

Study on the Factors of Affecting L2 Reading Information Processing and their Regulatory Strategies

Yu Zhang, Jincheng Ni *

College of Foreign Languages, University of Shanghai for Science and Technology, Shanghai 200093, China

* Corresponding author: Jincheng Ni

Abstract: L2 reading information processing is influenced by various factors, and mastering the relevant influencing factors and their regulatory strategies is crucial for effectively improving L2 reading proficiency. This study explores the influencing factors and their regulatory strategies in L2 reading information processing through the scale survey. It is found in the study that linguistic factors, non-linguistic factors, and reading regulatory strategies all have significant impacts on the effectiveness of L2 reading information processing. Linguistic factors, such as vocabulary size and grammar knowledge, are considered as the most critical factors influencing L2 reading outcomes and are essential for comprehending and interpreting reading material information. Non-linguistic factors like attention and memory also play crucial roles in reading information processing, with focused attention and efficient memory utilization aiding in the extraction of reading information. Therefore, it is necessary to employ appropriate regulatory strategies during L2 reading process, such as cognitive regulation strategies and social interaction strategies, to effectively enhance reading efficiency. This research contributes to optimizing the teaching effectiveness of L2 reading and promoting the development of reading ability.

Keywords: L2 Reading Information Processing; Influencing Factors; Regulatory Strategies.

1. Introduction

Information processing is a crucial concept in cognitive psychology, viewing the human brain as an information processing system akin to a computer. The human brain actively engages in intricate and abstract cognitive and psychological activities such as perception, comprehension, absorption, etc., upon receiving external information, thereby governing human behavior (Zhang, 2013). Gagne (1999) proposed the theory of information processing, positing that reading involves readers utilizing pre-existing knowledge and cognitive abilities in their minds to combine written textual information with their knowledge and experiences, actively engaging in cognitive, understanding, absorption, and recording processes of information.

There are two types of information processing modes: controlled processing and automatic processing. Controlled processing refers to individuals consciously applying attention and cognitive resources to regulate, manage, and control the process of information processing when handling information. In information processing, controlled processing involves flexible adjustments to task demands to achieve higher levels of cognitive processing efficiency. The factors influencing controlled processing include linguistic factors (such as vocabulary, grammar, discourse, etc.) and non-linguistic factors (factors beyond linguistic elements, like cultural background knowledge, memory, emotions, etc.). Automatic processing refers to a highly automatic and efficient information processing process that occurs without obvious conscious involvement after individuals have undergone extended learning and practice for specific tasks. This mode of processing comes into play in familiar tasks, requiring almost no additional cognitive resources and attention. Automatic processing is achieved through repeated practice and accumulated experience, enabling certain tasks to be swiftly and accurately completed without heavily taxing cognitive resources.

Reading information processing holds a vital place in English language learning. To enhance reading efficiency and improve reading ability, it is imperative to comprehend the influencing factors of reading information processing. Furthermore, timely implementation of control strategies aimed at these factors is necessary to effectively boost L2 reading proficiency.

2. Literature Review

The ability to process L2 reading information serves as a critical indicator of learners' proficiency in L2 reading. Since the 1980s, scholars have shifted their focus from studying reading outcomes to investigating the reading process itself, particularly the issue of L2 reading proficiency. Qin (2001) utilized schema theory to conduct reading tests on learners, concluding that an optimal reading mode involves an interactive approach that combines both "top-down" and "bottom-up" strategies. Jin (2011) attempted to introduce the "top-down" reading mode in instructional classrooms and conducted surveys, revealing that incorporating the "top-down" reading mode effectively enhances students' rapid reading abilities. Wu (2019) employed a structural equation model to examine the influence of native language reading ability on L2 reading ability under varying cognitive loads. The findings indicated that the contribution of native language reading ability to L2 reading ability varies with different cognitive loads, and the higher the L2 proficiency, the greater the impact of native language reading ability on L2 reading.

