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Comparing international and American students: involvement in college life and overall satisfaction

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Abstract Using longitudinal survey data, this study compares 191 international and 409 American students' involvement in college life, the extent to which the involvement is influenced by race/ethnicity, gender, and language background, and the extent to which the involvement influences overall satisfaction. Major findings include: International and American students had similar amount of interactions with faculty, and student–faculty interactions had the biggest, positive impact on overall satisfaction for both groups; international students had more frequent positive and negative cross-racial interactions than American students, and negative cross-racial interactions decreased international students' overall satisfaction; international students felt lonely more frequently than American students, yet loneliness did not decrease international students' overall satisfaction. Implications for research provide recommendations for studying international students' cross-racial interactions in relation to overall satisfaction, and for adapting and revising the conceptual model developed in this study in further research on what makes international students satisfied. Implications for practice focus on improving cross-racial interactions and student–faculty interactions, recommending concrete actions that can be offered to all students as well as special interventions targeting international students. The practical significance of conducting comparative institutional self-study between international and American students is also discussed in the context of how services for international students are structured on college campuses.

Keywords International students · Student involvement theory · Satisfaction · Student–faculty interactions · Cross-racial interactions · Comparative studies · Institutional research

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Introduction

In 2012, almost 4.5 million students pursued higher education outside their country of citizenship, more than doubling the number in 2000 (Organization for Economic Cooperation and Development [OECD] 2013). USA has continued to attract the largest share of international students worldwide (OECD 2013), with an average annual growth rate of 5.6 % over the past 10 years (Institute of International Education [IIE] 2015). In 2014/2015, the number of international students in the USA increased to a record high of 974, 926, a 10 % growth over the previous year (IIE 2015). International students now account for 4.8 % of the total higher education enrollment in the USA, compared with 3.2 % 10 years ago (IIE 2015).

Research on international students in the USA, however, severely lags behind the enrollment growth. Most studies center on push–pull factors affecting mobility decisions and adjustment issues during initial transition (e.g., Altbach 2004; Andrade 2006; Bang and Montgomery 2013). Little is known about how international students experience college beyond initial adjustment. There is no shortage of reports about using international students as cash cows, particularly since the recent economic recession (e.g., Chronicle of Higher Education October 2012). Although institutions try to provide better services, the lack of understanding of international students has created challenges. Echoing others (Glass et al. 2013; Mamiseishvili 2012; Rienties et al. 2012), we argue that more research is warranted to examine various aspects of international students' experiences beyond adjustment and how those experiences affect their college outcomes.

We use longitudinal survey data of 191 international and 409 American students to examine: (1) To what extent are international students involved in college activities compared with their American peers? (2) To what extent do race/ethnicity, gender, and language background shape international students' involvement in these activities? (3) What college activities contribute to international and American students' overall satisfaction, respectively? Our attention to international students' backgrounds echoes the shifting focus in college impact research from making sweeping group generalizations to examining the conditional effects of diverse backgrounds (Pascarella and Terenzini 2005). It is important to heighten the awareness of diversity among international students and examine how such diversity influences their college experiences and overall satisfaction.

We focus on overall satisfaction for several reasons. From an academic standpoint, overall satisfaction affects important outcomes such as persistence and graduation (Astin 1993; Fischer 2007). From an external relations' standpoint, more satisfied students are more loyal, volunteering to help the alma mater more often, and more likely to make donations (Brown and Mazzarol 2009; Gibson 2010). From a marketing standpoint, understanding what contributes to international students' overall satisfaction helps institutions serve, retain, and recruit students. This imperative exists not only for the latecomers in the global student market eager to establish an niche (e.g., countries in Southeast Asia and the Middle East that strive to become regional education hubs), but also for traditional leading destinations such as the USA whose global share of international students dropped from 23 to 17 % between 2000 and 2011 (OECD 2013). Indeed, the importance of satisfaction cannot be underestimated, as Astin (1993) notes "it is difficult to argue that student satisfaction can be legitimately subordinated to any other educational outcome" (p. 273).

Theoretical framework and literature review

We use Astin's (1993) student involvement theory, given our research questions and the characteristics of our survey data. Students gain more from college when they invest more physical and mental effort qualitatively and quantitatively. More frequent and high-quality interactions with peers and faculty in educationally meaningful activities lead to greater learning and personal outcomes. Student involvement theory helps us compare international and American students' involvement in college life and identify exactly which college experience contributes to overall satisfaction. That is, it helps us examine the three research questions under an overarching organizing concept of involvement. Further, mainstream college student experience surveys in the USA, including the ones used in our study, are built on theoretical conceptualizations of involvement or engagement in college (Astin and Antonio 2012; Kuh 2009; Pascarella and Terenzini 2005). Our study thus provides implications about the utility and limitations of mainstream college student experience surveys for studying overall satisfaction.

