

An Analysis of the Factors Influencing Cultural Identity of International Students Coming to China and Its Relationship with Cultural Identity

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Abstract. With the development of globalization and the internationalization of higher education in the world, under this background, the number of international students studying in China is increasing. This paper draws a conclusion through multiple linear regression of the default model: satisfaction with studying abroad, the impact of extracurricular activities and social ability all have a certain impact on cultural identity. Therefore, in order to further study the correlation, the intermediary effect is introduced for analysis.

Keywords: International students coming to China; Cultural identity; Multiple linear regression.

1. Introduction

With the development of globalization and the internationalization of higher education in the world, the number of international students studying in China is increasing under such a background. Once international students identify with Chinese culture, they will become rich international human resources [1]. Therefore, it is an important task for us to combine the education of international students with the promotion of Chinese cultural identity. It is of far-reaching strategic and practical significance to investigate the current cultural identity of international students, analyze the influencing factors, and propose corresponding solutions to strengthen cultural exchanges, enhance China's cultural soft power and national image and influence, and cultivate international students who understand and love China [2-4].

In this study, international students from H University were investigated. Then, based on multiple linear regression, this paper further studies the factors that affect the cultural identity of students studying in China. Finally, we further explore the correlation between cultural identity and its influencing factors, such as overseas study satisfaction, after-school activities, and social competence, through a moderated intermediary effect model.

2. Analysis of the factors influencing the cultural identity of international students in China based on multiple linear regression model.

2.1 Model selection

In the regression prediction of the cultural identity of international students, "cultural identity" is selected as the dependent variable, and the dependent variable is calculated by adding up the mean values from Q10_1 to Q13_5, and the values range from 1 to 5, which are quantitative data. Therefore, the multiple linear regression model was chosen to analyze the factors affecting the cultural identity of Chinese students [5].

The steps of constructing the multiple linear regression model are as follows.

Let the independent variable of various factors influencing cultural identity of international students in China be $x_j (j = 1, 2, 3 \cdots k)$, and the observed value of the dependent variable of cultural identity be $y_i (i = 1, 2, 3, \cdots, n)$, which satisfies the following relationship equation.

$$y_i = \beta_0 + \sum_{j=1}^n \beta_j x_j + \varepsilon_i \quad i = 1, 2, 3, \dots, n; j = 1, 2, 3, \dots, k \quad (1)$$

2.2 Variable setting

The model was constructed by selecting six indicators: "basic personal information", "satisfaction with studying abroad", "emotional condition", "social ability", "after-school life" and "career planning". These six indicators are subdivided into 31 variables, such as gender, nationality and grade, as independent variables that may affect the cultural identity of Chinese students. These six indicators are subdivided into 31 variables, such as gender, nationality, and grade, as independent variables that may affect Chinese students' cultural identity. Before regression, we need to set dummy variables for the independent variables, for example, the gender of female is coded as A1 and the gender of male is coded as A2, and A2 is set as the reference level group in the regression [6].

2.3 Model construction

When multiple linear regression is performed by stata, stata automatically detects the problem of complete multicollinearity in the data, and some of the outputs are shown in Table 1.

Table 1. OLS regression results

Y	Coef.	t	P
Gender==Female	-0.179	-2.19	0.031
Sex==Male	0		
Grade==Freshman	0		
Grade==Graduate and above	-0.346	-2.42	0.017
Your current level of Chinese == HSK4	0		
Your current Chinese level == HSK6	0.288	1.99	0.049
Your current Chinese language level == No level test, can communicate daily	0.265	2	0.048
Satisfaction with studying abroad	0.482	9.08	<0.001
Interaction and friendship	0.161	2.19	0.031
Do not like to participate in activities	-0.286	-2.32	0.022
Career planning==Working and living in China	-0.251	-2.2	0.03
Career planning == No planning yet	0		
Attitude = Don't want to know	-1.242	2.93	0.004
Attitude = Know but not interested	0		
Attitude = Know more and love it	0.433	2.63	0.01
_cons	1.785	4.01	0

The P-value is less than 0.05, which means that the regression coefficient is significantly different from 0 at the 95% confidence level, and the regression model obtained from the output is as follows.

$$y = 1.785 - 0.179x_{1(1)} + 0.346x_{4(5)} + 0.288x_{7(4)} + 0.265x_{7(5)} + 0.483x_{13} + 0.161x_{28} - 0.286x_{29} - 0.251x_{30(3)} - 1.242x_{31(1)} + 0.433x_{31(4)} \quad (2)$$

2.4 Model testing

1). Joint significance test

From $F(50, 99) = 6.92$, $Prob < 0.001$, the original hypothesis is rejected at the 95% confidence level: $\beta_1 = \beta_2 = \beta_3 = \dots = \beta_n = 0$, the t-statistic. n represents the number of independent variables i.e., the model passes the joint significance test, indicating that the regression model is statistically significant.

