Influence of Acculturation in Yunnan's Ethnic Minority College Students on Their Academic Achievement: The Moderating Role of Learning Motivation

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Abstract: This study examined the effect of Yunnan's ethnic minority college students' acculturation on their academic achievement under the risk of the Matthew effect. Additionally, the role played by learning motivation in the relationship between ethnic minority college students' acculturation and academic achievement was explored. A total of 403 valid questionnaires were collected from four areas in Yunnan province, China. Consequently, the Acculturation Scale, Academic Achievement Scale, and Learning Motivation Scale were used for measurement materials. These items of scales were evaluated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). SPSS (statistical package for the social sciences) and AMOS (analysis of a moment structures) softwares were used for data analyses. In addition, items were analyzed through item analysis, confirmatory factor analysis, reliability analysis and regression analysis. These results indicated that ethnic minority college students with low acculturation and learning motivation or high acculturation and low learning motivation can become objects of the Matthew effect. However, this study also observed that in certain students, high acculturation and high learning motivation can prevent the Matthew effect. Thus, high acculturation is crucial for improving academic achievement in ethnic minority college students. A level of high learning motivation is a powerful moderator promoting the academic achievement of students with high acculturation.

Keywords: *Ethnic minority, acculturation, academic achievement, learning motivation, Yunnan.*

Introduction

The academic achievement of American minority students is a topic that has interested researchers (Carranza et al., 2009; Kim et al., 2015; Smith & Hopkins, 2004). Similar to the United States, China also has a multiethnic culture. The population of the People's Republic of China is officially divided into 56 ethnic groups, namely the Han group and 55 ethnic minorities (Chinese Nationalities and Populations, 2010). To respect cultural diversity on grounds of humanism (Comas-Diaz, 2012), a government policy for ethnic minority students in Yunnan province was established, highlighting that "Yunnan promotes the reform of college entrance examinations in ethnic areas" (Ministry of Education of the People's Republic of China, 2015). The reforms include minority preparatory courses, specifically recruited students, directional training, and weighted scoring in college entrance exams (Ministry of Education of the People's Republic of China, 2015). The reason for this focus is that ethnic minorities comprise one-third of Yunan's population (Yang, 2015). These economically disadvantaged minorities mostly live in rural districts far away from cities. The ethnic minority population in Yunnan comprises 15.337 million people who belong to 25 ethnic groups with different cultures, languages, and religions (Wang, 2014). Because of the inferior condition of education in rural areas, rural students have disproportionately been denied university education. Consequently, the aforementioned policy has been adopted to deal with the education differences in Yunnan. However, this policy has resulted in the risk of the Matthew effect on the relation between ethnic minority and Han college students.

The self-actualization process of ethnic minority students in higher education institutes may appear to have a negative

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effect under the Matthew effect. The Matthew effect describes the phenomenon of "the strong get stronger, the weak get weaker" in education (Perc, 2014). Ethnic minority students with different cultures, languages, and religions undergo acculturation after college admission because they come into contact with Han culture in the campus and city (Zhang, 2012). To solve problems associated with acculturation, ethnic cultural activities are organized for ethnic minority students to preserve cultural diversity (Xue, 2016). The fact that ethnic minority students can speak their ethnic language and Mandarin constitutes a two-culture characteristic (Jin, 2018). However, some university students find accepting the new Han culture challenging in the short term, and this leads to negative acculturation (Xue, 2016; Zhang, 2012). Negative acculturation has been confirmed as one of the reasons ethnic minority college students achieve less satisfactory academic results than Han college students in Han society (Chen & Wang, 2006; Li & Zhang, 2005; Teng & Yang, 2004). Negative acculturation may aggravate the Matthew effect, even if ethnic minority college students obtain equal access to learning resources.

College entrance examinations in China are opportunities for poor students, especially ethnic minority students who live in economically disadvantageous rural districts, to reach self-actualization. Consequently, high learning motivation is a distinct feature of ethnic minority college student (Hu & Zhang, 2008). The learning motivation of ethnic minority college students, which has been confirmed to be a predictor for their academic achievement, is higher than that of Han students (Cao & Zhang, 2013). Therefore, learning motivation may be a meaningful and useful factor to their self-actualization process.

Literature Review

This study examined the effect of ethnic minority college students' acculturation on their academic achievement under the risk of the Matthew effect. Additionally, the role played by learning motivation in the relationship between ethnic minority college students' acculturation and academic achievement was explored.

