



Comparative effects of belongingness on the academic success and cross-cultural interactions of domestic and international students

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ABSTRACT

To advance resilience-based models of acculturation, we used structural equation modeling (SEM) to test the buffering effects of a sense of belongingness on cross-cultural interaction and academic success, where belongingness refers to a sense of connection with one's university, a strong support network, and a balance of academic challenge and support. We analyzed a stratified random sample of international ($n = 415$) and domestic ($n = 816$) undergraduates at eight research universities in the United States who responded to the Global Perspective Inventory (GPI). International and domestic students who took courses involving intergroup dialog or multicultural content reported more cross-cultural interaction, but not a greater sense of belongingness. A sense of belongingness increased cross-cultural interaction between international and domestic students, and it substantially enhanced international students' average grade earned. Cultural events, leadership programs, and community service enhanced a sense of belongingness, buffered the effects of racism, and provided a secure base for the exploration of cross-cultural relationships. Similarities and dissimilarities in how belongingness contributes to international and domestic students' cross-cultural relationships and academic success are considered. We discuss implications for resilience-based models of acculturation and propose interventions to enhance a sense of belongingness for all students.

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1. Introduction

International students generally express satisfaction with their academic experience; however, they tend to express less satisfaction with their social experience (Council for International Education, 2006; Schweitzer, Morson, & Mather, 2011). The lack of meaningful contact between international and domestic students continues to be a principal concern among international educators (Brandenburg & de Wit, 2011). Domestic and international students often live in parallel social worlds, shut off from meaningful interaction with one another (Gareis, 2012). Meaningful cross-cultural interaction requires a social context that enables domestic and international students to explore cross-cultural relationships. Educational psychologists advance *belongingness* as a means to understand human interpersonal behavior (Baumeister & Leary, 1995), where belongingness refers to the extent to which students felt “part of the campus community,” “member of the campus community,” and “sense of belonging to campus community” (Locks, Hurtado, Bowman, & Oseguera, 2008, p. 260). A sense of belongingness has practical benefits for all students: belongingness is one of the most frequently cited factors for college

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students' academic success (Hausmann, Schofield, & Woods, 2007; Osterman, 2000), and belongingness creates a secure base to explore cross-cultural relationships (Wang & Mallinckrodt, 2006).

The purpose of this study, therefore, is to test a model of the buffering effects of belongingness on the cross-cultural interaction and academic success of international and domestic students enrolled in eight US research universities. While much of the previous work has examined international students or domestic students independently, researchers are only beginning to understand how a sense of belongingness may contribute similarly or differently to domestic and international students' academic success and cross-cultural interaction. Most studies have examined single factors, single institutions, or solely international students (Zhang & Goodson, 2011); few studies have analyzed the interaction of multiple factors and the sources of between-group variation that may exist between international and domestic students.

2. Theoretical framework and hypotheses of the study

2.1. Resilience-based models of acculturation

A growing body of acculturation research has used resilience-based models to explore the lives of international students for whom academic success and positive cross-cultural interaction have been documented (Moores & Popadiuk, 2011; Pan, Wong, & Chan, 2007; Pan, Wong, Chan, & Joubert, 2008). Research from the last two decades documents the multiple risks international students face while attending American universities, linking stress, lack of social support, and language proficiency to academic difficulties and poor psychosocial adjustment (Smith & Khawaja, 2011; Zhang & Goodson, 2011). Multiple studies highlight the deleterious effects of loneliness on international students (Russell, Rosenthal, & Thomson, 2010; Sawir, Marginson, Deumert, Nyland, & Ramia, 2007) and the buffering effects of peer support on depression and stress (Crockett et al., 2007; Smith & Khawaja, 2011). Rather than focusing on risk factors alone, resilience-based models place particular emphasis on identifying protective factors that support international students' resilience (Pan, 2011).

Our study extends resilience-based models by examining the direct and indirect effects of risk, protective, and promotive factors in predicting the academic success and cross-cultural interaction of international and domestic students. Educational psychologists have utilized the constructs of risk, protective, and promotive factors to examine their interactive effects on the academic and social trajectories of adolescents (e.g., Gutman, Sameroff, & Cole, 2003). *Risk factors* (e.g., discrimination, financial stresses, language difficulties, and immigration problems) are defined by their positive relationship to a negative outcome such as low academic performance, marginalization, or negative affect. *Protective factors* (e.g., meaning-in-life and belongingness) buffer the effects of risk factors on individuals despite the presence of risk factors (Luthar, Cicchetti, & Becker, 2000). *Promotive factors* exert direct effects on positive outcomes, such as high academic performance, cross-cultural interaction, and positive affect; additionally, they also fortify protective factors that buffer the effects of risk factors. Promotive factors are experience-dependent; therefore, they vary by the affordances of the social context in which the person is situated. In testing a resilience-based model of acculturation, we attempt to determine if risk, protective, and promotive factors impact students' academic success and cross-cultural interaction in the same way for domestic students and international students attending US research universities. The following subsections review empirical research on each factor's relationship with the academic success and cross-cultural interaction of both international and domestic students.

2.2. Risk factors

The negative relationship between racial prejudice and college students' academic success and sense of belonging is well-documented (Hurtado & Carter, 1997; Locks et al., 2008). International students who experience verbal insults, negative stereotypes, or detect discrimination tend to feel more depressed (Jung, Hecht, & Wadsworth, 2007) and lonely (Sawir et al., 2007). Non-European international students experience amplified acculturative stress; depressive symptoms have been linked with a crisis of identity prompted by explicit acts of discrimination (Jung et al., 2007) and more generalized stress of lacking culture-specific knowledge necessary to make sense of social situations (Markus & Kitayama, 2003). Interview research provides evidence of neo-racism (i.e., culture or country of origin, rather than color, is used as a pretense for discrimination) toward non-European students (Lee & Rice, 2007), particularly students from Eastern Asia, Middle Eastern, and African countries (Gareis, 2012; Hanassab, 2006). Recognizing and making meaning of racism is a significant developmental task for minority college students (Torres & Baxter Magolda, 2004; Torres & Hernandez, 2007). Noncognitive variables, including the capacity to identify and respond to racism, have demonstrated validity in predicting the grades and retention of minority students, and the retention of non-minority students in higher education (Sedlacek, 2004). Several studies cite the role of a strong social support network in moderating the effects of racism (Chen, Mallinckrodt, & Mobley, 2002; Noh & Kaspar, 2003; Poyrazli, Kavanaugh, Baker, & Al-Timimi, 2004). Therefore, as discriminatory experiences are expected to exert a direct negative effect on belongingness for all students, belongingness is expected to buffer the effects of discriminatory experiences on cross-cultural interaction and academic success.

