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Asian International Students' College Experience: Relationship between Quality of Personal Contact and Gains in Learning

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Abstract

This study examines associations between Asian international students' quality of personal contact and gains in learning. Based on a sample of 705 Asian international students, results indicate that Asian international students' relationships with peers, faculty, and administrative staff are positively associated with five domains of gains of learning (*i.e.*, personal development, science and technology, general education, vocational preparation, and intellectual skills). Academic level, length of stay, and country of origin predicted gains in learning when all independent variables were included in the model. Implications for the positive college experience for Asian students are discussed.

In 2013, the majority of international students at American colleges and universities (64.16 percent of the total 819,644 international students) came from Asia (Institute of International Education [IIE], 2013). In that year, students from the top three sending countries—China, India, and South Korea—accounted for nearly half (49.1 percent) of the total international student population in U.S. higher education (IIE, 2013). Students from China (18.5 percent) constituted the largest subgroup of international students, followed by India (15.2 percent), South Korea (10.4 percent), Taiwan (3.9 percent), and Japan (3.6 percent) (IIE, 2011). At this time, the numbers of international Asian students enrolling in U.S. graduate and undergraduate programs continues to rise. Students from Asia primarily enroll in degree programs at the graduate level (46 percent of the total), with 36 percent enrolling at the undergraduate level (36 percent), and the remaining 18 percent attending non-degree programs (Chow, 2011). In 2009/2010, Asian students' academic levels varied by place of origin and sub-region, with students from South and Central Asia more frequently studying at the graduate level, and students from Southeast Asia studying at the undergraduate level, and students from East Asia studying in equal numbers at both the undergraduate and graduate levels (Chow, 2011; IIE, 2011).

Although international students are an important source of diversity on American college campuses, relatively little is known about their college experiences. Faculty, support staff, and peers are the key contact persons of foreign students while on campus. The quality of college experiences and learning outcomes of international students depends on how they assimilate with local cultures. However, because of cultural and language differences, international students encounter social, cultural, and educational challenges upon entry to the host institutions in America (Bista, 2011; Lee, 2011; Lee & Rice, 2007).

Students' relationships with faculty, staff, and other students can potentially affect student college experiences and outcomes (Pascarella & Terenzini, 2005). Studies with first-year American college students have shown greater academic success as a result of student-faculty interactions (Bowman, 2011; Kuh & Hu, 2001), but there is no study that has examined how Asian and non-Asian students' contact with faculty, staff, and other students impacts their college experiences and educational gains. The purpose of this study is to examine the perceptions of Asian international students' personal relationships (with faculty, administrative personnel, and other students) and their self-reported gains in learning.

Review of the Related Literature

Cultural Differences

Asian students in institutions of American higher education come with many local values, beliefs, and traditions. Like all world travelers, they leave home expecting cultural transparency; that is, they expect the cultures and values of their overseas destinations to be the same as those of their home cultures. Once in the U.S., Asian students face a higher level of adjustment problems than do non-Asian students because of the cultural distance between Asian and American cultures (Eustace, 2007; Paige, 1993). Paige (1993) writes:

It is not cultural similarities which challenge us, but cultural differences. And the greater those difficulties in value orientations, beliefs, attitude, behaviors, patterns of thinking, and communication styles, the more challenging and stressful the intercultural immersion will be. (p.5)

Cultural differences become a barrier for Asian students, who must interpret American beliefs, perceptions, and values in academia. Asian cultural behaviors and stereotypes interfere

with the meanings and expectations of students in the host country (Campbell & Li, 2007; Skinstad, 2002). When Asian students do not find familiar “Asianness” (meaning Asian norms and values) in American communities, they feel challenged by host cultures, especially by an unfamiliar educational system, academic demands, language difficulties, financial pressure, discrimination, homesickness, and loneliness (Montgomery, 2010; Lin & Yi, 1997). Campbell and Li (2008) write about Asian students in this way:

