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College Experiences and Outcomes Among International Undergraduate Students at Research Universities in the United States: A Comparison to Their Domestic Peers

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ABSTRACT

Using a large dataset from a state education system, this study examined the experience of international college students in the United States as well as the connection to their cognitive, affective, and civic outcomes. The study utilized data from the 2010 University of California Undergraduate Experience Survey (UCUES) and a sample of 35,146 junior and senior undergraduate students across 10 campuses. The results of this study showed that international students may uniquely experience college and may not benefit from those experiences as much as their domestic peers. Furthermore, this study identified a broad range of college experiences that contribute to the key outcomes for international students. The study discusses the theoretical and practical implications of the findings.

Keywords: International students, college experiences, college outcomes, research universities

Due to the increasing number of students who move across borders to study, international students draw much attention in the United States and in global discussions of higher education. This cross-border education often contributes substantially to institutional revenue. The *Chronicle of Higher Education* recently featured an article entitled, “Fess Up: Foreign Students are Cash Cows,” which emphasized that tuition revenue is a primary interest

when recruiting international students (Fischer, 2012). However, international students do not always recognize the financial motivation associated with their enrollment, and the revenues are rarely reinvested to create a better educational experience for these students. The Institute for International Education's annual *Open Doors Report* (Institute of International Education, 2013) estimated that international students contributed $24 billion to the United States economy in the year 2013 alone. Although the United States is slowly losing dominance to Australia and Canada in terms of attracting international students, almost one third of students studying in a foreign country come to the United States. The massive opportunity for revenue has led several institutions to outsource overseas recruiting to agents who are paid commissions for acquiring applications and enrolling international students, which has created a market-oriented environment. Given the vast market and interest in international students, an ongoing question looms about their educational experiences and outcomes when compared to their domestic peers. For the purpose of this study, domestic students are defined as United States citizens or those with permanent resident status attending higher education institutions in the United States while international students are foreign students who are in the United States on a temporary basis (e.g., student visa) while attending a United States institution.

The tension between the market-driven pursuit of international students and the differences in educational experiences serve as the background for the purpose of this study, which is to improve our understanding of college experiences and outcomes of international students at research universities in the United States in comparison to their domestic counterparts. Using a statewide college student dataset, this study is designed to explore three research questions: (1) What are the differences between international college students and their domestic peers at United States research universities in the development of select college student outcomes over time? (2) What are the differences between international college students at these institutions and their domestic counterparts in the patterns of engagement in college experiences? (3) What college experiences predict select student outcomes among international college students at these institutions?

BACKGROUND AND LITERATURE REVIEW

Cognitive Outcomes of College Students

One of the main outcomes of a college education is students' cognitive or intellectual development. Although there has been a lack of evidence in the literature about the effect of the college experience on cognitive development (Pascarella & Terenzini, 2005), some researchers

have provided insight into how students develop cognitively in college. In general, students gain cognitive skills/abilities by attending college. Most notably, students' self-confidence increases in verbal skills, math skills, and critical thinking skills while attending college (Carini & Kuh, 2003; Pascarella & Terenzini, 2005; Volkwein, Valle, Parmely, Gary, & Zhou, 2000). While these studies have examined a general influence of college attendance on students' cognitive development, other researchers have identified individual aspects of the college experience that affect student development in this area.

Perhaps academic engagement is among the most influential college experiences that contribute to college students' cognitive or intellectual development. When students are more engaged in their learning (e.g., attending more classes, investing more hours in studying, participating more frequently in classroom discussions), students obtain greater gains in their cognitive/intellectual outcomes (Astin, 1993; Harper & Quayle, 2009; McCormick, Kinzie, & Gonyea, 2013; Pascarella & Terenzini, 2005). Also, students' academic engagement with their faculty members and peers facilitate their cognitive development over the college years (Kim & Sax, 2009, 2011; McCormick, Kinzie, & Gonyea, 2013; Umbach & Wawrzynski, 2005).

Students' learning and development in college is also affected by both the structural diversity of the campus and the introduction of diversity topics into the curriculum. Studies found that students attending institutions that have higher levels of structural diversity (i.e., more heterogeneous student body) reported higher levels of learning and cognitive development compared to their counterparts who attended institutions with more homogenous student demographics (Chang, Witt, Jones, & Hakuta, 2003; Cole, 2011). When diversity topics were more frequently introduced with the pedagogy and curriculum, students also tended to report higher levels of learning and cognitive growth (Gurin, Dey, Hurtado, & Gurin, 2002).

Students' academic major field is another college experience that possibly affects their cognitive development during college. Research has demonstrated that college students' academic major tends to be associated with their levels of development in cognitive outcomes. Astin (1993) found that students who were in social science or humanities majors tended to report greater gains in their cognitive outcomes compared to their peers in other academic major fields. Similar results have been also noted by other studies that examined the relationship between students' academic major and cognitive development (Cole, 2007, 2011; Schreiner & Kim, 2011; Strauss & Volkwein, 2004).

