
RESEARCH ARTICLE

The Effect of Self-identity and Positive Emotion Intervention on College Students' English Reading Study on the Correlation between Test Scores

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ABSTRACT

The aim of this study was to investigate the impact of self-identification and positive emotion intervention on college students' English reading comprehension. In the context of globalization, proficiency in English reading is crucial for effective cross-cultural communication and career advancement. However, previous research has primarily focused on the influence of self-efficacy on long-term learning, neglecting the examination-specific utilization of psychological adjustment strategies (such as positive emotional intervention) and its correlation with test performance and scores among students. Therefore, this study posits that through psychological adjustment and alleviation of test anxiety, positive emotional intervention and self-identification can facilitate improvements in English reading comprehension skills as well as enhance test coping abilities. A total of 61 non-English major college students were randomly selected and divided into two groups: "moderate self-identification group" and "high self-identification group". Each group was further subdivided into an intervention group and a control group. The statistical software SPSS was employed to conduct descriptive statistics, correlation analysis, cluster analysis, and difference analysis in order to elucidate the relationship between positive emotions, self-identification, and English reading scores. These findings aim to provide novel insights for both the education industry and the psychological field. The results revealed that positive emotion intervention significantly influenced students' English reading test scores across different levels of self-identification. Specifically, students with a moderate level of self-identification exhibited improved performance after receiving positive emotion intervention, whereas those with a high level of self-identification maintained better performance without additional situational motivation. Furthermore, it was observed that reading materials of varying difficulty levels also impacted reading comprehension at an intermediate level of English proficiency. Overall, this study confirms the efficacy of positive emotion intervention in assisting students in effectively coping with challenges and enhancing their accuracy.

KEYWORDS

Positive Emotion, Self-identity, English reading.

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1. Introduction

In the context of globalization, English reading proficiency serves as a pivotal indicator for assessing an individual's cross-cultural communication competence. It not only plays a crucial role in learners' ability to acquire information and articulate ideas effectively but also provides essential support for academic accomplishments and career advancements (Dewaele & MacIntyre, 2014). However, enhancing English reading skills is no easy task due to various influencing factors such as learners' aptitude, learning strategies, motivation levels, and emotional attitudes. In recent years, the emergence of positive psychology has introduced a fresh perspective into foreign language education and sparked research interest in exploring the impact of positive emotions. Positive

emotions not only contribute to enhancing learners' psychological adaptability but also alleviate test anxiety, improve learning efficiency, and positively influence English reading proficiency.

Positive emotions exert a significant influence on an individual's mental well-being. Research has consistently demonstrated a negative correlation between positive emotions and the prevalence of depression and anxiety, both of which are crucial factors impacting English reading proficiency. Therefore, investigating the association between positive emotions and English reading comprehension is instrumental in providing psychological adjustment strategies to effectively manage test-related anxiety and enhance learners' long-term mental health under academic pressure.

Self-identity, as a fundamental element shaping one's perception and evaluation of oneself, plays a pivotal role in the learning process (Pekrun, 2006). Varied levels of self-identification can lead to substantial disparities in learners' attitudes and engagement levels. Learners with higher degrees of self-identification generally exhibit greater confidence and willingness to embrace challenges, whereas those with lower levels tend to experience feelings of defeatism and anxiety. This discrepancy may significantly impact the effectiveness of interventions targeting positive emotions. Factors such as family environment, social desirability, and personal evaluation can influence the extent of self-identification experienced by individuals. As members of a socialized group, students' sense of self-identity permeates all aspects of their collective lives while also potentially influencing their academic achievements correspondingly. Henceforth, this study aims to explore whether varying degrees of self-identification have an impact on English reading performance alongside elucidating the significance behind implementing interventions that foster positive emotions.

Although the role of positive emotions in foreign language learning has been partially discussed, existing studies primarily focus on the long-term impact of positive emotions on learning motivation and strategies. However, there is still a lack of sufficient research regarding the timely intervention of positive emotions during testing to improve English reading scores, as well as investigating the factors that influence this intervention at different levels of self-identification. Furthermore, further exploration is needed to understand how learners with varying levels of self-identification may differ in terms of improving their English reading ability after receiving positive emotional intervention.