Asian international students live across two cultures.... They live an academic life filled with paradoxes. For example, they [find] independent learning important, but they also [expect] lecturers to “push” them. They [enjoy] interactive teaching approach, but they [are] reluctant to participate and to contribute. They like the pressure-free learning environment, but they [find] it uncomfortable when competition and high pressure [are] apparently lacking. (p. 389)

Asian students come from a hierarchical or authoritarian educational system in which they must confer a high degree of respect on their teachers and in which non-verbal participation is a classroom feature (Bista, 2012; Koyama, 2009). In Asian countries, teachers are in charge of classroom interactions and communications and do not expect their students to participate or interact. As a sign of respect, Asian students never challenge the ideas that are presented by the teacher (Jenkins, 1983).

Classroom Experience

The educational experiences and expectations of Asian students are embedded in the teacher-student relationship. Student attitudes and behaviors are most important in successful learning for Asian students. Koyama (2009) claims that Asian environments place “an emphasis on cultural values such as collectivism, collaboration, harmony, deference for authorities, patience, and modesty” (p. 16). Asian students’ participation depends upon the teacher’s solicitation because students wait for permission from their teachers before speaking (Bista, 2012; Liu, 2001). Students tend to memorize information, take notes and prepare for tests, and apply a “surface approach” to learning (Sakuraia, Parpalaa, Pyhältöä, & Lindblom-Ylännea, 2014), meaning that they receive lecture content from the instructor, commit it to memory, and demonstrate learning by reporting the information back to the teacher. They do not negotiate meaning, challenge concepts, or grapple with information as a means of understanding it more deeply. Asian students may not consider the comments of their classmates significant in the Asian classroom (Nakane, 2005; Tatar, 2005). In contrast, American classrooms are learner-centered, where students take part in debate, discussion and critical thinking, and learning. Koyama (2009) asserts that the U.S. classroom environments value “individualism, competition, equality, informality, pragmatism, personal right, [and] assertiveness” (p. 16). Students are encouraged to learn from their peers as well as from their holistic experiences of everyday life. Students openly ask questions of their teachers and share their views and comments in the classroom.

Research supports the conclusion that learning differences in American and international classrooms have brought problems for international students. Lee (1997) studied the major problems that foreign students encountered in U.S. classrooms because of their inability to relate to course content and difficulty understanding the language. Lee found that international students were shocked when faculty did not begin teaching from chapter one or when there was no sequential progress through the text. Lee (1997) also noticed differences in the writing patterns of international students because of different cultural and academic expectations.

English and Communication Experiences

Asian and non-Asian international students have difficult experiences with lectures and classroom discussions in the U.S. because of their limited knowledge of English and cross cultural communication skills (Bista, 2012). For Asian students in particular, their home classroom culture includes very little or no participation in class discussion and very little verbal interaction with professors. Since Asian culture values ancient knowledge and wisdom—and professors are believed to transmit this wisdom—Asian students are expected to show the utmost respect for teachers, with whom, as a sign of deference, students never make eye contact. Additionally, and quite unlike the direct communications styles used (and expected) in U.S. classrooms, Asian students' styles of communication are indirect; their communicative approaches are contextual, circular, inductive, and limited (Koyama, 2009), meaning that they use context to communicate meaning, employ circular argumentation to make claims, and rely upon—and expecting others to rely upon—inductive reasoning to provide logic and draw conclusions. Asian students mostly begin their conversation with minor points and abstract comments to introduce a main point in their speech and writing (Tatar, 2005; Wang, 2009). Asian students expect their audiences to intuit or infer their unarticulated thoughts and feelings (Kim, 2002). Intended meanings are assumed to be known in Asian conversations. Johnson (1998) wrote that in Asian communication, “quite a bit is left unsaid; there are many shared assumptions, and important points are likely to be made in a very subtle and indirect manner, rather than explicitly stated” (p. 51).