Zou (2016) employed experimental methods to explore the consciousness of information processing in focused reading, revealing significant differences between conscious and unconscious processing. It was pointed out that learners in focused reading can consciously construct propositional representations. Jiang (2013) applied input theory to reading instruction, guiding teaching through in-class input, out-of-

class input, and cultural input. The study suggested employing chunk teaching, automatic and dual processing forms to enhance the effectiveness of reading instruction. Wang (2010) investigated the information processing model of L2 vocabulary, indicating that information processing should encompass “attention, comprehension, and memory.” The study also proposed three learning strategies: “direct learning, vocabulary learning strategy training, and instructional intervention,” which offer valuable insights. Zhang (2003) explored the use of different attention mechanisms in the process of L2 vocabulary acquisition from the perspective of L2 information processing. The study emphasized the shift from controlled processing to automatic processing in vocabulary learning. Wu (2020) examined the progress of international L2 reading research over the past two decades, highlighting that the main factors influencing L2 reading can be categorized into reading skill factors, psychological cognitive factors, emotional and social factors, as well as reading strategy and teaching factors.

Some scholars emphasize the exploration of reading strategies. Dong (2022) investigated the developmental trajectory and mutual predictive relationship between foreign language reading anxiety and the intensity of foreign language reading strategy application through three tracking surveys. The conclusion drawn was that “the higher the initial reading anxiety, the slower its rate of decrease”. Li (2017) conducted a combined qualitative and quantitative analysis of research papers on reading strategies from 2006 to 2015, highlighting issues in domestic L2 reading strategy research such as the lack of a theoretical research framework, overly singular research methods, limited comparative studies on reading strategies, limited research on vocabulary and discourse aspects of reading, and the impact of learner individual differences on reading strategies. Hao (2023) explored the relationship between English discourse vocabulary patterns and English reading strategies, proposing reading strategies such as vocabulary discrimination, syntactic analysis, inferring author intent, and understanding article content, and suggesting reading training methods for teachers like “previewing, skimming, guessing word meanings, connecting images and text, structural analysis, and inferential reasoning.” Gu (2020) employed the “programmatically grounded theory” three-level coding data analysis method to study the influencing factors and mechanisms of academic English reading, proposing that meta-comprehension and metacognition play a regulatory role in reading.

Currently, the research on L2 reading largely centers around the field of education, primarily exploring reading modes, reading strategies, reading proficiency, and more. In the realm of L2 information processing, the focus lies in linguistic aspects such as vocabulary and discourse, investigating information processing patterns, theories, mechanisms, etc., with limited exploration of cognitive psychological factors influencing L2 reading information processing and control strategies. This study delves into the factors influencing L2 reading information processing and the strategies for regulation. On the one hand, it further investigates the characteristics, influencing factors, and countermeasures of L2 reading information processing. On the other hand, research on reading information processing holds valuable implications for improving the quality of L2 reading instruction and learning. Teachers employing appropriate reading control strategies in reading instruction

can effectively enhance students’ L2 reading abilities. Given this context, studying the influencing factors and control strategies of L2 reading information processing is essential.

3. Research Design

3.1. Research Content and Participants

This study employs the methods of scale surveys and interview method to examine the factors influencing L2 learners’ reading information processing and the strategies for regulation. The research participants consist of students majoring in English and those majoring in non-English fields in regular universities.

3.2. Research Methods

The scale survey involves three sections: linguistic factors (such as vocabulary, pronunciation, grammar, discourse, discourse analysis) and L2 reading information processing, non-linguistic factors (such as memory, attention, motivation, interest) and L2 reading information processing, as well as reading strategies such as metacognitive strategies (like reflection, evaluation, adjustment), social interaction strategies (such as communicating with others, collaborating, sharing), and cognitive regulation strategies (like predicting, inferring, summarizing). Participants are required to indicate their level of agreement with each statement related to the factors influencing L2 reading information processing and the control strategies using a scale of 1-7, where 1 represents “strongly disagree” and 7 represents “strongly agree.”

