

The Influence of MBTI Personality Types on College Students' Academic Performance: The Mediating Role of Learning Motivation

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Abstract. With the exchange and development of culture, Myers-Briggs Type Indicator (MBTI) personalities has gradually spread among Chinese young people. MBTI personalities are one of the key topics in current research, and it also has influence on secondary school students' learning motivation and academic performance. However, researcher found that there was still a research gap in this problem among college students. Based on the data collected in a university in Guangzhou, correlation analysis and regression analysis were used to study the intermediary effect of learning motivation on college students' academic performance. It is found that MBTI personalities positively affect college students' academic performance, MBTI personalities positively affects learning motivation, learning motivation positively affects academic performance, and learning motivation plays a mediating role between MBTI positively affecting academic performance. Furthermore, learning motivation, academic performance was significantly different in personality types, with ISTJ being significantly higher than ENFP. This study provides preliminary evidence to explore the influencing mechanisms of personality on academic performance.

Keywords: MBTI Personalities, learning motivation, academic performance, mediating role.

1. Introduction

1.1. Research Background

MBTI (Myers-Briggs Type Indicator), as a theoretically based professional personality type assessment tool, is mainly used to assess individual differences between types. In recent years, the MBTI personality types assessment has become a popular social tool for Chinese people. On social media, contemporary young people often use the personality type traits to explain their behavior and seek the identity with the same type of personality, this phenomenon is particularly popular among college students.

1.2. Research Significance

At present, MBTI has been used in a number of educational studies, but most of the current studies are mainly high school students, and the studies focusing on college students are relatively rare. And college students' academic performance is often considered a important factor in the learning ability in individual differences, so establish a database, about the college students' different MBTI personality types and the relationship between their academic performance, explore how the individual differences influence college students' learning motivation and lead to their academic performance to fill the current Chinese academic blank about this issue, is particularly important. Therefore, if academic performance evaluation project and system based on MBTI personalities of the college is established and functions systematically, they help college students' learning ability improve in time. Thus tracing the deficiencies of teaching design and practice can improve students' autonomous learning willingness and ability, increase the college students' academic performance and their personal limits of life development.

1.3. Research Issue

This study intends to explore the mediating role of college students' academic motivation in linking their academic performance and two different personality types (ENFP, ISTJ) in MBTI. The mechanism of MBTI personality types affecting the academic performance of college students is as follows: two different personality types in MBTI (ENFP, ISTJ) are the independent variables, learning motivation is the intermediary variable, and academic performance is the dependent variable, so as to explore the relationship between the three variables.

1.4. Research Objectives

This study aims to explore the correlation between learning motivation and personality types and academic performance in a school in Guangzhou, to clarify the possible mediating role of learning motivation and reveal the mechanisms of its function.

2. Literature review

Wang Jinyang and other scholars have used the Chinese Big Five Personality questionnaire and the long-saddle group intelligence test to examine the intelligence and personality traits of 392 high school students. They found a significant positive correlation between the total score and the three scores and academic performance. In addition, it is found that the four dimensions of conscientiousness, openness, neuroticism and agreeableness in academic performance. Using hierarchical regression analysis showing that personality traits are more predictive than academic performance in intelligence, and the view that the side traits are more predictive of academic performance than the personality dimension [1]. However, scholar Zhu Shuling mentioned in her latest research that family function can have a direct and indirect impact on academic performance through itself, the separate mediation of self-evaluation, and the chain mediation of self-evaluation-learning motivation [2]. The study using the family function rating scale (FAD), self-acceptance scale (SAQ) and learning motivation questionnaire (MAAT) three questionnaires of 359 two high school in Anhui province, followed by Spss26.0, process, sorting, statistics and analysis of the data collected, and family function and self-acceptance, self-evaluation, learning motivation, academic performance are significant. In recent years, most of the studies conducted by Chinese scholars are on the intermediary effects of other elements such as family function or the predictor of personality traits on the basis of focusing on the academic performance of high school students. Compared with college students, there is a relative lack of research on the intermediary effects of the factors related to their academic performance.