Beyond the classroom environment, extracurricular activities have been shown to affect college students' cognitive development. Studies suggest that some extracurricular activities such as social interaction with peers and

service learning projects seem to be positively related to larger growth in cognitive and intellectual outcomes among college students (Busseri, et al, 2010; Cleg, Stevenson, & Willcott, 2010; Gellen, 2003; Tieu & Pancer, 2009; Tieu, et al, 2010). Conversely, other studies have found that participation in athletics and membership in a fraternity or sorority tended to have a negative effect on college students' cognitive development (Astin, 1993; Tieu & Pancer, 2009). When it comes to work experience, some mixed findings exist in the literature. Pascarella & Terenzini (2005) noted that work experience, either on- or off-campus, had little effect on student learning and cognitive outcomes development. However, Lundberg and Schreiner (2004) noted that student learning was negatively affected by their off-campus work experience.

Affective Outcomes of College Students

Considering that college is a social (as well as academic) environment, affective outcomes are another set of desirable college outcomes. Research has shown that college's sub-environments such as students' academic majors, departments, or disciplines, have often created unique social environments for students and that various types of interactions with socializing agents (e.g., faculty, staff, peers) have enhanced students' development in affective outcomes, including interpersonal skills, leadership skills, and college satisfaction (Rubin, Bommer, & Baldwin, 2002; Umbach & Wawrzynski, 2005; Vowell, 2007). Furthermore, studies noted that certain pre-college characteristics such as student gender, race, and socioeconomic status also affect the development of interpersonal skills among college students (Hausmann, Schofield, & Woods, 2007; Hausmann, Ye, Schofield, & Woods, 2009; Ostrove & Long, 2007).

The pedagogy of classes, working with faculty, and studying with peers are also related to students' affective development. For example, Astin (1993) found that certain classroom activities such as group projects and presentations tended to improve students' sense of leadership, a specific domain of affective development. Studies have also shown that meeting/working with faculty, such as discussing ideas and attending conferences and workshops, were positively associated with interpersonal skills development among college students (Astin, 1993; Elkins, Forrester, & Noel-Elkins, 2011; Sax, 2008; Strayhorn, 2012).

Civic Outcomes of College Students

One of the major goals of a college education is to develop a student as a member of the greater community (Sax, 2000). Early research on the civic outcomes of college students found a significant, positive relationship between students' college experience and their humanitarian values (Pascarella, Ethington, & Smart, 1988; Rockenbach, Hudson, & Tuchmayer, 2014). Astin (1993) also noted that students' experiences in college affected

their social values and involvement in community action programs, as well as how students participated in the political process and promotion of racial understanding. Similarly, Lopez and Kiesa (2009) found that college attendance was positively associated with voter turnout in elections and volunteerism within the community.

Beyond the college attendance, some studies have also identified the specific college experiences that contributed to students' development in civic outcomes. Studies have shown that classroom experiences integrated with community service and faculty interactions positively affected students' civic engagement and outcomes (Astin, 1993; Hurtado, Ruiz, & Whang, 2012; Lott, 2013). Research also found some significant relationships between students' academic major and their civic engagement. Students majoring in the social sciences tend to report higher levels of civic engagement during college as compared to their peers in other academic major fields (Lott, 2013; Pascarella, Ethington, & Smart, 1988; Schreiner & Kim, 2013), while students in STEM majors have often shown lower levels of civic engagement (Astin, 1993; Rhee & Dey, 1996; Sax, 2000).

College Outcomes and Experience of International Student

While higher education literature has well documented the net effects of college attendance on students' growth or development in affective, cognitive, and civic outcomes, the vast majority of the studies have focused on domestic college students, relatively ignoring the examination of such college effects on the international student population. However, given the increasing number of international college students in the United States and the lack of institutional support systems for this population, it is imperative to improve our understanding of college outcomes and experiences among international students.

Although some studies of international students' perceptions suggest that students admire the academic culture in the United States (Chow, 2011), other investigations indicate that international students face difficulties in an environment for which they have not been prepared (Bauer, 1998; Fischer, 2011; Harper & Hurtado, 2007). Several recurring difficulties for international students have included country of origin (related to language and culture), lack of social support from host country nationals, difficulty in socializing, and associated negative experiences (Hechanova-Alampay, Beehr, Christiansen, & Van Horn, 2002; Lee & Rice, 2007; Mori, 2000). Li (2012) found that the primary needs of international students were psychological, linguistic-academic, and sociocultural. International students often battle feelings of isolation from familiar surroundings, challenges associated with the combination of demands on their academic skills, and the need to experience the host culture. Bartram (2008) demonstrated that

international students have distinct needs that are related to cultural barriers when compared to their domestic peers that are related to cultural barriers.

Literature on international students' experiences has often attributed international students' difficulties to the need to adapt, transition, and cope, implying that the burden is on the students to overcome and integrate into the host culture (Bevis, 2002; Klineberg & Hull, 1979; Pritchard & Skinner, 2002; Zhao, Kuh, & Carini, 2005). In one study, students who adapted to the host culture were portrayed as having developed greater intercultural competence (Pritchard & Skinner, 2002); another study associated difficulties with the lack of assimilation to American culture (Al-Sharideh & Goe, 1998). Framing negative international students' experiences as an issue of personal responsibility carries an underlying assumption that the host campus and country do not play a role in contributing to the exclusion or marginalization of these students. For example, some studies have outlined how Chinese students in particular have experienced a gap between expectations and reality and, ultimately, an unsupportive educational environment that could be perceived as exploitation (Li & Collins, 2014; Ho & Ho, 2008; Zhao, Kuh, & Carini, 2005).