Variable of Gender Difference

Observing, learning, and imitation are the basic elements of social learning theory. These elements are considered as a theoretical explanation of gender differences (Deaton, 2015); scholars can estimate a person's gender differences in acculturation, academic achievement, and learning motivation by observing what that person has been learning and imitating from society and others (Bird et al., 2019; Deaton, 2015; Hernandez et al., 2019; Huang & Li, 2019; Lee & Kim, 2014). Observing and imitating cultural groups during the acculturation process may exert a greater effect of acculturation on women's substance use compared with that of men (Hernandez et al., 2019). Male students tend to have poorer academic performance in language subjects compared with female students (Bird et al., 2019). Furthermore, statistical differences have been observed between the learning motivation of male and female students (Huang & Li, 2019). In particular, the motivation to learn English and math was reported to be influenced by gender because male and female students imitate and observe their teachers differently (Lee & Kim, 2014). In conclusion, studies have indicated that gender differences exist in acculturation, academic achievement, and learning motivation. These differences may be caused by social learning. Therefore, the following hypothesis is derived:

H1: Significant differences in acculturation, academic achievement, and learning motivation exist between male and female ethnic minority college students in the Yunnan province of China.

Acculturation and Academic Achievement

Safety concerns and social needs are important for individuals adapting to cultural surroundings. Furthermore, the demands of safe surroundings and social communication influence an individual's motivation to undergo acculturation (Berry, 1997; Maslow, 1943). As explained by acculturation theory, cultural experiences vary between people from the same cultural group when they contact and live with people from other cultural groups (Smith et al., 2018). Acculturation can facilitate assimilation and integration. Culture is retained and accepted to different degrees when people have diverse cultural experiences (Berry, 1997).

Covert behaviors are used by some ethnic minority students to oppose school education because these students find it difficult to accept Han education culture and Chinese learning even if they acknowledge education as a way of personal growth (Chen & Wang, 2006; Ma & Yuan, 2016; Xu, 2016), therefore, ethnic minority students have lower academic achievement than Han students do, and negative cultural adaptation was regarded as an explanation for this phenomenon (Chen & Chen, 2018). Negative acculturation entails that the demands of safe learning environments and satisfactory social interaction have not been met (Maslow, 1943). Positive acculturation has a significant positive influence on the academic achievements of Mexican and Chinese American adolescents and African American college students (Carranza et al., 2009; Fang, 2020; Kim et al., 2015; Smith & Hopkins, 2004). Negative adaptation to cultural surroundings may hinder the academic achievement of ethnic minority students in terms of their potential development and self-actualization. Therefore, the second hypothesis is derived as follows:

H2: The acculturation of ethnic minority college students in the Yunnan province of China has a significant effect on their academic achievement.

Learning Motivation and Academic Achievement

The intrinsic drive of learning, which is called learning motivation, has been applied in the educational field (Hull, 1952). Behavioral drives stem from individual needs, and the resultant behavior tends to be determined by individual motivation (Maslow, 1943). Learning behavior may depend on the intrinsic learning motivation to strive for self-actualization (Maslow, 1943; Neto, 2015).

The need for self-actualization may positively motivate ethnic minority college students with high learning motivation to achieve better academic performance (Hu & Zhang, 2008; Maslow, 1943). Studies on academic achievement have concluded that learning motivation considerably affects academic achievement in high school and college students (Abdelrahman, 2020; Datu, 2017; Shi et al., 2016; Sun et al., 2017; Zhang & Shen, 2005). Therefore, the third hypothesis is derived as follows:

H3: The learning motivation of minority college students in the Yunnan province of China has a significant effect on their academic achievement.

Acculturation, Learning Motivation, and Academic Achievement

The education difference between Yunnan's ethnic minority and Han populations has been solved by adopting the college entrance examination policy (Ministry of Education of the People's Republic of China, 2015). The ethnic minority students who gain admission through this policy always have a lower learning level than students who gain admission through the usual route (Ministry of Education of the People's Republic of China, 2015). The Matthew effect may become a risk factor for higher education and result in poorer academic achievement among ethnic minority college students compared with Han students enrolled through regular channels. As the same time, negative acculturation occurs and affects the learning outcomes of ethnic minority students (Wang, 2019). However, motivation theories and related literature suggest that learning motivation is an influential positive variable among ethnic minority college students (Abdelrahman, 2020; Hu & Zhang, 2008; Maslow, 1943; Neto, 2015).

