CORRELATION BETWEEN LEARNING EFFECT AND PSYCHOLOGICAL ENVIRONMENT IN ENGLISH TEACHING: AN EMPIRICAL ANALYSIS BASED ON TERNARY INTERACTION THEORY

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Abstract

In English teaching, the learning effect reflects the quality of knowledge acquisition of the students. The learning effect could be significantly affected by the psychological environment. This paper aims to identify the correlation between learning effect and psychological environment in English teaching, drawing on the ternary interaction theory and the theory of psychological environment. For this purpose, a questionnaire survey was conducted among English majors from seven colleges and universities in Hunan Province, China. Through the descriptive analysis of the collected data, the difficulty level, interest and classroom atmosphere in English learning, together with the educational level, were selected as the influencing factors of the correlation between learning effect and psychological environment in English teaching. Then, the correlation was analyzed empirically using the multivariate ordered logit model. The results show that some college students find it difficult to learn English and show no interest in English learning; the college students generally have a good classroom atmosphere of English learning; the psychological environment of English learners is greatly promoted by the educational level, interest in English learning and classroom atmosphere of English learning, and severely suppressed by the difficulty level of English learning. The research results help to enhance the English learning effect of college students.

Key words: Ternary Interaction Theory, English Teaching, Learning Effect, Psychological Environment.

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INTRODUCTION

Along with the continuous improvement of China’s opening to the outside world and the expansion of foreign trade, English is used more and more frequently in daily life. The English teaching in China is deeply influenced by the traditional grammar translation method (Dai, 2015), while the cognition degree of the role of psychological factors in English teaching is low (Thompson, 2014), influencing the effect of English teaching (Burns, Houser, & Farris, 2018). Psychological environment was first proposed by psychologist Kurt Koffka in “Gestalt Psychology Principles” which holds that psychological environment can influence individual behavior (Childs, 2014), and the behavior subject internalizes and integrates the objective environment, and shows in the psychological time and space (Waterston, 2011), and thus the psychological behavior of the subject changes significantly (Gresch and Martens, 2019). The learning effect of English teaching is closely related to the teacher’s psychological environment. However, there are few researches on the learning effect of English teaching from the perspective of psychological environment. Therefore, it is of great significance to study the correlation between English teaching and psychological environment. Most of the existing researches on English
teaching focus on the methods and techniques of English teaching (Shackelford and Maxwell, 2012), but few researches have been done from the perspective of psychology. English, as the focal point of language education in China, is under great pressure both from the perspective of teachers’ teaching and students’ learning (Watson, 2010). Nowadays, communicative English has become a trend in English teaching, so English teachers should strengthen their learning of new theories (Gooch, Saito, & Lyster, 2016), and combine the theories of teaching and psychological environment (Fletcher, 2015), so as to improve the level of English teaching and enhance students’ English ability in China. Based on 540 questionnaires and combined with Ternary Interaction Theory and theories related to psychological environment, this study makes an empirical analysis on the correlation between the learning effect of English teaching and psychological environment in order to provide reference for promoting the development of English education and improving the teaching ability of English teachers in China.

**TERNARY INTERACTION THEORY AND THEORY OF PSYCHOLOGICAL ENVIRONMENT IN ENGLISH TEACHING**

**Ternary Interaction Theory**

Ternary Interaction Theory, proposed by American psychologist Bandura, is used to discuss the interaction of physiological and psychological factors, individual behavior and external environment (Olson, Land, Anselmi et al., 2010). Individual physiological and psychological factors, individual behavior, and external environment are independent, but there is an interactive and mutually decisive relationship among them (Haidara, 2016). External environment can directly affect individual physical and mental condition (Aronin, & Spolsky, 2010). For example, the natural landscape of the mountain makes the climbers feel relaxed and happy. Accordingly, individual physical and mental condition will also affect the external environment and the individual produces different environmental responses. Therefore, individual physical and mental condition and the external environment can influence each other and decide each other. When individual mood is extremely unstable, individual behavior will also produce more extreme situation. For example, in the ancient time, “Fan Jin passed the provincial civil service examination”. He was so excited that he suffered from mental and behavior disorder. Correspondingly, individual behavior will also affect individual physical and mental condition. For example, sports will make people have good physical and mental health, so individual physical and mental condition and individual behavior can influence each other and decide each other. Individual behavior can change the external environment. For example, planting plants in the desert can reduce the degree of desertification. Accordingly, the external environment can also change individual behavior. For example, people will seldom choose to go out when it is foggy. Therefore, individual behavior and the external environment can influence each other and decide each other. The Ternary Interaction Theory model is shown in Figure 1.