This study aims to address these research gaps by conducting empirical research to explore the relationship between positive emotion intervention, English reading achievement, and self-identification. Our hypothesis posits that through timely alleviation of students' test anxiety and prevention of self-depletion and anxiety generalization, positive emotion intervention can indirectly enhance English reading comprehension by directing attention towards the essay itself (Fredrickson, 2001). Additionally, we also investigate the correlation between self-identification and English reading comprehension. Specifically, it is expected that learners with higher levels of self-identification will demonstrate stronger feelings of self-efficacy and achieve greater accuracy in English reading comprehension after receiving positive emotion intervention.

In order to investigate college students with similar baseline conditions, the author employs a questionnaire to select appropriate participants and objectively observes group characteristics to identify self-identification trends. To ensure accuracy and minimize errors caused by practice and fatigue effects, an intergroup design is adopted in this study, where each subject receives only one level of independent variable treatment. This approach allows for better experimental control and enhances the validity of conclusions drawn from the experiment. To validate the hypothesis, three methods are employed: single-factor intergroup design, descriptive analysis, difference analysis, and cluster analysis, which are used for qualitative analysis and small-scale cross-sectional research on collected learner questionnaire data. The research primarily consists of two steps:

Grouping test subjects based on self-esteem scale scores followed by distribution of test papers; Analysis of English reading test results between the intervention group and control group.

By analyzing the data of learners with varying degrees of self-identification, the researchers aim to unveil the disparities between positive emotional intervention and self-identification levels in relation to English reading comprehension achievement (Atkinson, 1957). This study offers empirical support for the application of positive psychology in foreign language teaching, not only deepening our understanding of the mechanism behind positive emotions in language learning but also holding significant implications for guiding teaching practices, particularly in designing effective measures for positive emotion interventions. Furthermore, this research introduces a fresh perspective and methodology to both psychology and pedagogy fields while enriching relevant theoretical frameworks.

2. Study Design

2.1 Subjects

In this study, a random sampling method was employed to select college students with CET-4 scores ranging from 425 to 550 across Shanghai. After obtaining their consent, questionnaires were distributed to 64 college students, resulting in the acquisition of 61 valid questionnaires (effective recovery rate: 95.3%). The age of participants ranged from 18 to 22 years old ($M = 19.5$ years old, $SD = 0.93$). Among them, there were 28 male participants (45.9%) and 33 female participants (54.1%).

2.2 Research Tools

Two main measurement instruments were designed for this study to comprehensively evaluate the relationship between positive affect intervention, self-identification, and English reading ability.

2.2.1 Self-Esteem Scale

The self-identity scale was developed based on Erich Fromm's Self-Esteem Scale (SES) in order to measure the extent to which learners identify with their identity as English learners (Wigfield & Eccles, 2000). The SES is widely used in psychology research in China due to its concise topic design and accurate results. It consists of several items that are rated on a four-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (4). Careful consideration will be given during the design process of the scale to ensure it accurately reflects learners' emotional and motivational states at different levels of self-identity.

2.2.2 English Reading Ability Measurement Tool

The evaluation of English reading ability is conducted based on the second International College Students' English Ability Challenge in 2023. A total of five items are selected from both formal and sample papers in IEACCS to comprehensively assess learners' vocabulary comprehension, sentence comprehension, paragraph analysis, and passage comprehension skills. The test results will serve as an objective measure of learners' proficiency in English reading.

3. Research Procedures and Data Processing

This study will employ random sampling to select a representative sample of English learners at the same level. The questionnaire will be administered electronically, and data collection will commence after participants have completed the survey. Subsequently, SPSS SOFTWARE will be utilized for data cleaning, descriptive statistical analysis, correlation analysis, and cluster analysis to validate the research hypothesis (Trautwein et al., 2012). Additionally, the PROCESS MACRO PROGRAM will be employed to examine any potential moderating effects and ensure the accuracy and reliability of the study findings. The steps are as follows:

Step 1: In this study, the CET-4 score ranging from 425 to 550 was utilized as an indicator of intermediate English proficiency. The self-esteem scale was distributed among non-English major college students who possessed a similar level of English proficiency. A 4-point Likert scale (1 = "strongly disagree", 4 = "strongly agree") was employed for rating purposes. Students obtaining final scores between 20 and 30 were categorized as having "moderate self-identity," while those scoring between 30 and 40 were classified as having "high self-identity." The participants were divided into four groups: moderate intervention group ($n = 16$), moderate control group ($n = 16$), high intervention group ($n = 15$), and high control group ($n = 14$).

