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## **How Tinto's Theory Differs for Asian and Non-Asian International Students: A Quantitative Study**

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### **ABSTRACT**

*Literature suggests that international students from Asian countries might differ in the way they can be supported in their efforts towards completing their degree. Using the 2004/09 Beginning Postsecondary Students Longitudinal Study, the authors investigate how social and academic integration relate to the college persistence of Asian and non-Asian international undergraduate students at U.S. postsecondary institutions. Four logistic regression models revealed that Asian and non-Asian students differed in the way academic and social integration were related to persistence, depending on their year of undergraduate study. These findings signal the importance of year of study and cultural background in thinking about how to support student degree completion.*

**Keywords:** academic integration, persistence, social integration undergraduate international students.

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**I**nternational students experience unique struggles in their efforts towards completing a degree (Schulte & Choudaha, 2014; National Association of Foreign Student Advisers, 2014). International students are used to a different educational system and have to adapt to engaging in an unfamiliar learning and teaching model (Owens & Loomes, 2010; Rientjes, Beausaert, Grohnert, Niemantsverdriet & Kommers, 2012; Zhou & Zhang, 2014). Furthermore, international students in the U.S. face difficulties in studying in English, as this often is their second language (Arkoudis & Tran, 2010).

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Moreover, students have to adjust to a new living environment (Zhou & Zhang, 2014). Settling into a foreign college community and culture might lead to disorientation and culture shock (Kell & Vogel, 2008). This makes international students vulnerable to the feeling of (cultural) loneliness and social isolation (Rajapaksa & Dundes, 2003; Sawir, Marginson, Deumets, Nyland & Ramia, 2007; Poyrazli & Lopez, 2007). These challenges international students face make them vulnerable for dropping out prematurely (National Association of Foreign Student Advisers, 2014).

While international students experience unique struggles in completing their degree, it is of great value for institutions to prevent them from dropping out. International students contribute to the American higher education in at least two ways. First, they bring in financial resources, as most international students receive the majority of their funds from sources outside of the United States. In 2015, international students brought 30.5 billion U.S. dollars to the country's economy (Institute of International Education, 2016). Educationally, international students help to improve educational quality by providing both international and domestic students with the opportunity to communicate and collaborate with culturally diverse peers and thereby develop intercultural competencies that are necessary to function in today's globalized and international workforce and society (DeJaeghere, 2009; Gibson, Rimmington, & Landwehr-Brown, 2008).

The loss for institutions financially and academically, it is worthwhile to investigate what factors can support an institution if international students drop out is substantial and worth investigating. According to Tinto's Theory of Student Departure (1987), whether a student persists or drops out is strongly related to the students' academic and social integration. A higher degree of integration would lead to greater educational and institutional student commitment and therefore lower dropout rates. Tinto's theory of student departure was tested on different student populations, including international students in the U.S. (Mamiseishili, 2012). While there are important insights on international students and what factors support students to succeed, most of the time no distinction is made between their ethnic and cultural backgrounds.

The U.S. had the highest rate growth in 35 years to a record number of 974,926 international students in the academic year 2014/15. The top three countries of origin of international students in the U.S. are China, India and South Korea, making up more than half of the international student population (Institute of International Education, 2016). Asian students have different ways of integrating into a new campus community, suggesting that different factors relate to their college persistence compared to Western students (Heggins, & Jackson, 2003; Li, Faye, Bradley, & Lan, 2015). As international students increasingly come from Asian countries (Institute of International Education, 2016), it is worth studying how this specific group

can be supported in their efforts towards completing a higher education degree. This study's goal is to provide more insight as to how Asian and non-Asian international students differ in academic integration, social integration and persistence. Moreover, as the direction and strength of the factors influencing dropout behavior may change over time (Nora, Barlow & Crisp, 2005), we are interested in how differences between Asian and non-Asian students are present in different phases of their undergraduate experience.

