Correlation Analysis Between Different Personality Traits and Learning Styles of Non-English Major College English Learners

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Abstract

The personality traits and learning styles of students are important influencing factors that affect their understanding, mastery, and application of knowledge. With the increasing emphasis on personalized education in higher education, exploring the interactions between these factors has become increasingly important for optimizing teaching strategies. However, existing research has rarely integrated MBTI personality types and KOLB learning style scales to investigate their correlation with academic performance. The aim of this study is to investigate the relationship between MBTI personality traits, KOLB learning styles, and CET-4 scores of non English major college students, in order to provide reference for English teaching strategies. The correlation between CET-4 scores was explored using descriptive statistics and comparative analysis methods. The study found that assimilative learning styles are the most common, while aggregative learning styles perform the highest on the CET-4 average score. Although no statistically significant differences were observed, the overall trend suggests that there are differences in performance across different MBTI dimensions, such as higher average scores for the thinking (T) type and more concentrated average scores for the outward oriented (E) type. These findings provide empirical support for designing targeted teaching strategies, which can help develop personalized English teaching models and improve the efficiency of college English education.

Keywords

MBTI; KOLB; learning style; personality trait.

1. Introduction

The MBTI and KOLB Learning Style Inventory are two widely used tools for researching individual learning. MBTI primarily focuses on individual personality traits, while KOLB is designed to assess students' learning styles. In the context of non-English major college English learners, the combined application of these two models offers a new perspective for in-depth understanding of learners' behaviors in the language learning process. However, existing research has seen relatively few scholars integrating MBTI with the KOLB Learning Style Inventory to explore the relationship between personality traits and learning styles. Therefore, it is of great necessity to analyze the correlation between different personality traits and learning styles of non-English major college English learners using MBTI and the KOLB Learning Style Inventory.

1.1. MBTI Inventory and Personality Traits

The Myers-Briggs Type Indicator (MBTI) is a questionnaire for identifying personality types, created by Isabel Myers and her mother Kathryn Briggs based on Swiss psychologist Carl Jung's

Psychological Types. MBTI classifies personality traits into four dimensions and sixteen types: ISTJ, ISFJ, INFJ, INTJ, ISTP, ISFP, INFP, INTP, ESTP, ESFP, ENFP, ENTP, ESTJ, ESFJ, ENFJ, and ENTJ.

In recent years, the concept of carrying out teaching practices based on students' personality traits has gained more attention [1]. Liu and Qi [2] studied the personality and oral English ability of 167 non-English major college students, finding that 22.2% were introverted, 29.3% extroverted, and 48.5% fell between introversion and extroversion. Li [3] used MBTI to analyze the personality types of post-90s students, thereby adopting corresponding measures to improve the effectiveness of higher vocational classrooms. Asghari et al. [4] proposed that English learners have specific ideas about their own learning, which are not caused by a single factor, and personality traits are one of the influencing factors. This indicates that when organizing teaching activities, designing content to match learners' personality traits as much as possible can achieve better teaching effects.

1.2. KOLB Learning Style Inventory and Learning Styles

The KOLB Learning Style Inventory was proposed by American educational psychologist David Kolb, classifying learning styles into four types: Diverger, Assimilator, Converger, and Accommodator. To enhance the inventory's validity, Kolb refined it in 1985, modifying it into a 12-item scoring scale [5].

Learning style refers to learners' unique approaches to absorbing, processing, and applying knowledge during the learning process. These approaches vary significantly among different learners. Due to individual differences, students demonstrate distinct patterns in information reception, memory storage, and learning path selection—such differences constitute learning styles [6]. Some scholars also argue that learning style is a distinct personality demonstrated in learning. When teachers grasp students' learning styles and teach according to aptitude, they can effectively improve classroom teaching efficiency [7].