Step 2: Due to site limitations, the test was conducted in the form of an online questionnaire. To prevent participant burnout, the experimenter selected five reading comprehension items with a total score of ten. After deleting paragraphs and adjusting vocabulary, four items had similar difficulty levels (5-6 new words), while the third item increased in reading difficulty (10-13 new words). Once the test items were selected, researchers divided them into paper A (intervention group) and paper B (control group). Paper B served as the normal test paper, whereas paper A deliberately provided false information at its beginning by informing participants that the true purpose of the experiment was to investigate conscientiousness and attention relationships. The third test included motivational words and memes.

The experiment proceeded with informed consent from all participants; after completion of testing, their awareness regarding its actual intention was disclosed (Shao et al., 2020). To mitigate any adverse effects resulting from challenging problems encountered during testing, researchers explained their work thoroughly post-test and offered support along with incentives to all participants.

4. Results

4.1 Descriptive Analysis and Cluster Analysis

The distribution of scores on the SELF-ESTEEM SCALE is illustrated in Figure 1. The majority of subjects obtained scores of 29 and 30, with a nearly equal number falling within the score range of 25 to 30 and 31 to 40. Consequently, a score of 30 was adopted as an indicator of self-identity. Scores exceeding 30 were considered indicative of high self-identification, while scores below 30 denoted moderate self-identification.

Underneath the root node depicted in Figure 2's dendrogram, all testers are initially merged together (Dewaele & Li, 2020). As the branches extend further, testers are progressively subdivided into distinct clusters. At the intersection point with a distance metric value of 10, six major clusters emerge. Cluster A primarily comprises testers exhibiting high self-identity, whereas Cluster B predominantly consists of individuals displaying moderate self-identity. Cluster C and Cluster D encompass three testers, each of whom possesses high levels of self-identification; similarly, cluster E and cluster F consist of three testers, each demonstrating moderate levels of self-identification (Lei, 2014). Therefore, it can be inferred that cluster C and cluster D can be consolidated into one single entity classified as cluster A due to their shared characteristics pertaining to moderate self-identification. Furthermore, both cluster E and cluster F can also be categorized under the umbrella classification as part of cluster B since they exhibit similar traits associated with moderate levels of self-identification.

These identified clusters aid in effectively distinguishing between high and moderate self-identification, facilitating subsequent experimental procedures.

