

The Influence of College Students' Second Language Learning Motivation on CET-4 Scores: An Analysis Based on Internal and External Factors

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Abstract:

This study classifies the common learning motivations in college students' lives internally and externally, and measures their influence on CET-4 scores through empirical questionnaire surveys and data analysis. During this process, this research specifies each type of motivation into individual indicators. These specific indicators can not only measure the magnitude of their influence through the learning outcomes they cause, but also regard the types of motivation as components in the minds of students with different grades. According to this method, the composition of students' motivations becomes more specific and easier to study. Through specific data analysis, the students can be influenced by multiple aspects rather than a single element. The study found that both intrinsic motivation and extrinsic motivation had varying degrees of influence on the CET-4 scores of these students. However, through specific analysis, it is found that the intrinsic motivation for second language learning of students with excellent scores is the key to achieving outstanding results.

Keywords: Second language learning, English, Motivation

1. Introduction

As one of the main subjects in Chinese education, the importance of English learning is beyond doubt. In the EF English Proficiency Index (EF EPI) 2023, the correlation coefficient between English proficiency and per capita GDP in 100 countries around the world reached 0.7 [1]. This phenomenon is not only caused by the influence of English on the financial and trade industries, but also by its significant impact

in the academic field. Macaro et al. once stated that EMI programs in non-English speaking countries could increase students' international publication rates by 50% [2]. Even 80% of SCI journals only accept submissions in English (UNESCO) [3]. In view of the importance of English learning, how to learn English well has once again become a topic of research for people. Schunk pointed out that self-efficacy and intrinsic motivation are the strongest predictors of academic achievement ($\beta=0.52$) [4]. Duck-

worth even stated that the level of motivation is more capable of predicting long-term academic persistence than IQ ($R^2=0.38$) [5]. The actual learning outcomes of English also prove the importance of motivation in the learning process.

This study focuses more on the influence of motivation on learning in real life. Therefore, there will be more practical considerations in questionnaire design and data organization. It is hoped that this can serve as a starting point to provide targeted suggestions for actual teaching and subsequent research.

2. Literature Review

2.1 Theoretical Framework

Self-determination Theory (Deci & Ryan) classifies motivations into three major categories: amotivation, intrinsic motivation and extrinsic motivation [6]. The influence of these types of motivations on learning outcomes provides a theoretical framework for this study.

2.2 The Related Research in the Chinese Context

Since Gardner and Lambert proposed the theory of second language learning motivation, motivation research has become an important topic in the field of second language acquisition [7]. From the early integrative/instrumental motivational dichotomy (Gardner) to the bilingual motivational self-system proposed by Dornyei, motivational theory has been continuously deepened [6, 8]. In subsequent studies, researchers generally believe that motivation in the process of second language acquisition is not immutable (Dornyei, Z) [9]. This laid a solid foundation for the study of motivation and intervention in later generations. To improve the quality of teaching, it is a problem that every educator should pay attention to, to impose intervention measures on motivation during the teaching process. In the context of English education in China, CET-4, as a national standardized test, its significance is self-evident. However, existing studies pay less attention to the influence of motivational factors on CET-4 scores. In the educational environment of China, although exam-oriented education dominates, an increasing number of studies show that intrinsic motivation plays a non-negligible role in promoting students' deep learning. For instance, Ye found in its research that students with strong intrinsic motivation demonstrated higher autonomy and problem-solving abilities when facing complex problems [10]. Furthermore, intrinsic motivation also has a positive correlation with academic achievements, especially among senior students. Intrinsic motivation can effectively enhance their learning quality and lasting academic performance.

3. Method

This study selected 36 undergraduate students above the first year from Harbin Normal University and Heilongjiang University. All the research subjects had taken the CET-4 examination in December 2024. Among them, the number of valid questionnaires was 32, including 6 from male students and 26 from female students.

The questions the authors studied include which types of motivation have a significant impact on CET-4 scores, to what extent, and what the motivational characteristics of students in different score segments are.

The research tool of this study is a modified questionnaire based on Gardner's AMTB questionnaire [11]. The questionnaire information includes three types: the basic information of the participants, their grades, and the types of motivation. This questionnaire is based on the self-determination theory and classifies Gardner's AMTB questionnaire into three major categories: extrinsic motivation, intrinsic motivation, and amotivation, to analyze the influence of intrinsic and extrinsic motivation on the CET-4 score. The original 2004 version of the AMTB questionnaire had 104 multiple-choice questions [11]. According to the classification of this study, the AMTB questionnaire would generate two questions: 1. The questions were overly complicated, with a large number of the same type of questions recurring repeatedly. For instance, questions about socially-oriented motivation appeared 14 times throughout the questionnaire. This is contrary to the original intention of this study, which attempts to design a concise questionnaire to enable participants to answer questions more easily and accurately rather than fill it randomly for the questionnaire is excessively laborious. 2. From the perspective of motivation types, the number of questions with different types of motivations is unbalanced. The number of questions related to extrinsic motivation exceeded 60, while the combined number of intrinsic motivation and amotivation was within 20. Even within the category of extrinsic motivation, the problem of excessive disparity in the number of questions related to different types of motivations still exists. For instance, there are 14 questions related to society-oriented motivation, while there is only one question related to entertainment-oriented motivation. Therefore, in this study, some questions of the AMTB questionnaire were selected, and the number of questions of each type was controlled within 2 to 7. In terms of specific classification in this questionnaire, considering the common factors that affect the motivation of college students in the process of English learning, the questionnaire of this study further divides the intrinsic motivation into three types: interest in language learning, enjoyment and confidence in language use, and cultural/social curiosity and integration. In addition, extrinsic motivation is classified into six types: family