3. Methodology

3.1. Research Objects and the Specific Quantitative Research Methods Selected

The study sample included 200 senior students at a university in Guangzhou. Study subjects were determined by simple random sampling, using questionnaires.

3.2. Research Tools and Methods for Data Analysis

This study used the international revised MBTI personality test (i. e., Global Step I™ and Global Step II™ Assessment, 2018) [3], Learning Motivation Scale [4], and academic performance as a research tool. Statistical analysis of college students' basic information, personality type, learning motivation, and academic performance, and other data was performed using SPSS 26.0. The statistical methods included descriptive analysis test, correlation analysis, linear regression analysis, and test of mediation effect.

4. Results and Discussion

4.1. Results

4.1.1 Reliability and Validity Analysis

Table 1. Reliability Test

Variable	Clone Bach of Alpha	Number of Terms
Academic Motivation	0.945	14
School Achievement	0.953	11
Total Amount of Table	0.962	25

In this study, the intrinsic reliability of the questionnaire was measured by the Cronbach's Alpha. The internal consistency of the questionnaire was tested by examining the reliability of the parts of the scale separately. According to the table, the Cronbach's Alpha of the scale is above 0.7, indicating that the internal consistency of the questionnaire is relatively high, and the questionnaire can be used as a research tool in this study.

Table 2. KMO and Bartlett Tests

	KMO	0.965
Bartlett Sphericity Test	Approximate Chi-square	3587.766
	Freedom Degree	300
	Conspicuousness	0.000
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The test results show that the KMO test value of the survey data is 0.965; greater than 0.70, indicating that the questionnaire is suitable for factor analysis. Bartlett The results of the sphere test showed that the probability of significance was 0.000 ($P < 0.01$), so the scale is considered suitable for factor analysis, and the validity structure is good.

4.1.2 Correlation Analysis Between the Various Variables

Table 3. Test of the Correlation in Each Dimension

	Average Value	Standard Error	Personality Types	Academic Motivation	School Achievement
Personality Types	1.380	0.487	1		
Academic Motivation	3.483	0.954	.417**	1	
School Achievement	3.993	0.828	.426**	.683**	1

** Level 0.01 (double tail) with significant correlation.

The results showed that the correlation coefficients of personality types, learning motivation and academic performance were 0.426 and 0.683 respectively, and the corresponding P-values were less than 0.01, which had significant statistical significance, indicating that personality types, learning motivation and academic performance had a significant correlation.

4.1.3 T-test Analysis

The t-test analysis of study motivation and academic performance, the mean of ENFP in study motivation and academic performance is 3.171 and 3.1717, the mean of ISTJ in study motivation and academic performance is 3.988 and 4.441, so the study results showed that the mean of ISTJ and the mean of ENFP, and $P < 0.05$, indicating that study motivation and academic performance are significant difference in personality types.

Table 4. Test of the Differences of the Different Personality Types in Each Variable

Variable	ENFP	ISTJ	T	P
	M±SD	M±SD		
Academic Motivation	3.171±0.998	3.988±0.600	-7.117	0.000
School Achievement	3.717±0.948	4.441±0.130	-8.230	0.000

4.1.4 Regression Analysis

Table 5. The Mediating Effect of Learning Motivation in Personality Types on Academic Performance

Variable	School Achievement		Academic Motivation		School Achievement			
	Model 1		Model 2		Model 3		Model 4	
	β	t	β	t	β	t	β	t
Personality Types	0.426***	6.517	0.417***	6.362	/	/	0.171**	2.998
Academic Motivation	/	/	/	/	0.683**	12.940	0.611**	10.751
R ²	0.181		0.174		0.466		0.490	
Adjust R ²	0.177		0.170		0.463		0.485	
F	42.475***		40.477***		167.456***		91.707***	

Note: * indicates P<0.05, ** P<0.01, *** P<0.001

As can be seen from the table, in Model 1, the regression coefficient for independent variables (personality types) and dependent variable (academic performance) was (β=0.426, P<0.001); the regression was highly significant. Therefore, the hypothesis that MBTI personalities positively affects college students' academic performance is established.