Research indicates that proficiency in the English language is one of the major challenges for Asian students in their academic and non-academic pursuits in the United States (Koyama, 2009, Kuo, 2011; Stevens, Emil, & Yamashita, 2010). The language problems of Asian students are associated with their hesitancy about speaking English, bilingual assimilation, and speaking with an accent (Koyama, 2009). Communication in English conducted with a heavy accent creates discomfort between both speakers and listeners in the U.S. classroom. Asian students have shared uneasy communications and negative experiences in the university and outside because of their accented English (Bista, 2012; Gill, 2009).

Relationships with Faculty and Peers

The student-faculty relationship is one of the predictors of all students' positive college experiences. Studies on American first year college students show that relationships with faculty predicted development of academic competence, high GPA, and positive college experience (Kuh and et al., 2005). However, both formal and informal faculty-student interactions have different effects on international students than they do on American students. Despite these differences, there is no literature particularly on Asian international students' relationships with faculty and their engagement in college activities at colleges in the U.S.

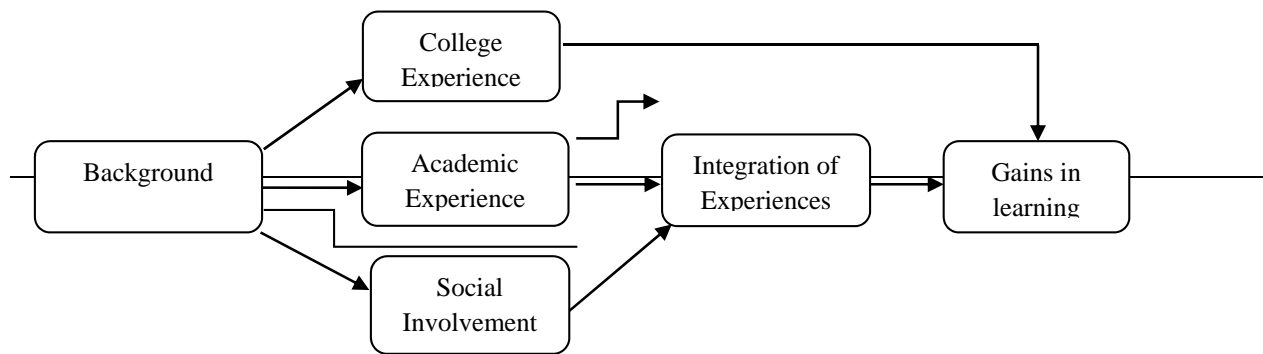
Student interaction with peers can positively influence overall academic development, knowledge acquisition, analytical and problem-solving skills, and self-esteem (Kuh, et al., 2005). According to Astin (1993), peers are “the single most powerful source of influence virtually every aspect of development—cognitive, affective, psychological, and behavioral” (p.398). Among the peer interactions that foster learning, according to Astin (1993) are “discussing course contents with other students, working on group projects for classes, tutoring other students, participating in intramural sports, being selected to a student office” (p. 385). Peer interaction is valued for social integrations when students feel comfortable with other students with similar interests and aspirations.

Overall, the literature supports that Asian students bring diverse socio-cultural backgrounds to the American classroom. Because of cultural differences, Asian students endure both negative and positive experiences, and some such students have a difficult time with social, academic, and psychological adjustments. However, existing literature has not focused on gains in learning or the educational experiences of Asian international students in relationships with faculty, staff, and student peers while attending American colleges and universities.

Conceptual Framework

The conceptual framework of this study came from Pike, Kuh, and Gonyea's (2003) study of college student experiences. College student experiences depend on students' characteristics and the process of change that takes place in the institution of learning. Pike, Kuh, and Gonyea (2003) developed a conceptual model to illustrate the relationships between the college environment, students' academic and social involvement, and educational outcomes (Figure 1).