2). Heteroskedasticity hypothesis test

For the OLS regression model, homoscedasticity is assumed to be $Var(\mu_i) = \sigma_\mu^2$ ($i = 1, 2, \dots, n$), and heteroscedasticity is considered to occur if $Var(\mu_i) = \sigma_i^2$ ($i = 1, 2, \dots, n$) occurs, i.e., the variance of the random error term is no longer constant for a different sample point i . In the significance test of the variables,

$$t = \frac{\hat{\beta}_j - \beta_j}{Se(\hat{\beta}_j)} = \frac{\hat{\beta}_j - \beta_j}{\sqrt{\sigma_\mu^2 c}} = \frac{\hat{\beta}_{jj} - \beta_j}{\sqrt{\sigma_\mu^2 (XX)_{jj}^{-1}}} \quad (j = 0, 1, 2, \dots, k) \quad (3)$$

Since the robust standard error reduces to the ordinary standard error under conditional homoskedasticity, the difference between the two can be used as a measure of conditional heteroskedasticity. The informal approach is to see if the robust standard errors are similar to the ordinary standard errors. White's test, proposed in 1980, is based on this idea.

Under the original assumption of homoskedasticity $H_0: E(\varepsilon_i^2 | X) = \sigma^2$, the difference between the robust covariance matrix and the ordinary covariance matrix converges to a zero matrix.

$$\hat{S} - s^2 S_{xx} = \frac{1}{n} \sum_{i=1}^n e_i^2 x_i x_i' - s^2 \frac{1}{n} \sum_{i=1}^n x_i x_i' = \frac{1}{n} \sum_{i=1}^n (e_i^2 - s^2) x_i x_i' \xrightarrow{p} 0_{K \times K} \quad (4)$$

The White's test has the advantage of testing any form of heteroskedasticity and is more widely applicable, so the White's test is performed on the established multiple linear regression model with STATA, and the following results are output: $chi2(149) = 150.00$, $Prob = 0.4616$. The original hypothesis is that there is no heteroskedasticity in the disturbance term, and since the p-value is greater than 0.05, the original hypothesis is not rejected and there is no evidence of heteroskedasticity in the disturbance term, i.e., it is considered that there is no heteroskedasticity.

2.5 Analysis of results

The independent variables in the model pass the significance test, indicating that each variable has an effect on the dependent variable, and when the regression coefficient of the independent variable is greater than 0, it indicates a positive effect on the dependent variable, and vice versa. From the regression equation obtained by STATA, the following conclusions can be drawn.

1). When "gender male" is the control group, "gender female" has a negative effect on cultural identity, i.e., if the gender is female, the cultural identity decreases by 0.179 on average, while other variables remain unchanged.

2). When "freshman" was the control group, "graduate and above" had a positive effect on cultural identity, i.e., if the grade changed from "freshman" to "graduate and above" while holding all other variables constant, the cultural identity decreased by 0.179 on average. The average cultural identity level increased by 0.346 if the grade level was changed from "freshman" to "graduate student and above".

3). When "HSK level 4" was the control group, "Chinese level and above" and "not taking the level test, can communicate daily" both had a positive effect on the cultural identity level. In other words, if the Chinese level changed from "level" to "Chinese level HSK6 and above" and "did not take the level test and can communicate and talk in daily life", the cultural identity level would have a positive effect. ", the cultural identity level increases by 0.288 and 0.265 on average, respectively.

4). When other variables remain unchanged, the cultural identity increases by 0.483 for each unit increase in "satisfaction with studying abroad".

5). When all other variables were held constant, if the respondents were willing to participate in "interactive friendship" activities, the degree of cultural identity increased by 0.286 on average.