Two theories used in satisfaction research are worth noting—discrepancy theory and ecological theory—because the findings of our study suggest possibilities of combining elements from the two theories with student involvement (discussed in implications for research). Discrepancy theory argues that confirmation between expectation and experience affects satisfaction (Arambewela and Hall 2009; Sojkin et al. 2012). The goal is to identify relationships between different dimensions of satisfaction (e.g., learning, socializing, overall) using structural equation modeling. Ecological theory emphasizes longitudinal development academically, socially, and cognitively through interacting with college, family, and the self (Benjamin and Hollings 1997). The goal is to identify relationships between demographics, on- and off-campus academic, social, and life events, and overall satisfaction using structural equation modeling.

We structure the literature review into four components: precollege and demographic characteristics, academic involvement, social involvement, and racial/ethnic diversity involvement. One or all of these four components have been frequently studied in satisfaction research on domestic students in the USA. or elsewhere. Only a handful of recent studies on international students have examined one or more of these four components, most of which does not focus on overall satisfaction. Given that these four components are commonly expected to all students, it is reasonable to assume some applicability to international students.

Precollege and demographic characteristics

Two usually intertwining characteristics are of particular relevance for international students: language and cultural familiarity with American higher education. Weak English skills are associated with a number of negative experiences and outcomes, ranging from poor academic performance, to difficulties in building social networks, to psychological well-being (Bang and Montgomery 2013; Lehto et al. 2014; Rose-Redwood and Rose-Redwood 2013; Sherry et al. 2010). Students whose home culture shares fewer similarities with Americans have more difficulties adjusting to college and are more likely to experience cultural intolerance or confrontation. Further, as country of origin can be a proxy for language and cultural affiliation, students from Europe are less likely to feel alienated and have greater satisfaction than students from other regions (Lee 2010; Lee and Rice 2007; Lehto et al. 2014; Trice 2004; Zhao et al. 2005). For example, Zhao et al. (2005), using a

sample of 2780 Asian, black, and white international students from 317 American institutions, found that Asian students were less satisfied with the overall college experience than white and black students. Lee (2010) also found that Asian international students were less satisfied with their college experiences than students from other parts of the world.

Additionally, family income might influence international students' involvement in college life and overall satisfaction. Contrary to the common assumption of international students being financially well off, cost of living is a stressor in college life and a predictor of overall satisfaction (Arambewela and Hall 2009; Sherry et al. 2010). The reason is that international students are usually restricted from pursuing off-campus employment and also have limited opportunity securing on-campus employment due to competition from domestic students. Other demographics examined in student satisfaction research include gender and parental education (Clemes et al. 2008; Garcia-Aracil 2009).

Academic involvement

The importance of academic involvement has been found in student satisfaction research as well as college student experience literature for domestic students in the USA and in other countries (Arambewela and Hall 2009; Astin 1993; Benjamin and Hollings 1997; Thomas and Galambos 2004; Webber et al. 2013). Academic involvement encompasses interactions with faculty, interactions with peers in curricular and cocurricular activities, and the effort and time investing in studying in and outside of classes. Interactions with faculty have been found to be among the most influential experiences associated with overall satisfaction (Arambewela and Hall 2009; Astin 1993; Clemes et al. 2008; Thomas and Galambos 2004; Webber et al. 2013). For example, Arambewela and Hall (2009) found that satisfaction with academic quality (e.g., feedback from faculty, access to faculty, and quality of teaching) significantly affects overall satisfaction among Asian international students in Australia. Research has also found that students who spend more time preparing for class or otherwise engaging in academic tasks have higher satisfaction with their overall academic experience (Webber et al. 2013).

Academic involvement can be challenging for international students, particularly those from non-English-speaking countries. Zhao et al. (2005) found that Asian international students had fewer interactions with faculty than black international students and that Asian international students were less engaged in collaborative learning compared with black and white international students. Rienties et al. (2012) also found that non-western international students were less involved academically compared with domestic students or international students with some degree of Western background.

Social involvement

Recognizing that satisfaction is influenced by more than academic aspect of college life, some studies have also examined social involvement (Arambewela and Hall 2009; Sojkin et al. 2012; Thomas and Galambos 2004). Social involvement can be challenging for international students. A common theme in the literature on international students concerns loneliness or social isolation due to cultural and language barriers, and the lack of contact with family or friends (Rienties et al. 2012; Sawir et al. 2008; Zhou 2014). Prior research, however, is inconclusive regarding the forms of social involvement and its effect on overall satisfaction for international students. Some studies suggest that international students primarily interact with conationals, and self-segregation decreases overall satisfaction (Lehto et al. 2014; Perrucci and Hu 1995). Other studies find that social interaction among

international students can be understood on a continuum from self-segregation, to exclusive global mixing, to inclusive global mixing, and to exclusive interactions with Americans (Rose-Redwood and Rose-Redwood 2013; Trice 2004). Not all international students wish to acculturate to American higher education or solely interact with Americans; some are satisfied with building social networks with international students from other countries (Rose-Redwood and Rose-Redwood 2013).

