	0.843	0.299	0.859	0.266
3.1 Competition in Reading	5	0.692	0.103	0.785	0.121
3.2 Recognition for Reading	5	0.639	0.655	0.732	0.598
3.3 Reading for Grades	5	0.732	0.044	0.711	0.043
4. Social Reasons for Reading	7	0.631	0.157	0.685	0.053

**Table 4.1 Descriptive and Inferential Statistics of Each Item in RMQ**

Item	Mean		t-test Value	Sig.	Item	Mean		t-test Value	Sig.
1	3.12	3.05	.586	.560	28	4.02	3.83	1.528	.132
2	2.54	2.88	-2.771	.008	29	3.63	3.49	1.051	.297
3	3.71	3.47	1.606	.114	30	4.02	3.98	.275	.784
4	3.63	3.41	1.539	.129	31	2.83	2.83	.000	1.000
5	3.66	3.47	1.375	.175	32	4.00	3.92	.671	.505
6	4.56	4.37	1.704	.094	33	3.81	3.76	.381	.704
7	3.51	3.66	-.816	.418	34	4.10	4.05	.426	.672
8	2.78	2.75	.275	.784	35	3.53	3.32	1.387	.171
9	4.29	4.03	1.933	.058	36	2.63	2.69	-.433	.666
10	2.92	2.98	-.489	.627	37	3.54	3.37	1.602	.115
11	4.03	4.15	-1.187	.240	38	3.86	3.81	.323	.748
12	3.73	3.44	2.538	.014	39	3.90	3.51	2.236	.029
13	3.12	3.10	.104	.918	40	3.49	3.83	-2.054	.045
14	3.32	3.27	.296	.768	41	3.03	3.10	-.505	.616
15	3.75	3.73	.119	.905	42	3.93	3.68	1.933	.058
16	3.78	3.76	.115	.909	43	4.08	4.07	.145	.885
17	3.98	3.91	.475	.637	44	3.69	3.75	-.348	.729
18	4.00	3.90	.609	.545	45	2.95	2.88	.513	.610
19	3.31	3.53	-1.440	.155	46	3.80	3.59	1.941	.057
20	2.69	2.68	.118	.907	47	3.56	3.41	1.119	.268
21	3.76	3.66	.785	.435	48	4.23	4.20	.697	.489
22	2.64	2.68	-.205	.839	49	4.14	3.75	3.224	.002
23	3.97	3.76	1.230	.224	50	3.97	3.85	.961	.341
24	3.24	3.36	-.756	.452	51	3.07	3.30	-1.782	.080
25	3.73	3.83	-.714	.478	52	3.76	3.53	1.606	.114
26	4.25	4.27	-.136	.892	53	3.37	3.37	.000	1.000
27	4.44	4.39	.554	.582	54	4.02	3.83	1.592	.117

**Table 4.2 Descriptive and Inferential Statistics of RMQ across Gender**

Variables	Gender	RMQ (First Time)			RMQ (Second Time)		
		Mean Value	t-test Value	Sig.	Mean Value	t-test Value	Sig.
Whole Questionnaire	Male	3.57	-0.040	0.968	3.44	-1.155	.253
	Female	3.58			3.57		
1. Efficacy Beliefs	Male	3.43	0.417	0.678	3.32	-.764	.448
	Female	3.39			3.40		
1.1 Reading Efficacy	Male	3.39	-0.875	0.385	3.35	-.822	.415
	Female	3.51			3.49		
1.2 Reading Challenge	Male	3.55	-0.365	0.717	3.43	-.675	.503
	Female	3.61			3.54		
1.3 Reading Work Avoidance	Male	3.35	1.594	0.117	3.18	-.010	.992
	Female	3.04			3.18		
2. Intrinsic Reading Motivation	Male	3.74	-0.482	0.632	3.57	-1.526	.132
	Female	3.81			3.78		
2.1 Reading Curiosity	Male	3.61	0.177	0.860	3.37	-1.183	.242
	Female	3.58			3.56		
2.2 Reading Involvement	Male	3.65	-0.281	0.779	3.53	-.656	.515
	Female	3.70			3.64		
2.3 Importance of Reading	Male	3.97	-1.224	0.226	3.81	-2.048	.045
	Female	4.15			4.14		
3. Extrinsic Reading Motivation	Male	3.70	0.058	0.954	3.50	-1.366	.177
	Female	3.71			3.70		
3.1 Competition in Reading	Male	3.81	0.142	0.888	3.69	-.732	.467
	Female	3.78			3.84		
3.2 Recognition for Reading	Male	3.44	0.723	0.473	3.23	-.844	.402
	Female	3.31			3.38		
3.3 Reading for Grades	Male	3.85	-0.994	0.324	3.57	-1.919	.060
	Female	4.03			3.88		
4. Social Reasons for Reading	Male	3.42	0.084	0.933	3.36	-.252	.802
	Female	3.41			3.40		