In research on learning styles, scholars used the KOLB Inventory to investigate the English learning styles of non-English major college students in a blended learning context (total number: 145). The results showed that 30.3% preferred the Assimilator style (the highest proportion), 18.6% the Converger style (the lowest), 24.8% the Accommodator style, and 26.2% the Diverger style [8]. In applied research on college English learning, Wang and Zou [9] explored the application of the KOLB Learning Style Inventory in micro-lecture content design. They found that designing learning activities as processes of concrete experience, reflective observation, abstract conceptualization, and active experimentation can significantly enhance learners' participation and academic performance. Studies by Tuan and Dinh [10] revealed that the English learning achievements of Vietnamese college freshmen are closely related to their learning styles. Additionally, Xia [11] adopted a blended teaching model and found that students' learning styles significantly influence their academic performance. The KOLB Learning Style Inventory can serve as an effective tool to guide blended teaching design, helping teachers better meet the needs of students with different learning styles.

1.3. College English Test Band 4 (CET-4)

The College English Test Band 4 (CET-4) serves as one of the primary means for university students to assess their English proficiency. Through written exams and optional oral tests, students receive scores calculated by a standardized scoring system, where 425 points or above is considered a passing grade. Van Vu and Tran [12] argued that the implementation of CET-4 has effectively enhanced students' English competence in China and contributed to improving the quality of English teaching nationwide. This indicates that CET-4 scores are representative of students' English proficiency, generally reflecting their overall language ability.

2. Literature Review

Cheng et al. [13] explored the relationship between different personality traits and learning styles of medical students, providing more efficient classroom design strategies for medical education. In studies on the correlation between MBTI and learning styles, research by Wang and Shahnaz [14] has shown that MBTI personality types significantly influence college students' career choices and development, indicating that MBTI can serve as an effective tool to predict learning styles and academic performance. Alaberdi and Zhao [15] analyzed the correlation between students' personality tendencies and learning styles using the Honey & Mumford learning style theory, providing new theoretical foundations for personalized teaching. Multiple studies have confirmed that learning styles and personality types are important factors affecting academic performance. Ma [16] combined the REID Learning Style Inventory to analyze the correlation between students' learning styles and academic performance, finding a positive correlation. However, research on the tripartite relationship among MBTI personality types, KOLB learning styles, and academic performance remains limited. Thus, this study aims to address the following two questions: What are the learning styles of non-English major college English learners? What are the CET-4 scores of non-English major college English learners?

3. Methodology

3.1. Distribution of Learning Styles

A total of 130 questionnaires, including MBTI personality types, KOLB learning styles, and CET-4 scores, were collected from Guangdong Province, China. After excluding 3 invalid questionnaires (including those who had not taken CET-4 or were unaware of their MBTI personality types), 127 valid questionnaires remained. As shown in Figure 1, the distribution of learning styles among non-English major college students was as follows: Assimilator accounted for 35.42%, Divergers 16.76%, Accommodator 22.9%, and Converger 22.73%. The highest proportion of Assimilator indicates that students prefer theoretical and reflective learning, suggesting that teachers can increase self-reflection tasks in teaching and adopt students' preferred methods to facilitate knowledge acquisition. Meanwhile, the lowest proportion of Diverger implies that teachers should reduce abstract presentations and ambiguous problems in assignments, and make teaching content more concrete.