Racial/ethnic diversity involvement

With increased access to American higher education among racial/ethnic minorities, interactions with racially/ethnically diverse peers academically and socially have become an integral part of college life (Astin 1993; Pascarella and Terenzini 2005). For international students, a nuance to their racial/ethnic diversity integration is the intersection between race/ethnicity and their nationality or world region. For those who choose to primarily interact with conationals, their involvement in cross-racial interactions is likely minimum (Lehto et al. 2014; Rose-Redwood and Rose-Redwood 2013). For those interacting with peers from the USA and around the world, cross-racial interactions become nuanced, because nationality and race/ethnicity intertwine to influence interactions. Further, international students' racial/ethnic integration may be influenced by the extent of racial/ethnic understanding or discrimination they experience at the host institution (Lee and Rice 2007; Sherry et al. 2010). International students who have experienced more racial/ethnic discrimination report lower satisfaction with their college experience (Lee 2010; Perrucci and Hu 1995).

Conceptual framework

We use Astin's (1993) Input-Environment-Output (I-E-O) framework to integrate involvement theory and the literature in building the conceptual model. The I-E-O framework suggests that involvement in college (the environment) is influenced by what students bring with them to college (the inputs), such as their demographic characteristics and college preparedness; inputs and environment together influence college outcomes. The I-E-O framework and student involvement theory have been widely used—oftentimes in combination—to examine how college affects students (Astin and Antonio 2012; Pascarella and Terenzini 2005).

The conceptual model is presented in Fig. 1 with three hypotheses. First, students' demographics and precollege academic preparation influence their involvement in college, which in turn influences overall satisfaction. This block of variables includes race/ethnicity, gender, family income, English as a second language, and high school GPA. High school GPA is included as a common precollege control in assessing college experiences and outcomes (Astin and Antonio 2012; Pascarella and Terenzini 2005). Second, greater academic, social, and racial/ethnic diversity involvement increases overall satisfaction. Variables for academic involvement include interacting with faculty, feeling bored in class, studying with peers, and hours spent studying. Variables for social involvement include hours spent socializing and feeling lonely. Variables for diversity involvement include positive and negative cross-racial interactions. Third, involvement in college occurs within a particular institutional context. We use selectivity to control for this context. Selectivity,

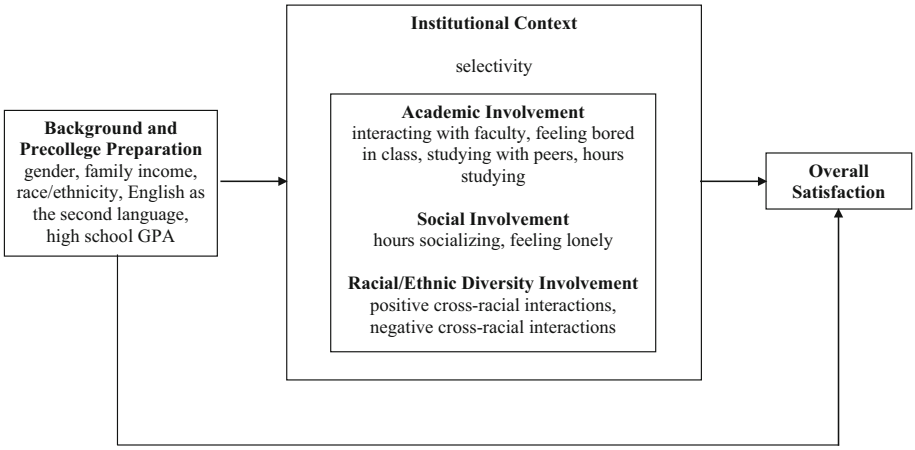

Fig. 1 Conceptual framework predicting overall satisfaction

as a proxy for prestige, has been found to influence overall satisfaction (Arambewela and Hall 2009; Brown and Mazzarol 2009).

Methods

Sample

The longitudinal data were built from the Freshmen Survey (TFS) and College Senior Survey (CSS) administered by the Cooperative Institutional Research Program (CIRP) at the University of California, Los Angeles. First-time, full-time international freshmen that responded to TFS in the fall of 2003 and responded to CSS as graduating seniors at the same institution in the spring of 2007 were included. The 2003/2007 cohort was the most recent data available to outside researchers at the time we requested access. American students from the same cohort were randomly selected to form a matched sample with international students based on socioeconomic status. We did not request all American students of the same cohort, because the number of more than twenty thousand would make the comparison with international students not meaningful. Socioeconomic status was the proper matching criterion, because the common assumption of international undergraduates being financially well off may cloud interpretations of any group difference found later on. The international sample consisted of 191 students from 37 institutions, including 93 females, 68 Asians, 11 black, 29 Latino/as, 66 white, and 17 of other ethnicity. There were 409 American students from 79 institutions, including 255 females, 25 Asian Americans, 22 African Americans, 19 Latino/as, 327 white, and 16 of other ethnicity.