2.3. Protective factors

Recent resilience-based analyses examine risk factors, such as racism, in the context of protective factors, such as meaning-in-life (Pan, 2011; Pan et al., 2007) or belongingness (Schmitt, Spears, & Branscombe, 2003). Resilience-based models consider how students' interpretation of risk factors may mediate the effect on cross-cultural interaction and academic success.

2.3.1. Sense of belongingness

One of the most frequently cited factors for college students' persistence and academic success is their sense of belongingness (Hausmann et al., 2007; Osterman, 2000). While the social psychology literature uses belongingness to refer to "a pervasive drive to form and maintain at least a minimum quantity of lasting, positive, and significant interpersonal relationships" (Baumeister & Leary, 1995, p. 497), our study draws on educational research that uses the term to specifically consider students' sense of connection with their college, degree of social support, and experience of both academic challenge and support (Hausmann et al., 2007; Hurtado & Carter, 1997; Osterman, 2000). Over the course of college, students' social and academic interactions (e.g., classroom discussion, participation in cultural activities, leadership programs) contribute to this sense of belonging. Baumeister and Sommer (1997) argue that men and women may pursue belongingness in different social spheres (i.e., men in groups, women in dyadic relationships); therefore, our conceptualization is limited specifically to belongingness within a particular social context: the college environment. Experimental research has indicated that even minimal cues of social connectedness, or "mere belonging" (Walton, Cohen, Cwir, & Spencer, 2012, p. 513), such as sharing preferences for music or the university sports team, affect people's achievement motivation. Survey research consistently indicates that seniors report feeling more connected with their university than their first-year counterparts (Bowman, 2011). It is less clear whether international students share this sentiment, given international students' descriptions of struggle and distress, as they negotiate and renegotiate their place within their college community (Koehne, 2006; Lee & Rice, 2007).

Belongingness is especially salient in international students' academic success, in part, because they are expected to handle the same rigorous academic demands as domestic students without forms of social support. A lack of meaningful relationships is linked with increasing students' sense of isolation from the campus community (Koehne, 2006; Williams & Johnson, 2011). In contrast, social ties with same-country, international, and host students increase international students' connection with the campus community (Kashima & Loh, 2006); a strong identification with the campus community, then, provides a secure base for international students to explore the cultural environment (Wang & Mallinckrodt, 2006), form relationships with domestic students (Hendrickson, Rosen, & Aune, 2011), and buffer the effects of stress (Furnham & Alibhai, 1985). For this study, seniors are expected to report a greater sense of belongingness, and belongingness is expected to exert a direct positive effect on cross-cultural interaction and academic success.

2.3.2. Meaning-in-life

Resilience-based models have explored the buffering effects of meaning-in-life, where meaning-in-life reflects a sense of purpose, direction, and integration of personal values (Pan, 2011). Recent multi-institutional studies suggest that interactive processes between risk and protective factors may mitigate or exacerbate the effects of acculturative hassles (e.g., language deficiency, cultural differences). Pan, Wong, Joubert, and Chan (2008), for example, found evidence that protective factors such as meaning-in-life, mediate life stressors associated with cross-cultural adaptation. A sense of purpose in life is one of the most consistent predictors of positive affect and student satisfaction (Pan et al., 2007); it also predicts lower stress and higher resilience in the face of negative experiences. Cross-sectional studies of Chinese students studying in Hong Kong and Australia provide initial evidence of the buffering effects of personal meaning making as a protective factor that mitigates adverse campus conditions (Pan et al., 2007) and mediates the relationship between acculturative stress and psychosocial well-being (Pan et al., 2008). Meaning-in-life, then, is crucial factor given the need for international students to construct bicultural or multicultural identities, where identity development involves multiple characteristics that become more or less salient depending upon the specific social context or situation.

2.4. Promotive factors

Although existing resilience based frameworks examine risk factors in the context of protective factors, our study considers two additional factors to resilience-based models of international students' acculturative processes: engagement in inclusive curricula and participation in co-curricular activities. To distinguish these factors from risk and protective factors, we refer to these factors as promotive factors.

2.4.1. Engagement in inclusive curricula

Inclusive curriculum, such as courses that involve multicultural content or discussion among students with different backgrounds and beliefs, are significant predictors of cross-cultural interaction for all students (Gurin, Dey, Hurtado, & Gurin, 2002; Saenz, Ngai, & Hurtado, 2007). Courses that involve dialog about issues of race and gender provide opportunities for students to make sense of complex sociocultural identities. Intergroup dialog, in particular, promotes student interaction that enables students to understand how socially constructed group distinctions are played out in everyday social interactions (Zúñiga, Nagda, Chesler, & Cytron-Walker, 2007). Courses that involve intergroup dialog contribute to reversing attitudes and behaviors from being socialized in a larger societal context of racial or ethnic inequality. A strong

empirical base supports a wide range of positive outcomes, including critical thinking and increased perspective taking, for courses involving intergroup dialog (Gurin et al., 2002; Saenz et al., 2007). A study of 317 four-year colleges and universities, using the National Survey of Student Engagement (NSSE), indicated international students participated more frequently in diversity-related activities (e.g., class discussion or writing assignments involving diverse perspectives on race, religion, gender, etc.) than their domestic student counterparts; despite which, international students were less satisfied with their overall college experience (Zhao, Kuh, & Carini, 2005). International students who enroll in courses that involve intergroup dialog report more positive perceptions of the campus climate for diversity (Glass, 2012); international students who enroll in courses that include content addressing issues of race, ethnicity, gender, class, religion, or sexual orientation report more personal and social development (Glass, 2012; Zhao et al., 2005). Despite the benefits of inclusive curricula for domestic and international students, both domestic and international students peers are more likely to engage in out-of-class academic work with students from similar cultural backgrounds (Volet & Ang, 2012). Therefore, some researchers argue that curricular experiences should be purposeful structured to facilitate cross-cultural at multiple points in students' college experience (Glass, 2012; Volet & Ang, 2012), and that those encounters should progressively engage issues of multiculturalism and internationalism (Glass & Braskamp, 2012; Leask, 2009). For this study, engagement in inclusive curricula is expected to exert a direct positive effect on belongingness and cross-cultural interaction.