## **THEORETICAL FRAMEWORK**

The conceptual framework for this study is constructed from two strands of thought. First, it draws on literature of how Asian students differ from non-Asian students in their cultural background, leading to different ways of integrating socially and academically. Second, previous studies will be described that indicate how international students' relationships differ between social integration, academic integration and persistence. This theoretical framework suggests the hypothesis that academic and social integration relate differently to persistence for Asian students compared to non-Asian students.

### **Academic and Social Integration of Asian Students**

Students from different parts of the world may have different ways of adjusting and integrating within academic and social environments, due to their cultural habits and values (Guiffrida, 2006). Due to significant disparities in language, culture, and communication styles between most Asian countries and the U.S., Asian students in particular, have extra challenges integrating within their new social and academic environments (Toyokawa & Toyokawa, 2002). We expect that Asian students differ in the way their academic and social integration relates to persistence. In order to better understand differences between Asian and non-Asian students, Asian students' distinct cultural background must be explained.

The most important distinction between Western and Eastern cultures is the scale of collectivism and individualism (Triandis, Chen, & Chan, 1998). Western cultures, for example the U.S., have a tendency to focus on independence, competition and emotional detachment from family. Eastern cultures, including Asian countries, articulate more values like interdependence and group harmony. While students with a Western cultural background are motivated more by individual goals, Asian students tend to value their individual goal as subordinate to collective ones (Triandis, Chen & Chan, 1998). This hypothesized contrast is not categorical: individual students will always express a mix of both individualistic and collectivistic motivations and both these traits can coexist rather than being mutually

exclusive. However, for Asian students it is typical that such motivation often has a collective, rather than individualistic and competitive, nature (Kember, 2000).

The cultural background of Asian international students is reflected in the way Asian international students integrate academically and socially at their new campus environment. Asian students often seek more help from family and social resources rather than from professional resources when experiencing challenges in transitioning into a new academic environment (Heggins & Jackson, 2003). Heggins and Jackson (2003) suggest that this might have to do with the cultural stigma and shame around emotional expression, which makes it less likely for Asian international students to tap into services that can help them make academic improvement (Li, Faye, Bradley, & Lan, 2015). Moreover, the language barrier is mentioned as an important challenge that Asian students experience in integrating academically (Li, Faye, Bradley, & Lan, 2015).

### **International Students' Persistence**

According to Tinto's Theory of Student Departure (1987), the more students are academically and/or socially integrated into the university, the more likely they are to persist in their college education. A higher degree of student integration into social and academic environments leads to educational and institutional commitment, lowering dropout rates (Tinto, 1987). Tinto's Theory of Student Departure is a widely acknowledged theory and is often used as a framework to study persistence. However, a previous study, relating international students' social and academic integration to study persistence, showed that Tinto's model is not entirely applicable to international students (Mamiseishili, 2012).

Using data from the Beginning Postsecondary longitudinal Study of 2004-2006 (BPS:04/06), Mamiseishili (2012) revealed that academic integration was positively related to persistence, supporting Tinto's model of student departure. For social integration however, a negative correlation to international students' persistence was found: international students with a higher social integration were less likely to persist (Mamiseishvili, 2012). While this previous study provides insight into how social and academic integration relates to persistence for international students in the U.S., not much is known about how these relationships are present for students from different cultural backgrounds. As international students have varied cultural backgrounds and integrate differently, more needs to be known about specific student cultural groups and how the relationship between academic and social integration and persistence is different for those with different cultural backgrounds.

This study provides a foundation for critical examination on how Tinto's model of student departure may be applicable to students with an

Asian background (Guiffrida, 2006). Indicated by the difference in social and academic and social integration of Asian students, we hypothesize that the relation between these types of integration and persistence are different for international Asian students in comparison to their non-Asian peers. By investigating how academic and social integration relates to persistence for Asian and non-Asian students specifically, Tinto's model should be tuned to the student's cultural background so that international students, each with their own cultural heritage, can be optimally supported in completing their degrees.