3.3. Data Collection and Analysis Methods

Interview data will be summarized and analyzed. The scale Survey data will be processed using SPSS 25.0 software to calculate means, standard deviations, Z-tests, etc. for each survey item, determining the correlations between L2 reading information processing and various factors. Specific data analysis and discussions will follow.

3.4. Reliability and Validity Analysis

Prior to the formal survey, a pilot test was conducted. One English teacher, one English major student, and one non-English major student were invited to participate. Participants assessed the statements in the scale survey for agreement and evaluated the clarity, accuracy, and comprehensibility of the statement content and terminology. Based on their feedback and suggestions, the questionnaire content was adjusted and modified to ensure clear and understandable wording, ensuring the scientific validity of the scale survey.

After collecting data from the formal the scale survey, the researchers conducted reliability tests. Using the Cronbach’s α coefficient, the reliability of the survey was examined. The coefficient was found to be 0.964 for the 20 items, indicating high reliability. Cronbach’s α coefficient generally ranges from 0 to 1, with values closer to 1 indicating higher internal consistency. A value above 0.7 is typically considered high reliability.

Additionally, factor analysis was used to test the validity of the scale survey. A KMO value of 0.969 was obtained, indicating high validity. The KMO value measures the suitability of factor analysis; values above 0.5 are considered acceptable, while values above 0.9 indicate high suitability for factor analysis.

4. Data Collection and Analysis

4.1. The Scale Survey

A total of 260 university students participated in the scale survey, with 233 valid responses, yielding an effective rate of 89.6%. Participants' mean agreement scores for linguistic factors and L2 information processing, non-linguistic factors and L2 information processing, and reading regulation strategies and L2 information processing mostly fell between "somewhat agree" (Score 5) and "basically agree" (Score 6), with the majority of participants' agreement scores being closer to "basically agree" (Score 6).

The survey revealed that over 65% of participants agreed or basically agreed that "Reading comprehension is the process of information processing that readers engage in with a certain level of language knowledge" and "The size of English vocabulary significantly influences the efficiency of English reading information processing." Over 60% of participants agreed or basically agreed that "In L2 reading, English reading information processing ability complements and mutually reinforces English language proficiency" "Non-linguistic factors (such as memory, attention, motivation, interest, etc.) impact English reading information processing" "Emotional states during English reading, such as confidence, anxiety, fatigue, significantly influence information processing" "Intellectual factors like memory, attention, thinking ability, observation, play a pivotal role in English reading information processing" "The higher the reader's interest in the material, the faster the speed of reading information processing" "Longer reading materials pose greater difficulty in reading information processing" "English

reading information processing is a language cognitive activity that integrates language knowledge, non-language knowledge, and reading regulatory strategies." Over 50% of participants agreed or basically agreed that "Proficiency in English grammar plays a crucial role in the effectiveness of reading information processing" "Non-linguistic factors (such as memory, attention, motivation, interest, etc.) impact English reading information processing" "English reading information processing is closely tied to the mastery of cultural background knowledge" "Enhanced English reading motivation leads to increased reading speed and accuracy" "Employing metacognitive regulatory strategies (e.g., reflection, evaluation, adjustment) helps enhance English reading effectiveness" "Employing social interaction regulatory strategies (e.g., communication, collaboration, sharing) effectively enhances English reading information processing ability" "Using cognitive regulatory strategies (e.g., prediction, inference, summarization) reduces problems in reading information processing" "Developing reading interest and enhancing motivation are positive regulatory strategies for L2 information processing." Additionally, participants who disagreed or basically disagreed with statements such as "The effectiveness of English reading information processing has no correlation with linguistic factors" "English reading information processing is unrelated to the quality of reading habits" "The use of reading regulatory strategies has no effect on English reading information processing accounted for 10.3%, 6.9%, and 24.5% respectively." It is evident that the majority of participants believe that language factors, non-language factors, and reading regulation strategies are associated with the effectiveness of English reading information processing.