**Figure 1. Ternary interaction theory model**

![Ternary Interaction Theory Model](image)

**Theory of psychological environment in English teaching**

In English teaching, the psychological activities of teachers and students are the subjective initiative reflection of imparting knowledge and accepting knowledge. Creating a good psychological environment of English teaching can promote the enthusiasm of English teachers and improve the quality of teaching. From the perspective of external environment, we should fully adjust and allocate all kinds of factors in teaching, optimize the teaching process and improve teaching conditions in order to create a good psychological environment of English teaching. From the psychological point of view, the elements of psychological environment include cognitive environment, emotional environment, will environment and personality environment. Cognitive environment is closely related to
individual cognition of English teaching and learning. Emotional environment is related to the emotional communication between teachers and students, between the individual and English subject. Will environment is related to individual spiritual will and personality environment is related to individual interest in English subject. The principles for creating a good psychological environment of English teaching are shown in Figure 2.

**Figure 2. Principles for Creating a Psychological Environment of Good English Teaching**

- Principle of creating a psychological environment
  - Principle of interest
  - Principle of success
  - Principle of harmony
  - Principle of creating a psychological environment
- Adjust teachers’ attitudes towards students
- Increase enthusiasm and initiative
- Flexible teaching methods
- Cultivate curiosity and desire for knowledge
- Reasonable expectations, suitable for people
- Develop self-confidence and a sense of accomplishment

**STATUS QUO OF CORRELATION BETWEEN LEARNING EFFECT OF ENGLISH TEACHING AND PSYCHOLOGICAL ENVIRONMENT**

On the basis of consulting English teachers in middle schools and institutions of higher learning, students majoring in English in colleges and universities, psychologists and management scientists, the author develops questionnaires on the correlation between English learning effect and psychological environment. The respondents are students majoring in English from seven colleges and universities in Changsha City and Loudi City, Hunan Province. A total of 750 questionnaires are distributed and 639 questionnaires are collected, of which 540 are valid, with the recovery rate of 84.51%. The personal characteristics of college students in this survey are shown in Table 1.

**Table 1. Personal characteristics of interviewed college students**

| Feature        | Description         | Quantity |
|----------------|---------------------|----------|
| Gender         | Male                | 364      |
|                | Female              | 176      |
| Age            | 18-23               | 342      |
|                | 23-28               | 151      |
|                | 28-35               | 47       |
|                | Undergraduate       | 397      |
|                | Master              | 98       |
|                | Doctoral student    | 45       |

**Difficulty level of English learning**

Although Chinese students begin to learn English from primary school, they still face many difficulties in the process of learning English due to the difference of language thinking and expression, making it difficult to form a good psychological environment. This study summarizes the college students’ feeling for difficulty level of English learning, as shown in Figure 3. According to Figure 3, among the 540 surveyed college students, 73 find it very difficult for English learning, 169 feel relatively difficult for English learning, and 153 feel generally difficult, and 145 find it not difficult or very relaxing to learn English. This shows that quite a number of college students find it very difficult or relatively difficult for English learning and they have a poor psychological environment of English learning.

**Figure 3. University students’ English learning difficulties**

**Interest in English learning**

From the perspective of the elements of psychological environment, personality environment is an important factor affecting the psychological environment. Among the factors
that influence the personality environment of English learning, students’ interest in English learning is the key to influence their English learning effect and psychological environment. This study makes statistics on the current situation of college students’ interest in English learning (Figure 4), and then analyzes its influence on English learning effect and psychological environment. As shown in Figure 4, among the 540 surveyed college students, 35 are very interested in English learning, 169 are quite interested in English learning, and 173 are generally interested, and 163 are not interested or very not interested in English learning. It can be seen that most college students are quite interested in English learning, but there are still a certain proportion of college students who are not interested in English learning or even reject it. The psychological environment of this part of college students’ English learning is not optimistic. Therefore, attention should be paid to such a part of students and flexible teaching methods shall be adopted to enhance their interest in English learning.

**Figure 4.** Interested in English learning of college students interviewed

**Classroom atmosphere of English learning**
A good English learning classroom atmosphere can help students to create a good psychological environment. This study makes statistics on college students’ recognition of the classroom atmosphere of English learning (in Figure 5). As can be seen from Figure 4, among the 540 surveyed college students, 35 believe that the English learning classroom atmosphere is very good, 169 believe that the English learning classroom atmosphere is relatively good, 173 believe that the English learning classroom atmosphere is general, and 163 think that the English learning classroom atmosphere is relatively poor or very poor. In general, the English learning classroom atmosphere of college students is relatively good, but there are still a considerable proportion of college student who are not satisfied with the classroom atmosphere. The unsatisfactory classroom atmosphere affects the students’ psychological environment of English learning, which is not conducive to improving academic performance and maintaining the level of mental health.