## **RESEARCH METHOD**

In order to investigate the similarity and difference between Asian and non-Asian students in respect to the relationship between their persistence and academic and social integration, national data set of international students was used.

### **Data Source**

This study utilizes data from the Beginning Postsecondary Students Longitudinal Study (BPS:04/09). This dataset "collected information about U.S. students' education and employment in the 6 years since they first enrolled in postsecondary education" (Wine, Janson & Wheelless, 2011, p.iii). National Center for Education Statistics (NCES) surveyed the same first-time beginning students at three points in time: at the end of their first year (2003-04), third year (2005-06) and six years (2008-09) after entry into postsecondary education. We limit the BPS data to students representing our population of interest.

**Sample.** Of the 16,680 undergraduate students in the BPS:04/09 dataset, 170 were international students of which 44% identified as Asian, 26% as white, 12% as Hispanic, 14% as African and 4% as more than one or another race. Of the Asian students, 40% was male and 37% female. Of non-Asian international students 49% was male and 41% female. The average age of the first year students is 20 years for Asian students and 21 years old for non-Asian international students. Most students were planning on getting their bachelors degree, 19 of the non-Asian and 23 of the Asian international students were planning on getting an associate degree. Concerning international students' financial situation, 43 of the 90 non-Asian international students received financial aid; this was only the case for 26 of the 77 Asian students. However, Asian international students receive help from parents almost as often as non-Asian international students.

**Variables.** As dependent variable, a measurement of persistence tree and six years after enrolment was used. We created a binary dependent

variable indicating whether a student persisted or not. Students who attained a degree, or were still enrolled at any institution in the U.S. in 2009, were defined as ‘persisters’ (coded as 1). The students who did not earn a degree and were not enrolled in 2009 were defined as ‘non-persisters’ (coded as 0). Persistence was measured by the end of the third year and six years after enrolling in postsecondary education.

Independent variables in this study include (i) group membership (i.e. Asian students or non-Asian students), (ii) academic integration (AI) and, (iii) social integration (SI). Academic integration is measured by items that asked how often students (i) participated in study groups, (ii) had social contact with faculty, (iii) met with an academic advisor, and (iv) talked with faculty about academic matters outside of class. Similarly, social integration measured by items that asked how often students: (i) attended fine arts activities, (ii) participated in a sport club, and (iii) participated in school clubs. For all of these variables, students have reported the frequency of participation; never (coded as 0), sometimes (coded as 1) or often (coded as 2). The scale on academic and social integration was computed by adding the scores on the corresponding items. Social and academic integration was measured in the first year (2004) and the third year (2006).

Existing literature suggests that the two most important predictors of persistence are grade point average and intent to persist. Both factors are positively related to persistence (Cabrera, Nora, & Castaneda, 1993). Therefore, these two factors were included in the model to control for any confounding influence. Due to our sample size, we included only these two most impactful covariates. As the BPS:04/09 used a stratified multistage sampling method with unequal probabilities of sample selection, weights were applied in order to correct for oversampling. By including the weights, the data is representative for the population of international undergraduate students in the U.S. Missing values and questions that were legitimately skipped by students were coded as missing.

### **Data Analysis**

Four logistic linear regression analyses were used to examine the relationship between the level of AI, SI and group membership (Asian and non-Asian) and the status of persistence in different college phases. The following equation is the baseline for all of the four models:

$$\log\left(\frac{P(Per)}{1-P(Per)}\right) = \beta_0 + \gamma_1 \times GPA + \gamma_2 \times Degree + \beta_1 \times AI + \beta_2 \times SI + \beta_3 \times Group_{Asian} + \beta_4 \times Group_{Asian} \times AI + \beta_5 \times Group_{Asian} \times SI + Error$$

The outcome variable is the natural logarithm of the odds that a student would persist (e.g. completed their degree or continued their education at the similar or another institution).  $P(Per)$  stands for the

probability of persisting of a given student. Independent variables were academic and social integration (AI and SI), measured by a survey of research participants at the third and sixth year after enrollment, and group membership ( $Group_{Asian}$ ). Two interaction terms were added into the model to capture the differences between Asian and non-Asian students. Finally, two covariates, grade point average (*GPA*) and Degree plan (*Degree*) were added in these models to rule out their confounding impact.