Table 1. Survey Results on the Factors Influencing L2 Information Processing and Regulation Strategies

	Statements	Mean	SD	R ₁ vs R ₂	Z Value
linguistic factors and L2 Reading Information Processing	Reading comprehension is the process of information processing that readers engage in with a certain level of language knowledge.	5.73	1.400	0.652/0.043	8.13
	The size of English vocabulary significantly influences the efficiency of English reading information processing.	5.7	1.475	0.652/0.047	8.11
	Proficiency in English grammar plays a crucial role in the effectiveness of reading information processing.	5.39	1.322	0.528/0.073	5.87
	The effectiveness of English reading information processing has no correlation with linguistic factors.	2.91	1.784	0.103/0.510	-5.28
	In L2 reading, English reading information processing ability complements and mutually reinforces English language proficiency.	5.5	1.427	0.618/0.060	7.41
Non-linguistic factors and L2 Reading Information Processing	Non-linguistic factors (such as memory, attention, motivation, interest, etc.) impact English reading information processing.	5.55	1.395	0.601/0.052	7.20
	Emotional states during English reading, such as confidence, anxiety, fatigue, significantly influence information processing.	5.51	1.270	0.609/0.047	7.41
	Intellectual factors like memory, attention, thinking ability, observation, play a pivotal role in English reading information processing.	5.46	1.405	0.614/0.039	7.54
	Non-intellectual factors such as reading motivation, interest, emotions, willpower, significantly influence information processing.	5.33	1.396	0.558/0.047	6.61
	English reading information processing is closely tied to the mastery of cultural background knowledge.	5.45	1.371	0.554/0.060	6.41
	.English reading information processing is unrelated to the quality of reading habits.	2.86	1.529	0.069/0.489	-5.33
	The higher the reader's interest in the material, the faster the speed of reading information processing.	5.61	1.411	0.618/0.052	7.47
	Longer reading materials pose greater difficulty in reading information processing.	5.51	1.349	0.618/0.052	7.47