Variables

Table 1 presents variable coding. Table 2 presents descriptive statistics. All variables were measured by one question, except for student–faculty interactions, positive cross-racial interactions, negative cross-racial interactions, and overall satisfaction. For each of these

Table 1 Variables and coding

Variables	Coding
Female (TFS)	0 = Male, 1 = female
Family income (TFS)	1 = Less than $30,000, 2 = $30,000–$49,999, 3 = $50,000–$74,999, 4 = $75,000–$149,999, 5 = $150,000 or above
English as the second language (TFS)	0 = No, 1 = yes
First-generation college students (TFS)	0 = No, 1 = yes, at least one parent earned a bachelor's degree
Race/ethnicity (TFS)	1 = Asian, 2 = black, 3 = Latino/a, 4 = white, 5 = other; dummies are created if needed
High school GPA (TFS)	1 = D, 2 = C, 3 = C+, 4 = B−, 5 = B, 6 = B+, 7 = A−, 8 = A/A+
Institutional selectivity	Average SAT
Studied with peers (CSS)	0 = Not at all, 1 = occasionally, 2 = frequently
Felt bored in class (CSS)	0 = Not at all, 1 = occasionally, 2 = frequently
Felt lonely (CSS)	0 = Not at all, 1 = occasionally, 2 = frequently
Studied/socialized per week (CSS)	0 = None, 1 = less than 1 h, 2 = 1–2 h, 3 = 3–5 h, 4 = 6–10 h, 5 = 11–15 h, 6 = 16–20 h, 7 = over 20 h
Interactions with faculty (CSS; composite, nine items)	Faculty encouraged you to pursue graduate/professional study, provided opportunity to work on research projects, gave advice on educational program, provided emotional support and encouragement, provided a reference letter, provided help with study skills, provided feedback on academic work outside of grades, discussed coursework outside of class, and helped achieve your educational goals 1 = Not at all, 2 = Occasionally, 3 = Frequently
Positive cross-racial interactions (CSS; composite, six items)	Dined; had meaningful, honest discussions about racial/ethnic relations outside of class; shared personal feelings or problems; had intellectual discussions outside of class; studied for class; socialized or partied 1 = never, 2 = seldom, 3 = sometimes, 4 = often, 5 = very often
Negative cross-racial interactions (CSS; composite, three items)	Had guarded, cautious interactions; had tense, somewhat hostile interactions; felt insulted or threatened because of race/ethnicity 1 = never, 2 = seldom, 3 = sometimes, 4 = often, 5 = very often
Overall satisfaction (CSS; composite, three items)	Satisfaction with the overall quality of instruction; satisfaction with overall college experience; would choose to reenroll if could make the college choice again 1 = very dissatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = very satisfied; 1 = definitely not, 2 = probably not, 3 = probably yes, 4 = definitely yes

Institutional selectivity is provided by CIRP based on data from The Integrated Postsecondary Education Data System (IPEDS)

four constructs, multiple survey questions were used to construct a composite score of conceptual and statistical significance (CIRP 2011). In particular, overall satisfaction consisted of three questions. Two questions asked students to rate their satisfaction with the overall quality of instruction and overall college experience; the third question asked whether they would choose to reenroll at the same institution. Existing studies of student satisfaction have used one or all of these three or similar questions (Lee 2010; Perrucci and Hu 1995; Thomas and Galambos 2004).

Table 2 Descriptive statistics

Variables	International		American	
	Mean	SD	Mean	SD
Female	.48	.50	.62	.49
Family income	2.65	1.54	2.65	1.54
English as the second language	.68	.47	.05	.23
First-generation college students	.13	.36	.16	.37
Asian	.36	.48	.06	.24
Black	.06	.23	.05	.23
Latino/a	.15	.36	.05	.21
White	.35	.48	.80	.40
Other	.09	.29	.04	.19
High school GPA	6.74	1.24	6.94	1.19
Institutional selectivity	1279.83	104.54	1212.41	109.48
Studied with peers	1.40	.57	1.37	.60
Felt bored in class	1.18	.48	1.20	.45
Felt lonely	.76	.65	.64	.61
Hours studying	4.77	1.48	4.53	1.55
Hours socializing	4.46	1.47	4.54	1.48
Interactions with faculty	50.39	8.66	49.39	8.73
Positive cross-racial interactions	57.13	8.65	52.32	8.82
Negative cross-racial interactions	55.88	9.04	52.52	8.12
Overall satisfaction	51.75	8.06	51.32	7.56

"Interactions with faculty," "positive cross-racial interactions," "negative cross-racial interactions," and "overall satisfaction" were rescaled scores based on item response theory calculated by CIRP (2011). Each of the rescaled scores had a population mean of 50 and population standard deviation of 10

Analyses

We first dealt with missing data. Institutional selectivity had 15 % missing data, and a few other variables had 1–2 % missing. We examined whether data were missing at random to determine whether multiple imputation was appropriate. For a given variable with missing data, we compared if the group with missing data and the group with complete data differed on other variables (Tabachnick and Fidell 2006). We found that data were missing at random, suggesting that imputation would not create biased results. We then used the following methods for imputation: predictive mean matching for continuous variable, logistic regression for dummy variable, and ordinal logistic regression for ordinal variable.