**Table 4.3 Descriptive and Inferential Statistics of RMQ across Disciplines**

Variables	Discipline	RMQ (First Time)			RMQ (Second Time)		
		Mean Value	t-test Value	Sig.	Mean Value	t-test Value	Sig.
Whole Questionnaire	Science	3.62	0.868	0.389	3.47	-0.971	0.335
	Arts	3.53			3.58		
1. Efficacy Beliefs	Science	3.44	0.770	0.445	3.37	-0.083	0.934
	Arts	3.37			3.38		
1.1 Reading Efficacy	Science	3.50	0.448	0.656	3.39	-0.679	0.500
	Arts	3.44			3.49		
1.2 Reading Challenge	Science	3.60	0.143	0.887	3.49	-0.062	0.951
	Arts	3.58			3.50		
1.3 Reading Work Avoidance	Science	3.23	0.799	0.427	3.23	0.484	0.631
	Arts	3.08			3.14		
2. Intrinsic Reading Motivation	Science	3.82	0.668	0.507	3.60	-1.539	0.129
	Arts	3.74			3.81		
2.1 Reading Curiosity	Science	3.65	0.695	0.490	3.42	-0.977	0.333
	Arts	3.53			3.57		
2.2 Reading Involvement	Science	3.73	0.605	0.548	3.51	-1.119	0.268
	Arts	3.62			3.70		
2.3 Importance of Reading	Science	4.10	0.312	0.756	3.88	-1.791	0.079
	Arts	4.06			4.17		
3. Extrinsic Reading Motivation	Science	3.77	1.014	0.315	3.55	-1.005	0.319
	Arts	3.63			3.70		
3.1 Competition in Reading	Science	3.92	1.610	0.113	3.72	-0.654	0.515
	Arts	3.65			3.85		
3.2 Recognition for Reading	Science	3.46	1.350	0.182	3.28	-0.462	0.646
	Arts	3.24			3.36		
3.3 Reading for Grades	Science	3.94	-0.370	0.713	3.66	-1.444	0.154
	Arts	4.00			3.89		
4. Social Reasons for Reading	Science	3.45	0.481	0.632	3.35	-0.538	0.593
	Arts	3.38			3.43		



**Table 4.4 Descriptive and Inferential Statistics of RMQ for High-/Low-achiever Group**

Variables	Group	RMQ (First Time)			RMQ (Second Time)		
		Mean Value	Z Value	Exact Sig.	Mean Value	Z Value	Exact Sig.
Whole Questionnaire	Low	3.41	-2.157	.029	3.30	-2.386	.016
	High	3.75			3.76		
1. Efficacy Beliefs	Low	3.26	-1.748	.081	3.12	-2.882	.003
	High	3.56			3.63		
1.1 Reading Efficacy	Low	3.27	-3.308	.001	3.21	-1.964	.050
	High	3.87			3.79		
1.2 Reading Challenge	Low	3.39	-1.211	.233	3.23	-2.196	.029
	High	3.71			3.72		
1.3 Reading Work Avoidance	Low	3.13	-.313	.775	2.91	-1.401	.174
	High	3.11			3.37		
2. Intrinsic Reading Motivation	Low	3.73	-1.037	.305	3.50	-1.701	.089
	High	3.86			3.82		
2.1 Reading Curiosity	Low	3.41	-1.193	.250	3.25	-1.565	.126
	High	3.67			3.63		
2.2 Reading Involvement	Low	3.84	-.834	.412	3.41	-.126	.902
	High	3.63			3.60		
2.3 Importance of Reading	Low	3.93	-2.003	.045	3.83	-1.938	.056
	High	4.28			4.25		
3. Extrinsic Reading Motivation	Low	3.39	-3.080	.001	3.31	-2.700	.006
	High	4.03			3.95		
3.1 Competition in Reading	Low	3.57	-2.107	.037	3.47	-2.440	.015
	High	4.07			4.19		
3.2 Recognition for Reading	Low	2.99	-3.029	.002	3.01	-2.397	.016
	High	3.63			3.65		
3.3 Reading for Grades	Low	3.61	-3.021	.002	3.45	-2.306	.021
	High	4.39			4.03		
4. Social Reasons for Reading	Low	3.26	-1.478	.148	3.27	-1.292	.202
	High	3.55			3.64		