	Enhanced English reading motivation leads to increased reading speed and accuracy.	5.56	1.423	0.579/0.039	6.99
Reading Regulatory Strategies and L2 Reading Information Processing	Employing metacognitive regulatory strategies (e.g., reflection, evaluation, adjustment) helps enhance English reading effectiveness.	5.52	1.387	0.592/0.052	7.06
	Employing social interaction regulatory strategies (e.g., communication, collaboration, sharing) effectively enhances English reading information processing ability.	5.45	1.339	0.592/0.047	7.14
	Using cognitive regulatory strategies (e.g., prediction, inference, summarization) reduces problems in reading information processing.	5.44	1.383	0.562/0.052	6.59
	Developing reading interest and enhancing motivation are positive regulatory strategies for L2 information processing.	5.45	1.411	0.579/0.056	6.83
	English reading information processing is a language cognitive activity that integrates language knowledge, non-language knowledge, and reading regulatory strategies.	5.60	1.310	0.614/0.030	7.66
	The use of reading regulatory strategies has no effect on English reading information processing.	3.02	1.737	0.245/0.485	-4.42
linguistic factors and L2 Reading Information Processing	Reading comprehension is the process of information processing that readers engage in with a certain level of language knowledge.	5.73	1.400	0.652/0.043	8.13
Non-linguistic factors and L2 Reading Information Processing	The size of English vocabulary significantly influences the efficiency of English reading information processing.	5.7	1.475	0.652/0.047	8.11
	Proficiency in English grammar plays a crucial role in the effectiveness of reading information processing.	5.39	1.322	0.528/0.073	5.87
	The effectiveness of English reading information processing has no correlation with linguistic factors.	2.91	1.784	0.103/0.510	-5.28
	In L2 reading, English reading information processing ability complements and mutually reinforces English language proficiency.	5.5	1.427	0.618/0.060	7.41
	Non-linguistic factors (such as memory, attention, motivation, interest, etc.) impact English reading information processing.	5.55	1.395	0.601/0.052	7.20
Reading Regulatory Strategies and L2 Reading Information Processing	Emotional states during English reading, such as confidence, anxiety, fatigue, significantly influence information processing.	5.51	1.270	0.609/0.047	7.41
	Intellectual factors like memory, attention, thinking ability, observation, play a pivotal role in English reading information processing.	5.46	1.405	0.614/0.039	7.54
	Non-intellectual factors such as reading motivation, interest, emotions, willpower, significantly influence information processing.	5.33	1.396	0.558/0.047	6.61
	English reading information processing is closely tied to the mastery of cultural background knowledge.	5.45	1.371	0.554/0.060	6.41
	.English reading information processing is unrelated to the quality of reading habits.	2.86	1.529	0.069/0.489	-5.33
	The higher the reader's interest in the material, the faster the speed of reading information processing.	5.61	1.411	0.618/0.052	7.47
	Longer reading materials pose greater difficulty in reading information processing.	5.51	1.349	0.618/0.052	7.47
	Enhanced English reading motivation leads to increased reading speed and accuracy.	5.56	1.423	0.579/0.039	6.99
	Employing metacognitive regulatory strategies (e.g., reflection, evaluation, adjustment) helps enhance English reading effectiveness.	5.52	1.387	0.592/0.052	7.06
Reading Regulatory Strategies and L2 Reading Information Processing	Employing social interaction regulatory strategies (e.g., communication, collaboration, sharing) effectively enhances English reading information processing ability.	5.45	1.339	0.592/0.047	7.14
	Using cognitive regulatory strategies (e.g., prediction, inference, summarization) reduces problems in reading information processing.	5.44	1.383	0.562/0.052	6.59
	Developing reading interest and enhancing motivation are positive regulatory strategies for L2 information processing.	5.45	1.411	0.579/0.056	6.83
	English reading information processing is a language cognitive activity that integrates language knowledge, non-language knowledge, and reading regulatory strategies.	5.60	1.310	0.614/0.030	7.66
	The use of reading regulatory strategies has no effect on English reading information processing.	3.02	1.737	0.245/0.485	-4.42

Note: 1) A total of 233 valid participants; 2) “Mean” represents the mean value, “SD” is the standard deviation, “R₁” is the proportion of participants selecting values 6-7 divided by the total number of participants, and “R₂” is the proportion of participants selecting values 1-2 divided by the total number of participants.

Furthermore, the researchers conducted Z-tests on the results of the scale survey. The specific results of the Z-tests are shown in Table 1.

Based on the data in Table 1, the Z-value is a statistical measure used to assess whether there is a significant difference between two proportions. In this context, we can focus on the Z-values for each statement to compare the proportions of agreement and disagreement within the population. The results indicate that for the statements “Reading comprehension is the process of information processing that readers engage in with a certain level of language knowledge” “The size of English vocabulary significantly influences the efficiency of English reading information processing” “Proficiency in English grammar plays a crucial role in the effectiveness of reading information processing” and “In L2 reading, English reading information processing ability complements and mutually reinforces English language proficiency”, the Z-values are greater than the critical value ($Z_{0.05}=1.645$). Therefore, the researchers infer that the proportion of participants agreeing or basically agreeing with these statements is significantly higher than the proportion disagreeing or basically disagreeing. This suggests that these statements are highly recognized among participants, indicating the importance of linguistic factors, particularly the application of language knowledge, in reading comprehension and efficiency.

Similarly, the Z-tests for the differences in proportions between the number of participants selecting values 6-7 and values 1-2 for the other statements also yield Z-values greater than the critical value ($Z_{0.05}=1.645$). Hence, the researchers infer that the proportion of participants agreeing or basically agreeing with the other statements is significantly higher than the proportion disagreeing or basically disagreeing.