2.4.2. Participation in co-curricular activities

Longitudinal studies (Saenz et al., 2007) and cross-sectional studies (Trice, 2004) comparing the domestic students of varied ethnic backgrounds indicate diversity-related co-curricular activities are a significant predictor of social interaction between domestic and international students. Participation in co-curricular activities facilitates international students' social networking and provides opportunities to practice language in a low-risk context (Gómez, 2002). International students who participate in collaborative, team-oriented campus leadership programs report more positive perceptions of the climate for diversity, and greater levels of personal and social development (Glass, 2012). Furthermore, international students who participate in campus-wide cultural events, and socialize with other international students, also socialize more frequently with domestic students (Trice, 2004) and are more likely to persist through graduation (Severiens & Wolff, 2008). Casual discussions outside of class, participation in religious-spiritual communities, and involvement in social-community organizations have been documented to increase students' sense of campus belongingness (Hurtado & Carter, 1997; Moores & Popadiuk, 2011). Despite the known benefits of co-curricular activities, one striking difference between domestic and international students is the relative amount of time each group spends socializing and relaxing among friends (Zhao et al., 2005). International students feel pressure to excel academically from family members back home or from the need to meet the academic requirements of their sponsoring agency; therefore, studying for long periods of time seems to be the most effective use of their time (Abel, 2002). The lack of leisure and relaxation, however, often hinders the formation of supportive social networks and inadvertently exacerbates an international student's sense of loneliness, depression, or stress. For this study, participation in co-curricular activities is expected to exert a direct positive effect on belongingness.

2.5. Structural model and hypotheses

While the hypothesized model for this study is constructed from current international student research (Zhang & Goodson, 2011), the conceptual model expands upon the existing resilience-based and meaning-oriented models of acculturation (Pan, 2011). Based on prior research (Zhang & Goodson, 2011), the conceptual model used in this study assumes that sense of belongingness, co-curricular activities, and academic engagement in inclusive curricula are related to academic success and cross-cultural interaction.

Five hypotheses were proposed for this study:

- discriminatory experiences will exert a direct negative effect on belongingness;
- belongingness will exert a direct positive effect on academic success and cross-cultural interaction.
- engagement in inclusive curricula will exert a direct positive effect on belongingness and cross-cultural interaction;
- participation in co-curricular activities will exert a direct positive effect on belongingness; and
- senior-level students will report a greater degree of belongingness than their first-year counterparts.

3. Method

3.1. Participants

Data were collected from international and domestic undergraduates at eight research universities that administered the Global Perspective Inventory (GPI) from 2010–2012. The total sample consisted of 18,628 undergraduates from the selected institutions (1398 international students; 17,230 domestic students; see Table 1 for campus information). International students, for the purposes of this study, are defined as persons who have "crossed a national or territorial border for the purposes of education and are now enrolled outside their country of origin" (UNESCO, 2012).

Table 1
Institutional characteristics.

Inst. #	Carnegie classification ^a	US region	Total undergrad. enrollment	% Int'l undergrad. enrollment	International student subgroup <i>n</i> = 415	Domestic student subgroup <i>n</i> = 816
1	RU/VH	South Atlantic	7277	7	51	75
2	RU/H	South Atlantic	44,972	5	74	155
3	DRU	East North Central	8409	2	67	88
4	RU/VH	West South Central	40,345	2	60	106
5	RU/VH	South Atlantic	19,776	2	27	69
6	RU/VH	East South Central	23,168	2	43	235
7	RU/H	West South Central	29,544	3	13	34
8	RU/VH	New England	6446	18	79	49

^a RU/VH: Research Universities (very high research activity); RU/H: Research Universities (high research activity); and DRU: Doctoral/Research Universities.

3.2. Measures

The GPI contains three sections: demographic information (7-items); curricular/co-curricular involvement (10-items); and six developmental subscales, one of which is the social interaction subscale (6-items). The developmental scales are grounded in the constructive-developmental tradition of psychology which holds that humans actively construct meaning to interpret their experiences and systems of meaning evolve over time (Kegan, 1994). Constructive-developmentalists frame learning as an integrative, ongoing process that involves the inherent interconnectedness of the cognitive, intrapersonal, and interpersonal dimensions of development (King & Baxter Magolda, 2005). Consequently, the GPI conceptualizes global perspective-taking as the capacity for a person to think with complexity, taking into account multiple perspectives; to form a unique sense of self that is value-based and authentic; and to relate to others with respect and openness, especially with those who are not like the student (Braskamp, 2010). Table 4 contains all item wordings of the latent factors in the model with their loadings and scale reliabilities.

3.2.1. Main dependent variables

The primary outcome measures in the model were academic success and cross-cultural interaction.

3.2.1.1. Academic success. Academic success was assessed using response to the item, “What is your average grade earned in college?” (A or A+ = 4.0; A– = 3.5; B+ = 3.0; B = 2.5; C = 2.0; D = 1.5).

3.2.1.2. Cross-cultural interaction. Cross-cultural interaction was assessed using the 6-item social interaction sub-scale of the GPI ($\alpha = .78$; 1 = strongly disagree to 5 = strongly agree).

3.2.2. Endogenous variables

There was one endogenous variable: sense of belongingness.