In Model 2, the regression coefficients for the independent variable (personality types) and the mediation variable (learning motivation) were (β=0.417, P<0.001); the regression was highly significant. Therefore, the hypothesis that the MBTI personalities positively affects the learning motivation holds true.

In Model 3, the regression coefficients for the independent variable (learning motivation) and the mediation variable (academic performance) were (β=0.683, P<0.001); the regression was highly significant. Therefore, the hypothesis that learning motivation positively affects academic performance is established.

In Model 4, after adding the independent variable (personality type) and mediation variable (learning motivation), the regression coefficient of the independent variable (personality types) versus dependent variable (academic performance) was (β=0.171, P<0.001); and the mediation variable (learning motivation) versus dependent variable (academic performance) was (β=0.611, P<0.001); the regression was highly significant. The results showed that the independent variable (personality type) after adding the intermediary variable (learning motivation) could still significantly affect the dependent variable (academic performance). Therefore, it can be determined that learning motivation has a partial intermediary effect on personality type and academic performance. Therefore, the assumption is tenable.

4.2. Discussion

There are few relevant research results in China, and the inter-annual research heat fluctuation range is large. Since 1990 to 1999, the volume of relevant literature in China has increased; from 1999 to 2006, the relevant literature tended to fluctuate but the overall quantity remained unchanged; since 2006, the research heat has gradually increased, reaching the highest peak and the second peak in 2008 and 2010 respectively, since then the heat fluctuation has decreased. Most of the previous research subjects were middle school students. In the international research, the MBTI personality

types scale research field and content are rich and diverse, and it is also widely used in the field of education. Between 2013 and 2022, there were a large number of international literatures on MBTI, with more than 1,500 articles. In the past, international scholars paid more attention to the influence of learning style caused by personality type on students' academic performance and the relationship between students' academic discipline and MBTI personalities [5], while in recent years, they also paid attention to the influence of MBTI personality types on students' academic performance [6]. After reading Chinese and international research on related topics, this study, based on the [1] conclusion that the personality traits are stronger than intelligence in predicting academic performance, imitated and localized international research methods in the Chinese context, forming unique insights.

This study investigated the mediating role of undergraduate learning motivation linking their academic performance and different personality types of MBTI. ENFP and ISTJ in MBTI personality types were included as independent variables, and academic performance was included as dependent variables, while also learning motivation was included as mediators, in order to reveal the mechanism of MBTI personality types influencing academic performance more clearly. Studies show that MBTI (ENFP, ISTJ) positively influences their academic motivation and academic performance, and it varies significantly in these two personality types. This study believes that through the establishment of MBTI personalities system based on college academic performance assessment project, can regulate college students learning motivation, improve college students' autonomous learning intention, improve the role of the college students' academic performance, has certain theoretical value and practical significance. However, this study still has some limitations. First of all, the respondents of this study are college students, who have not yet entered the workplace, and there are still large variables in mentality and behavior. Therefore, future studies can try to explore the influence of MBTI personalities of active learners on academic performance through the mediation role of learning motivation. Secondly, the study used the independently reported scores of students, which may be influenced by the students' subjective perspective and not true and accurate. Therefore, future studies can try to include multiple indicators such as teacher evaluation and student mutual evaluation into the overall evaluation of students' academic performance.

5. Conclusion

Through this study, this paper found that MBTI personality types positively affects academic performance and learning motivation, learning motivation positively affects academic performance and plays a mediating role between MBTI positively affecting academic performance. Furthermore, learning motivation, academic performance was significantly different in personality types, with ISTJ being significantly higher than ENFP. Therefore, learning motivation has multiple effects on their academic performance, which varies with different personality types. Like socially popular cognition, these three did not only have significant associations, but ISTJ showed significantly more associations in learning motivation and academic performance than ENFP. This can be potentially explained by the following facts: first, learning motivation is a form of personalities, and the expression of learning motivation used in this study itself contains different behaviors and functions derived from different personalities. Second, those with ISTJ personality are more reserved and detail-oriented than those with ENFP, which may also be the reason for the different results of personality projection on academic performance. In the future, researchers can refer to the conclusions of this study and start with the comparison of other types of personality to study the effects of other motives on the performance of the research samples at different ages.

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