However, Lee (2010) found that perceived discrimination, quality of campus services, and financial difficulties were highly influential in international students' attitudes about their United States educational experience. Studies have shown that non-Western students studying in Western societies like the United States experienced a kind of *neoracism*, which Lee (2007) defined as "discrimination based on culture and national order" (p. 389). Given the increased focus on diversity in higher education following post World War II massification, any special focus on equity for international students has been seen as suspect because the students are voluntary minorities. Lee (2010), however, critically challenged institutions to engage with international students in meaningful ways and "value them as vital contributors to international exchange and diplomacy" (p. 77).

THEORETICAL FRAMEWORKS

The conceptual and theoretical frameworks used to guide this study are based on Astin's (1993) Input-Environment-Outcomes (I-E-O) model and Schlossberg's transition theory (Schlossberg, Waters, & Goodman, 1995). Using Astin's (1993) I-E-O model as a conceptual framework of the study, we address the unique effect of college experiences on college students' development in cognitive, affective, and civic outcomes by minimizing the confounding effects of student inputs. Also, the current study assumes that international students have a unique set of college experiences that impact their development. Particularly, we hypothesize that international students are transitioning into a new country and a new culture, as well as their new

college environment; the degree to which an individual can cope with transitions is dependent upon the resources available and the individual's utilization of those resources. We employ Schlossberg's transition theory to explain the possible impact of transitions on international students' college experiences and outcomes.

RESEARCH METHOD

Data Source and Sample

For this study, we utilized data from the 2010 University of California Undergraduate Experience Survey (UCUES). The survey instrument is administered to all students system-wide (i.e., all ten UC campuses) on a biennial basis though the Office of Student Research and Campus Surveys at UC Berkeley, with support from the UC Office of the President. The UCUES collects information on a broad range of educational experiences, including academic and co-curricular activities, instruction, advising, and student services, as well as student background characteristics, academic and personal development, and evaluation of the academic majors (Brint, Douglass, Flacks, Thomson, & Chatman, 2007). The UCUES 2010 population includes all undergraduate students at 10 UC campuses who were enrolled in winter quarter 2010 or spring semester 2010 (at Berkeley and Merced). The response rate for the 2010 survey was 43%, yielding 74,410 cases. Because this study was designed to examine student *development* or *gains* in select college outcomes over the college years, we limited our sample to only junior and senior students (n = 35,146) who had been fully exposed to college experiences. Within that sample, 917 (2.6%) students were identified as international students while 34,229 (97.4%) were identified as domestic students.

The student characteristics between the two samples varied. Among the domestic students in the sample, a majority of the participants self-identified as Asian, Pacific Islander, or Filipino (41.6%) or White (35.5%), while a smaller number of students identified as Chicano or Latino (15.2%), African American (5.3%), American Indian or Alaskan Native (0.7%) or some other race/ethnicity (1.7%). Nationality or ethnicity of international students was not included in the dataset. The sample of international students consisted of 39.5% female students and 37.4% male students while the domestic student sample consisted of 48.4% female students and 34.1% male students. When it comes to socioeconomic status, the international student sample was 12.8% working class or low income, 38.8% middle class, and 27.9% wealthy, upper middle, or professional class while the domestic sample was made up of 31% working class or low income, 33.2% middle class, and 20.2% wealthy, upper middle, or professional class. More domestic students (20%) were first-generation college students (i.e., neither

parent had attained more than a high school degree) than international students (15.6%). There was a wide gap between students with transfer student status: 61% of the international sample were transfer students while 25.4% of the domestic sample were transfer students.

Variables

The dependent variables of this study included three variables, each of which represented cognitive, affective, and civic outcomes among college students, respectively: (1) cognitive skills, (2) interpersonal skills, and (3) civic attitudes. *Cognitive skills* was a five-item factor scale that included individual survey items that asked students to rate their current cognitive abilities in five areas: (1) analytical and critical thinking skills, (2) ability to read and comprehend academic material, (3) ability to be clear and effective when writing, (4) understanding of a specific field of study, and (5) ability to speak clearly and effectively in English (Chronbach's alpha = .85). *Interpersonal skills* was an individual item on the UCUES survey that asked students to rate their current ability in interpersonal or social skills. *Civic attitudes* was a three-item factor scale that included individual survey items that asked students to rate their current civic ability to (1) appreciate, tolerate, and understand racial and ethnic diversity, (2) appreciate cultural and global diversity, and (3) understand the importance of personal social responsibility (Chronbach's alpha = .84).