3.2.2.1. Sense of belongingness. Sense of belongingness was assessed using a 4-item campus community sub-scale of the GPI ($\alpha = .82$) based on Hurtado and Carter (1997) measuring the extent to which students felt “part of the campus community,” “member of the campus community,” and had a “sense of belonging to campus community” (p. 342) (1 = never; 5 = very often).

3.2.3. Exogenous variables

There were five exogenous variables: discriminatory experiences, college year, perception of campus diversity, participation in co-curricular activities, and engagement in inclusive curricula.

3.2.3.1. Discriminatory experiences. Discriminatory experiences were assessed using response to the item, “I have felt insulted or threatened based on my cultural/ethnic background at my college/university” (1 = never to 5 = very often).

3.2.3.2. College year. College year was assessed using response to the item, “My status at the college/university in which I am enrolled” (1 = freshman; 2 = sophomore; 3 = junior; and 4 = senior).

3.2.3.3. Campus honors diversity. Students’ perceptions of whether their college or university honors diversity was assessed using response to the item, “I feel that my college/university community honors diversity and internationalism” (1 = strongly disagree to 5 = strongly agree).

3.2.3.4. Co-curricular activities. Participation in co-curricular activities was assessed using a four-item sub-scale ($\alpha = .76$) of self-reported frequency of participation in community service activities; leadership programs; religious/spiritual activities; and extra-curricular activities sponsored by groups reflecting the students’ own cultural heritage (1 = never to 5 = very often).

Table 2
Demographics.

	GPI international student respondents		GPI domestic student respondents	
	<i>n</i> = 415	%	<i>n</i> = 816	%
<i>Sex</i>				
Female	231	56	423	52
Male	184	44	393	48
<i>Race/ethnicity</i>				
African/Black	28	7	62	8
Asian/Pacific Islander	215	52	34	4
European/White	77	19	521	64
Hispanic/Latino	44	10	136	17
Multiracial/other	51	12	63	7
<i>College status</i>				
First-year	123	30	216	26
Sophomore	71	17	118	19
Junior	82	20	155	15
Senior	139	33	327	40

3.2.3.5. *Inclusive curricula.* Engagement in inclusive curricula was assessed using a two-item sub-scale ($\alpha = .79$) of self-reported number of academic terms the student participated in courses that included opportunities for intensive dialog among students with different background and beliefs or courses that addressed multicultural issues such as race, ethnicity, gender, class, religion, or sexual orientation (1 = one term; 2 = two terms; etc.)

3.3. Procedures

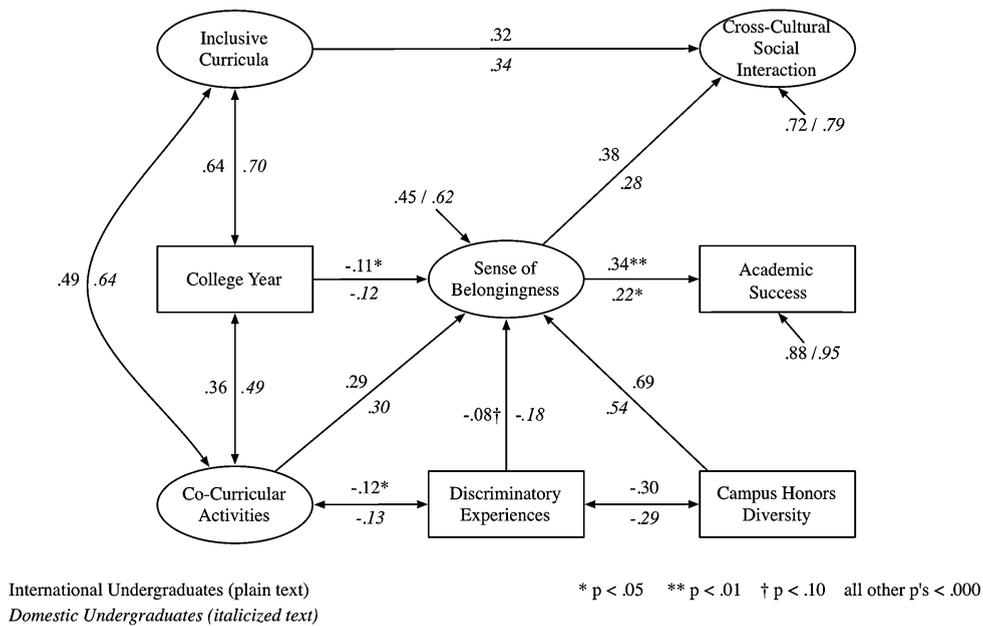
135 US colleges and universities have administered the GPI to assess intercultural learning on their campuses. These institutions administer the GPI through an online questionnaire as part of institutional efforts to assess intercultural learning on their campus. Institutions use unique numeric identifiers to avoid receiving duplicate responses; students do not receive incentives for responding to the questionnaire. We selected a subsample of eight research universities as study sites since research universities host the vast majority of international students attending foreign higher education institutions (Institute of International Education (IIE), 2011).

We dummy-coded a variable for subgroup analyses based on students' response to the question, "Are you an international student or foreign national?" (1 = international student, 0 = domestic student). To ensure international students had traveled to the United States for the purpose of foreign study, we removed a small number of international students from the sample who had lived in the United States for several years prior to attending college based on the item "How long have you lived in the United States? (years)" If an international student had lived in the United States for seven or more years, for example, we removed the student from the sample. We removed a small number of incomplete surveys from the sample then randomly selected a sub-sample of domestic and international students for analysis.

Since the population of students to whom the study was intended to generalize included international students attending large public research universities, we took a stratified random sample of international student respondents reflecting the most recent Open Doors data on country of origin, gender, and enrolling institution type (IIE, 2011); we took a stratified random sample of domestic student respondents reflecting the Race/Ethnicity and Gender variables of 2010–2011 data from the eight research universities from the Integrated Postsecondary Education Data System (see Table 2 for demographic information).