6). When career plan is "working and living in China" as the control group, "no plan" has a negative effect on cultural identity, i.e., if career plan is changed from "working and living in China" to "no plan" while other variables are held constant, the cultural identity increases by 0.286. If the career plan changed from "living in China" to "no plan", the cultural identity decreased by 0.251 on average.

7). When the basic attitude toward Chinese culture - limited to knowing, understanding but not interested - is the control group, "don't want to understand" has a negative effect on cultural identity, and "have a deep understanding and love it very much" has a positive effect on cultural identity. "When the basic attitude toward Chinese culture changed from "only know, know but not interested" to "don't want to know", the degree of cultural identity When the basic attitude toward Chinese culture changed from "only know, know but not interested" to "don't want to know", the degree of cultural identity decreased by 1.242 on average, while when it changed to "know it well and love it very much", the degree of cultural identity increased by 0.433 on average.

3. The relationship between study abroad satisfaction and cultural identity: a mediated model with moderation

3.1 Model selection

Mediating and moderating effects are often encountered in psychological and behavioral research. If the independent variable affects the dependent variable by influencing a third variable, then it is a mediating variable. The purpose of a mediating effect analysis is to investigate how the influence. If the relationship between the independent variable and the dependent variable is influenced by a third variable, this is a moderating variable that affects the direction (positive or negative) and strength of the relationship between and [7]. The purpose of the moderating effect analysis is to investigate when the effect is greater or when the effect is stronger. If a model contains more than three variables, it may contain both mediating variables and moderating variables, and the position and role of these variables in the model may produce different models [8].

Edwards and Lambert (2007), in their discussion of models with both regulation and mediation, put regulation into the context of mediation analysis by whether the first half path, second half path, and direct path of the mediating process are regulated [9]. Eight models are combined, but not further classified. Only the mediated models with regulation are considered here, and the models in which all paths are not regulated are treated as benchmark models, and the models in which only the direct paths are regulated (because they are not part of the mediated models with regulation) are not considered, and the models are divided into two categories: those that regulate only indirect effects, and those that regulate both indirect and direct effects.

Since it is not clear from this research which path of the constitutive mediated model is moderated by the moderating variables, the plug-in common model59 was chosen for construction, as shown in Figure 1.

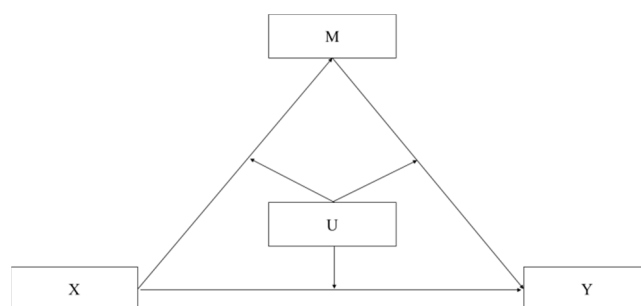


Figure 1. PROCESS plug-in common models 59

3.2 Variable setting

The purpose of this model is to investigate whether there is a moderating mediating effect among study abroad satisfaction, after-school activities, social competence and cultural identity, and if so, how the moderating variables affect the mediating model. Based on the previous data analysis and related findings, this study set study abroad satisfaction as the independent variable X, cultural identity as the dependent variable Y, after-school activities as the mediating variable M, and social competence as the moderating variable U[10].

3.3 Model construction

Combining model selection and variable setting, this research constructs the model shown in Figure 2.

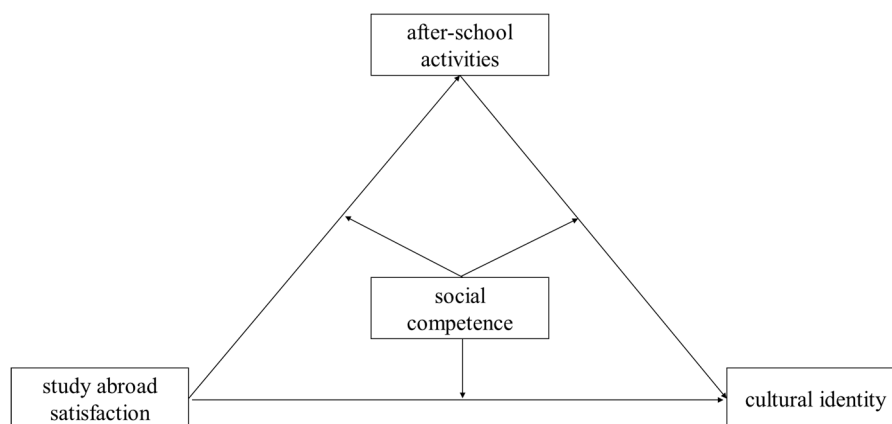


Figure 2. The mediating effects model with moderation initially constructed in this study