The separate models for different years in college allow us to see how AI and SI in different years of undergraduate enrollment relate to persistence and if the relationships in the different phases are distinctive for Asian compared to non-Asian students (Table 1). Equation (1) was used as the regression model to analyze the data set. In Model 1, we investigated how AI and SI in the first year of study relate to students' persistence three years after enrolment. In Model 2, we examined the relationship between AI and SI measured in the first year and persistence at the sixth year after students' enrollment. In Model 3, we explored how AI and SI in the third year of study predict persistence at the end of the third year of enrollment. Lastly, in Model 4, the relationship between AI and SI in the third year of study and students' persistence by the end of their sixth year was investigated. The fourth model allows us to examine how AI and SI relate to Asian and non-Asian students' persistence throughout their college years. Table 1 summarizes the details of the models.

*Table 1. Four Models to Predict Persistence*

Model	Academic integration	Social integration	Persistence
1	Measured at year 1	Measured at year 1	Measured at year 3
2	Measured at year 1	Measured at year 1	Measured at year 6
3	Measured at year 3	Measured at year 3	Measured at year 3
4	Measured at year 3	Measured at year 3	Measured at year 6

## **RESULTS**

In the first regression analysis for Model 1, we examined how the relationship between AI and SI measured in the first year and persistence after 3 years was different for Asian and non-Asian students. Results of this model made it clear that AI did not predict the outcome variable in a significant way for non-Asian students ( $p > 0.05$ ). The relationship between SI and persistence was statistically different between Asian and non-Asian students ( $p < 0.05$ ). For the former, given all other variables equal and an SI of 1, being an Asian student resulted in a decrease of .893 in the log of the odd of persisting in comparison to a non-Asian peer. In the odd ratio metric, one can say that, controlling for other variables and when SI is 1, the odd ratio between the persisting odds of Asian and non-Asian students is .409.

The fact that these odds ratios were lower than 1 for a positive SI, suggests that the more socially integrated an Asian student was at the first year, the less likely he/she would persist by the end of third year, in comparison with a non-Asian student of the same GPA, Degree Plan, AI and SI. For more detailed information, see table 2.

Table 2. *Results of Logistic Regression for Model 1 when Persistence was measured at year 3*

	Coef.	Linearized Std. Err.	t	Sig.
GPA	.009	.003	3.38*	.004
Degree plan	.637	.272	2.34*	.032
AI at year 1( $\beta_1$ )	.009	.308	0.03	.978
SI at year 1( $\beta_2$ )	.037	.262	0.14	.891
Asian ( $\beta_3$ )	.993	1.065	0.93	.364
AI *Asian ( $\beta_4$ )	.299	.394	0.76	.458
SI*Asian ( $\beta_5$ )	-.893	.368	-2.43*	.027
Constant ( $\beta_0$ )	-4.157	1.641	-2.53*	.022

Note. \*  $p < .05$ , two-tailed. \*\*  $p < .01$ , two-tailed

In the second regression analysis for Model 2, it was observed that the relationship between SI in the first year and persistence after the sixth year was also significantly different between Asian and non-Asian students ( $p < 0.05$ ).