3.4. Design

We conducted structural equation modeling (SEM) analyses using Full Information Maximum Likelihood (FIML) estimation in SPSS® Amos™ Version 19 to test the mediating effects of sense of belonging in relation to academic success and cross-cultural interaction (Arbuckle, 2010). We took two separate samples to perform preliminary analyses on one ($N = 1223$) and confirmatory analyses on the other ($N = 1231$) (Arbuckle, 2010; Bollen, 1989). We selected a stratified random sample to perform exploratory analyses and to make modifications to the structural model ($n = 412$ international; $n = 811$ domestic). We constructed a structural model to test the specific relationships among the constructs identified in previous research on international students. The model was tested separately for the domestic and international student samples. We performed a series of path analyses to test the mediating effects of belongingness in relation to academic success and cross-cultural interaction. Initially, all paths were constrained to be identical. Next, we released paths one by one, analyzing the change in χ^2 to determine whether it produced a statistically significant improvement in the model (Loehlin, 1998). We removed the path from academic engagement in inclusive curricula to belongingness. Finally, we created an additional stratified random sample ($n = 415$ international; $n = 816$ domestic) to perform confirmatory analyses, using the same procedure outlined above, to ensure exploratory analyses did not reflect chance variation. The following section reports the results of these confirmatory analyses.



The direct and indirect effects of multiple factors in predicting academic performance, meaning-in-life, and social interactions for international students and domestic students. Structural model $NFI = .923$, $CFI = .961$, $RMSEA = .027$. Unless otherwise specified, all p 's $< .000$. Observed variables used to create latent constructs are not shown in this figure.

Fig. 1. Final structural equation model for sense of belongingness group comparison.

4. Results

4.1. Mean differences between international students and domestic students

Between-subjects t -tests showed that international students were more likely than domestic students to have felt threatened or insulted based on their cultural or ethnic background ($p < .000$) and were more likely to have engaged in cross-cultural interaction (all but one $p < .000$). However, there were no significant differences between international students' and domestic students' sense of belongingness, perceptions of whether their campus honors diversity, participation in co-curricular activities (with the exception of activities sponsored by the students' own cultural heritage), engagement in inclusive curricula, or self-reported academic success. Tables 3 and 4 lists means and standard deviations for all variables in the model for separate samples of domestic students and international students along with tests of significant group differences.

4.2. Structural equation model

Fig. 1 shows the final model, summarizing the standardized direct effects for both international and domestic student structural models. The relationships are identical for both groups and, unless otherwise specified, all p 's $< .000$. As expected with a large sample, the Chi-square statistic was relatively large: $\chi^2(283) = 479.556$, $p < .000$. All indicators of the fit for the model indicate a good fit: Bentler–Bonett's normed fit (NFI) = .932, comparative fit index (CFI) = .967, root mean squared error of approximation ($RMSEA$) = .026, and the ratio of Chi-square to degrees of freedom (χ^2/df) = 1.695 (Hu & Bentler, 1999). The fit of the structural model was also more than satisfactory: $NFI = .923$, $CFI = .961$, $RMSEA = .027$. Although the Chi-square statistic was large ($\chi^2(316) = 538.746$, $p < .000$), the ratio of Chi-square to degrees of freedom was low (χ^2/df) = 1.705.

The overall path model shows that discriminatory experiences negatively effected belongingness for international and domestic students. Seniors, both international and domestic, were less likely to report a sense of belongingness than their first-year counterparts. Belongingness effected cross-cultural interaction and academic success for international and domestic students, in fact, belongingness exerted a particularly strong positive effect on academic success and cross-cultural interaction for international students. Inclusive curricula effected cross-cultural interaction for both international and domestic students, and co-curricular activities effected belongingness for both international and domestic students.

Discriminatory experiences exerted a negative direct effect on belongingness for both the international student ($\beta = -.08$, $p = .086$) and domestic student ($\beta = -.18$, $p < .000$) groups. The effect of discriminatory experiences on belongingness for international students was meaningful, but not significant. Students' perception of whether their campus honors diversity exerted a positive direct effect on belongingness for both the international student ($\beta = .69$, $p < .000$) and domestic student

Table 3

Means and standard deviations for each factor by international students and domestic students and t-tests.

Variables and factors	Int'l students			Domestic students			Group comparison		
	Mean	SD	<i>n</i>	Mean	SD	<i>n</i>	<i>t</i>	<i>df</i>	<i>p</i>
<i>Discriminatory experiences^a</i>									
I have felt insulted or threatened based on my cultural/ethnic background at my college/university	2.44	1.202	415	2.09	1.030	816	4.562	1229	***
<i>Campus community honors diversity^a</i>									
I feel that my college/university honors diversity and internationalism	3.94	.898	415	4.01	.854	816	-1.337	1229	.181
<i>Sense of belongingness^a</i>									
I have a strong sense of affiliation with my college/university	3.75	.988	415	3.74	1.018	816	.106	1229	.916
I have been encouraged to develop my strengths and talents at my college/university.	4.04	.834	415	4.05	.846	816	-.207	1229	.836
I feel I am a part of a close and supportive community of colleagues and friends	3.90	.835	415	3.91	.945	816	-.237	1229	.813
I am both challenged and supported at my college/university	4.08	.805	415	4.02	.820	816	1.218	1229	.223
<i>Participation in co-curricular activities^b</i>									
Participated in community service activities	1.63	1.411	415	1.73	1.569	816	-1.052	915	.293
Participated in leadership programs that stress collaboration and team work	1.47	1.436	415	1.49	1.528	816	-.203	880	.839
Participated in religious or spiritual activities	1.12	1.366	415	1.27	1.497	816	-1.738	903	.082
Participated in events or activities sponsored by groups reflecting your own cultural heritage	1.65	1.443	415	1.23	1.521	816	4.689	1229	***
<i>Engagement in inclusive curricula^c</i>									
Courses that include opportunities for intensive dialog among students with different backgrounds and beliefs	1.41	1.414	415	1.38	1.420	816	.320	1229	.749
Multicultural courses addressing issues of race, ethnicity, gender, class, religion, or sexual orientation	1.51	1.356	415	1.61	1.389	816	-1.299	1229	.194
<i>Academic success^d</i>									
What is your average grade earned in college?	2.99	.602	415	3.12	.622	816	-1.357	1229	.177
<i>Cross-cultural interactions^a</i>									
People from other cultures tell me that I am successful at navigating their cultures.	3.75	.821	415	3.46	.768	816	6.138	1229	***
I am able to take on various roles as appropriate in different cultural and ethnic settings.	3.95	.675	415	3.79	.726	816	3.748	887	***
I intentionally involve people from many cultural backgrounds in my life.	3.73	.929	415	3.39	.927	816	6.130	1229	***
I enjoy when my friends from other cultures teach me about our cultural differences	4.37	.682	415	4.21	.728	816	3.644	1229	***
I am open to people who strive to live lives very different from my own life style.	4.03	.725	415	3.96	.755	816	1.733	1229	.083
I see myself as a global citizen	4.15	.804	415	3.71	.931	816	8.643	948	***