3.4 Model testing

The mediating effect model with the independent variable X as study abroad satisfaction, the dependent variable Y as cultural identity, and the mediating variable M as the influence of after-school activities was first tested, and the results of the sequential tests are shown in Table 2.

The first step is the regression of the independent variable on the dependent variable, the second step is the regression of the independent variable on the mediating variable, and the third step is the regression of the independent and mediating variables on the dependent variable.

Table 2. The mediating effects of the effects of after-school activities were examined in turn

	Standardized regression equation	Regression coefficient test	
Step 1	$y = 0.740x$	$SE = 0.044$	$t = 13.40^{**}$
Step 2	$m = 0.447x$	$SE = 0.091$	$t = 6.08^{**}$
Step 3	$y = 0.168m$	$SE = 0.048$	$t = 11.01^{**}$
	$+ 0.665x$	$SE = 0.039$	$t = 2.78^*$

From the results, it can be seen that the model passed the mediating effect test. The total effect of study abroad satisfaction on cultural identity is 0.599, the direct effect of study abroad satisfaction on cultural identity is 0.538, and the indirect effect of the influence of after-school activities as a mediating variable on cultural identity is 0.075, indicating that after-school activities play a partly mediating role in the influence of study abroad satisfaction on cultural identity.

Testing for moderating effects

Next, we add the moderating variable social competence, to test the moderating effect in the model. The test steps are divided into two steps.

Step 1: Using the mediating variable, after-school activity impact, as the dependent variable, and the independent variables, study abroad satisfaction, social competence, and the interaction term, we build a regression model to test whether the moderating variable affects the first half of the mediating effect.

Step 2: Using cultural identity as the dependent variable, satisfaction with studying abroad, social competence, influence of after-school activities, and interaction term as the independent variables, regression models were built to test whether the moderating variables affected the direct path and the second half of the mediating effect. The output results are shown in Table 3.

From the results, it can be seen that the regression model with the mediating variable of influence of after-school activities as the dependent variable and the independent variables of satisfaction with

studying abroad, social competence, and interaction term did not pass the significance test, so the moderating variable of social competence did not affect the first half of the mediating effect. The regression model with cultural identity as the dependent variable, satisfaction with studying abroad, social competence, influence of after-school activities, and interaction term as the independent variables passed the significance test, so the moderating variable social competence affects the direct path and the second half of the mediating effect.

Table 3. Intermediary model test with moderation

Regression equation		Fitting index			Coefficient Significance	
Result Variables	Predictive variables	<i>R</i>	<i>R</i> ²	<i>F</i>	β	<i>t</i>
<i>M</i>		.533	.284	19.344***		
	<i>X</i>				0.681	1.556
	<i>U</i>				0.705	1.364
	<i>XU</i>				-0.075	-0.612
<i>Y</i>		0.794	0.631	49.232***		
	<i>X</i>				1.047	4.716***
	<i>M</i>				0.307	2.171**
	<i>U</i>				1.022	4.129***
	<i>XU</i>				-0.521	-2.449**
	<i>MU</i>				-0.069	-1.779*

3.5 Analysis of results

According to the model test, the final model obtained in this research is shown in Figure 3.