For the statements “The effectiveness of English reading information processing has no correlation with linguistic factors” “English reading information processing is unrelated to the quality of reading habits” and “The use of reading regulatory strategies has no effect on English reading information processing”, the differences in overall proportions yield negative Z-values, namely -5.28, -5.33, and -4.42, respectively. However, the absolute values of these Z-values are greater than the critical value ($Z_{0.05}=1.645$). Therefore, it can be reasonably inferred that the proportion of participants disagreeing or basically disagreeing with these statements is significantly greater than the proportion agreeing or basically agreeing.

The aforementioned analysis reveals that, within the context of L2 reading information processing, language factors, encompassing language knowledge, as well as non-language factors, exert a pronounced influence on the efficiency of reading comprehension. Moreover, the noteworthy degree of acknowledgment regarding the significance of reading regulation strategies among participants implies their belief in the efficacy of these strategies for enhancing the efficiency of L2 information processing.

5. Discussion

This study utilized the scale survey to investigate the influential factors and regulation strategies in L2 reading information processing. The results indicate that a majority of survey participants strongly recognize the pivotal role of language factors in reading comprehension, with a particular

emphasis on the significance of vocabulary size and grammar knowledge. Pan (2003) posited that reading is described as a process of information reconstruction utilizing one’s pre-existing knowledge. Consequently, language knowledge is deemed to play a determinative role in the comprehension of reading material. Within the reading process, it is observed that the higher the level of language knowledge a learner possesses, the more robust their proficiency in L2 information processing, generally resulting in a swifter processing of L2 reading information.

The significance of vocabulary size and grammar knowledge is paramount for learners seeking to enhance their proficiency in reading in their second language (L2). Numerous challenges confront L2 students during English reading, notably encompassing insufficient vocabulary, struggles with comprehending complex sentence structures, ambiguities related to figurative meanings, and the influence of cultural background disparities. These challenges exert varying degrees of impact on students’ reading comprehension abilities. Educators can leverage this insight to formulate pedagogical strategies that specifically target vocabulary and grammar, effectively aiding learners in augmenting their information processing capabilities and elevating the efficiency of their L2 reading comprehension.

Furthermore, non-language factors, including attention and memory, are recognized as having a significant impact on the processing of information in L2 reading. Song (2016) has highlighted the positive correlation between working memory capacity and L2 proficiency. In other words, greater working memory capacity corresponds to increased memory capacity and breadth, ultimately leading to higher L2 proficiency and enhanced L2 information processing capabilities. Similarly, the role of attention in reading comprehension should not be underestimated, as it plays a pivotal role in L2 reading information processing (Zou 2016).

In their pedagogical approach, educators should address learners’ attention management, guide them in developing techniques for focused attention, enhancing memory, and instruct them on how to effectively integrate deliberate and involuntary attention to facilitate a deeper understanding of reading materials and optimize the process of information processing in L2 reading.

The research also reveals that the majority of students believe that the utilization of reading regulation strategies enhances the efficiency of processing information in L2 reading, leading to improved reading effectiveness. However, many students have limited knowledge of these strategies and struggle to apply them effectively when reading L2 materials. Educators should incorporate reading regulation strategies, tailor reading instruction plans, and provide essential guidance to maximize the development of L2 learners’ capabilities in processing information during reading.

6. Conclusion

Reading serves as the foundation of language learning, facilitating the acquisition of vocabulary, comprehension of grammar, fostering cultural awareness, and enhancing language skills and communicative proficiency. This research conducted a scale survey to examine the factors influencing and the strategies regulating L2 reading information processing. The findings reveal that both linguistic and non-linguistic factors exert significant impacts on L2 reading information processing, with linguistic factors playing

particularly influential roles in enhancing English L2 proficiency. In L2 reading, learners are encouraged to actively enhance their language knowledge, encompassing vocabulary and grammar, develop strategies for managing their reading attention, and bolster their reading memory. Therefore, reading regulation strategies should be implemented to enhance the efficiency of reading information processing.