p < .05 and ****p* < .01.^a Five-point scale: strongly disagree = 1 to strongly agree = 5.^b Five-point scale: from never = 1 to very often = 5.^c Five-point scale: From one term = 1 to five or more terms = 5.^d 4.0 = A or A+; A- = 3.5; B+ = 3.0; B = 2.5; C = 2.0; D = 1.5.*** *p* < .001

Table 4
Factor loadings and reliabilities for independent variables (N = 1231).

Factor scales and item wording	(Alpha) factor loading
<i>Sense of belongingness</i> ^a	(.822)
I have a strong sense of affiliation with my college/university	.820
I have been encouraged to develop my strengths and talents at my college/university	.760
I feel I am a part of a close and supportive community of colleagues and friends	.763
I am both challenged and supported at my college/university.	.761
<i>Participation in co-curricular activities</i> ^b	(.760)
Participated in community service activities	.650
Participated in leadership programs that stress collaboration and team work	.686
Participated in events or activities sponsored by groups reflecting your own cultural heritage	.737
Participation in religious or spiritual activities	.734
<i>Engagement in inclusive curricula</i> ^c	(.792)
Courses that include opportunities for intensive dialog among students with different backgrounds and beliefs	–
Multicultural courses addressing issues of race, ethnicity, gender, class, religion, or sexual orientation	–
<i>Cross-cultural interactions</i> ^a	(.780)
People from other cultures tell me that I am successful at navigating their cultures	.749
I am able to take on various roles as appropriate in different cultural and ethnic settings	.750
I intentionally involve people from many cultural backgrounds in my life	.749
I enjoy when my friends from other cultures teach me about our cultural differences	.737
I am open to people who strive to live lives very different from my own life style	.756
I see myself as a global citizen	.738

^a Five-point scale: strongly disagree = 1 to strongly agree = 5.

^b Five-point scale: from never = 1 to very often = 5.

^c Five-point scale: from one term = 1 to five or more terms = 5.

($\beta = .54, p < .000$) groups. College year had a significant negative effect on belongingness for both the international student ($\beta = -0.11, p = .021$) and domestic student ($\beta = -0.12, p < .000$) groups.

Engagement in inclusive curricula exerted an equally positive direct effect on cross-cultural interaction for both the international student ($\beta = 0.32, p < .000$) and domestic student ($\beta = 0.34, p < .000$) groups respectively; however, academic engagement in inclusive curricula exerted no significant direct effect on academic success. Table 5 summarizes parameter estimates for both direct and indirect effects for international students and domestic students.

The indirect effects from participation in co-curricular activities to belongingness ($\beta = 0.29, p < .000$), from belongingness to academic success ($\beta = 0.34, p = .003$), and from belongingness to social interaction ($\beta = 0.38, p < .000$) were all significant

Table 5
Direct and indirect effects of belongingness on academic success and cross-cultural interaction.

	International students (n = 415)			Domestic students (n = 816)		
	b	β	R ²	b	β	R ²
Direct effects						
<i>Sense of belongingness</i>			.552			.379
Co-curricular activities	.237***	.290		.212***	.301	
College year	-.052†	-.107		-.062***	-.120	
Discriminatory experiences	-.039†	-.079		-.109***	-.176	
Campus honors diversity	.456***	.694		.401***	.538	
<i>Cross-cultural interactions</i>						
Sense of belongingness	.258***	.377	.277	.180**	.275	.213
Inclusive curricula	.117***	.322		.127***	.336	
<i>Average grade earned</i>						
Sense of belongingness	.352**	.343	.118	.214*	.220	.049
Indirect effects						
<i>Cross-cultural interactions</i>						
Co-curricular activities	.061	.109		.038	.083	
College year	-.013	-.040		-.011	-.033	
Discriminatory experiences	-.010	-.030		-.020	-.049	
Campus honors diversity	.117	.262		.072	.148	
<i>Average grade earned</i>						
Co-curricular activities	.083	.099		.045	.066	
College year	-.018	-.037		-.013	-.026	
Discriminatory experiences	-.014	-.027		-.023	-.039	
Campus honors diversity	.160	.238		.086	.119	

p < .05.

** p < .01.

*** p < .001.

† p < .10.

for the international student subgroup. The indirect effects from participation in co-curricular activities to belongingness ($\beta=0.30, p<.000$), from belongingness to academic success ($\beta=0.22, p=.049$), and from belongingness to cross-cultural interaction ($\beta=0.28, p<.000$) were all significant for the domestic student subgroup.

There was a positive correlation between inclusive curricula and co-curricular activities for both international student ($\beta=0.49, p<.000$) and domestic student ($\beta=0.64, p<.000$) groups. There was a positive correlation between college year and engagement in inclusive curricula for both international student ($\beta=0.64, p<.000$) and domestic student ($\beta=0.70, p<.000$) groups. There was a positive correlation between college year and participation in co-curricular activities for both international student ($\beta=0.36, p<.000$) and domestic student ($\beta=0.49, p<.000$) groups. There was a negative correlation between discriminatory experiences and participation in co-curricular activities for the international student ($\beta=-0.12, p=.012$) and domestic student ($\beta=-0.13, p<.000$) groups. There was a negative correlation between perceptions of campus diversity and discriminatory experiences for the international student ($\beta=-0.30, p<.000$) and domestic student ($\beta=-0.29, p<.000$) groups.