Adapting to learning environment is emphasized as the main cause of the occurrence of learning motivation (Hull, 1952). Ethnic minority college students with high learning motivation may tend to pursue academic achievement, power, and affiliation during higher education (Fang, 2020; Hu & Zhang, 2008; McClelland et al., 1953). Self-determination theory holds that motivation is usually determined by self-determination (Deci & Ryan, 1985). Individuals with high self-determination have high motivation for achievement and self-actualization, and the reverse is true for individuals with low self-determination (Deci & Ryan, 1985; Maslow, 1943). In the present study, high learning motivation of ethnic minority college students may positively influence their academic achievement under the Matthew effect. Simultaneously, high learning motivation may still promote the academic achievement of ethnic minority college students in their acculturation process. By contrast, ethnic minority college students with low learning motivation may not have sufficient motivation to learn during the acculturation process; therefore, their academic achievement may be considerably influenced by the Matthew effect. The fourth research hypothesis is derived as follows:

H4: The learning motivation of minority college students in the Yunnan province plays a moderating role in the relationship between acculturation and academic achievement.

Hypothetical Model

This study, which is based on psychological theories and previous studies, indicates that acculturation and learning motivation affect academic achievement and that learning motivation is a moderator in the relationship between acculturation and academic achievement. The hypothetical model is illustrated in Figure 1.
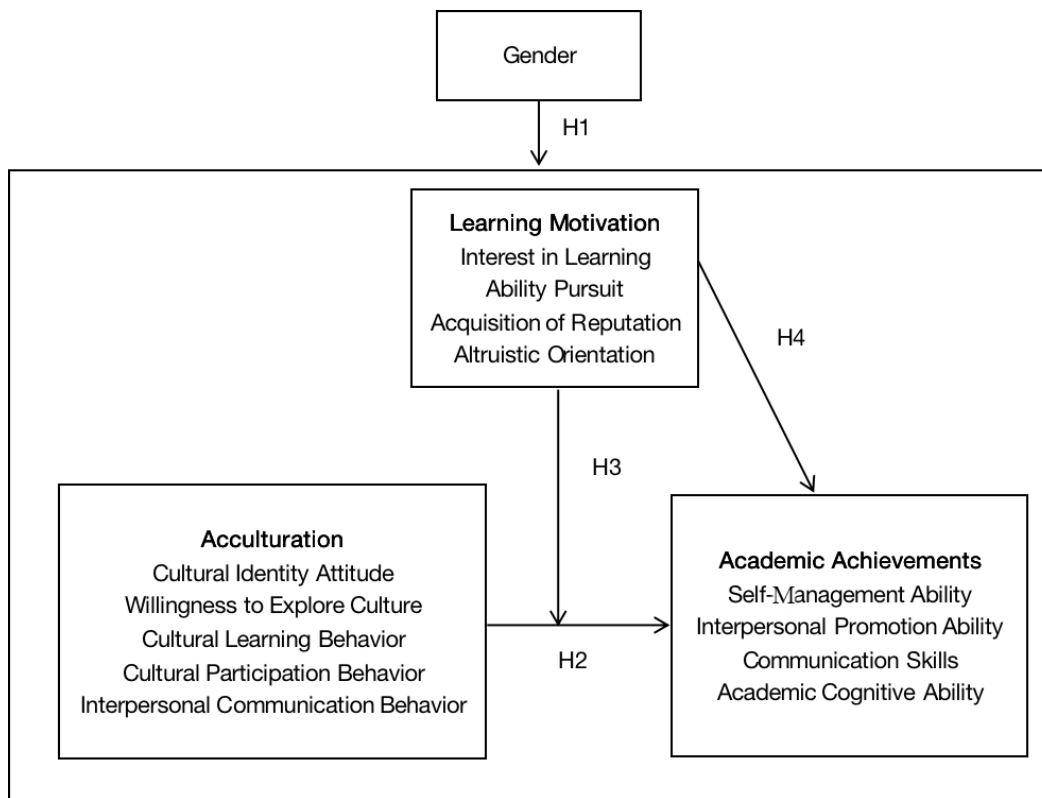
Figure. 1. Hypothetical Model.