Table 3. *Results of Logistic Regression for Model 2 when Persistence was measured at year 6*

	Coef.	Linearized Std. Err.	t	Sig.
GPA	.008	.004	2.00	.062
Degree plan	.441	.244	1.81	.088
AI at year 1( $\beta_1$ )	.369	.207	1.78	.092
SI at year 1( $\beta_2$ )	-.407	.226	-1.80	.089
Asian ( $\beta_3$ )	-.508	.992	-0.51	.615
AI*Asian ( $\beta_4$ )	-.273	.309	-0.89	.388
SI*Asian ( $\beta_5$ )	.881	.396	2.22*	.040
Constant ( $\beta_0$ )	-3.055	1.742	-1.75	.097

Note. \*  $p < .05$ , two-tailed. \*\*  $p < .01$ , two-tailed

Nonetheless, results of this analysis indicated that highly socially integrated Asian students were *more* likely to persist six years after enrollment than non-Asian students of the same level of academic and social integration,

GPA and Degree Plan. Controlling for other variables, an Asian student of an SI of 1 would have a higher probability of persisting or completing a degree after six years, than a non-Asian student of the same level of social integration. Again, in this model, AI seemed not to predict persistence at year six for both groups of students. Similarly, the connection between SI and the outcome variable for non-Asian international students was not statistically significant. For more detailed information, see table 3.

In the third regression analysis for Model 3, we investigated how the relationship between SI and AI in the third year and persistence after 3 years differed for Asian and non-Asian students. For non-Asian students, the more academically integrated they were in their third year, the more likely they were to persist by the end of that year ( $p < 0.05$ ). When those students were compared to their Asian peers, the link between AI and persistence at the third year for Asian students was significantly different from that of non-Asian students ( $p < 0.01$ ). With an AI of 1 and all other variables being equal, an Asian student was *less* likely to persist in relation to a non-Asian student with the same characteristics. As for social integration, the interaction effect of  $SI * Group_{Asian}$  was also significant ( $p < 0.05$ ). However, the positivity of the coefficient for this interaction term indicated that at the same level of GPA, Degree plan, AI and a positive SI, being Asian increased his/her chance to persist after year three over that of non-Asians. In short, for non-Asian students, AI measured in the third year was positively related to persistence measured at the same year.

Table 4. Results of Logistic Regression for Model 3 when Persistence was measured at year 3

	Coef.	Linearized Std. Err.	t	Sig.
GPA	.016	.007	2.28*	.039
Degree plan	.361	.357	1.01*	.0328
AI at year 3 ( $\beta_1$ )	.886	.323	2.74*	.016
SI at year 3 ( $\beta_2$ )	-.186	.320	-0.58	.570
Asian ( $\beta_3$ )	10.892	3.594	3.03**	.009
AI*Asian ( $\beta_4$ )	-3.251	.908	-3.58**	.003
SI*Asian ( $\beta_5$ )	3.022	1.114	2.71*	.017
Constant ( $\beta_0$ )	-1.071	2.772	-2.55*	.023

Note. \*  $p < .05$ , two-tailed. \*\*  $p < .01$ , two-tailed

On the other hand, SI did not significantly predict persistence for non-Asian students. It was also noted how the measure of an Asian student's AI and SI from this year, when related to persistence after three years, was significantly different from the relationship for non-Asian students. Given everything else being equal, the more Asian students integrated

academically in the third year, the *less* likely they were to persist by the end of that year when compared to their non-Asian peers. On the other hand, when other variables such as AI, GPA and Degree plan were held equal between Asian and non-Asian students, more socially integrated Asian students in year three were more likely to persist after three years in college than non-Asians. For more detailed information, see table 4. In the fourth regression analysis for Model 4, we predicted persistence measured in year six by AI and SI measured in the year three. This relationship was not different for Asian and non-Asian students. The more academically integrated non-Asian students were in their third year, the more likely they were to persist or complete a program after six years ( $p < .05$ ). Meanwhile, SI was negatively related to persistence of non-Asian students in this model ( $p < .05$ ). However, there were no significant differences between Asian and non-Asian students in the relationship between AI and SI at the third year and persistence over a six-year time-span. For more detailed information, see table 5.