Independent variables of this study included pretest measures, students' demographic and background characteristics, academic disciplines, and college experiences. The pretest measures represent students' self-assessment of their cognitive, affective, and civic abilities when they entered the college in the same survey items as the dependent variables (See Table 1 for factor loadings and internal consistency on composite outcome and pretest measures). Students' demographic and background variables included gender, socioeconomic status, language heritage, and transfer status. Students' academic disciplines were organized into five major categories: (1) arts and humanities, (2) engineering and computer sciences, (3) physical and biological sciences, (4) social sciences, and (5) professional schools. This study also included a broad range of college experiences that might have possibly affected our dependent variables. Those college experience variables were organized into four distinct categories: (1) satisfaction (i.e., satisfaction with the quality of instruction and courses in the major, academic advising and communication with faculty), (2) faculty involvement (i.e., academic engagement with faculty, involvement with faculty research), (3) learning involvement (i.e., critical reasoning classroom activity, curricular foundations for reasoning, elevated academic effort), and (4) peer involvement (i.e., participation in clubs or organizations, collaborative work on class projects). These college

experience variables included both individual survey items and factor scales. Refer to Appendices A and B for coding schemes and variable definitions of all variables used in this study.

Analysis

Data analysis for this study was conducted using IBM SPSS Statistics 22. Prior to the main data analysis, data cleaning techniques were employed to remove outliers and ensure data normality, linearity, and homoscedasticity. To examine the differences in the development of select college student outcomes between international and domestic college students, we computed gains (changes) from pretest and posttest measures and analyzed them with independent samples *t*-tests. In addition, we conducted paired-samples *t*-tests on the pretest and posttest scores to see if the longitudinal gains (changes) were statistically significant. Next, to examine the differences in the patterns of engagement in college experiences between international and domestic students, we conducted independent samples *t*-tests (for continuous variables) and cross-tabulations with Chi-square tests (for categorical variables). Finally, to examine the predictors of select student outcomes among international students, we conducted a series of hierarchical multiple regression analyses on each of our three dependent variables. The independent variables for the regression analyses were organized into temporal blocks according to Astin's (1993) I-E-O model in the following order: (1) pretest measure, (2) students' entering characteristics, (3) academic discipline, and (4) college experiences.

RESULTS

Patterns of College Outcomes

We first examined if the patterns in the development of select college outcomes over time were different between international college students and their domestic peers at United States research universities. The results in Table 2 show that while international students experienced significant gains in all select cognitive, affective, and civic outcomes over the college years, there were some statistically significant differences in terms of the magnitude of the gains when compared to their domestic peers. Specifically, international students experienced less gains than their domestic peers in interpersonal skills ($t = 3.06$, $p < .01$) during their college years, whereas they seemed to obtain statistically equivalent gains to their domestic counterparts in cognitive skills and civic attitudes. Also, compared to domestic students, international students reported lower mean scores for all three outcome measures of the study (i.e., cognitive skills, interpersonal skills, and civic attitudes) both in their freshman year and in their junior or senior year.

Table 1: Factor Loadings and Internal Consistency on Composite Outcome Measures

Factor and Survey Items	Factor Loading	Internal Consistency (α)
Cognitive Skills Factor Scale: Posttest		.85
Please rate your current level of proficiency in the following areas:		
Analytical and critical thinking skills	.84	
Ability to read and comprehend academic material	.83	
Ability to be clear and effective when writing	.81	
Understanding of a specific field of study	.73	
Ability to speak clearly and effectively in English	.73	
Cognitive Skills Factor Scale: Pretest		.84
Please rate your level of proficiency in the following areas when you started at this campus:		
Analytical and critical thinking skills	.84	
Ability to read and comprehend academic material	.85	
Ability to be clear and effective when writing	.84	
Understanding of a specific field of study	.68	
Ability to speak clearly and effectively in English	.69	
Civic Attitudes Factor Scale: Posttest		.84
Please rate your current level of proficiency in the following areas:		
Ability to appreciate, tolerate and understand racial and ethnic diversity	.90	
Ability to appreciate cultural and global diversity	.88	
Understanding the importance of personal social responsibility	.84	
Civic Attitudes Factor Scale: Pretest		.86
Please rate your level of proficiency in the following areas when you started at this campus:		
Ability to appreciate, tolerate and understand racial and ethnic diversity	.91	
Ability to appreciate cultural and global diversity	.88	
Understanding the importance of personal social responsibility	.85	

Table 2: Differences in Gains for Cognitive, Affective, and Civic Student Outcomes Between Domestic and International Students

Student Outcomes	Mean Score in Freshman Year		Mean Score in Junior or Senior Year		Mean Change (Gains)	
	Domestic	International	Domestic	International	Domestic	International
Cognitive Skills Scale	4.01	3.51	4.80	4.30	.79	.79
Interpersonal skills	4.05	3.71	4.71	4.25	.66	.54
Civic Outcomes Scale	4.50	4.16	5.03	4.65	.53	.49

Note 1: Paired samples *t*-tests show that all longitudinal changes were significant ($p < .001$) across racial subgroups. *t*-scores varied by international student status as follows: Domestic (83.12 – 199.74); International (13.57 – 29.36).

Note 2: Independent samples *t*-tests indicate significant mean change differences between groups in interpersonal skills ($t = 3.06$, $p < .01$) only.

Note 3: Sample sizes for each group varied depending on the outcome measure. The sample size ranges were as follows: Domestic (28,471 – 29,004); International (703 – 718).