Methodology

Participants

The research participants were ethnic minority college students from Hani and Yi Autonomous Prefecture in Honghe, Bai Autonomous Prefecture in Dali, Kunming, and Wenshan Zhuang and Miao Autonomous Prefecture in Yunnan province. The applicability and safety of measurement tools for human subjects was evaluated by "Blinded for review". To ensure data validity, paper questionnaires were sent to research assistants from four fields by express mail. Sampling was performed in December 2018 and January 2019. Participants were informed of the study's purpose and voluntarily participated in the study. The researcher assured the respondents that privacy and confidentiality would be maintained. The questionnaire was completed anonymously, and the data were used only for research. After testing, 451 questionnaires were sent out and 48 invalid questionnaires were excluded. The effective recovery rate was 89%. of the valid samples (N = 403). Of the 403 valid samples in this study, 187 (46.4%) were provided by male students and 216 (53.6%) were provided by female students. In addition, eight ethnic minorities were represented in this valid sample, including 108 (26.8%) Bai, 96 (23.8%) Hui, 75 (18.6%) Dai, 62 (15.4%) Hani, 34 (8.4%) Miao, 15 (3.7%) Lisu, 10 (2.6%) Naxi and three (0.7%) Zhuang.

Materials

In this study, the Acculturation Scale, Academic Achievement Scale, and Learning Motivation Scale were used for measurement materials. These items of scales were evaluated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). SPSS and AMOS softwares were used for data analyses. The absolute values of skewness and kurtosis in the normal distribution of the study data met the standard skewness and kurtosis values of <3 and <10, respectively (Kline, 2010).

The Acculturation Scale from Zhang (2012) was employed as an adaptive measurement tool to evaluate cultural adaptation in this study and assess the extent to which students adapted to Han culture while preserving their ethnic cultural identity. A total of 36 items were related to the Acculturation Scale. The Acculturation Scale comprised the following five dimensions: Cultural identity attitude, 11 items (for example: I am proud of the development of my national culture); willingness to explore culture, 9 items (item example: I am happy to participate in various traditional Han festivals to better understand the traditional culture of the Han people); cultural learning behavior, 3 items (item example: I usually actively study the cultural knowledge of the Han people); cultural participation behavior, 7 items (item example: I often participate in various cultural activities of my minority; as long as I have the opportunity, I will actively participate in various traditional festivals of the Han); and interpersonal communication behavior, 6 six items (item example: I keep close contact with Han friends).

Academic Achievement Scale was utilized to measure learning outcomes in this study to assess the following four student abilities: self-management, interpersonal promotion, communication skills, and academic cognition. A total of 19 items were related to the Academic Achievement Scale (Li & Yang, 2016). The Academic Achievement Scale comprised the following four dimensions: academic cognitive ability, four items (item example: I can use what I have learned); communication skills, five items (item example: I am good at listening, and I do not like to interrupt others); self-management ability, five items (item example: I can make good use of my time); and interpersonal promotion ability, five items (item example: I can care for and consider the perspectives of other students very well).

Learning Motivation Scale from Tian and Hu (2010) was used to assess the extent of learning interest, pursuit of ability, altruistic orientation, and acquisition of reputation in the learning process. The Learning Motivation Scale comprised 15 items (Tian & Hu, 2010). The Learning Motivation Scale evaluated four dimensions: interest in learning, four items (item example: In general, I have a strong interest in the study of university courses); pursuit of ability , three items (item example: I study hard to establish a career in the future); acquisition of reputation, four items (item example: I hope to improve my influence through my academic achievement); and altruistic orientation, four items (item example: To make myself capable of helping others in the future, I have been studying hard).

Results

Acculturation

The reliability and validity of the Acculturation Scale was estimated through item analysis and confirmatory factor analysis (CFA). The number of items for the Acculturation Scale was reduced from 36 to 16 because 5 items had an item-total correlation below .40 (Bird et al., 2019) and 15 items had factor loadings below .50 (Fornell & Larcker, 1981). Additionally, 16 items were used to subsequently analyze acculturation. The evaluated dimensions of acculturation comprised cultural identity attitude (three items), willingness to explore culture (three items), cultural learning behavior (three items), cultural participation behavior (four items), and interpersonal communication behavior (three items).

In the reliability analysis, the adjusted Acculturation Scale had a high Cronbach's alpha of .91. CFA was used to test the average variance extracted (AVE) and composite reliability (CR) of the measurement model. The factor loadings of the Acculturation Scale with 16 items ranged from .59 to .75, which confirmed convergent validity.

First, CFA revealed the absence of negative error variances in the parameters. All error variances reached significant levels in the adjusted model. Moreover, all the factor loadings in the adjusted model reached a significant level for all the *t*-values (Bagozzi & Yi, 2012; Fornell & Larcker, 1981).