For international students, the structural equation model explained 28% of the total variance of social interaction, 12% of the total variance of average grade earned, and 55% of the total variance of belongingness. For domestic students, the structural equation model explained 21% of the total variance of social interaction, 5% of the total variance of average grade earned, and 38% of the total variance of belongingness.

5. Discussion

This study used a resilience-based model of acculturation to examine the buffering effects of belongingness on academic success and cross-cultural interaction, analyzing the sources of between-group variation between international and domestic student subgroups. We examined how a sense of belongingness may contribute similarly or differently to domestic and international students' academic success and cross-cultural interaction. The findings provide some of the strongest evidence to date of the significant relationship between belongingness and the cross-cultural interaction between international and domestic students.

5.1. Summary of results

The results supported the first and second hypothesis: discriminatory experiences exerted a negative direct effect on belongingness, and belongingness exerted a direct positive effect on academic success and cross-cultural interaction. The results did not provide support for the third hypothesis. Contrary to our expectations, engagement in inclusive curricula had no relationship to sense of belongingness for either domestic or international students; inclusive curricula did, however, exert a positive direct effect on cross-cultural interaction for both groups. The results did support the fourth hypothesis: participation in co-curricular activities had a positive direct effect on belongingness. The result did not support the fifth hypothesis. Contrary to expectations, senior-level students did not report a greater degree of belongingness than their first-year counterparts. The following section highlights how a sense of belongingness may contribute similarly or differently to domestic and international students' academic success and cross-cultural interaction.

5.2. Discussion of results

Prior research indicates the negative relationship between racial prejudice and international students' (Jung et al., 2007) and domestic students' (Hurtado & Carter, 1997) well-being. International students, in the current study, reported more discriminatory experiences than their domestic student counterparts; however, discriminatory experiences exerted a smaller direct effect on international students' sense of belongingness as evidenced by the larger effect size of discrimination on belongingness for domestic students. It is not clear from this study, however, possible within-group variation among minority and non-minority domestic students, since it examined any domestic students who reported perceived discrimination regardless of racial identification. As previously detailed, resilience-based models examine risk factors, such as racism, in the context of protective factors, such as belongingness (Schmitt et al., 2003). Similar to other resilience-based research, results suggest that belongingness mediated the effects of discriminatory experiences on academic success and cross-cultural interaction for both international and domestic students (Chen et al., 2002; Noh & Kaspar, 2003; Poyrazli, Kavanaugh, Baker, & Al-Timimi, 2004). Results also suggest that discriminatory experiences exerted negative direct effects on protective factors (i.e. sense of belongingness) but indirectly effected outcomes such as average grade earned and cross-cultural interaction.

Belongingness positively effected cross-cultural interaction and academic success for international and domestic students. These findings are consistent with other studies demonstrating a relationship between belongingness and college students' persistence and academic success (Hausmann et al., 2007). Unlike previous research that examines only domestic or international students, the research design of the current study highlights how a sense of belongingness may contribute similarly or differently to domestic and international students' academic success and cross-cultural interaction. Notably, results demonstrate a sizeable effect of a sense of belongingness to international students' academic success, as compared to domestic students overall. The between-group differences among international and domestic student groups underscore the important role of belongingness on international students' academic success and cross-cultural interaction. This finding has important implications for acculturation researchers interested in social-contextual factors that mediate the development

of international students' friendship networks (Hendrickson et al., 2011; Kashima & Loh, 2006; Trice, 2004). Specifically, this finding suggests that even minimal cues of social connectedness, such as a sense of affiliation to the same university, may provide the social contexts that affect students' interpersonal relations and achievement motivation (Walton et al., 2012).

The current study added promotive factors to resilience-based models of acculturation, examining how curricular and co-curricular experiences may contribute similarly or differently to domestic and international students' academic success and cross-cultural interaction. The findings clearly indicate the structured classroom experiences increase cross-cultural interaction equally for all students, and how co-curricular involvement enhances all students' sense of belongingness. This finding also provides strong support to researchers who linking classroom experiences to increased cross-cultural interaction (Glass & Braskamp, 2012; Leask, 2009). Unlike previous studies, the findings did not indicate that inclusive classroom experiences necessarily enhanced students' perceptions of an inclusive campus climate (Glass, 2012). Although many international students feel pressure to excel academically (Abel, 2002), the study also highlights the indirect benefits of leisure and recreational activities in student achievement. This is important given that international trend to spend less time socializing and relaxing among friends (Zhao et al., 2005). Furthermore, the perception that their institution honored diversity had the largest effect on sense of belongingness for both domestic and international students, and it had a comparatively larger effect for international students. Given the benefits of belongingness on academic success and cross-cultural interaction, the sizeable combined effect of these two factors cannot be understated. Recreational involvement and the perception of campus climate that honors diversity not only fortifies protective factors that buffer the effects of risk factors, they foster a sense of social connectedness.

Finally, senior-level international and domestic students reported significantly lower levels of belongingness than their first-year counterparts. This is surprising since, in survey research on college students, seniors generally report feeling more engaged and connected than their first-year counterparts (Bowman, 2011). This finding, however, is similar to studies that indicate an overall decline in international students' psychological well-being (Cemalcilar & Falbo, 2008) and satisfaction with their college experience (Zhao et al., 2005). The role of campus belongingness in student persistence and academic success is well-established (Locks et al., 2008; Hausmann et al., 2007; Osterman, 2000; Severiens & Wolff, 2008); therefore, the relative decline in sense of belongingness for international students merits further investigation.

5.3. *Limitations*

A few limitations must be considered when interpreting the results of this study. First, the GPI relies on student self-reported data associated with their own development. We designed the GPI based on literature regarding reliable self-report data from college students; namely, items are worded unambiguously, the information requested is known to the respondents, and there is little incentive to present oneself in a socially-desirable manner (Kuh, 2004). We recognize that social desirability may influence self-reporting of grades, with students tending to report inflated estimates of actual grades (Kuncel, Crede, & Thomas, 2005). International students who feel more academically competent may opt to take more challenging courses, which could potentially reduce their average grade earned. Nonetheless, grades remain the primary criteria for institutional reporting of international students' academic success, thus are an important variable to consider in research analyses; however, future studies should include multiple indices of academic success.