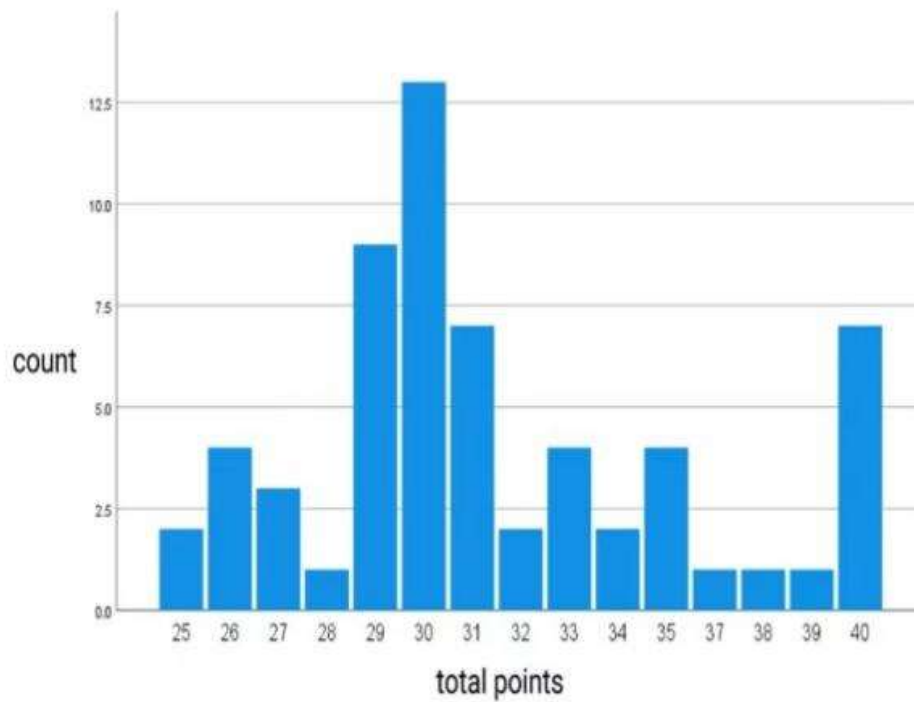


Figure 1: Descriptive statistics of the self-esteem Scale

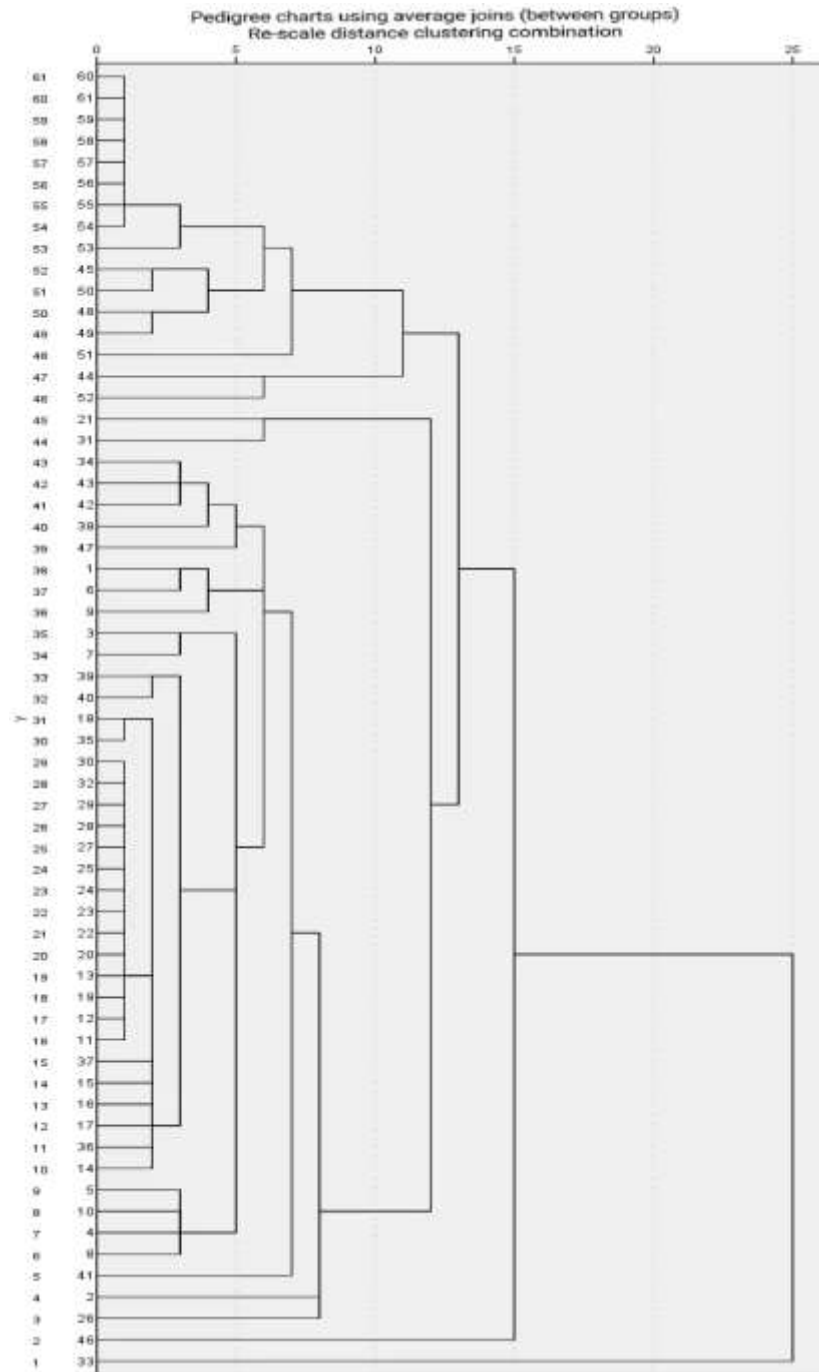


Figure 2: Cluster analysis of testers with different levels of self-identity

4.2 Descriptive Statistics and Difference Tests for Each Variable

The results presented in Figure 1 indicate that the average score of 61 valid data points is 31.62, with a standard deviation of 4.224. Specifically, the “high self-identity group” achieved a mean score of 35, with a standard deviation of 3.546, while the “moderate self-identity group” obtained an average score of 28.56 and a standard deviation of 1.684.