Second, the adjusted model fit indices exhibited an acceptable fit with the sample data. The results for the indices are as follows: χ^2/df = 2.39, RMSEA = .07, RMR = .04, CFI = .94, NFI = .90, GFI = .92, AGFI= .88, PNFI= .68, PGFI= .61 (Bollen, 1989; Schumacker & Lomax, 2004). AVE and CR values of over .40 and .60, respectively, are suggested as standards of composite reliability and convergent validity, respectively (Hair et al., 1998). The CR and AVE of the dimensions of acculturation in the measurement model ranged from .68 to .74 and .41 to .46, respectively.

Academic Achievement

The reliability and validity of the Acculturation Scale was estimated through item analysis and CFA. The number of items in the Academic Achievement Scale was reduced from 19 to 13 because four items had an item total correlation below .40 (Bird et al., 2019) and two items had factor loadings below .50 (Fornell & Larcker, 1981). The 13 items of academic achievement were employed for subsequent analyses, with measurements of academic cognitive ability (3 items), communication skills (3 items), self-management ability (3 items), and interpersonal promotion ability (4 items).

In the reliability analysis, a high Cronbach's alpha of .90 was obtained for the adjusted academic achievement scale. CFA was used to test the AVE and CR of the measurement model. The adjusted Academic Achievement Scale comprised 13 items. The factor loadings of these items ranged from .74 to .84, which confirmed convergent validity.

First, CFA revealed the absence of negative error variances in the parameters, and the variances all reached significant levels in the adjusted model. Moreover, all the factor loadings in the adjusted model reached a significant level for all the *t*-values (Bagozzi & Yi, 2012; Fornell & Larcker, 1981).

Second, the adjusted model fit indices exhibited an acceptable fit with the sample data. The results for the indices are as follows: χ^2/df = 3.11, RMSEA = .08, RMR = .05, CFI = .92, NFI = .90, GFI = .92, AGFI= .87, PNFI= .65, PGFI= .57 (Bollen, 1989; Schumacker & Lomax, 2004). AVE and CR values of over .40 and .60, respectively, are suggested as standards of composite reliability and convergent validity, respectively (Slater et al., 2007). The CR and AVE of the dimensions of academic achievement in the measurement model ranged from .84 to .87 and .63 to .66, respectively.

Learning Motivation

The reliability and validity of the Learning Motivation Scale was estimated through item analysis and CFA. The number of items for the Learning Motivation Scale was reduced from 15 to 13 because two items had factor loadings below .50 (Fornell & Larcker, 1981). The 13 items of the scale were used for subsequent analyses, with measurements of learning interest (four items), pursuit of ability (three items), acquisition of reputation (three items), and altruistic orientation (three items).

In the reliability analysis, a high Cronbach's alpha of .90 was obtained for the adjusted Learning Motivation Scale. CFA was used to test the AVE and CR of the measurement model. The adjusted Learning Motivation Scale comprised 13 items. The factor loadings of the items ranged from .72 to .87, which confirmed convergent validity.

First, CFA revealed the absence of negative error variances in the parameters, and the variances all reached significant levels in the adjusted model. Furthermore, all the factor loadings in the adjusted model reached a significant level for all the t-values (Bagozzi & Yi, 2012; Fornell & Larcker, 1981).

Second, the adjusted model fit indices exhibited an acceptable fit with the sample data. The results for the indices are as follows: χ^2/df = 2.66, RMSEA = .07, RMR = .05, CFI = .94, NFI = .90, GFI = .92, AGFI= .88, PNFI= .68, PGFI= .60 (Bollen, 1989; Schumacker & Lomax, 2004). AVE and CR values of over .40 and .60, respectively, are suggested as standards of composite reliability and convergent validity, respectively (Hair et al., 1998). The CR and AVE of the dimensions of learning motivation in the measurement model ranged from .80 to .87 and .57 to .63, respectively.

In conclusion, because of the reasonable Cronbach's alpha values, factor loadings, fit indices, AVE, and CR, the adjusted Acculturation Scale, Academic Achievement Scale, and Learning Motivation Scale were confirmed to be reliable and valid.