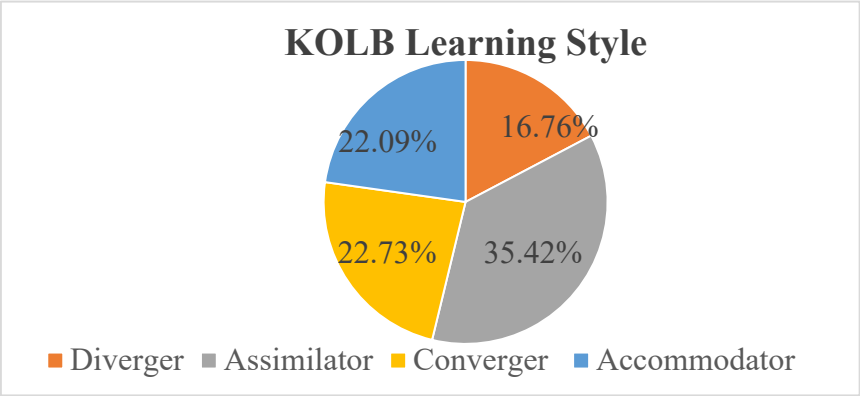

Figure 1. Distribution of KOLB Learning Styles

3.2. Correlation Study between Learning Styles and CET-4 Scores

In the study on the relationship between CET-4 scores and KOLB learning styles, descriptive analysis was first conducted on the data. the descriptive statistics (Table 1) are as follows: Number one (1) is the Converger type (N=30, M=486, SD=89.80), number two (2) is the

Assimilator type (N=46, M=476, SD=101.11), number three (3) is the Accommodator type (N=29, M=474, SD=87.86), and number four (4) is the Diverger type (N=22, M=472, SD=94.57). A total of 127 valid samples were collected (total N=127), with an overall average score of 477 (SD=93.48). The score distribution ranges of each group were similar (minimum: 296-345, maximum: 635-650). Since the ANOVA test did not find significant differences between groups ($p > 0.05$), the above descriptive statistical results are presented as the focus.

Table 1. Group Statistics of MBTI Personality Traits and KOLB Learning Styles

Descriptives

CET-4	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1	30	485.90	89.80	16.40	452.37	519.43	345	635
2	46	476.37	101.11	14.91	446.34	506.39	296	650
3	29	473.55	87.86	16.31	440.13	506.97	320	640
4	22	472.09	94.57	20.16	430.16	514.02	335	650
Total	127	477.24	93.48	8.30	460.82	493.65	296	650

3.3. Correlation Study between MBTI Personality Types and CET-4 Scores

This study categorized MBTI personality types into four dimensions: E/I, N/S, F/T, P/J, and conducted a correlation analysis with the four categories of KOLB learning styles and the collected CET-4 scores. As shown in Table 2:

Table 2. Group Statistics of MBTI Personality Traits and CET-4 Scores

Group Statistics

CET-4	E/I	N	Mean	Std. Deviation	Std. Error Mean
	E	59	480.98	88.67	11.54
	I	68	473.99	98.01	11.88

Group Statistics

CET-4	S/N	N	Mean	Std. Deviation	Std. Error Mean
	S	52	473.48	95.29	13.21
	N	75	479.84	92.76	10.71

Group Statistics

CET-4	T/F	N	Mean	Std. Deviation	Std. Error Mean
	T	52	492.58	97.37	13.50
	F	74	467.15	90.29	10.50

Group Statistics

CET-4	J/P	N	Mean	Std. Deviation	Std. Error Mean
	J	63	474.40	88.33	11.13
	P	64	480.03	98.91	12.36

As can be seen from Table 2, in the E/I dimension, the average score of extraverted (E) students (480.98 points) is higher than that of introverted (I) students (473.99 points), and the standard deviation of the extraverted (E) student group (88.67) is smaller than that of the introverted (I) student group (98.01). In the S/N dimension, the average score of the intuitive (N) student group (479.84 points) is better than that of the sensing (S) student group (473.48 points), and the standard deviation of the sensing (S) student group (95.29) is slightly higher than that of the intuitive (N) group (92.76). In the T/F dimension, there is a difference of 25.43 points between the average values of the two groups. The average score of thinking (T) students (492.58 points) is significantly better than that of feeling (F) students (467.15 points), and the standard deviation of thinking (T) students (97.37) is slightly higher than that of feeling (F) students (90.29). In the J/P dimension, the average score of perceiving (P) students (480.03 points) is slightly better than that of judging (J) students (474.40 points). The standard deviation of perceiving (P) students (98.91) is higher than that of judging (J) students (88.33). From the above, the score distribution of extraverted (E) students is relatively concentrated, and most students' scores are close to the average level. The scores of introverted (I) students fluctuate greatly, and there is a more significant differentiation phenomenon within the group. The score distribution of intuitive (N) students is relatively concentrated, while the scores of sensing (S) students fluctuate slightly more, and there is a more obvious differentiation within the group. The score differentiation within the thinking (T) student group is more obvious, and the score distribution of feeling (F) students is relatively concentrated. The scores of perceiving (P) students fluctuate more greatly, and the score distribution of judging (J) students is relatively concentrated. Since the independent-samples t-tests for each dimension show that the differences do not reach a significant level ($p > 0.05$), only a simple description of the data obtained this time is made.