Second, we compared the extent to which involvement in college life differed between international and American students. Since the two groups differed significantly in the amount of positive and negative cross-racial interactions (presented in findings), we then used ANCOVA to examine the extent to which citizenship and race/ethnicity covaried to influence cross-racial interactions. Next, among international students, we used ANOVA to examine the extent to which their involvement in various college activities was influenced by race/ethnicity, gender, and language backgrounds. In all comparisons, Cohen's f^2 was used to gauge the magnitude of difference, where .02, .15, and .35 indicate small, medium, and large differences, respectively (Cohen 1992).

Third, we conducted ordinary least squares (OLS) regression to examine what contributed to international and American students' overall satisfaction, respectively. We first tested the nested nature of the data to determine whether multilevel modeling was necessary, particularly for international students. Intraclass correlation (ICC) was not significant ($\chi^2 = .03$, ICC = .006, $p = .43$) for international students, suggesting that no significant variance in overall satisfaction existed between institutions and OLS was sufficient. For American students, 11 % of the variance in overall satisfaction was between institutions ($\chi^2 = 15.94$, ICC = .110****). Given that international students were our focus, we proceeded with OLS.

Limitations

Several limitations should be noted about the sample and the survey data. Regarding the matched sample between international and American students based on socioeconomic status, the institutional sample size differed considerably (i.e., 37 vs. 79 institutions). This difference might have caused the ICCs to differ between the two groups and might also have resulted in confounding effects. Another sampling limitation is that given the TFS/CSS design, only high-achieving students (i.e., those who have persisted to the fourth year and are on their way to graduate) are surveyed. Therefore, discussions and implications presented herein have greater relevance for high-achieving international and domestic students. Regarding the survey data, our model did not include some variables of potential significance to international students (e.g., the percentage of international students at the institution, international studying experiences prior to coming to the USA), due to data unavailability. Another missing variable due to the lack of data was student expectation of college life, which could be an important predictor of overall satisfaction for domestic and international students (Arambewela and Hall 2009; Machado et al. 2011). Further, findings related to self-reported high school GPA should be interpreted with caution, due to potentially different measurements internationally. In addition, our data were correlational (i.e., non-experimental). We used the term "effect" periodically for flow purposes.

Findings

Compared with American students, international students had more frequent negative ($F = 19.94$****) and positive ($F = 37.56$****) cross-racial interactions, felt lonely more frequently ($F = 4.55$*), and attended more selective institutions ($F = 39.26$****; see Table 3). The magnitude of these differences was small to moderate, as the Cohen's f^2 ranged from .08 to .28 (Cohen 1992). Further, controlling for race/ethnicity, the difference in positive cross-racial interactions accounted for by citizenship decreased, albeit still significant ($F = 13.96$***; see Table 4). For a given race/ethnicity, international students had more frequent positive cross-racial interactions than American students ($F = 4.62$*). However, the difference in negative cross-racial interactions accounted for by citizenship was absorbed when controlling for race/ethnicity ($F = 1.21$, $p = .27$). White students, international and American alike, reported less frequent negative cross-racial interactions than their nonwhite peers ($F = 16.33$****).

Among internationals, white students reported less frequent negative cross-racial interactions ($F = 4.75$**) than other ethnicities, and black students reported lower overall satisfaction than Latino/a ($F = 3.07$*; see Table 5). Females spent more time studying

Table 3 ANOVA results: involvement in college and overall satisfaction between international and American students

	η^2	F	Cohen's f^2	Mean difference (international–American)
Institutional selectivity	.073	39.26****	.28	+
Studied with peers	.000	.22	.00	+
Felt bored in class	.000	.22	.00	−
Felt lonely	.008	4.55*	.08	+
Hours studying	.005	3.23	.06	+
Hours socializing	.001	.39	.00	−
Interactions with faculty	.003	1.68	.03	+
Positive cross-racial interactions	.061	37.56****	.25	+
Negative cross-racial interactions	.033	19.94****	.18	+
Overall satisfaction	.001	.39	.00	+

"+" indicates international students had a higher mean

* $p < .05$; **** $p < .0001$

($F = 7.15$**) and attended less selective institutions ($F = 3.96$*; see Table 6). Non-English-speaking international students spent more time studying ($F = 7.63$**), felt bored in class less frequently ($F = 8.46$**), and attended more selective institutions ($F = 9.03$**) than their English-speaking peers. The magnitude of these differences was moderate, with Cohen's f^2 ranging from .14 to .29.