Difference Analysis and Correlation Analysis

In the research sample, the mean of acculturation was higher than its median (M = 3.91, SD = .59), the mean of learning motivation was marginally higher than its median (M = 3.66, SD = .63), and the mean of academic achievement was marginally higher than its median (M = 3.69, SD = .54). However, no statistical difference was observed between male and female students in terms of acculturation (M_{male} = 3.88, SD = .41; M_{female} = 3.93, SD = .38, t = −1.09, p > .05), learning motivation (M_{male} = 3.65, SD = .66; M_{female} = 3.66, SD = .61, t = −.09, p > .05), or academic achievement (M_{male} = 3.70, SD = .54; M_{female} = 3.67, SD = .54, t = .44, p > .05). Therefore, Hypothesis H1 was unsupported.

In addition, academic achievement was found to have a moderate positive correlation with subdimensions, including willingness to explore culture (r =.52, p < .001), interpersonal communication behavior (r =.44, p < .001), ability pursuit (r =.66, p < .001), and reputation acquisition (r =.58, p < .001), as shown in Table 1.

Table 1. The Correlations of Subdimensions and Academic Achievement

Dimensions	Academic Achievement
Cultural Identity Attitude	.07
Willingness to Explore Culture	.52***
Cultural Learning Behavior	.03
Cultural Participation Behavior	.09
Interpersonal Communication Behavior	.44***
Interest in Learning	.05
Ability Pursuit	.66***
Acquisition of Reputation	.58***
Altruistic Orientation	.07

*** p < .001.

Analysis of the Moderating Effect by Using Stepwise Regression Analysis

Models 1 and 2 indicated that no collinearity problem existed in this study because every VIF in Tables 1 and 2 is below 10 (Myers, 1990). A moderate correlation was observed between acculturation and academic achievement (r = .35, p < .01), wherein acculturation positively predicted academic achievement (β = .35, p < .001). Therefore, Hypothesis H2 was supported. Table 2 lists the acculturation dimensions pertaining to academic achievement. The results highlighted that willingness to explore culture (β = .16, p < .01) and interpersonal communication behavior (β = .14, p < .05) positively predicted academic achievement.

Table 2. The Influence of Acculturation on Academic Achievement

Dimensions	Academic Achievement			
	Standardized B	R^2	Adjusted R^2	VIF
Cultural Identity Attitude	.05			1.37
Willingness to Explore Culture	.16**			1.62
Cultural Learning Behavior	.03	.13	.12	1.54
Cultural Participation Behavior	.08			1.59
Interpersonal Communication Behavior	.14*			1.53

*$p < .05$, **$p < .01$.

A moderate positive correlation was observed between learning motivation and academic achievement ($r = .46, p < .01$), wherein learning motivation positively predicted academic achievement ($\beta = .39, p < .001$). Therefore, Hypothesis H3 was supported. Table 3 lists the learning motivation dimensions pertaining to academic achievement. The results demonstrated that pursuit of ability ($\beta = .32, p < .001$) and acquisition of reputation ($\beta = .24, p < .001$) positively predicted academic achievement.

Table 3. The Influence of Learning Motivation on Academic Achievement

Dimensions	Academic Achievement			
	Standardized B	R^2	Adjusted R^2	VIF
Interest in Learning	.09			1.64
Ability Pursuit	.32***	.26	.25	1.53
Acquisition of Reputation	.24***			1.59
Altruistic Orientation	.05			1.60

*** $p < .001$.

As an independent variable, acculturation ($\beta = .35, p < .001$) positively predicted academic achievement with 12% explanatory power in the first model (Table 4). In model 2, learning motivation was an additional independent variable, and acculturation ($\beta = .15, p < .001$) and learning motivation ($\beta = .39, p < .001$) jointly positively predicted academic achievement. The explanatory power of model 2 increased by 11% compared with that of model 1. Finally, the interaction item of acculturation and learning motivation reached significance ($\beta = .23, p < .001$) in model 3, and the explanatory power of model 3 was 5% more than that of model 2 because of the interaction item.

The results indicated that acculturation and academic achievement were positive predictors of academic achievement. The interaction item had a significant effect on academic achievement, which suggested that learning motivation had a moderating effect on acculturation and academic achievement. Therefore, Hypothesis H4 was supported.