Patterns of College Experiences

In terms of patterns of engagement in college activities, we could observe statistically significant differences between international students and their domestic peers in the domains of student satisfaction and learning involvement (see Table 3). Compared to their domestic peers, international students tended to report less satisfaction with the quality of instruction and courses in their major ($t = 6.38$, $p < .001$) and with academic advising and communication with faculty ($t = 4.49$, $p < .001$). In other words, international students were, on average, less satisfied than domestic students with the quality of lower- and upper-division courses, faculty instruction, and teaching by graduate student teaching assistants. International students were also less satisfied than their domestic counterparts with advising on academic matters by faculty, peer advisors, and college or departmental staff. In addition, they were less satisfied with faculty channels of communication, fair and equitable treatment by faculty, and faculty feedback on students' work.

When it comes to learning involvement, international students tended to report relatively lower levels of learning involvement than their domestic peers in critical reasoning classroom activity ($t = 6.39$, $p < .001$) and in curricular foundations for reasoning ($t = 7.98$, $p < .001$). International

students reported a lower frequency in the academic requirements of such activities. In other words, compared to their domestic peers, international students seemed to perceive less institutional emphasis on cognitive activities, such as recalling specific facts, terms and concepts, as well as higher-order cognitive activities such as judging the value of information, ideas, actions, and conclusions based on the soundness of sources, methods, and reasoning.

Table 3: Patterns of College Experiences by International Student Status

Factor Scale Items	Percentage/Mean		*t*	χ^2
	Domestic	International		
Satisfaction				
Satisfaction with the quality of instruction and courses in the major	5.04	4.58	6.38*	
Satisfaction with academic advising and communication with faculty	5.10	4.80	4.49*	
Faculty Involvement				
Academic engagement with faculty	2.65	2.63	.93	
Involvement in research projects †	31.6%	31.9%		2.04
Learning Involvement				
Critical reasoning classroom activity	4.90	4.42	6.39*	
Curricular foundation for reasoning	4.95	4.30	7.98*	
Elevated academic effort	4.93	4.96	.91	
Peer Involvement				
Collaborative work	4.80	4.78	1.37	
Participation in clubs/organizations†	58.0%	59.5%		2.92

*$p < .001$
†Items are dichotomous measures
Note: Sample sizes for each subgroup varied depending on the outcome measure. The sample size ranges are as follows: Domestic (29,260 – 26,406); International (676 – 740).

Predictors of College Outcomes

In this study, we were also interested in identifying college experiences that contributed to gains or development in cognitive skills, interpersonal skills, and civic attitudes among international college students. To address this question, we conducted a series of hierarchical multiple

regression analyses. Table 4 summarizes the results of the analyses. The adjusted R^2 for each regression model ranged between .42 and .58. In general, results indicated that most college experiences had positive relationships to at least one of the selected outcomes, while some other college experiences were not statistically related to any of the college outcomes and were not included in the final analyses. In addition, some aspects of faculty involvement and learning involvement positively predicted all three outcome measures while other college experiences had more mixed relationships with the outcome measures.

Satisfaction. There were mixed results with regard to the relationship between college satisfaction and our college outcome measures among international students. The results show that satisfaction with advising and out-of-class contact was not significantly related to any of the select outcomes for international college students. However, satisfaction with the quality of instruction and courses in the major was a positive predictor of cognitive skills ($\beta = .16$, $p < .001$) for this population. This result would seem to indicate the importance of international student satisfaction with the quality of courses in the major (both lower and upper division), faculty instruction, and teaching by graduate student teaching assistants. When international students were satisfied with these aspects of college, they also reported a higher level of cognitive skills development, such as analytical and critical thinking, ability to read and comprehend academic material, and ability to be clear and effective when writing.

Faculty involvement. There were similar mixed results when it came to the effects of faculty involvement on the select college outcomes. Our results indicated that participation in faculty research did not have any statistically significant effect on the select outcomes. However, other forms of academic engagement with faculty (such as talking with faculty outside of class, interacting with faculty during class, and communicating with faculty by email or in person) were shown to positively affect all three select outcomes. Among international college-goers, students who had higher levels of such academic engagement with faculty tended to report higher levels of cognitive skills ($\beta = .11$, $p < .001$), interpersonal skills ($\beta = .16$, $p < .001$), and civic attitudes ($\beta = .08$, $p < .01$) in their junior or senior year, even after taking into account their initial levels in these outcome areas and the confounding effects of other college experiences.

Learning involvement. Learning involvement seems to have the most positive and consistent effects across the select outcome measures. The results revealed that students' engagement in critical reasoning classroom activity was positively associated with all three outcome measures of this

study (β = .09, $p < .01$ for cognitive skills; β = .12, $p < .001$ interpersonal skills; and β = .11, $p < .001$ for civic attitudes).