Table 5. *Results of Logistic Regression for Model 4 when Persistence was measured at year 6*

	Coef.	Linearized Std. Err.	t	Sig.
GPA	.011	.004	2.81*	.014
Degree plan	.743	.310	2.40*	.031
AI at year 3( $\beta_1$ )	.714	.256	2.79*	.015
SI at year 3( $\beta_2$ )	-.739	.277	-2.67*	.018
Asian ( $\beta_3$ )	.847	1.192	0.71	.489
AI*Asian ( $\beta_4$ )	-.413	.301	-1.37	.191
SI*Asian ( $\beta_5$ )	.237	.318	0.75	.468
Constant ( $\beta_0$ )	-5.425	1.938	-2.80*	.014

Note. \*  $p < .05$ , two-tailed. \*\*  $p < .01$ , two-tailed

## DISCUSSION

The results of this study indicated that some aspects of the relationship between academic and social integration and persistence differed for Asian and non-Asian students, while other aspects were similar. The difference between the two groups of students depended on the year of the undergraduate program in which the variables were measured. These results have implications for how we perceive the role of social and academic integration in Asian and non-Asian international undergraduate students at U.S. postsecondary institutions. Moreover, this study shows the importance of taking into account the cultural background of international students and

the importance of not assuming homogeneity in this vastly diverse group of students.

### **Academic Integration**

Academic integration in the first year seemed to not be related to the odds of persisting for both Asian and non-Asian students. For both groups, academic integration measured in the first year was not a significant predictor of persistence after the third and sixth years. However, when looking at academic integration measured at year three, this variable positively predicted persistence for non-Asian international students at year three and year six. Moreover, a difference in the relationship between Asian and non-Asian students was apparent when persistence was measured at year three. Given every other variables equal at this year, being an Asian student was less likely to persist by the end of this year than being a non-Asian one. For non-Asian students, these results were in line with previous studies; however findings for Asian international students on the relationship between AI and persistence seemed to contradict existing literature of student persistence (Tinto, 1987; Mamiseishvili, 2012).

There could be a few explanations for this observed difference between Asian and non-Asian students. First, it could have been the case that Asian students who were not doing well, were approached by faculty with the advice to integrate more academically. For non-Asian students, it might be more common, and less of an indicator of academic difficulties, to integrate academically. Conversely, Asian international students might integrate more often when they experience academic difficulties, which also make them more likely to drop out. Another explanation could be that Asian students received their resources in different places than their peers and academic staff. None of the items in the dataset we used captured the possibility that students might have sound academic help or advice from their family, which is common for Asian students (Heggins & Jackson, 2003). As Asian international students experience traditional values centred on their social community of friends and family (Triandis, Chen & Chan, 1998), they might be more likely to use those resources for support (Heggins & Jackson, 2003). Therefore, Asian students might not experience the same negative effect of not integrating as Western international students.

Future research should investigate how Asian students can be supported academically. As this study points out, academic integration of Asian students might not have the same positive effect on persistence experienced by non-Asians. Follow-up research should further investigate how postsecondary institutions can provide opportunities for Asian students to develop academically in a way that supports their persistence.

### **Social Integration**

In terms of social integration and persistence, differences between Asian and non-Asian students were found when examining social integration in the first and third year. For all the students, the more socially integrated they were in their first year, the more likely these students were in persisting after the sixth year. However, the relationship between SI and persistence was significantly different for Asian and non-Asian students in three out of the four models. When SI and persistence were measured at the same year or with a gap of five years, Asian students were more likely to persist than non-Asian students, controlling for other variables. When SI and persistence were measured two years apart, Asians were found to be less likely to persist than their non-Asian peers, holding the other variables constant. These findings on social integration and persistence contradicted with the study on international students by Mamiseishvili (2012) but are in line with the original model on student persistence (Tinto, 1987).

One explanation for the difference in the relationship for Asian and non-Asian students, between social integration and persistence could be that these variables do not relate in a linear way. It could be that social integration is beneficial to persistence, as explained in the model of Tinto (1988), until a certain threshold. Above a certain amount of social integration, it may be that the integration is at cost of academic performance, and this is related to a lower likelihood of persistence. To further explain the relationship between the extent of social integration and persistence, more research is needed where the amount of time students spend on social activities is taken into account. Also, this study only had information about the social integration of international students relating to participation in fine arts activities, sports clubs, and school clubs. Future research should provide more clarity in the different types of social integration and their effect on college persistence.