Table 4. Learning Motivation Moderating Effect

	Academic Achievement		
	Model 1	Model 2	Model 3
Acculturation	.35***	.15***	.17***
Learning Motivation		.39***	.38***
Acculturation × Learning Motivation			.23***
R^2	.12	.23	.28
Adjusted R^2	.12	.23	.28
F	54.02***	60.12***	52.11***

*** $p < .001$.

The interaction diagram is illustrated in Figure 2. When the degree of acculturation was high, high learning motivation had a more positive influence on academic achievement compared with low learning motivation. When the degree of acculturation was low, high learning motivation still had a more positive influence on academic achievement compared with low learning motivation; however, the gap between the two motivation effects was smaller than that under high acculturation. Thus, learning motivation was a powerful moderator in the relationship between acculturation and academic achievement.
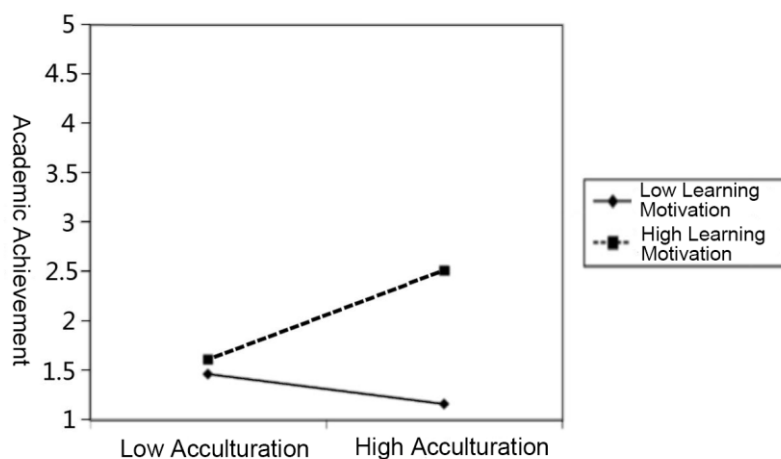
Figure. 2. Effect of Learning Motivation on the Relation between Acculturation and Academic Achievement.

Discussion

The participants of this study represent the eight most populous ethnic minority groups in the Yunnan province of China. Hypothesis 1 assumes that gender differences influence acculturation, academic achievement, or learning motivation (Bird et al., 2019; Hernandez et al., 2019; Huang & Li, 2019). However, the results of this study do not support the aforementioned hypothesis. The three variables exhibited no gender difference possibly because of the background of the study participants. Social learning theory explains that gender differences arise from learning and imitating gender roles in culture and society (Deaton, 2015). However, the participants of this study were multicultural individuals because they had a self-ethnic culture and acculturation to Han culture. Some studies have reported that traditional gender roles change during acculturation (Barker & Cornwell, 2019; van de Vijver, 2007). Gender stereotypes pertaining learning and imitating may be disrupted by multicultural cognition and disappear from multicultural groups in a respected humanistic learning environment (Barker & Cornwell, 2019; van de Vijver, 2007).

Hypotheses 2 and 3 were supported in this study. Additionally, the two dimensions of acculturation and learning motivation significantly predicted academic achievement (Abdelrahman, 2020; Carranza et al., 2009; Chen & Wang, 2006; Datu, 2017; Fang, 2020; Kim et al., 2015; Ma & Yuan, 2016; Shi et al., 2016; Smith & Hopkins, 2004; Sun et al., 2017; Xu, 2016; Zhang & Shen, 2005). For hypothesis 2, acculturation is a powerful predictor of long-term academic achievement for multicultural groups (Dimitrova et al., 2016; Fang, 2020). Culture maintenance and culture adoption are predictive factors of academic outcomes in a two-factor model of acculturation (Berry, 1997; Guerra et al., 2019). Ethnic minority college students were found to undergo culture integration in this study. Their need for a secure cultural environment may have been satisfied (Maslow, 1943). The positive attitude (adoption behavior) of ethnic minority college students toward Han culture considerably predicted their academic achievement. The positive attitude of ethnic minority college students to their ethnic culture, which is a form of culture maintenance, also considerably predicts academic achievement. In this study, willingness to explore culture and interpersonal communication behavior were predictors of academic achievement in terms of acculturation. The results revealed that social communication constitutes a critical need of ethnic minority college students. Moreover, students' need for acceptance being met during cultural adaptation may positively influence their academic achievement (Maslow, 1943). Thus, most minority students must be in accepting environments to realize their academic potential.

For hypothesis 3, learning motivation predicts academic achievement, which is consistent with the findings of previous studies (Abdelrahman, 2020; Sinaga, 2018). Learning motivation is a determined learning factor. Its mechanism of action is to increase academic achievement through a high level of motivation that leads to sustained learning behavior (Abdelrahman, 2020; Bakhtiarvand et al., 2011). The results revealed that ethnic minority college students may strive for self-actualization to improve academic performance and that learning behavior is driven by intrinsic learning motivations (Abdelrahman, 2020; Maslow, 1943; Neto, 2015). In this study, pursuit of ability and acquisition of reputation as dimensions of learning motivation significantly predicted academic achievement. Therefore, pursuit of ability and reputation may motivate ethnic minority college students to achieve academically and meet their self-actualization needs.