In order to investigate the variables influencing English reading performance further, the researchers implemented positive emotion intervention for the “high” group and no intervention for the “moderate” group during the English reading test. Within the moderate intervention group, participants achieved an average reading score of 6.2500, with a standard deviation of 2.62043, whereas in the moderate non-intervention group, they scored an average of 3.0000 (standard deviation = 2.06559). Similarly, within the “high intervention group,” participants attained an average reading score of 5.4667 (standard deviation = 3.06749), while those in the highly non-intervention group had a mean score of 3.1429 (standard deviation = 2.44).

The results from independent sample T-tests revealed that Table showed no significant difference in total English scores among different degrees of self-identification ($P > 0.05$). However, there was a significant difference between positive emotion intervention and non-intervention groups ($P < 0.05$), indicating that scores were significantly higher in the intervention group compared to those in non-intervention.

Table 1: Results of T-test for different levels of self-identification and positive emotion intervention

		Total points	T	P
Degree of Self-identification	High	4.34±2.979	0.375	0.709
	Moderate	4.63±2.848		
Positive Emotion intervention	Non-intervention	3.07±2.212	4.307	0.000**
	Intervention	5.87±2.825		

The third question was used as the independent variable, while the "moderate intervention group," "moderate non-intervention group," "high intervention group," and "high non-intervention group" were considered as the dependent variables. A chi-square test was employed to compare the differences in responses to question 3 among different groups. The results from Table 2 and Table 3 demonstrate a significant divergence in the selection of question 3 across various groups. The proportions of correct answers for the third question were found to be 43.75%, 25%, 66.67%, and 7.14% for the "moderate intervention group," "moderate non-intervention group," "high intervention group," and "high non-intervention group" respectively. In conclusion, it can be inferred that positive emotion interventions have a beneficial impact on reading ability, as evidenced by the superior performance of the intervention groups compared to their non-intervention counterparts.

Table 2: Cross table of intervention situation in question 3

			The situation requiring intervention				Total
			1	2	3	4	
Question3	2	Count	6	6	2	4	18
		Percentage count for Intervention cases	13.0%	13.0%	3.8%	8.7%	9.4%
	3	Count	36	36	15	18	105
		Percentage count for Intervention cases	78.3%	78.3%	28.3%	39.1%	55.0%
	4	Count	4	4	36	24	68
		Percentage count for Intervention cases	8.7%	8.7%	67.9%	52.2%	35.6%
Total		Count	46	46	53	46	191
		Percentage count for Intervention cases	100.0%	100.0%	100.0%	100.0%	100.0%

Table 3: Chi-square test

	Value	Degree of freedom	Progressive significance(bilateral)
Pearson square	58.944 ^a	6	.000
Likelihood ratio	64.502	6	.000
Linear correlation	28.213	1	.000
Number of valid cases	191		

Note that 4 cells (33.3%) have an expected count below 5, with the minimum expected count being 4.34

5. Discussion

5.1 The Effect of Emotional Intervention on English Comprehension Ability of Students with Different Levels of Self-identify

This study focuses on investigating the effects of positive emotion intervention and varying degrees of self-identification on English reading comprehension among CET-4 college students in China (Pekrun et al., 2009). By elucidating the interrelationships among these three factors, this study further expands our understanding of the associations between self-identity, positive emotion, and English comprehension.

The results from correlation analysis and difference analysis revealed that positive emotion intervention had a significant impact on students' test scores. Positive emotion intervention exhibited a positive correlation with English reading comprehension ability. The data indicated that the average score for the moderate self-identity group was 6.2500, which surpassed that of the high self-identity group (5.4667). Thus indicating a more pronounced effect of emotional intervention on the moderate self-identity group.

Furthermore, within the uncontrolled group, a slightly higher performance was observed in the high self-identity group compared to the moderate self-identity group; however, this difference did not reach statistical significance. Therefore, whether or not the degree of self-identity influences academic performance requires further investigation.

In light of these findings, we encourage learners to appropriately utilize psychological adjustment techniques during their learning process.

5.2 Performance of Students Facing Challenges Under Positive Emotion Intervention

The difficulty level of English reading materials has a significant impact on reading comprehension scores, with readers at an intermediate English proficiency level being the most affected (Ryan & Deci, 2000). Under the influence of easy-hard-easy questions, the data revealed that students' reading scores generally improved when exposed to positive emotion intervention. In addition to the challenge posed by the inherent difficulty of the third question, the researchers also examined emotional persistence in readers and the potential impact of positive interventions.