FIGURE 1. College Student Experience Model



Note. Adopted by permission of Pike, Kuh, & Gonyea (2003)

Research Design

A cross-sectional quantitative method was used for this study, which is the most appropriate method for providing description, interpretation, verification, and evaluation of certain situations, settings, processes, and the problems that exist within the phenomenon (Leedy & Ormrod, 2015). The following research questions guided this study:

1. How are the perceptions of Asian students' relationships with (a) other students, (b) administrators, and (c) faculty associated with their self-reported gains in learning?
2. Are gender, academic level, length of stay, and country of origin contributing factors to their self-reported gains in learning?

Participants

A total of 914 Asian international students participated in this study, and a convenience sample of ($N = 705$) students were included in data analysis (because a few respondents identified as non-Asian and because some outlying responses were removed). The sample was limited to Asian international students enrolled only as full time graduate and undergraduate

students. The rationale for including only Asian students is that they represent the largest international student population in the United States; they bring distinct social and cultural backgrounds to the classroom; and they are the least researched groups in terms of college learning experiences. The researcher did not collect for analysis key institutional characteristics of the participating universities such as control, size, or research emphasis.

The researcher contacted the office of international programs in the following 25 universities in the United States to participate in this study: University of Southern California, University of Illinois-Urbana Champaign, New York University, Purdue University, Columbia University, University of California- Los Angeles, Ohio State University, University of Michigan, Michigan State University, Boston University, University of Florida, University of Texas at Austin, Penn State University, Northeastern University, University of Buffalo, University of Minnesota-Twin Cities, Georgia Institute of Technology, Arizona State University, Texas A& M University, University of Pennsylvania, University of Wisconsin, University of Houston, Cornell University, University of California at Berkeley, and University of Washington.

Many of the participating universities agreed to distribute the survey only one time to a portion of the targeted population of students. The researcher did not verify the total number of Asian students in the selected universities, and it was difficult to calculate the participants' return rate precisely. Asian American students and Asian international students studying in English as a Second Language (ESL) or training programs were excluded. This study also did not include Asian students who were completing their Optional Practical Training (OPT), a post-study period of training during which former students may work in the U.S. The following Asian countries were listed among respondents' home countries and, for the purpose of this study, are grouped as follows: China, Hong Kong, Japan, South Korea, Taiwan, Mongolia (*East Asia*); Bangladesh, India, Nepal, Pakistan, Sri Lanka, Kazakhstan (*South & Central Asia*); Burma, Indonesia, Malaysia, Philippines, Singapore, Thailand, and Vietnam (*Southeast Asia*); these groupings are based on the 2011 IIE classification (Open Doors, 2011).

Instrumentation

The *College Student Experiences Questionnaire*, a national, multi-institutional survey instrument, was used to collect data. This instrument was developed by C. Robert Pace in 1979 and revised and re-published in 1998. For the purpose of this study, three sets of survey items were selected: the college environment (3 sub-items), estimate of gains (25 sub-items), and demographics (4 sub-items). The first set of questions asked students to rate the quality of relationships using a 7-point semantic differential scale in which 1 = *competitive, uninvolved, sense of alienation*, and 7 = *friendly, supportive, sense of belonging*. Asian international student participants responded to three items on their relationships with faculty, administrative staff, and other students. In the second set, Asian students were asked about the extent to which they felt they had made progress in five learning domains (also known as Estimate of Gains). In this section, the responses for gains were coded as follows: 1 = *very much*; 2 = *quite a bit*; 3 = *some*; and 4 = *very little*. The twenty five items on "Gains in Learning" were grouped into five domains of learning based on the CSEQ Manual: Personal Development, Science and Technology, General Education, Vocational Preparation, and Intellectual Skills (Gonyea, Kish, Kuh, Muthiah, & Thomas, 2003). In the final set, there were four demographic items—gender, classification (graduate or undergraduate), country of origin (East Asia, South and Central Asia, Southeast Asia), and length of stay (in months) in the United States. To ensure the reliability and validity of

the study survey, subscales and items of the questionnaire were closely examined. Cronbach's Alpha values were used to provide estimates of reliability. Table 1 presents the scale, number of items, number of students, and results of internal consistency assessment on relationships with faculty, staff and student, and Gains in Learning (based on 705 Asian students) as well as Cronbach's Alpha on national CSEQ sub-scale. The Cronbach's Alpha of the selected scale was higher than the Alpha in the national CSEQ sub-scale except in the gains in personal development (alpha = .79).