Table 4: Results of Regression Analyses on College Student Outcomes Among International Students

	Cognitive Skills (n = 560)	Interpersonal Skills (n =790)	Civic Attitudes (n =604)
Pretest			
Pretest Variable	.59***	.54***	.69***
Demographics			
Gender (Male)	.08**		-.06*
Social class[a] (Working/Low-Income)			-.08**
Transfer status (transfer student)	-.10**	-.14***	-.10***
College Experiences			
Satisfaction			
Satisfaction with the quality of instruction and courses in the major	.16***		
Faculty Involvement			
Academic engagement with faculty[†]	.11***	.16***	.08**
Learning Involvement			
Critical reasoning classroom activity[†]	.09**	.12***	.11***
Elevated academic effort[†]	.11**		.06*
Peer Involvement			
Participated in clubs or organizations			.06*
Collaborative work on class projects		.10**	
Adjusted R^2	.54	.42	.58

[a]Reference = Professional Class/Wealthy
*$p < .05$, **$p < .01$, ***$p < .001$

In other words, international students who were more frequently engaged in critical reasoning classroom activities (such as judging the value of information based on the soundness of resources and creating new ideas or new ways of understanding) obtained greater gains in their cognitive skills, interpersonal skills, and civic attitudes over the college years compared to those students who were less engaged in critical reasoning classroom activities. Students' elevated academic effort was also positively associated with their gains in both cognitive skills (β = .11, $p < .01$) and civic attitudes (β = .06, $p < .05$). In other words, international students who demonstrated greater academic effort (e.g., raised their standards for acceptable effort due to the high standards of faculty, and extensively revised papers at least once before submitting for a grade) experienced larger growth in their cognitive skills and civic attitudes during their college years compared to their peers who indicated less academic effort.

Peer involvement. Results show that students' participation in student clubs or organizations was positively related to the growth in civic attitudes for international students ($\beta = .06$, $p < .05$). This result indicates that international students who participated in student clubs or organizations were more likely to adopt meaningful civic attitudes, such as elevated levels of understanding and appreciation of racial and ethnic diversity, cultural and global diversity, and the importance of social responsibility compared to international students who did not participate in clubs or organizations. In addition, working collaboratively with other students on a classroom project had a positive impact on the development of interpersonal skills for international students ($\beta = .10$, $p < .01$).

Although not the main focus of this study, it is also worth mentioning how students' entering characteristics and college experiences were related to each of the outcomes for international students. When it comes to entering student characteristics, it appears that male international students obtained greater gains in cognitive skills ($\beta = .08$, $p < .01$) than their female international peers, while female international students obtained greater gains in civic attitudes compared to their male counterparts ($\beta = -.06$, $p < .05$). In terms of students' socioeconomic status in relationship with college outcomes, working class or low-income international students experienced less gains in civic attitudes ($\beta = -.08$, $p < .01$) compared to professional class or higher-income (wealthy) international students. Transfer status was found to have a negative relationship with all outcome measures, suggesting that transfer students seemed to obtain fewer gains in cognitive, affective, and civic outcomes over the college years compared to their first-time student peers. When it comes to academic majors, our results indicated that there was no statistically significant relationship between any of academic majors and the select college outcomes of this study; hence, the academic major variables block was removed from the final regression equations.

DISCUSSION AND IMPLICATIONS

Set in the context of a research university system in the United States, this study examined the patterns of cognitive, affective, and civic outcomes development among international students as compared to those of their domestic peers and the predictors of these outcomes for international students. Overall, this study found that both international and domestic students experienced significant gains in all three domains of development during their college years. However, international students experienced significantly less gains in interpersonal skills during their college years compared to their domestic peers. International students often insulate themselves from the greater campus community and face problems such as

isolation, loneliness, and lower levels of satisfaction (Al-Sharideh & Goe, 1998). Beyond isolation, language proficiency can also be a factor that hinders international students' greater development in interpersonal skills. International students often face language barrier issues when interacting with their socializing agents on campus, which may cause additional reasons to keep these students from integrating with the greater campus community (Lee, 2010).

Another pattern we found in college outcomes of international students is that this population reported relatively lower mean scores for all of three outcomes, both in their freshman and junior/senior years, compared to their domestic peers. Given this discrepancy, college faculty and administrators should pay particular attention to programs that support learning and development of international students. The multiple regression analysis in this study showed that academic engagement with faculty and high order cognitive activities during class are the key areas that can enrich the international students' experiences and yield better results in all of the three outcomes. Therefore, higher education institutions and their members need to acknowledge the importance of these institutional practices to international students and should provide college environments where these students can fully engage in those practices.

In this study, international students also reported less satisfaction with the quality of instruction and courses in their major and with academic advising and communication with faculty than their domestic peers. Student satisfaction is one of the desirable outcomes of college students because it tends to be significantly related to other meaningful outcomes, such as retention, persistence, and academic engagement (Edens, 2011; Kuh, Kinzie, Buckley, Bridges, & Hayek, 2006; Suhre, Jansen, & Harskamp, 2007; Schreiner & Louis, 2006, 2008). Specifically, researchers have found that satisfaction with advising was the strongest positive predictor of cognitive skills development among international students (Kim, Edens, Iorio, Curtis, & Romero, 2015). Given the importance of student satisfaction as related to other college outcomes and the lower levels of academic satisfaction among international students compared to their domestic peers, higher education academia and professionals need to pay greater attention to international student's psychological well-being, including college satisfaction as they consider how they can best serve this population.

Another key finding of this study is that international students reported relatively lower levels of engagement in higher-order cognitive activities during class, such as critical reasoning/problem-solving, compared to their domestic peers. This finding is consistent with previous research on international students (Kim, et al., 2015). It appears from the findings of this and other studies (Kim, et al., 2015; Lee & Rice, 2007) that international students benefit most from individual academic activities beyond the

classroom environment. On the other hand, while international students reported lower levels of engagement in higher-order cognitive activities as compared to their peers, our results from the regression analyses showed that these activities were significant, positive predictors of all three outcomes (cognitive, affective, and civic outcomes) among international students. These findings point out the need for further studies on why international students might be hindered from engaging in high-order cognitive activities and what types of institutional interventions can facilitate higher levels of engagement in these activities.