For the moderate intervention group, correct rates for the fourth and fifth questions were 37.5% and 75%, respectively. In contrast, for the moderate non-intervention group, the correct rates for these questions were 18.75% and 62.5%. Similarly, in the "high intervention group," correct rates for these questions were 13.33% and 80%, while in the highly non-intervention group, they were recorded as 21.43% and 57.14% (Zimmerman, 2000). The data indicated that students' emotions began to fluctuate after facing challenges; the accuracy rate generally decreased in response to the fourth question but increased during attempts at answering the fifth question correctly. In addition to self-adjustment by students themselves, it was observed that those who received interventions made more efforts towards adjustment.

The correct rates of questions 3, 4, and 5 were compared between the two groups. The study revealed that the high self-identity group demonstrated greater performance variability than the moderate self-identity group, exclusively exhibiting proficiency in items featuring encouraging language (Bandura, 1997). Consequently, it is postulated that among Chinese college students, individuals with high self-identity experience more pronounced fluctuations in specific states when confronted with incentives and challenges compared to those with moderate self-identity. Moreover, under positive emotional intervention, the overall performance of the moderate self-identity group displayed a significantly enhanced improvement.

6. Summary

6.1 Conclusion

In this study, the AB test was employed to examine the impact of positive emotion intervention on English reading scores among readers with varying levels of self-identification at an intermediate level of English proficiency. The difficulty of intermediate questions was manipulated to create a sequence of "easy - hard - easy" questions. The objective is to assess participants' comprehension levels and investigate the relationship between positive emotion, self-identification, and English reading performance.

Through the analysis of the aforementioned research, the following conclusions can be drawn:

- (1) Positive emotion intervention has a significant impact on English reading comprehension ability among CET-4 college students in China, varying according to their levels of self-identity.
- (2) Among students with a moderate level of self-identity, those who received positive emotion intervention exhibited better academic performance compared to those with a high level of self-identity.
- (3) In the absence of emotional intervention, students with a high level of self-identity achieved slightly higher scores than those with a moderate level; however, this difference was not statistically significant.

Through a comprehensive analysis of the research findings, this study holds significant theoretical and practical implications. Theoretically, positive emotion is considered a fundamental adaptive mechanism aimed at resolving internal conflicts, while self-identity represents an individual's self-perception. English reading performance serves as an evaluative indicator. By exploring the interplay between these three constructs, we can gain a deeper understanding of their interconnectedness and further enhance our comprehension of the relationship between cognition, psychological adjustment, and test outcomes (Dweck, 2006). Moreover, on a practical level, previous studies primarily focused on students' learning periods when investigating psychological adjustment; however, this study delves into whether there exists a correlation between timely positive emotional interventions and test scores among students with varying levels of self-identification. Consequently, this research provides concrete data support and novel insights for psychological professionals and educators seeking to improve students' test coping abilities by reducing test anxiety while simultaneously enhancing overall learning interest and mental well-being amidst chronic exam stressors. Employing positive

emotion intervention strategies aids in assisting students with test anxiety by bolstering their confidence in English exams while preventing self-deprecation and generalized anxiety.

6.2 The Research Significance and Future Prospects

6.2.1 The Advancement of Research Innovation

What is innovative about this study is that, given the English teaching environment in China, English reading comprehension plays a pivotal role in both examination and self-study processes. Through an extensive review of relevant literature, it becomes evident that domestic and foreign studies primarily concentrate on the influence of self-efficacy on long-term learning. However, there exists a research gap regarding the correlation between the timely utilization of psychological adjustment strategies (particularly positive affective interventions during testing) and student test performance and achievement. This study not only establishes a theoretical foundation for the positive correlation between these factors but also explores their relationship through empirical research.

6.2.2 The Limitations and Prospects of the Research

This study has some limitations.