Based on the OLS results, some variables were common to international and American students, whereas others were unique to each group (see Table 7). For international students, the model explained 31 % of the variance in overall satisfaction ($F = 5.11$****). International students who had higher high school GPA ($\beta = .16$*), studied more frequently with others ($\beta = .15$*), felt bored in class less frequently ($\beta = -.15$*), interacted with faculty more frequently ($\beta = .30$***), and had less frequent negative cross-racial interactions ($\beta = -.25$**) had greater overall satisfaction. In addition, Latino/as reported greater overall satisfaction than Asians ($\beta = .24$**). For American students, the model explained 26 % of the variance in overall satisfaction ($F = 8.55$****). American students who had higher high school GPA ($\beta = .11$*), felt bored less frequently in class ($\beta = -.17$***), interacted with faculty more frequently ($\beta = .38$***), felt lonely less frequently ($\beta = -.11$*), and spent more time socializing ($\beta = .22$***) had greater overall satisfaction.

Discussions

English as a second language

The results confound more than supporting the general theme regarding international students' language barriers. The results suggest more similarities than differences regarding involvement in college life between native and non-native English-speaking internationals. Further, speaking English as a second language was not associated with overall satisfaction, contrary to what existing research would have predicted (Perrucci and Hu 1995). There are three possible interpretations. For one, as graduating seniors, these

Table 4 ANCOVA results: cross-racial interactions between international and American students and between races/ethnicities

	Citizenship				Race/ethnicity			
	Partial η^2	F	Cohen's f^2	Tukey test mean difference (international–American)	Partial η^2	F	Cohen's f^2	Tukey test mean difference (between racial/ethnic groups)
Positive cross-racial interactions	.024	13.96***	.15	+	.031	4.62**	.15	W < A W < B W < L W < O
Negative cross-racial interactions	.002	1.21	.02	+	.103	16.33****	.32	W < A W < B W < L O < L

"+" indicates international students had a higher mean. A = Asian, B = black, L = Latino/a, W = white, O = other race/ethnicity. "<" indicates less than; for example, "W < A" for "positive cross-racial interactions" means that controlling for citizenship, white students had less frequent positive cross-racial interactions than Asian students

** $p < .01$; *** $p < .001$; **** $p < .0001$

Table 5 ANOVA results: involvement in college and overall satisfaction between races/ethnicities among international students

	η^2	F	Cohen's f^2	Tukey test mean difference
Institutional selectivity	.003	.10	.00	W < A; W < O
Studied with peers	.027	1.29	.08	–
Felt bored in class	.043	2.09	.15	–
Felt lonely	.005	.20	.00	–
Hours studying	.010	.48	.00	–
Hours socializing	.057	2.73	.19	B < W
Interactions with faculty	.006	.24	.00	–
Positive cross-racial interactions	.030	1.33	.09	W < A; W < B; W < L; W < O
Negative cross-racial interactions	.098	4.75**	.29	W < A; W < B; W < L; O < B
Overall satisfaction	.063	3.07*	.21	B < L

A = Asian, B = black, L = Latino, W = white, O = other race/ethnicity. "<" indicates less than; for example, "B < W" for "hours spent socializing" means black international students spent less time socializing than white international students. For institutional selectivity, hours spent socializing, and positive cross-racial interactions, overall group differences were not found, but pairwise mean comparison found significant differences between some races/ethnicities

* $p < .05$; ** $p < .01$

international students might have adapted linguistically. For another, international students in our sample managed to graduate within 4 years. According to the National Center for Education Statistics [NCES] (2014), the national average 4-year graduation rate for the 2003/2007 cohort was 37.3 % among international and 36.7 % among all students. It was safe to assume that international students in our study were high achievers. Whether English was a second language might have had minimal influence on their college experiences or overall satisfaction. In addition, non-English-speaking international students' language skills certainly varied, which might not be captured by a dummy variable, "English as a second language."

Race/ethnicity and cross-racial interactions

Our study confounds prior research that emphasizes differences in cross-racial interactions between white and nonwhite international students. While prior studies have found more discrimination against Asian or black than white internationals (Lee 2010; Lee and Rice 2007), our study found that nonwhite international students reported both more frequent positive and negative cross-racial interactions than white internationals. Existing research, albeit limited in number, has also found both positive and negative cross-racial interactions for international students (Arambewela and Hall 2009; Sherry et al. 2010). Further, a similar pattern was found regarding American students' quality of cross-racial interactions, as the ANCOVA results showed. That is, for internationals and Americans alike, white students' experiences with cross-racial interactions were more neutral, while nonwhite students' experiences were more divided.