## Appendix D The sample of reading comprehension section in CET-4

### Part III

### Reading Comprehension

(40 minutes)

#### Section A

**Directions:** *In this section, there is a passage with ten blanks. You are required to select one word for each blank from a list of choices given in a word bank following the passage. Read the passage through carefully before making your choices. Each choice in the bank is identified by a letter. Please mark the corresponding letter for each item on **Answer Sheet 2** with a single line through the centre. You may not use any of the words in the bank more than once.*

It's our guilty pleasure: Watching TV is the most common everyday activity, after work and sleep, in many parts of the world. Americans view five hours of TV each day, and while we know that spending so much time sitting \_\_\_\_26\_\_\_\_ can lead to obesity (肥胖症) and other diseases, researchers have now quantified just how \_\_\_\_27\_\_\_\_ being a couch potato can be.

In an analysis of data from eight large \_\_\_\_28\_\_\_\_ published studies, a Harvard-led group reported in the Journal of the American Medical Association that for every two hours per day spent channel \_\_\_\_29\_\_\_\_, the risk of developing Type 2 diabetes (糖尿病) rose 20% over 8.5 years, the risk of heart disease increased 15% over a \_\_\_\_30\_\_\_\_, and the odds of dying prematurely \_\_\_\_31\_\_\_\_ 13% during a seven-year follow-up. All of these \_\_\_\_32\_\_\_\_ are linked to a lack of physical exercise. But compared with other sedentary (久坐的) activities, like knitting, viewing TV may be especially \_\_\_\_33\_\_\_\_ at promoting unhealthy habits. For one, the sheer number of hours we pass watching TV dwarfs the time we spend on anything else. And other studies have found that watching ads for beer and popcorn may make you more likely to \_\_\_\_34\_\_\_\_ them.

Even so, the authors admit that they didn't compare different sedentary activities to \_\_\_\_35\_\_\_\_ whether TV watching was linked to a greater risk of diabetes, heart disease or clearly death compared with, say, reading.

A) climbed	I) previously
B) consume	J) resume
C) decade	K) suffered
D) determine	L) surfing
E) effective	M) term
F) harmful	N) terminals
G) outcomes	O) twisting
H) passively	

## Section B

**Directions:** *In this section, you are going to read a passage with ten statements attached to it. Each statement contains information given in one of the paragraphs. Identify the paragraph from which the information is derived. You may choose a paragraph more than once. Each paragraph is marked with a letter. Answer the questions by marking the corresponding letter on **Answer Sheet 2**.*

### Preparing for Computer Disasters

A) Summary: When home office computers go down, many small businesses grind to a halt. Fortunately, taking steps to recover from disasters and minimize their effects is quite straightforward.

B) Fires, power surges, and floods, they're all facts of life. We read about them in the morning paper and see them on the evening news. We sympathize with the victims and commiserate over their bad luck. We also shake our heads at the digital consequences melted computers, system failures, destroyed data. Yet, somehow, many of us continue to live by that old mantra of denial: "It won't happen to me." Well, the truth is, at some point you'll probably have to deal with at least one disaster. That's just how it goes, and in most aspects of our lives we do something about it. We buy insurance. We stow away provisions. We even make disaster plans and run drills. But for some reason, computer disaster recovery is a blind spot for many of us. It shouldn't be. Home computers contain some of our most important information, both business and personal, and making certain our data survives a disaster should be a priority. Moreover, even the smallest disaster can be a serious disruption. Personal computers have become an integral part of the smooth-running household. We use them to communicate, shop, and do homework, and they're even more vital to home office users. When home office computers go down, many small businesses grind to a halt. Fortunately, taking steps to recover from disasters and minimize their effects is quite straightforward.

With a good offsite storage plan and the right tools, you can bounce back quickly and easily from minor computer disasters. And, should a major calamity strike, you can rest assured your data is safe.

### **Offsite Storage: Major Disasters**

C) House fires and floods are among the most devastating causes of personal computer destruction. That's why a solid offsite backup and recovery plan is essential. Although many home users faithfully back up their hard drives, many would still lose all their data should their house flood or burn. That's because they keep their backups in relatively close to their computers. Their backup disks might not be in the same room as their computers—tucked away in a closet or even the garage—but they're not nearly far enough away should a serious disaster strike. So, it's important to back up your system to a removable medium and to store it elsewhere.