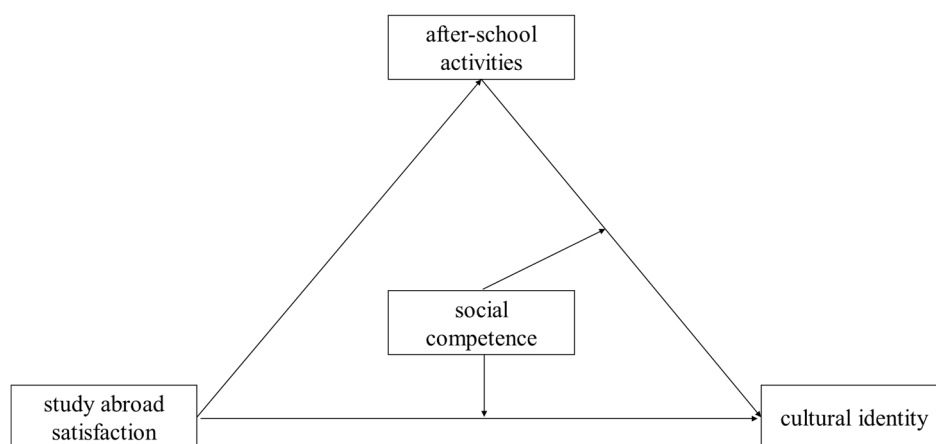


Figure 3. The mediated model finally constructed in this research

This study explored the relationship between study abroad satisfaction and cultural identity and their underlying mechanisms of action. The findings show that study abroad satisfaction, after-school activity influence, social competence, and cultural identity form a moderated mediating model. Study abroad satisfaction is not only directly related to cultural identity, but also indirectly influenced by the mediator of after-school activity influence, and this mediator is also moderated by social competence.

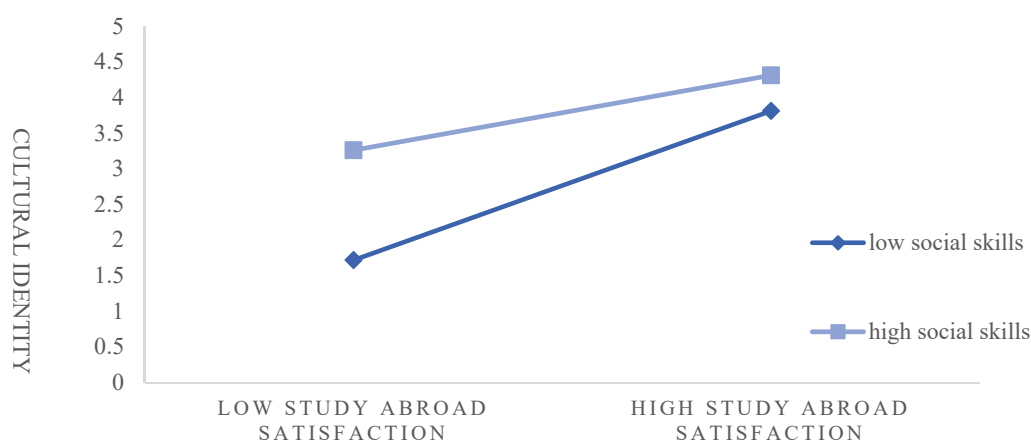


Figure 4. The moderating role of social skills in study abroad satisfaction and cultural identity

In order to explain more clearly the moderating effect of social competence on the relationship between study abroad satisfaction and cultural identity, social competence was grouped into high and low groups by mean plus or minus one standard deviation, and a simple slope test was performed, as shown in Figure .

The results showed that the positive predictive effect of study abroad satisfaction on cultural identity was significant for students with high social competence, and the positive predictive effect of study abroad satisfaction on cultural identity was significant for students with low social competence, and the positive predictive effect was more obvious than that of students with high social competence. It indicates that the cultural identity of international students with low social skills is more likely to be influenced by the degree of satisfaction with studying abroad.

4. Conclusion

This paper constructs a multiple linear regression model and a mediation effect model to analyze Chinese culture. It is believed that the basic attitude and cultural identity of international students towards Chinese culture are not only affected by objective factors such as time spent in China and Chinese proficiency, but also by subjective factors, such as satisfaction with learning in China, social skills and the intensity of enterprising spirit. The conclusions are as follows:

- 1). Satisfaction with studying abroad is positively related to cultural identity of international students.
- 2). There is a moderating mediating effect between international students' satisfaction with studying abroad, the influence of after-school activities, social skills and cultural identity.
- 3). Participation in interactive after-school activities can enhance the cultural identity of international students.
- 4). More motivated students have more positive basic attitudes toward Chinese culture and more diverse ways of understanding it.
- 5). Chinese language proficiency positively affects the cultural identity of international students.

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