Table 6 ANOVA results: involvement in college and overall satisfaction by gender and English-speaking among international students

	Female versus male				Non-native versus native English-speaking			
	η^2	F	Cohen's f^2	Mean difference (female–male)	η^2	F	Cohen's f^2	Mean difference (non-native–native)
Institutional selectivity	.027	3.96*	.14	−	.060	9.03**	.24	+
Studied with peers	.002	.47	.00	−	.000	.09	.00	+
Felt bored in class	.013	2.48	.09	−	.042	8.46**	.20	−
Felt lonely	.014	2.61	.09	+	.000	.00	.00	+
Hours studying	.037	7.15**	.18	+	.039	7.63**	.19	+
Hours socializing	.003	.57	.00	−	.005	.96	.00	−
Interactions with faculty	.002	.30	.00	+	.008	1.43	.05	+
Positive cross-racial interactions	.000	.04	.00	+	.020	3.63	.12	+
Negative cross-racial interactions	.001	.17	.00	−	.006	1.06	.02	+
Overall satisfaction	.010	1.89	.07	−	.011	2.18	.08	+

"+" indicates female or non-native English-speaking students had a higher mean

* $p < .05$; ** $p < .01$

The quality of cross-racial interactions on overall satisfaction for international students is worth discussing. Studies have found that discrimination can decrease international students' overall satisfaction (Lee 2010; Lee and Rice 2007; Perrucci and Hu 1995). Interestingly, cross-racial interactions did not affect American students' overall satisfaction, contrary to existing findings (e.g., Fischer 2007). A confounding experience for international students, we suspect, might be the extent of exposure to or interactions with racial/ethnic diversity prior to entering college. International students often come from countries where race/ethnicity may not be as significant a differentiator for experiences as in the USA. Another confounding reason might be their overly optimistic expectation of college life in the USA, as suggested by the push–pull factors of international student mobility (Altbach 2004; Zhou 2014, 2015). Therefore, not only could cross-racial interactions become a salient college experience, international students become vulnerable in the encounter of negative cross-racial interactions. These two confounding reasons could also explain why positive cross-racial interactions did not increase overall satisfaction. Lacking prior cross-racial experiences, coupled with an overly optimistic expectation of college life in the USA, international students might feel natural when positive cross-racial interactions occurred.

Interactions with faculty

The results contribute to our understanding of international students' interactions with faculty in several ways. Research suggests that interacting with faculty is among the most

Table 7 OLS results predicting overall satisfaction for international and American students

Variables	International			American		
	Coefficient	*T*	*β*	Coefficient	*t*	*β*
Female	−1.46	−1.35	−.09	.48	.67	.03
Family income	.48	1.31	.09	−.04	−.19	−.01
English as the second language	.42	.33	.02	.59	.33	.02
First-generation college students	.21	.13	.01	−1.29	−1.35	−.06
Black versus Asian	3.06	1.23	.09	−.61	−.30	−.03
Latino/a versus Asian	5.33	3.36**	.24	1.32	.64	.04
White versus Asian	1.92	1.30	.11	.81	.52	.04
Other versus Asian	2.82	1.96	.10	2.09	.94	.05
High school GPA	1.03	2.24*	.16	.71	2.29*	.11
Institutional selectivity	.10	1.75	.13	−.00	−.00	−.00
Studied with peers	2.11	2.22*	.15	−.14	−.25	−.01
Felt bored in class	−2.47	−2.15*	−.15	−2.75	−3.51***	−.17
Felt lonely	−1.11	−1.35	−.09	−1.36	−2.37*	−.11
Hours studying	−.73	−1.89	−.13	−.27	−1.19	−.06
Hours socializing	.02	.04	.00	1.14	4.80***	.22
Interactions with faculty	.29	4.13***	.30	.32	7.80***	.38
Positive cross-racial interactions	.07	.94	.07	−.01	−.14	−.01
Negative cross-racial interactions	−.23	−3.33**	−.25	−.01	−.29	−.01
F	5.11****			8.55****		
N	191			409		
R-squared (adjusted)	.31			.26		

Results are based on multiply-imputed data, imputations = 20

* $p < .05$; ** $p < .01$; *** $p < .001$; **** $p < .0001$

important experiences predicting overall satisfaction (Arambewela and Hall 2009; Astin 1993; Clemes et al. 2008; Pascarella and Terenzini 2005; Thomas and Galambos 2004; Webber et al. 2013). Our study confirms the importance of student–faculty interactions for both American and international students. In fact, interactions with faculty had the biggest magnitude of impact for both groups. Further, while earlier research shows that international students are withdrawn when interacting with faculty (Trice 2003), our study found similar amount of interactions with faculty between international and American students, echoing a recent study that also found no difference between the two groups (Glass et al. 2013).

The results revealed an interesting nuance regarding the influence of students' demographics on their interactions with faculty. There was no gender, language, or racial/ethnic group difference regarding international students' interactions with faculty. Prior studies—and sometimes assumptions—suggest that Asian international students or international students who speak English as a second language tend to have less frequent interactions with faculty (Zhao et al. 2005). Again, it was possible that international students in our study had adapted to the interactive nature of student–faculty contact in American higher education. It was also possible that as high achievers, as reasoned previously, they had frequent interactions with faculty, regardless of their demographic backgrounds.