**Figure 5.** English learning classroom atmosphere

**EMPIRICAL ANALYSIS**

**Multivariate and ordered Logit model**
On the basis of quantifying the questionnaire data, this study uses the multivariate and ordered Logit model to analyze the influence of various influence factors on the psychological environment of respondents’ English learning. The expression of the multivariate and ordered Logit model function is:

$$
\ln \left[ \frac{p(y \leq n)}{1 - p(y \leq n)} \right] = \alpha_n + \sum_{m=1}^{k} \beta_m x_m
$$

(1)

where, n is individual behavior choice of surveyed college students, y refers to the self-evaluation of college students’ Psychological environment of English learning, and $x_m$ refers to the m-th variable that influences college students’ Psychological environment of English learning.
Variable selection
On the basis of consulting English teachers, psychologists and management scientists, this study selects educational level, difficulty level of English learning, interest in English learning and English learning classroom atmosphere as the influence factors of empirical analysis for regression analysis. Please refer to Table 2 for details.

Table 2. Model variable selection

| Variable name                  | Variable meaning                        |
|--------------------------------|-----------------------------------------|
| Education level                | Bachelor=1; master’s degree=2; Doctor=3|
| The difficulty of learning English | Very difficult=1; More difficult; Not difficult=4; Very easy=5 |
| English learning interest      | interested=2; General=3; Not interested=4; Very uninterested=5 |
| English learning classroom atmosphere | Very good=1; Good=2; General=3; not good=4; very bad=5 |

Discussion of results
This study uses Stata14 software to perform multivariate and ordered Logit regression analysis on the selected index data, and the regression results are shown in Table 3.

Table 3. Model regression results

| Variable name                  | Regression coefficients | Z statistic | Probability value |
|--------------------------------|-------------------------|-------------|------------------|
| Education level                | 0.0317***               | 3.97        | 0.000            |
| The difficulty of learning English | -0.3982***             | -3.01       | 0.000            |
| English learning interest      | 0.6103***               | 5.04        | 0.000            |
| English learning classroom atmosphere | 0.0167                 | 2.09        | 0.000            |

As can be seen from Table 3, educational level, interest in English learning and English learning classroom atmosphere have a significant positive effect on students’ Psychological environment of English learning, and the difficulty level of English learning has a significant negative effect on students’ Psychological environment of English learning. All the influence factors are significant at the level of 0.000.

Educational level has a significant influence on students’ psychological environment of English learning. The possible reason lies in that students may encounter English writing and reading English literature with the improvement of their educational background, and the requirements for English have been gradually improved. They have high enthusiasm for learning, so educational level has a significant influence on students’ psychological environment of English learning. Interest in English learning has a significant influence on students’ psychological environment of English learning. The reason may be that their greater interest in English learning leads to greater enthusiasm for English learning, so as to foster a good psychological environment of English learning. English learning classroom atmosphere has a significant positive influence on students’ psychological environment of English learning, which may due to that a good classroom atmosphere can stimulate students’ enthusiasm for learning and enhance their interest in English learning, so as to form a good psychological environment of English learning. The difficulty level of English learning has a significant negative impact on students’ psychological environment of English learning, which may be due to the fact that when students have difficulty in learning English, they may flinch, thus reducing their interest in English learning and making it impossible to form a good psychological environment of English learning.

CONCLUSIONS
Based on 540 questionnaires and combined with Ternary Interaction Theory and the theory of psychological environment, this study empirically analyzes the correlation between the learning effect of English teaching and psychological environment, and draws the following conclusions:

(1) Ternary Interaction Theory mainly discusses the interaction of physiological and psychological factors, individual behavior and external environment. Individual physiological and psychological factors, individual behavior, and external environment are independent, but there is an interactive and mutually decisive relationship among them. The elements of psychological environment include cognitive environment, emotional environment, will environment and personality environment.
(2) Some college students find it very difficult or quite difficult to learn English, and they have a poor psychological environment of English learning. There are still a certain proportion of college students who are not interested in English learning or even reject it. The psychological environment of this part of college students’ English learning is quite poor. Therefore, attention should be paid to such a part of students and flexible teaching methods shall be adopted to enhance their interest in English learning. On the whole, the classroom atmosphere of college students’ English learning is good, but there are still a considerable proportion of college students who are not satisfied with the classroom atmosphere.

(3) This study selects educational level, difficulty level of English learning, interest in English learning and English learning classroom atmosphere as the influence factors of empirical analysis for regression analysis. It is found that educational level, interest in English learning and English learning classroom atmosphere have a significant positive influence on students’ psychological environment of English learning while the difficulty level of English learning has a significant negative influence on students’ psychological environment of English learning.

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