- (1) Firstly, it only groups students with varying levels of self-identification and explores the correlation between self-identification, positive emotions, and reading test scores without conducting an in-depth analysis of causality. Therefore, future studies should conduct longitudinal experiments and long-term intervention experiments while adding more time points in pre-and post-tests to extend the tracking period for studying causality and cyclic relationships between variables.
- (2) Secondly, some data obtained from this study are inconsistent with expectations as there was no significant difference found between students with moderate self-identification and those with high self-identification regarding their average score on English reading tests. Due to limited conditions and difficulty finding samples of low self-identification, further division of English level among students is not possible. Future studies can explore whether different levels of self-identification affect Chinese college students' reading comprehension scores based on high, middle or low levels of identification while examining psychological fluctuations when faced with incentives or challenges.
- (3) In the actual examination process, positive emotional intervention is not the sole influencing factor; individual fatigue, interest in English learning, and test takers' adjustment ability also impact learners' sensitivity to test difficulty. However, this study did not effectively measure and analyze these factors. Therefore, future research should incorporate these variables into control conditions and further explore the nature of this issue.
- (4) This study solely employs simple language guidance and picture prompts to enhance students' interest in English reading. The findings indicate that when encountering difficulties, students may experience emotional fluctuations and anxiety generalization. Hence, there is a need to enhance psychological adjustment levels and improve test performance. In subsequent studies, it would be beneficial to develop relevant assessment tools for different proficiency levels among students and devise specific strategies tailored to various groups of Chinese students for managing test anxiety generalization.

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References

- [1] Atkinson, J. W. (1957). Motivational determinants of risk-taking behavior. *Psychological Review*, 64(6 PART 1), 359-372. <https://doi.org/10.1037/H0043445>
- [2] Bandura, A. (1997). *Self-efficacy: The exercise of control*. Freeman.
- [3] Dewaele, J.-M., & MacIntyre, P. D. (2014). The two faces of janus? Anxiety and enjoyment in the foreign language classroom. *Studies in Second Language Learning and Teaching*, 4(2), 237-274. <https://doi.org/10.14746/SSLT.2014.4.2.5>
- [4] Dewaele, J. M., & Li, C. (2020). Emotions in second language acquisition: A critical review and research agenda. *Foreign Language World*, (1), 34-49.
- [5] Dweck, C. S. (2006). *Mindset: The new psychology of success*. Random House.
- [6] Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist*, 56(3), 218-226. <https://doi.org/10.1037/0003-066X.56.3.218>
- [7] Lei, X. (2014). *The influence of individual emotion regulation self-efficacy and different difficulty ranking of English reading comprehension materials on reading comprehension performance* [Master's thesis, Sichuan Normal University]. https://kns.cnki.net/kcms2/article/abstract?v=xFzLC8E_KjHx11AeBlclOBXxlwJW4Y6SSIDV4P7eyUmZnWk5vwNSpHDE3J79nHMJK6Wod0P63tIps3GgIRdbpv5O_UP9pZJzFRaRoEzsK8QgVaBjaHov1Z9N28oD_04L4y5QoS03E6eP6Cz9MMeSg==&uniplatform=NZKPT&language=CHS

- [8] Pekrun, R. (2006). The control-value theory of achievement emotions: Assumptions, corollaries, and implications for educational research and practice. *Educational Psychology Review*, 18(4), 315-341. <https://doi.org/10.1007/S10648-006-9029-9>
- [9] Pekrun, R., Elliot, A. J., & Maier, M. A. (2009). Achievement goals and achievement emotions: Testing a model of their joint relations with academic performance. *Journal of Educational Psychology*, 101(1), 115-135. <https://doi.org/10.1037/A0013383>
- [10] Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68-78. <https://doi.org/10.1037/0003-066X.55.1.68>
- [11] Shao, K., Nicholson, L. J., Kutuk, G., & Lei, F. (2020). Emotions and instructed language learning: Proposing a second language emotions and positive psychology model. *Frontiers in Psychology*, 11(1), Article 2142. <https://doi.org/10.3389/FPSYG.2020.02142>
- [12] Trautwein, U., Marsh, H. W., Nagengast, B., Lüdtke, O., Nagy, G., & Jonkmann, K. (2012). Probing for the multiplicative term in modern expectancy-value theory: A latent interaction modeling study. *Journal of Educational Psychology*, 104(3), 763-777. <https://doi.org/10.1037/A0027470>
- [13] Wigfield, A., & Eccles, J. S. (2000). Expectancy-value theory of achievement motivation. *Contemporary Educational Psychology*, 25(1), 68-81. <https://doi.org/10.1006/CEPS.1999.1015>
- [14] Zimmerman, B. J. (2000). Attaining self-regulation: A social cognitive perspective. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 13-39). Academic Press. <https://doi.org/https://doi.org/10.1016/B978-012109890-2/50031-7>