Second, this study adopted a cross-sectional rather than a longitudinal research design, thus causal relationships among the variables were not able to be determined. Most research conducted on international students uses cross-sectional designs (Zhang & Goodson, 2011). We intend to use the conceptual framework developed in the current study to conduct longitudinal research in order capture the effect of multiple factors over time.

Third, although the international student sample reflects the compositional diversity of foreign students attending US research universities, over half of the students identified as Asian/Pacific Islander. The results, therefore, reflect between-group variation of an overall sample of international and domestic students, but they do not reflect possible within-group variation considering other demographic variables (e.g., country of origin, race, class, and gender).

Finally, other risk factors besides discriminatory experiences, such as financial stress, language proficiency, and immigration problems, were not explored in the current study since these items are not included on the GPI. Language proficiency affects interpersonal communication necessary to form and maintain supportive peer relationships. Since this study did not include items assessing language proficiency, its effect on sense of belongingness is unknown. Future researchers may wish to examine how these factors impact resilience-based frameworks of acculturation.

5.4. *Theoretical implications*

This study has significant theoretical implications for resilience-based approaches to the study of international student acculturative processes. The current study extends Pan's (2011) resilience-based framework by examining the relationship of belongingness with academic success and cross-cultural interaction. The findings highlight the contribution of promotive social structures that foster cross-cultural interaction, as evidenced by the effect of inclusive curricula and participation in co-curricular activities on the other factors. Structured classroom experiences, such as courses that include opportunities for dialog, engage multicultural issues, and involve engaged pedagogies were associated with international students' cross-cultural interaction. Participation in co-curricular activities, more than coursework alone, increased students' sense

of belongingness, and indirectly increased academic success and cross-cultural interaction. Further development of the framework may elaborate additional curricular and co-curricular experiences that are also positively associated with increased cross-cultural interaction and sense of belongingness.

The findings also suggest the important role of noncognitive factors, including a sense of belongingness, in all students' academic success and cross-cultural interaction. The constructs of meaning-in-life and belongingness in resilience-based approaches to acculturation provide a way to incorporate noncognitive variables to add validity to traditional predictors of international students' academic success (e.g. TEFOL scores). The predictive value of noncognitive factors on the performance and retention of traditionally marginalized domestic students in American higher education is well-documented (see Sedlacek, 2004, for a literature review of the validity and practical application of noncognitive variables). Sedlacek (2004) cites numerous studies demonstrating the predictive validity of eight noncognitive predictors on the academic success of minority college students: positive self-concept, realistic self-appraisal, goal-orientation, demonstrated community service, leadership experience, understanding of racism, knowledge of a field, and strong support person. Future research on resilience-based models may wish to draw on this empirical base to consider the relationship of these eight noncognitive variables to meaning-in-life and belongingness in predicting international students' academic success and cross-cultural interaction.

5.5. Practical implications

This study also offers practical guidance for international educators to develop evidence-based interventions that increased intercultural interaction among international and domestic students. With the number of international undergraduates enrolled at American universities surging (IIE, 2011), many higher education institutions are considering long-term organizational and curricular changes necessary to support burgeoning international student populations. This study provides the basis to advance resilience-based framework in practical ways that influence educational interventions that foster international and domestic students' positive development. If the rise in enrollment of international students is to strengthen teaching and learning for all students, higher education institutions must create interventions that contribute to international and domestic students' sense of belongingness. There is no "one size fits all" strategy for promoting international and domestic students' cross-cultural interaction; however, we propose three possible strategies to enhance the sense of belongingness for all students, thus increasing the likelihood for cross-cultural interaction.

First, universities can use institutional data they already collect to raise awareness of any gaps in aspirations for a sense of community and the actual experiences of various campus subpopulations. Popular institutional assessment instruments (e.g., NSSE or GPI), as well as institution-specific instruments, often incorporate scales that measure sense of students' sense of connection with their college, degree of social support, and experience of both academic challenge and support. Institutional leaders wishing to draw attention to the importance of belongingness to academic success could use these data to promote campus discussion about student populations who report a lack of social connection. Ideally, academic administrators, international educators, and student affairs professionals would participate in a cross-campus dialog to consider questions, such as (a) What known risk factors exist for students in this campus context? (b) How do existing curricular and co-curricular experiences buffer these risk factors by fostering a sense of belongingness? and (c) What additional experiences might foster students' development of intercultural competencies and desire for cross-cultural interaction?

Second, academic advisors can direct domestic and international students to courses that involve intergroup dialog and multicultural content, if the core curriculum of the student's major does not emphasize this pedagogy or content. Numerous studies now highlight the developmental significance of purposeful cross-cultural encounters in the classroom (Glass, 2012; Glass & Braskamp, 2012); nonetheless, a substantial number of students never meaningfully engage in cross-cultural dialog in the classroom. In the long-term, colleges and universities will, ideally, internationalize the curriculum so that students encounter international perspectives at multiple points in the curriculum, and progressively engage multiculturalism through more in-depth interpersonal encounters. In the short-term, however, colleges and universities can encourage academic advisors to direct students toward existing educational experiences that encourage new forms of interaction with others across cultural, social, economic, and religious differences.

Finally, opportunities from cross-cultural encounters often exist in isolated pockets within the university. International student offices, counseling centers, and other student support services can partner in efforts to enhance the campus climate for all students. These units could partner in co-sponsoring programs or organizing campus-wide conversations on diversity and the need to belong. Partnerships would not only better-serve students, they would help educators learn from each another in order to become more responsive to the ever-more diverse student population at American colleges and universities.

6. Conclusion

The present study advanced resilience-based models of acculturation by examining the buffering effects of a sense of belongingness on cross-cultural interaction and academic success. It examined the interaction of multiple factors and the sources of between-group variation between international and domestic students attending eight research universities. Most importantly findings from this study provide robust evidence of a significant relationship between belongingness with

the cross-cultural interaction between, and academic success of, international and domestic students, with comparatively sizeable effects of belongingness on both outcomes for international students.

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