This study concentrates on typical college students, while L2 learners encompass a diverse and extensive demographic. Consequently, the results of this study possess some inherent limitations. Future research endeavors may contemplate expanding the scope of investigation to encompass different dimensions of L2 learners, including age, educational background, and various demographic characteristics, with the aim of gaining a comprehensive understanding of the influencing factors and regulation strategies in L2 reading information processing.

Acknowledgments

This work was funded by the Social Sciences Annual Research Project of Shanghai “A Study on the Interactive Processing Mechanism of English L2 Text Reading” (2021 BYY008).

References

- [1] Dong Lianqi, Liu Meihua. Development Trajectory of Foreign Language Reading Anxiety and the Use of Reading Strategies [J]. *Foreign Languages and Their Teaching*. 2022(4): 134-150.
- [2] Gagne, R. M. Translated by P. Lian-Sheng, W. Ying-Xue, Z. Wei, et al. *Conditions of Learning and Theory of Instruction* [M]. Shanghai: East China Normal University Press, 1999:16-21.
- [3] Gu Junyi. Research on Academic English Reading Behavior: Influencing Factors and Mechanisms[J]. *Foreign Language Teaching and Research*. 2020 (6): 92-98.
- [4] Hao Jia. Exploration of Lexical Patterns in College English Discourse and Reading Strategies[J]. *China Higher Education Research*. 2023(z1):147.
- [5] Jiang Min. Application of Input Hypothesis in Reading Instruction[J]. *Language Construction*. 2013(08): 28-29.
- [6] Jin Shan. Practice and Effectiveness Test of "Top-down" Reading Model[J]. *Journal of Hainan University Humanities and Social Sciences Edition*. 2011, 29(6):136-139.
- [7] Li Jiongying, Pu Yiting. Research on L2 Reading Strategies in China: A Review and Prospect (2006-2015) [J]. *Foreign Language Teaching*. 2017,38(3):62-67.
- [8] Pan Jiliang, Zhao Yang. An Analysis of the Influencing Factors and Strategies of English Reading[J]. *Journal of Zhejiang Shuren University*. 2003,3(4):40-42.
- [9] Qin Yan. The Impact of "Top-down" and "Bottom-up" Reading Models and Schema Theory on Reading Tests[J]. *Heilongjiang Education Institute Journal*. 2001,20(5):73-75.
- [10] Song Ying, Zhang Shouchen. A Meta-analysis of the Relationship between Working Memory Capacity and Second Language Proficiency[J]. *Journal of Psychology and Behavior Research*. 2016,14(3):311-317.
- [11] Wang Zhexi. A Study on Second Language Vocabulary Incidental Acquisition Based on Information Processing Model[J]. *Foreign Language Studies*. 2010(1):108-112.
- [12] Wu Xiaoyan, Wang Fei. The Impact of Native Language Reading Ability on Second Language Reading Under Different Cognitive Load Tasks[J]. *Theory and Practice of Foreign Language Teaching*. 2019(4):63-70.
- [13] Wu Xiaoyan, Wang Fei. Advances in International L2 Reading Research in the Past 20 Years[J]. *Modern Foreign Languages*. 2020,43(3):424-434.
- [14] Zhang Huaitao. The Essential Nature and Main Characteristics of Reading[J]. *University Library Work*. 2013(3):26-29.
- [15] Zhang Wenzhong, Wu Xudong. A Cognitive Psychological Model of the Development of L2 Vocabulary in Classroom Environment [J]. *Modern Foreign Languages*. 2003, 26(4): 373-384.
- [16] Zou Yanrong, Wang Ruiming. A Study of Conscious Information Processing in Focus Reading[J]. *Psychological Science*. 2016, 39(4):856-861.