D) There are many ways to approach offsite storage. It starts with choice of backup tools and storage medium. Disaster situations are stressful, and your recovery tools shouldn't add to that stress. They must be dependable and intuitive, making it easy to schedule regular backups and to retrieve files in a pinch. They must also be compatible with your choice of backup medium. Depending on your tools, you can back up to a variety of durable disk types—from CDs to Jaz drives to remote network servers. Although many of these storage media have high capacity, a backup tool with compression capabilities is a big plus, eliminating the inconvenience of multiple disks or large uploads.

E) Once you select your tools and a suitable medium, you need to find a remote place to store your backups. The options are endless. However, no matter where you choose, be sure the site is secure, easily accessible, and a good distance away from your home. You may also want to consider using an Internet-based backup service. More and more service providers are offering storage space on their servers and uploading files to a remote location has become an attractive alternative to conventional offsite storage. Of course, before using one of these services, make certain you completely trust the service provider and its security methods. Whatever you do, schedule backups regularly and store them far away from your home.

### **Come What May: Handling the Garden Variety Computer Crisis**

F) Not all home computer damage results from physical disaster. Many less menacing problems can also hobble your PC or destroy your information. Systems crash, kids “rearrange” data, adults

inadvertently delete files. Although these events might not seem calamitous, they can have serious implications. So, once again, it's important to be prepared. As with physical disasters, regular backups are essential. However, some of these smaller issues require a response that's more nuanced than wholesale backup and restoration. To deal with less-than-total disaster, your tool set must be both powerful and agile. For example, when a small number of files are compromised, you may want to retrieve those files alone. Meanwhile, if just your settings are affected, you'll want a simple way to roll back to your preferred setup. Yet, should your operating system fail, you'll need a way to boot your computer and perform large-scale recovery. Computer crises come in all shapes and sizes, and your backup and recovery tools must be flexible enough to meet each challenge.

### **The Right Tools for the Right Job: Gearing up for Disaster**

G) When disaster strikes, the quality of your backup tools can make the difference between utter frustration and peace of mind. Symantec understands this and offers a range of top-quality backup and recovery solutions. Norton GoBack is the perfect tool for random system crashes, failed installations, and inadvertent deletions. With this powerful and convenient solution, it's simple to retrieve overwritten files or to bring your system back to its pre-crash state. Norton Ghost is a time-tested home office solution. Equipped to handle full-scale backups, it's also handy for cloning hard drives and facilitating system upgrades. A favorite choice for IT professionals, it's the ideal tool for the burgeoning home office. You can buy Norton Ghost and Norton GoBack separately, or get them both when you purchase Norton System Works.

H) Life's disasters, large and small, often catch us by surprise. However, with a little planning and the right tools, you can reduce those disasters to bumps in the road. So, don't wait another day. Buy a good set of disaster recovery tools, set up an automatic backup schedule, and perform a dry run every now and again. Then, rest easy.

36. You should take steps to recover from computer disasters so as to minimize their effects.

37. For some reason, computer disaster recovery is always ignored by many of us.

38. You can bounce back quickly and easily minor computer disasters with the help of a good offsite storage plan and the right tools.

39. The most devastating causes of personal computer destruction includes house fires and floods.

40. It's necessary for us to back up our systems to some transferable medium and to put it somewhere else.

41. You should find a distant place to store your backups after selecting your tools and a suitable medium.
42. Not only physical disaster can damage your computer.
43. The backup and recovery tools must be flexible enough to deal with various computer crises.
44. The quality of your backup tools determines whether you are frustrated or have a peaceful mind when disaster strikes.
45. You should prepare for your computer disasters now and again.

### Section C

**Directions:** *There are 2 passages in this section. Each passage is followed by some questions or unfinished statements. For each of them there are four choices marked A ), B), C) and D ). You should decide on the best choice and mark the corresponding letter on **Answer Sheet 2** with a single line through the centre.*

#### Passage One

**Questions 46-50 are based on the following passage.**

People's tastes in recreation differ widely. At a recent festival of pop-music in the Isle of Wight, crowds of teenagers flocked to listen to their favorite singers and musicians. They went with single railway tickets and slept in the open, a very risky thing to do in the climate of Britain, even in August. They were packed together like sardines for four days. There were innumerable thieves, a gang of roughs tried several times to break things up, and police were everywhere. At the end of the festival many young fans found themselves broke, with no money left, and they had difficulty in getting back home. Most people would consider these conditions a nightmare of discomfort; the fans appeared to enjoy it all enormously.