Table 1

Scale, Number of Items, Number of Students, and Cronbach's Alpha Values on the Selected Items of the CSEQ

Scale	Number of Items	Number of Students	Cronbach's Alpha (based on 705 students)	Cronbach's Alpha in <i>Manual</i>
Personal Relationships (PERSERL)	3	705	.81	.71
Gains in Personal Development (PERSDEV)	5	705	.79	.83
Gains in Science and Technology (SCITECH)	4	705	.88	.87
Gains in General Education (GENED)	5	705	.86	.81
Gains in Vocational Preparation (VOCPREP)	3	705	.86	.76
Gains in Intellectual Skills (INTELSK)	7	705	.86	.81

Note. Cronbach's alpha was calculated based on 705 Asian students in this study. Five cognitive domains of gains of learning were adopted from the *Norms Book of CSEQ*, Indiana University (1998, p. 20).

Data Collection

After the approval of the Institutional Research Board (IRB), data were collected from the selected universities from April 15 through May 15 of 2012. The survey questionnaire was distributed online through Survey Monkey, an online data collection resource. The questionnaire was purchased from Indiana University at Bloomington. The directors/coordinators of the international programs were asked to distribute the survey link in the selected 25 universities. Participants at two universities out of the total twenty-five received one reminder from the researcher via listserv. Participants in other universities did not receive the survey reminder, as most of the participating universities agreed to distribute the survey only one time to a portion of the targeted population of students. Seven hundred and five responses ($N = 705$) out of 914 were included for the final data analysis. Only samples that contained complete responses to all survey items were considered. Excluded from analysis were surveys that were filled out by international students with non-Asian origins as well as surveys with outlying responses (i.e., unusual data that did not fit the study), as identified by Statistical Package for Social Sciences (SPSS). There were four demographic items included for the purpose of this study—gender, classification, country of origin, and length of stay in the United States.

Results

Of the sample of 705 Asian international student participants, more female students ($n = 363$, 51.5%) participated in the survey than male students ($n = 342$, 48.5%). The sample consisted of slightly more undergraduate students ($n = 365$, 51.8%) than graduate students ($n =$

340, 48.2%). The average length of stay of Asian student participants was 36 months. A total of 215 (30.5%) students reported that they had been in the United States for fewer than 12 months, with 152 (21.6%) students having been in the U.S. from one to two years, 113 (16%) students from two to three years, and 225 (31.9 %) students more than three years (Table 2). There were twenty-one Asian countries represented in the study and classified into the following three regions for the purpose of data analysis (Table 3).

Table 2*Demographic Characteristics of the Study Participants (N = 705)*

Variable		<i>n</i>	%
Gender	Male	342	48.5
	Female	363	51.5
Classification	Undergraduate	365	51.8
	Graduate	340	48.2
Length of Stay	1-12 months (≤ 1 year)	215	30.5
	13-24 months (≥ 2 years)	152	21.6
	25-36 months (≥ 3 years)	113	16
	More than 37 months (> 3 years)	225	31.9

Table 3*Participants' Country of Origin in Asia*

Region	Countries	<i>n</i>	%
1. East Asia	China (241), Hong Kong (14), Japan (14), South Korea (85), Taiwan (34), Mongolia (2)	390	55%
2. South & Central Asia	India (173), Nepal (9), Pakistan (10), Bangladesh (14), Sri Lanka (2), Kazakhstan (11)	219	31%
3. Southeast Asia	Indonesia (14), Malaysia (35), Philippines (8), Singapore (9), Thailand (18), Vietnam (9), Cambodia (2), Burma (1)	96	14%
Total	21 countries	<i>N</i> = 705	100