### **Time points during undergraduate education**

The year of the college degree in which the variables were measured appeared to be essential for how social and academic integration relate to persistence and how this is different for Asian and non-Asian students. As already argued in a previous study, the direction and strength of the factors influencing dropout behaviour may change over time (Nora, Barlow & Crisp, 2005). While there are not many differences between the persistence of Asian and non-Asian students predicted by academic and social integration measured at the first year, there is a significant difference in predicted persistence beyond three years when academic and social integration is measured in the third year. The difference between Asian and non-Asian students in the relationship between academic and social integration and persistence faded away when the two sets of variables were measured with 3 to 6 years in between. These results signified that the point

in time across six years of undergraduate study is essential in researching how academic and social integration relate to persistence and how this relationship is different for Asian and non-Asian students.

The fact that the point in time following enrolment impacts the difference in the relationship between integration and persistence between Asian and non-Asian students can be explained by the unique challenges Asian students face during their time abroad. Compared to Western international students, Asian students experience a relatively large cultural difference when coming to the U.S. For example, they experience a greater language barrier in integrating academically (Li, Faye, Bradley & Lan, 2015). As international students adapt over time, the challenges that Asian students face in their first year of study might be very different from the challenges they face later on in their degree. This might alter the way in which social and academic integration explains the persistence of Asian international students. Therefore we suggest that it is important for future research on persistence of international students to take into consideration their unique stages of challenges in their degree. Follow-up studies would be needed to shed light on the nature of student persistence for Asian students at different years of study in colleges and universities.

### **IMPLICATIONS**

Although this study relied on a nationally collected data set and used appropriate statistical models, it has a few salient limitations. First of all, the group of Asian students consists of a wide variety of cultural backgrounds. As in the main conclusion of this study, this argues that international students are highly diverse in the factors that impact persistence, these subtleties can also apply to the group of Asian students. Even though literature clearly indicated that Asian students differ from non-Asian students, it can be questioned what the variance is within the group of Asian students. Thus, treating them as a single group does not give a clear picture of the diversity within the group. Future research is needed to investigate the differences between Asian students, for example, from different countries. Second, this study relied on multiple regression analysis as the single statistical approach. Even if this method provided a snapshot of how the independent variables predicted the outcome variable, it did not prove causal relationships or directional relationships between the dependent and independent variables. In order to address these limitations, some future directions for this study will be discussed in the next paragraph.

The limitations suggested a few future directions. First of all, another data set about this topic should be analyzed using similar approaches in order to confirm or disconfirm the findings of this study. It is also recommended that qualitative studies might be needed to obtain insight into the factors that help Asian students persist in American higher

education. Second of all, follow-up studies are needed to further explore the relationship among AI, SI and persistence along time by using more advanced statistical technique such as structural equation modeling (SEM). Using latent variables and growth models under an SEM framework might provide other ways to examine and analyze this kind of data set. Once those follow-up studies are conducted, a fuller understanding of the persistence of international Asian students can be achieved. This understanding would help students, their families, and institutions, as well as policy makers, to make better decisions regarding how to support international students with Asian cultural backgrounds.

## CONCLUSION

In summation, this study revealed that the relationship between social and academic integration and persistence was different between Asian and non-Asian international undergraduate students. Equally importantly, the difference varied with the points in time at which the variables were measured. Even though further research has to provide more understanding of Asian students' persistence, the findings of this study emphasize the importance of institutions accounting for international students' cultural backgrounds in order to provide support services that optimally support their persistence. It is hoped that these insights inspire follow-up investigations that look more deeply into challenges faced by international student and how these are unique for students from different cultural backgrounds.

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