Even in the overcrowded United Kingdom there are large tracts of open un-spoilt country, where people with more traditional tastes can go for quiet, and for the sense of freedom they derive from contact with nature. In the national parks especially, modern development of housing and industry is strictly controlled. Visitors may walk for miles through landscape of the greatest beauty and wildness, and often of considerable historic or scientific interest. Along the coasts of some of the maritime counties, public pathways have been created; these paths stretch for many miles along

cliffs that look out on the Atlantic Ocean or the English Channel. Another path, lying inland, goes along the range of mountains in the north of England. It is called the Pennine Way. Here, the long-distance Walker and the nature-lover can find much to enjoy, without feeling disturbed by large numbers of their fellows.

Yet few people make full use of the national parks established for everyone's benefit. The commonest thing nowadays is for family groups to motor out to a beautiful spot and park their cars in a lay-by (英国的路旁停车带). A picnic basket is produced, along with a folding table and chairs, a kettle and a portable stove. They then settle down to a picnic in the lay-by beside the car. Apparently, their idea of enjoyment is to get into the fresh air and amongst the country sights and sounds without having to wait a yard. They seem almost to like to hear and to smell the traffic.

46. In Britain it is very risky to \_\_\_\_\_.

- A) go with a single railway ticket
- B) listen to pop-music at the festival
- C) sleep in the open
- D) pack together in crowds

47. At the end of the festival, many young fans \_\_\_\_\_.

- A) were arrested by the police
- B) had spent most of their money
- C) were sleeping out
- D) became quite penniless

48. Even in the overcrowded United Kingdom there are large \_\_\_\_\_.

- A) tracks through the open country
- B) areas of country without soil
- C) areas of countryside not developed
- D) expanses of land where nobody works

49. Public pathways are created for people to \_\_\_\_\_.

- A) commute to work
- B) enjoy long-distance walking
- C.) walk to maritime counties
- D) visit the historic or scenic sites

50. Family groups nowadays like to \_\_\_\_\_.

- A) have meals out of doors by the road-side
- B) go for a walk away from home
- C) drive out past the beautiful places
- D) hear and smell the animals

## **Passage Two**

**Questions 51 to 55 are based on the following passage.**

Shopping for clothes is not the same experience for a man as it is for a woman. A man goes shopping because he needs something. His purpose is settled and decided in advance. He knows what he wants, and his objective is to find it and buy it; the price is a secondary consideration. All men simply walk into a shop and ask the assistant for what they want. If the shop has it in stock, the salesman promptly produces it, and the business of trying it on proceeds at once. All being well, the deal can be and often is completed in less than five minutes, with hardly any chat and to everyone's satisfaction.

For a man, slight problems may begin when the shop does not have what he wants or does not have exactly what he wants. In that case the salesman, as the name implies, tries to sell the customer something else--he offers the nearest he can to the article required. No good salesman brings out such a substitute bluntly; he does so with skill and polish. "I know this jacket is not the style you want, sir, but would you like to try it for size? It happens to be the color you mentioned." Few men have patience with this treatment, and the usual response is: "This is the right color and may be the right size, but I should be wasting my time and yours by trying it on."

Now how does a woman go about buying clothes? In almost every respect she does so in the opposite way.

Her shopping is not often based on need. She has never fully made up her mind what she wants,



and she is only “having a look around”. She is always open to persuasion; indeed, she sets great store by what the saleswoman tells her, even by what companions tell her. She will try on any number of things. Uppermost in her mind is the thought of finding something that everyone thinks suits her. Contrary to a lot of jokes, most women have an excellent sense of value when they buy clothes. They are always on the look-out for the unexpected bargain. Faced with a roomful of dresses, a woman may easily spend an hour going from one rail to another, to and for, often retracing her steps before selecting the dresses she wants to try on. It is a laborious process, but apparently an enjoyable one. So, most dress shops provide chairs for the waiting husbands.