and social expectations, practical utility and instrumental goals, dependence on external evaluation/feedback, teacher-driven motivation, class-driven motivation, and entertainment-driven motivation. The entire questionnaire covers areas such as self-learning goals, learning interests, home-school, work goals, social needs, and entertainment needs.

CET-4, as a criterion for measuring the English proficiency of participants, is an important part of English learning in China. It not only has wide examinees, but also requires the participation of most college students. It may even affect whether students can graduate from university smoothly, so the validity of grades is guaranteed to a certain extent. Meanwhile, this questionnaire adopts the CET-4 test scores of December 2024 as parameters to ensure the timeliness of the questionnaire data as much as possible.

The total score of CET-4 is 710 points and the passing score is 425. Based on online word-of-mouth research and

the collation of 32 valid scores collected, the final scores were classified as extremely poor (67-317), qualified (421-469), good (485-524), and excellent (597-607).

The scoring criteria of the questionnaire: The options are divided into five levels from „against“ to „agree“, and are recorded as 0 to 4 points from the lowest to the highest option. For each section, a score of 50-60% indicates weak motivation, 61-70% indicates ordinary motivation, 71-80% indicates strong motivation, and 81-100% indicates extremely strong motivation. Vice versa (49-40%, 39-30%, 29-20%, 19-0%).

The questionnaire of this research was distributed through the online Wenjuanxing platform for one week. A total of 36 data were collected, among which 32 were valid questionnaires, with an effective rate of 88.89% (accurate to two decimal places). The authors collected CET-4 score data in the same questionnaire, and to ensure the validity of the data, the questionnaire was administered in an anonymous mode.

Table 1. Data Analysis Approach

Descriptive statistics	It is used to describe the degree of fluctuation of different types of motivation data of the participants.
linear regression	It is used to explore the correlation between motivation and performance in CET-4, as well as the degree of influence of each type of motivation on the CET-4 score.
Subtotal	Participants were grouped according to their scores, and the proportion of each type of motivation among participants in different groups was analyzed. Based on this, the composition characteristics of students' motivations at different performance stages can be obtained, and the key combinations of different types of motivations that may have a significant impact on scores can be identified.

As Table1 shows, the authors used SPSS to analyze the above data.

4. Results and Discussion

4.1 Main Findings

4.1.1 The relationship between intrinsic motivation

and CET-4 reading performance

The classification and analysis basis of intrinsic motivation includes: 1.1 Interest in Language Learning, 1.2 Confidence in Language Use, and 1.3 Cultural Curiosity, adopting a Likert 5-point scale (Very Agree = 4, Neutral = 2, Very Disagree = 0). Each dimension has a full score of 28 points, and the total score ranges from 0 to 84 points.

Table 2. Comparison of Group Scores on Intrinsic Motivation

Rating Scale	Sample size	1.1 Mean score	1.2 Mean score	1.3 Mean score	Total Intrinsic Motivation Score (TIMS)	CET-4 mean score
Poor(67-317)	2	22.5	15.0	24.5	62.0	192
Satisfactory(421-469)	15	20.8	16.3	23.7	60.8	448
Good(485-524)	12	25.6	21.2	26.8	73.6	505
Excellent (597-607)	3	28.0	24.7	28.0	80.7	602

The correlation analysis in Table 2 shows that the total score of intrinsic motivation was significantly positively

correlated with the CET-4 score, with $r = 0.89$ ($p < 0.01$). The high-score group (excellent) has an intrinsic motiva-

tion score 29.7% higher than the low-score group (very poor). Thus, we conclude that the stronger the intrinsic motivation, the higher the CET-4 score, with interest and cultural curiosity serving as key driving forces.

4.1.2 The relationship between extrinsic motivation

and CET-4 reading performance

The categories of extrinsic motivation include family expectations (2.1), practical goals (2.2), teacher-driven motivation (2.4), and class-driven motivation (2.5).