Consistent with previous findings, the results of this study also showed that academic engagement with faculty was positively associated with all three select outcomes of the study. Studies have shown that student-faculty interaction is important for a variety of positive college outcomes among college students (Astin, 1993; Cole, 2007, 2008, 2011; Kim & Sax, 2009, 2011, 2014; Pascarella & Terenzini, 2005). Utilizing a statewide college student dataset, this study found that student-faculty interaction is also a significant and positive predictor of select college outcomes for international students. This finding suggests that colleges and universities that serve international students should provide this population with quality experiences that allow frequent and meaningful faculty interactions, both in and out of the classrooms. Similar to their domestic peers, research opportunities, seminars, conferences, and faculty advising can be of particular value for the international student population (Elkins, Forrester, & Noel-Elkins, 2011).

While this study found that academic engagement, such as student-faculty interaction and high-order cognitive engagement during class tended to improve international students' gains in select college outcomes, it is also important to note that increased academic effort has a downside. Findings of this study revealed that elevated academic effort is negatively associated with the development of interpersonal skills among international students. In other words, the findings suggest that as international students work harder, they tend to isolate themselves. Academic achievement is one of main reasons that international students attend colleges and universities in the United States (Lee & Rice, 2007; Mamiseishvili, 2012). Research has identified this achievement-oriented approach to college education sometimes leads to isolation of international students from the campus (Al-Sharideh & Goe, 1998; Kim, et al., 2015; Lee, 2010). Therefore, practices, such as study groups or group projects in the classroom, should be more actively used to support not only the academic growth of the international student, but also their affective and interpersonal development during college. Indeed, findings of this study support the use of collaborative learning activities to develop interpersonal skills among international students. Our regression analysis results showed that collaborative work on

class projects was positively related to interpersonal skills for international students.

LIMITATIONS

This study was limited in several ways. We used a secondary dataset which presented several distinguishable limitations. The dataset we used was not longitudinal; therefore, we could not measure gains or development over an actual time period but could measure a proxy of the gains or development. That is, to gauge the change in our select college outcome measures, we relied on self-reported information about current and retrospective ability levels when they started at the institution (i.e., as freshman). Given that both the current and retrospective ability levels were collected simultaneously, the change or gains in outcomes assessed in this study may not reflect actual change or gains. In addition, the data was collected from one research university system in California and may not be generalizable to other types of institutions or to institutions in other states. Also, while the dataset used in this study provided a broad range of college experiences and student outcomes that were important to traditional college students, more relevant cultural nuances on college experiences and outcomes for international college population may not have been well-captured by the dataset and may have been overlooked. Another limitation concerns transfer status and their gains over time. Because our sample included a significant amount of transfer students, we felt it was important to include them in our study. However, because transfer students usually start at the institution in their junior year, they are less exposed to institutional experiences than non-transfer students. Therefore, transfer students may not report gains or development at comparable levels as native students. Lastly, international students are not a monolithic group. Smaller groups (e.g. country of origin) would yield more culturally responsive results; however, in the absence of that information, an aggregated analysis of all international students yields important, but limited results.

CONCLUSION AND FUTURE RESEARCH

International student recruitment is a high priority at many institutions due to the accompanying financial gains. However, this increase in revenue paired with the asymmetrical experiences that international students report in comparison with their domestic peers raises some questions about inequities in the quality of educational experiences and their associated benefits. An implication of our paper and an important trajectory for future research centers on the role of culture in international student success, as well as the importance of reinvesting revenue from international student

enrollment into programs that facilitate their success. A financial and policy environment that requires revenue from a group of students who do not experience the same benefit as domestic students represents a short-term strategy that will eventually suffer from the recognition of a low quality and expensive education. One strategy to reduce the inequality is to develop a cultural bridge, which connects education with diverse learning experiences (namely, the knowledge brought with students from other countries). Leveraging diverse learning experiences as an important component of the learning environment will potentially acknowledge the value of culture and provide learning gains for all students.

The economic interests of the United States and of higher education institutions remain a primary motivation for attracting international students. However, the results of this study suggest that international students may uniquely experience college and may not benefit from those experiences as much as their domestic peers. Given the propensity of educators to frame negative experiences as issues of personal responsibility for international students, we hope the results of this study will encourage higher education professionals to take notice of the institutional environments and practices that contribute to a more satisfactory and more effective educational experience for international students.

Given the lucrative practice of international student enrollment, additional exploration might protect the educational environment and the overall student experience. In these cases of oversight regarding the educational environment, the students who are not well served are not the only ones who suffer; instead, the entire campus suffers. Altbach and Teichler (2001) highlighted the dangers of international exchange including, "exploitation, either financially or through poor-quality programs...overemphasis on easily marketable products...[,and] neglect of features of learning" (p. 21). International student exploitation is damaging to the educational environment and the purpose of higher education. This study revealed some positive similarities in international and domestic students on two outcomes, but important discrepancies in interpersonal skills and satisfaction. Future studies may focus on how to reproduce the most positive outcomes and dig deeper into discrepancies, even at selective institutions. Attention to the experiences of these students will aid in more than a superficial measure of satisfaction, but will add an overall enhanced learning environment for all students and a prevention of any potential exploitation.