Loneliness

The results extend our understanding of loneliness with two interesting nuances. On one hand, international students felt loneliness significantly more often than their American peers, as prior research would have predicted (Lehto et al. 2014). At the same time, there was also greater variability among international than American students, as shown in Table 2. But the greater variability was not associated with international students' language background, race/ethnicity, or gender. This finding is contrary to prior research, which suggests that students from certain racial/ethnic, cultural, or language groups (e.g., Chinese) are more likely to avoid social interactions and are more likely to experience loneliness (Bang and Montgomery 2013; Lehto et al. 2014; Trice 2004). On the other hand, loneliness was a significant predictor for American students' overall satisfaction, but not for international students, even though both higher average and greater variability of the amount of loneliness were found in the latter group. We suspect that difference between expectation and experience may play a vital role. For American students, building friendships and having satisfying social life in college are common expectations (Pascarella and Terenzini 2005). Although international students may also desire social connectedness (Bang and Montgomery 2013; Lehto et al. 2014; Sawir et al. 2008; Zhou 2014), loneliness may be perceived as an inevitable experience of studying and living in a foreign country.

Implications for research

International students' cross-racial interactions should receive more research attention. Future research could examine the intersection between race/ethnicity and nationality or world region in cross-racial interactions, and how such intersection affects overall satisfaction. Qualitative research could explore international students' expected, lived, and perceived experiences of cross-racial interactions, and how these experiences (both positive and negative) influence overall satisfaction. In addition, we measured positive and negative cross-racial interactions by composites, a total of nine survey items. Future studies could look into these nine items and the extent to which each of them affects overall satisfaction.

Future research could integrate elements from discrepancy theory (Arambewela and Hall 2009; Sojkin et al. 2012) to our conceptual model. The five dimensions—demographic and precollege characteristics, academic, social, and racial/ethnic diversity involvement, and institutional context—provide a useful organizing framework. International students' expectations of cross-racial interactions and loneliness could be additional elements to explore, as discussed previously. Institutions could add variables about expectations and satisfaction to their college student experience surveys, such as the two used in our study or those built on student involvement or engagement in college. In this way, college student experience survey and satisfaction survey could be combined, given that institutional resources are usually limited.

Future research could also consider integrating elements from ecological theory to our conceptual model. Ecological theory emphasizes that satisfaction is shaped by longitudinal development academically, socially, and cognitively as students go through each stage (Benjamin and Hollings 1997). For international students, beginning study in a foreign country is an important life event and the transitioning stage has drawn the most research attention. Future research could add to our model variables about international students'

adjustment experiences during initial transition. Institutions that already use the end-of-first-year student survey can add variables about satisfaction to explore predictors of international students' first-year satisfaction and examine any lingering effects of these predictors on overall satisfaction 4 years later.

Implications for practice

Our study provides practical recommendations for institutional action to enhance international student experiences and overall satisfaction. The similar pattern of cross-racial interactions among international and American students suggests that activities facilitated among American students could be encouraged among international students. Common activities include participating in racial awareness workshops, joining an ethnic organization, and taking racial/ethnic diversity classes (Cole and Zhou 2013, 2014). At the same time, activities gearing toward international students should integrate a racial/ethnic diversity component. Introducing international students to racial/ethnic diversity in American higher education and the benefits of involvement with such diversity could be integrated into international student orientation. The common practice of pairing an international and a domestic student into language partners or cross-cultural friends could also intentionally encourage cross-racial interactions.

Since interacting with faculty matters for overall satisfaction for international and American students, services and activities that aim to enhance student–faculty interactions can be structured for both groups, such as luncheon with faculty and research or mentoring opportunities with faculty. At the same time, although international students in our study had similar amount of interactions with faculty compared with Americans, prior research has found challenges of contacts with faculty due to language or cultural barriers (Trice 2003). Facilitating interactions with faculty should be among the goals of providing services or structuring activities for international students.

We encourage institutions to conduct self-study to compare their international and American students, given how international student services are structured. Although an institution usually has an office for international students (usually called Office of International Students or a similar title), this office is primarily responsible for issuing visa and legal documents. Student affairs services for international students, including academic, social, racial/ethnic diversity services, are usually embedded under offices that traditionally serve American students. Comparisons help student affairs professionals and administrators decide areas of general services and areas of special interventions targeting international students.

Conclusion

A student's pursuit of an overseas education is voluntary. However, if American institutions (in fact, any institutions) fail to deliver the promises of better educational experiences, their attractiveness in the global student market would diminish. In an era of accountability, institutions must provide empirical evidence to demonstrate the kind of educational experiences and outcomes promised to international students—experiences and outcomes that are not limited to adjustment, and are comparable with domestic students. Empirical studies are in urgent need to pinpoint strengths and areas for

improvement, and develop intentional, proactive actions to serve, retain, and continuously attract international students.

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