4. Discussion

Although statistical differences are not significant, meaningful teaching strategies can still be observed from general trends. In English teaching, teachers can adopt targeted instructional strategies based on the learning characteristic trends presented by KOLB learning styles and each MBTI dimension.

4.1. Strategies for KOLB Converger Style

Since the average CET-4 score of students with a converger learning style is the highest, their core strength lies in being good at building systematic knowledge frameworks for learning. Therefore, teachers can adopt the following strategies to help students develop abilities aligned with converger traits and improve English performance: First, increase training in knowledge organization, such as creating grammar mind maps and vocabulary association diagrams. This helps students connect knowledge into a network, clarifying their English learning. Second, when explaining problems, break down solution methods step-by-step. Demonstrate how to analyze question types and identify problem-solving patterns. Cultivating a systematic knowledge system enhances English proficiency.

4.2. Strategies for Different MBTI Personality Types

Extraverted (E) and Introverted (I): Extraverted students show relatively concentrated and slightly higher scores. Interactive methods (group discussions, role-plays, class presentations) are ideal to stimulate language output. Introverted students have more variable scores; provide written expression opportunities (e.g., journaling, online discussions) and independent thinking time to reduce participation pressure.

Sensing (S) and Intuitive (N): Sensing students perform stably—emphasize grammar rules and practical expressions with concrete examples and structured practice. Intuitive students benefit from creative writing and cultural exploration to expand linguistic imagination.

Thinking (T) and Feeling (F): Thinking students achieve high scores but show greater differentiation. Deepen learning with logical analysis and debates. Feeling students need collaborative activities and emotionally resonant materials to create a supportive environment.

Judging (J) and Perceiving (P): Judging students (plan-oriented) requires clear frameworks and progress checks. Perceiving students (flexible) thrive with open-ended tasks and diverse activities. Use "task menus" to respect preferences while pushing boundaries (e.g., encourage introverts to try moderate social practice, or ask thinkers to explore emotional language dimensions). This promotes balanced English development.

5. Conclusions and Future Research

This study mainly focuses on non-English major college students, collecting MBTI personality types, KOLB learning style types, and college English CET-4 scores. Conduct correlation analysis between different types of MBTI and different types of KOLB learning styles and CET-4 scores. This is conducive to promoting personalized teaching for non English major English education in universities: by comparing personality and learning style preferences to develop teaching strategies, and understanding whether there is an impact between students' personality and learning style and academic performance, it provides theoretical basis for teachers to adjust teaching strategies, thereby promoting more efficient and inclusive language learning.In this study, several important conclusions were drawn: firstly, in the KOLB learning style, the proportion of assimilative learning is the highest, indicating that students may be more inclined towards theoretical le

arning, while the proportion of aggregative learning is not as high, but the CET-4 scores are the highest, indicating that this type of student may be more able to integrate and internalize knowledge. Secondly, in terms of MBTI personality types, extraverted (E) students have slightly higher scores and are more concentrated, while critical (T) students have the highest average scores, while introverted (I) and perceptual (P) students have greater fluctuations in scores. Although these differences did not reach statistical significance, they can all provide reference for the development of teaching strategies. However, this study also has certain limitations. The sample size is small and the general applicability is not high. Future research should expand the sample size to include students from different regions and disciplines, in order to explore potential differences between different groups.

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