Note. Country of region was categorized based on *Open Doors* Classification, 2011

When Asian international students were asked about their “relationships with other students,” the ranking for their answers ranged from 7 (*competitive, uninvolved, and a sense of alienation*) to 1 (*friendly, supportive, and a sense of belonging*). Of the total 705 students, 16.2% ($M = 2.91$, $n = 114$) rated their relationship with other students as friendly, supportive, and including a sense of belonging. The questions on “relationship with staff and administrators” ranged from 7 (*rigid, impersonal, and bound by regulations*) to 1 (*helpful, considerate, and flexible*). Of the total 705 students, 23.5% ($M = 2.60$, $n = 166$) indicated that staff and administrators on campus were “helpful, considerate, and flexible.” The response to “relationship with faculty members” ranged from 7 (*remote, discouraging, and unsympathetic*) to 1 (*approachable, helpful, understanding, and encouraging*). Of 705 students surveyed, 16.2% ($M = 2.47$, $n = 164$) responded the faculty were “approachable, helpful, understanding, and encouraging.” Table 4 shows that the sample mean was above midpoint for the first three categories: the Relationship Scale with other students ($M = 2.91$), with administrative staff ($M = 2.60$), and with faculty ($M = 2.47$), while four out of five domains of the Gains in Learning were slightly above average midpoints, except for the category of gains in personal development ($M = 1.84$). Standard distributions in both scales (relationships and gains in learning) fell within the normal distribution.

Table 4
Mean and Standard Deviation of the Selected Dependent Variables (DVs)

<i>Categories</i>	<i>M</i>	<i>SD</i>	<i>N</i>
Relationship with Other Students ^a	2.91	1.38	705
Relationship with Admin Staff ^a	2.60	1.41	705
Relationship with Faculty ^a	2.47	1.26	705
GN in Personal Development ^b	1.84	.57	705
GN in Science and Technology ^b	2.12	.79	705
GN in General Education ^b	2.26	.72	705
GN in Vocational Preparation ^b	2.03	.74	705
GN in Intellectual Skills ^b	2.00	.61	705

Note. GN = Gains of Learning. There are five gains of learning domains as defined in the CSEQ Norms. ^a In this scale, 1 = *Friendly, Supportive, Sense of Belonging* 7 = *Competitive, Uninvolved, Sense of Alienation*. ^b This was a 4-item Likert Scale 1 = *Very Much* 4 = *Very Little*.

Relationships with Peers, Administrators, and Faculty

Asian international students indicated their positive agreements with survey items related to relationships with peers and gains in learning. The results of Pearson correlation indicate that there is a positive correlation between gains in learning and the relationships of Asian students with their peers, $r = .424, p < .01$. This means that Asian students who had relatively better relationships with peers were very likely to have a higher level of gain in learning. Using Cohen's (1998) guidelines, the effect size is medium. The r^2 indicated that approximately 18% of the variance in gains in learning can be predicted from Asian students' relationships with their peers—although this is not a causal comparative study. There were small positive correlations among Asian international students' relationships with other students and gains in learning across the five domains: personal development, $r = .404, p < .01$; science and technology, $r = .257, p < .01$; general education, $r = .297, p < .01$; vocational preparation, $r = .333, p < .01$; and intellectual skills, $r = .369, p < .01$ (Table 4). It was found that Asian international students' self-reported gains in learning were associated with their perceptions of their relationships with their peers.

The correlation between classification and gains in general education was statistically significant, $r(703) = .205, p < .01$. The nature of the relationship was that having a higher score on classification (*i.e.*, being undergraduate) was associated with a lower score on gains in general education (see Table 5). To describe the relationship between gains in general education and classification (a dichotomous variable, 1 = undergraduate, 2 = graduate), an independent samples t test was computed (Warner, 2013). The difference in mean gains in general education for undergraduate ($M_1 = 2.12$) and graduate ($M_2 = 2.42$) was statistically significant, $t(703) = -5.56, p < .001$. The mean gains in general education for undergraduate was about .29 points lower than the mean gains for graduate students.