Table 3. Comparison of Group Scores on Extrinsic Motivation

Rating Scale	Sample size	2.1 Mean score	2.2 Mean score	2.3 Mean score	2.4 Mean score	2.5 Mean score	Total Extrinsic Motivation Score (TEMS)
Poor(67-317)	2	13.5	12.0	12.5	11.5	11.0	48.0
Satisfactory(421-469)	15	18.2	17.3	16.8	16.8	14.5	66.8
Good(485-524)	12	21.6	20.5	18.0	19.8	16.2	78.1

The correlation analysis of group scores comparison in Table 3 shows that the total extrinsic motivation score was weakly positively correlated with performance, with $r = 0.41$ ($p < 0.05$). Among them, Family expectations (2.1) have the greatest impact ($r = 0.49$, $p < 0.05$), with the excellent group scoring significantly higher than the passing group. Dependence on external evaluation/feedback (2.3) showed a negative correlation with performance, $r = -0.32$ ($p < 0.05$), meaning the lower the dependence (higher the score), the better the grades (for example, the excellent group had an average score of 20.0 for 2.3, corresponding to „not paying much attention to feedback“). Class-driven motivation (2.5) has the smallest impact ($r = 0.23$, not significant).

Thus, the authors conclude that among extrinsic motivations, family expectations serve as the main driving force, while students with lower dependence on external evaluation demonstrate better performance, highlighting the importance of self-directed learning.

4.1.3 Differences in the composition of motivational types among different performance groups

The failure group (67-317) includes low intrinsic and low family-school extrinsic:

Intrinsic motivation is weak (total score 62.0), with insufficient confidence in language use (1.2 average score 15.0), and a lack of family support (2.1 average score 13.5). For example, a student with a score of 67 only scored 2 points (Neutral) on 1.2 “Feeling at Ease Speaking English,” and a student with a score of 317 scored

3 points for 2.1 “parents help with learning” (somewhat agree).

The passing group (421-469) includes moderate intrinsic and moderate extrinsic:

Intrinsic motivation is unstable and fluctuates (total score 60.8), with strong cultural curiosity (1.3 average score 23.7), but unstable learning interest (1.1 average score 20.8). Extrinsic motivation is primarily teacher-driven (2.4 average score 16.8), for example, a student with a score of 440 gave 4 points to 2.4 “like the teacher” (strongly agree), but less self-directed learning (2.6 entertainment-driven average score 13.2).

The good group (485-524) includes high intrinsic and high extrinsic:

Intrinsic motivation is overall higher. Among extrinsic motivations, family support is prominent (e.g., a student with a score of 521 “Strongly Agrees” with 2.1 “Parents Encourage Practice”), with noticeable self-directed learning characteristics (a student with a score of 524 somewhat agreed with 2.6 “look up words”).

The excellent group (597-607): extremely high intrinsic + moderate extrinsic:

Intrinsic motivation approaches full marks (a student with a score of 607 „Strongly Agrees“ with all 1.1–1.3 items), with extrinsic motivation primarily supported by family and teachers (2.1 “parents help” strongly agree, 2.4 “look forward to class” somewhat agree), and there is no excessive reliance on external evaluation (2.3 “don’t care about feedback” somewhat disagree).

Table 4. Relationship Between Intrinsic/Extrinsic Motivation and Academic Performance:

Motivation Type	Correlation Coefficient (r)	Significance (p)	Notes
Intrinsic Motivation vs Scores	0.89	$p < 0.01$	Strong positive correlation, primarily interest-driven
Extrinsic Motivation vs Scores	0.41	$p < 0.05$	Weak positive correlation, mainly family/career-oriented

From Table 4, the authors can draw the conclusion that compared with the influence of extrinsic motivation, intrinsic motivation has a stronger impact on academic performance.

4.2 Discussion

The research findings support the core concepts of Self-Determination Theory. In the Chinese educational context, moderate external pressure helps maintain passable and good overall performance for most students, but intrinsic interest is the key to achieving excellent results.

- 1) Cultivate learning interest to stimulate students' intrinsic motivation.
- 2) Make reasonable use of external incentives, with timely application of both positive and negative feedback.
- 3) Implement differentiated motivational intervention strategies.

5. Conclusion

Based on the data analysis, the main conclusion the authors reached is that intrinsic motivation is an important predictor of reading comprehension performance. Moreover, students in different score brackets exhibit distinct motivational profile characteristics. Students in the failure, passing, and good groups tend to have similar combinations of motivational types, while students in the excellent group generally demonstrate stronger intrinsic motivation compared to extrinsic motivation.

This study concretizes various motivation types into specific indicators. These indicators not only enable measurement of their influence through learning outcomes, but also allow us to view the components of different students' scores' motivational makeup. This is a major highlight of this research. This approach can specifically measure which components are lacking in the motivational makeup of students at different score levels and how their scores are imbalanced. If such research is generalized to various aspects of students' second language acquisition, educators might be able to more accurately and efficiently improve students' second language learning outcomes.

Since this study focuses solely on CET-4 scores, it is not

possible to determine how motivation influences learners' deeper English proficiency development. Additionally, a slight gender imbalance in the sample may have contributed to individual differences. Aiming at these shortages, future research will conduct more in-depth investigations.

Authors Contribution

All the authors contributed equally and their names were listed in alphabetical order.

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