51. When a man is buying clothes, \_\_\_\_\_.
- A) he chooses things that others recommend
  - B) he buys cheap things, regardless of quality
  - C) he buys good things, so long as they are not too expensive
  - D) he does not mind how much he has to pay for the right things
52. In commerce a good salesman is one who \_\_\_\_\_.
- A) sells something a customer does not particularly want
  - B) always has in stock the thing the customer wants
  - C) can find out quickly the goods required
  - D) does not waste his time on difficult customers
53. What does a man do when he cannot get exactly what he wants?
- A) He buys something that is similar enough to the ideal one.
  - B) He usually does not buy anything.
  - C) At least two of his requirements must be met before he buys.
  - D) So long as the style is right, he buys the thing.
54. According to this passage, when shopping for clothes, women \_\_\_\_\_.
- A) often buy things without thinking
  - B) seldom buy cheap clothes
  - C) welcome suggestions from anyone

D) never take any advice

55. What is the most obvious difference between men and women shoppers'?

- A) The fact that men do not try clothes on in a shop.
- B) Women bargain for their clothes, but men do not.
- C) Women stand up while shopping, but men sit down.
- D.) The time they take over buying clothes.

## **Appendix E Ethics Approval Letter**

Dear Professor Riazi,

Re: “Chinese EFL Learner’s Reading Motivation: A Dynamic Systems Theory Perspective”  
(5201800114)

Thank you very much for your response. Your response has addressed the issues raised by the Faculty of Human Sciences Human Research Ethics Sub-Committee and approval has been granted, effective 5th April 2018. This email constitutes ethical approval only.

This research meets the requirements of the National Statement on Ethical Conduct in Human Research (2007). The National Statement is available at the following web site:

<https://www.nhmrc.gov.au/book/national-statement-ethical-conduct-human-research>

The following personnel are authorised to conduct this research:

Professor Mehdi Riazi

Mr Jianjun Li

Please note the following standard requirements of approval:

1. The approval of this project is conditional upon your continuing compliance with the National Statement on Ethical Conduct in Human Research (2007).

2. Approval will be for a period of five (5) years subject to the provision of annual reports.

Progress Report 1 Due: 5th April 2019

Progress Report 2 Due: 5th April 2020

Progress Report 3 Due: 5th April 2021

Progress Report 4 Due: 5th April 2022

Final Report Due: 5th April 2023

NB. If you complete the work earlier than you had planned you must submit a Final Report as soon as the work is completed. If the project has been discontinued or not commenced for any reason, you are also required to submit a Final Report for the project.

Progress reports and Final Reports are available at the following website:

<https://www.mq.edu.au/research/ethics-integrity-and-policies/ethics/human-ethics/resources>

3. If the project has run for more than five (5) years you cannot renew approval for the project. You will need to complete and submit a Final Report and submit a new application for the project. (The five year limit on renewal of approvals allows the Sub-Committee to fully re-review research in an environment where legislation, guidelines and requirements are continually changing, for example, new child protection and privacy laws).

4. All amendments to the project must be reviewed and approved by the Sub-Committee before implementation. Please complete and submit a Request for Amendment Form available at the following website:

<https://www.mq.edu.au/research/ethics-integrity-and-policies/ethics/human-ethics/resources>

5. Please notify the Sub-Committee immediately in the event of any adverse effects on participants or of any unforeseen events that affect the continued ethical acceptability of the project.

6. At all times you are responsible for the ethical conduct of your research in accordance with the guidelines established by the University. This information is available at the following websites:

<https://www.mq.edu.au/research/ethics-integrity-and-policies/ethics/human-ethics/post-approval>

<https://www.mq.edu.au/research/ethics-integrity-and-policies/ethics/human-ethics/resources/research-ethics>

If you will be applying for or have applied for internal or external funding for the above project it is your responsibility to provide the Macquarie University's Research Grants Management Assistant with a copy of this email as soon as possible. Internal and External funding agencies will not be informed that you have approval for your project and funds will not be released until the Research Grants Management Assistant has received a copy of this email.

If you need to provide a hard copy letter of approval to an external organisation as evidence that you have approval, please do not hesitate to contact the Ethics Secretariat at the address below.

Please retain a copy of this email as this is your official notification of ethics approval.

Yours sincerely,

Dr Naomi Sweller

Chair

Faculty of Human Sciences

Human Research Ethics Sub-Committee

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Ethics Forms and Templates

<https://www.mq.edu.au/research/ethics-integrity-and-policies/ethics/human-ethics/resources>

The Faculty of Human Sciences acknowledges the traditional custodians of the Macquarie University Land, the Wattamattageal clan of the Darug nation, whose cultures and customs have nurtured and continue to nurture this land since the Dreamtime. We pay our respects to Elders past, present and future.



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