There was a positive correlation between gains in learning and relationships of Asian students with administrative staff, $r = .362, p < .01$ (two-tailed). This means that Asian students who had relatively better relationships with staff were very likely to have higher levels of gain in learning. Using Cohen's (1998) guidelines, the effect size is small. The r^2 indicates that approximately 13.10% of the variance in gains in learning can be predicted from Asian students' relationships with staff—although this is not a causal comparative study. Table 5 shows Asian international students' relationships with administrative staff within five domains of gains in learning, which were small but positive: with personal development ($r = .299, p < .01$), with

science and technology ($r = .266, p < .01$); with general education ($r = .245, p < .01$), with vocational preparation ($r = .282, p < .01$), and with intellectual skills ($r = .311, p < .01$).

Similarly, there was a positive correlation between gains in learning and relationships of Asian students with faculty, $r = .364, p < .01$ (two-tailed). In other words, Asian students who had relatively better relationships with faculty were also very likely to have higher levels of gain in learning. Using Cohen's (1998) guidelines, the effect size is small. The r^2 indicates that approximately 13.25% of the variance in gains in learning can be predicted from Asian students' relationships with their staff—although this is not a causal comparative study. Table 5 presents correlations between Asian students' relationships between faculty members and gains in all the five domains: personal development ($r = .335, p < .01$), science and technology ($r = .247, p < .01$), general education ($r = .251, p < .01$), vocational education ($r = .283, p < .01$), and intellectual skills ($r = .301, p < .01$). As a result, the null hypothesis that there is no relationship between Asian students' perceptions of their relationships with faculty members and self-reported gain in learning is rejected.

Table 5

Correlations of Perceived Relationships with Peers, Staff, Faculty, Classification and Five Gains in Learning (N = 705)

	Gains	Peers	Staff	Faculty	Academic Level
1.	Gains in Personal Development	.404*	.299*	.335*	.043
2.	Gains in Science & Technology	.257*	.266*	.247*	.005
3.	Gains in General Education	.297*	.246*	.251*	.205*
4.	Gains in Vocational Preparation	.333*	.286*	.283*	.049
5.	Gains in Intellectual Skills	.369*	.311*	.283*	.035

Note. Gains in Learning (Likert Scale 1 = *very much* to 4 = *very little*), Academic Level (Undergraduate = 1, Graduate = 2) * Correlation is significant at the 0.01 level (2-tailed).

Predicting Self-Reported “Gain in Learning”

The combination of variables such as gender, academic level (coded 1 = undergraduate, 2 = graduate), length of stay (months), and country of origin (dummy-coded) were used to predict gains in learning. Data screening met the requirements of regression analysis. The results indicate that the overall regression equation was significantly predictive of gains in learning, $R^2 = .034, R^2_{adj} = .027, F(5, 699) = 4.95, p < .001$. This indicated that 2.7% of variance in gains in learning was explained by gender, academic level, length of stay, and country of origin. Note that classification, length of stay, and country of origin predicted gains in learning when all variables were included in the model.

When controlling for the effect of gender, length of stay, and country of origin, the magnitude of academic level difference in gains learning was 0.51 units. That is, all other variables being constant, undergraduate students' gains in learning were about 0.51 units lower than graduate students' gains on a scale of 1 to 4. This difference is statistically significant: $t(699) = 2.37, p = .018$. When other variables were controlled, students who had been living in the United States for 2 or more years had higher gains in learning than students who had lived in the US for one year or less. Also, gains in learning for East Asian students were statistically lower than gains for South-Central Asian and Southeast Asian students when other variables were controlled.