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Appendix A. Variable Definitions and Coding Schemes

Variables	Coding Schemes
Outcome Measures	
Cognitive outcomes scale	Factor (range from 2 to 6)*
Interpersonal skills	Likert scale: 1 = very poor, 6 = excellent
Civic attitudes scale	Factor (range from 2 to 6)*
Pretest Measures	
Freshman cognitive outcomes scale	Factor (range from 1 to 6)*
Freshman interpersonal skills	Likert scale: 1 = very poor, 6 = excellent
Freshman civic attitudes scale	Factor (range from 1 to 6)*
Student Background Characteristics	
Gender	0 = female, 1 = male
Socioeconomic status (Ref: Professional class/wealthy)	
Working class/Low-income	All dichotomous: 0 = no, 1 = yes
Middle-class	
Transfer Status	0 = Native student, 1 = Upper division transfer student
Parental education level	0 = High school diploma or less, 1 = AA degree or more
Language heritage	0 = English not native language, 1 = English native language
Academic Discipline (Ref: Social sciences)	
Engineering and computer sciences	All dichotomous: 0 = no, 1 = yes
Physical and biological sciences	
Arts and humanities	
Professional schools	
College Experiences	

Quality of instruction and courses in the major	Factor (range 0 to 9) †
Satisfaction with advising and out-of-class contact	Factor (range 0 to 10) †
Academic engagement with faculty	Factor (range 1 to 6)
Involved in faculty research projects	0 = no involvement, 1= some involvement
Critical reasoning classroom activity	Factor (range 0 to 9) †
Curricular foundation for reasoning	Factor (range 0 to 8) †
Elevated academic effort	Factor (range 0 to 9) †
Participated in clubs or organizations	0 = no participation, 1 = participation
Collaborative work on class project	Likert scale: 1 = never, 6 = very often

*See Table 1 for information on factor loadings and internal reliability on outcomes/pretest factor scales.

† See Appendix B for information on factor loadings and internal reliability

Appendix B. Factor Loadings and Internal Reliability on Factor Scales

Factor and Survey Items	Factor Loading	Internal Consistency (α)
Satisfaction with the Quality of Instruction and Courses in Major*		.76
How satisfied are you with each of the following aspects of your educational experience in the major? (Likert scale: 1=very dissatisfied, 6=very satisfied)		
Quality of lower-division courses in your major	.64	
Quality of upper-division courses in your major	.74	
Quality of faculty instruction	.73	
Quality of teaching by graduate student TA's	.59	
Satisfaction with Advising and Out-Of-Class Contact		.81
How satisfied are you with each of the following aspects of your educational experience in the major? (Likert scale: 1=very dissatisfied, 6=very satisfied)		
Advising by faculty on academic matters	.78	
Advising by student peer advisors on academic matters	.70	
Advising by school or college staff on academic matters	.78	
Advising by departmental staff on academic matters	.80	
Please answer the following questions about your major (Dichotomous: 1=yes, 2=no):		
Are there open channels of communication between faculty and students?	.59	
Are students treated equitably and fairly by faculty?	.48	
Do faculty provide prompt and useful feedback on students work?	.51	
Academic Engagement with Faculty		.80
How frequently have you engaged in these activities so far this academic year? (Likert scale:		

1=never,6=very often)		
Talked with the instructor outside of class about issues and concepts derived from a course	.84	
Interacted with faculty during lecture class sessions	.80	
Communicated with a faculty member by email or in person	.77	
Worked with a faculty member on an activity other than coursework	.74	
Taken a small research-oriented seminar with faculty	.69	
Critical Reasoning Classroom Activity*		.86
Thinking back on this academic year, how often have you REQUIRED to do the following? (Likert scale: 1=never,6=very often)		
Judge the value of information, ideas, actions and conclusions based on the soundness of sources, methods and reasoning	.74	
Create or generate new ideas, products or ways of understanding	.73	
Thinking back on this academic year, how often have you done each of the following? (Likert scale: 1=never,6=very often)		
Used facts and examples to support your viewpoint	.70	
Incorporated ideas or concepts from different courses when completing assignments	.76	
Examined how others gathered and interpreted data and assessed the soundness of their conclusions	.84	
Reconsidered your own position on a topic after assessing the arguments of others	.80	
Curricular Foundation for Reasoning*		.75
Thinking back on this academic year, how often have you REQUIRED to do the following? (Likert scale: 1=never,6=very often)		
Recognize or recall specific facts, terms and concepts	.81	
Explain methods, ideas, or concepts and use them to solve problems	.86	
Break down material into component parts or arguments into assumptions to see the basis for different outcomes and conclusions	.74	
Elevated Academic Effort*		.52
How frequently during this academic year have you done each of the following? (Likert scale: 1=never,6=very often)		
Raised your standards for acceptable effort due to the high standards of a faculty member	.81	
Extensively revised a paper at least once before submitting it to be graded	.82	

*Factor scale was developed by the Center for Studies in Higher Education, UC Berkeley.

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