Hypothesis 4, which was supported in this study, suggests that learning motivation moderates the relationship between acculturation and academic achievement. Learning motivation has been discussed as a moderator base on high and low situation (Bakhtiarvand et al., 2011; Cao & Meng, 2020; Ning & Downing, 2012). The results from this study indicate that learning motivation is a powerful moderator in the relationship between acculturation and academic achievement. The current study's results validate the theory of self-determination (Deci & Ryan, 1985). Additionally, high or low learning motivation of students determines their academic tendencies in different acculturation scenarios. These

results may reveal risks and opportunities pertaining in an educational context. The Matthew effect is a phenomenon in which initially advantaged persons tend to accumulate additional advantages, and initially disadvantaged persons tend to fall behind. High acculturation is an important and fundamental factor that moderates the effect, as indicated by the gap between two lines in Figure 2. Irrespective of high or low acculturation, students with high learning motivation have higher academic achievement than those with low learning motivation. The difference in academic achievement caused by the level of learning motivation is most significant when the acculturation is high. This positive situation can be attributed to learning environments that satisfy students' safety concerns. Additionally, respect may facilitate students' efforts toward self-actualization (Maslow, 1943). Students with high learning motivation and acculturation can attain high academic achievement. Acceptable cultural environments may provide students with the opportunity to improve their academic performance, thereby facilitating the achievement of self-actualization under the risk of the Matthew effect. According to the study results, the Matthew effect may negatively influence academic achievement in two groups of ethnic minority college students. The first group is the students with low acculturation and learning motivation, and the second group is the students with high acculturation and low learning motivation. Because of an increased risk of the Matthew effect, ethnic minority college students in these two groups may be more negatively affected in terms of their academic achievement and self-actualization in higher education.

Conclusion

Ethnic minority students with high acculturation and high learning motivation may have more opportunities for self-actualization through academic achievement under the risk of the Matthew effect. However, ethnic minority students with low learning motivation may experience a greater risk of the Matthew effect in terms of their academic achievement, irrespective of their acculturation levels. Consequently, a humanistic multicultural teaching environment with the potential to facilitate motivation was emphasized to promote the self-actualization of ethnic minority college students in higher education settings.

Recommendations

Three suggestions are provided for Chinese universities, counselors, and researchers to develop Chinese ethnic minority students' opportunities for self-actualization under the risk of the Matthew effect. First, according to the findings, high acculturation is a necessary basic condition for Chinese ethnic minority students to achieve high academic achievement. Thus, Chinese universities should create an acceptable learning environment that respects cultural diversity and facilitates the acculturation of ethnic minority students, thereby developing their academic achievement. Second, high learning motivation promotes the possibility of high academic achievement in higher education for Chinese ethnic minority students with high acculturation. Therefore, Chinese counselors working on student learning adaptation should create a teaching environment that encourages ethnic minority students to participate in learning activities that promote their learning motivation. Under the threat of the Matthew effect, an environment that fosters acculturation and the assistance of counselors in learning motivation may provide ethnic minority students with greater opportunities for academic success. Third, the research results of this study revealed a possibility of developing academic performance of Chinese ethnic minority students. According to the study's research results, educational researchers who focus on ethnic minority students can develop research regarding promoting learning performance of ethnic minority students. Interviews, for example, can be used by researchers to develop strategies for ethnic minority students' acculturation as well as strategies for increasing their learning motivation.

Limitations

These results of this cross-sectional study may be reflective of a specific time period and sample. However, the study results still offer the benefits of longitudinal research. In follow-up studies, researchers can track individual ethnic minority college students' acculturation and learning motivation in terms of the self-actualization.

The stability of the Acculturation Scale used in this study was poor, and some items were omitted to correct the model. Therefore, follow-up studies should use a more reliable Acculturation Scale.

This study only targeted eight ethnic minorities in four regions of Yunnan province. However, the research sample cannot provide overall representativeness. Therefore, researchers are recommended to include other ethnic groups as research subjects.

Authorship Contribution Statement

Tu: Drafting manuscript. Yang: Critical revision of manuscript. Mou: Data acquisition and statistical analysis.

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