Table 6

Regression Analysis Summary for Gender, Classification, Length of Stay and Country of Origin Predicting Gains in Learning (N = 705)

Variable	<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>P</i>
Gender	.37	.21	.07	1.79	.074
Academic Level	.51	.22	.09	2.37	.018*
Length of Stay (month)	-.01	.004	-.09	-2.35	.019*
D1 East Asia	.76	.30	.14	2.51	.012*
D2 South & Central Asia	.16	.34	.03	.45	.651

Note. $R^2 = 0.034$, $F(5, 699) = 4.95$, $p < .001$, $N = 705$, GN = Gains in learning, B = Unstandardized Regression Coefficient, β = Standardized Regression Coefficient, * $p < .05$.

In the following section, the researcher examines each of the five domains of gains in learning separately.

Gains in Personal Development. The results of regression analysis indicate that the overall regression equation was significantly predictive of gains in personal development, $R^2 = .032$, $R^2_{adj} = .025$, $F(5, 699) = 4.56$, $p < .001$. This indicates that 2.5% of variance in personal development was explained by gender, academic level, length of stay, and country of origin. According to Cohen (1998), this is a small effect. Note that academic level, length of stay, and East Asian (yes = 1, no = 0) predicted gains in personal development when all variables were included.

When controlling for the effect of gender, length of stay, and country of origin, the magnitude of academic level difference in gains in personal development was 0.11 units. That is, all other variables being constant, undergraduate students' gains in personal development were about 0.11 units lower than graduate students' gains. This difference is statistically significant: $t(699) = 2.26$, $p = .024$. For each one month increase in stay in the US, Asian students' gains in personal development were approximately 0.04 units higher. This slope for the prediction of gains from length of stay in the US is statistically significant: $t(699) = -2.05$, $p = .041$. In other words, students who had been living in the United States for two or more years experienced higher gains in personal development than students who had lived in the US for one year or less. Gains in personal development for East Asian students were 0.15 units higher than non-East Asian students when other variables were controlled. In other words, mean scores in gains of East Asian students ($M = 1.92$) were lower than mean scores of South and Central Asian students ($M = 1.77$), and Southeast Asian students ($M = 1.76$) in a Likert scale of 1 (*very much*) to 4 (*very little*). This difference is statistically significant: $t(699) = 2.28$, $p = .023$. A summary of regression model and the beta coefficients are presented in Table 7.

Table 7

Regression Analysis Summary for Gender, Classification, Length of Stay and Country of Origin Predicting Gains in Personal Development (N = 705)

Variable	B	SE B	β	t	P
Gender	-.06	.04	-.05	-1.31	.191
Academic Level	.11	.04	.09	2.26	.024*
Length of Stay	-.04	.02	-.08	-2.05	.041*
D1 East Asia	.15	.07	.13	2.28	.023*
D2 South & Central Asia	-.06	.07	-.05	-.75	.45

Note. $R^2 = 0.032$, $F(5, 699) = 4.56$, $p < .001$, $N = 705$, $B =$ Unstandardized Regression Coefficient, $\beta =$ Standardized Regression Coefficient, * $p < .05$.

Gains in Science and Technology. Regression results indicate that the overall regression equation was significantly predictive of gains in science and technology; $R^2 = .063$, $R^2_{adj} = .059$, $F(5, 699) = 9.37$, $p < .001$. The adjusted R^2 value indicates that 5.9% of variance in science and technology was explained by the model. Note that gender and length of stay significantly predicted gains in science and technology when all variables were included. The magnitude of gender difference in science and technology was 0.31 units when controlling for the effects of classification, length of stay, and country of origin. That is, gains in science and technology for male students were 0.31 units higher than gains for female students. This difference is statistically significant: $t(699) = 5.15$, $p = .000$.

For each one-year increase in stay in the US, Asian students' gains in science and technology were approximately 0.003 units higher. This slope for the prediction of gains from length of stay in the US is statistically significant: $t(699) = -2.45$, $p = .015$. In other words, students who had been living in the United States for 24 months or more had higher gains in science and technology than students who had lived in the US for 12 months or less. A summary of regression model and the beta coefficients are presented in Table 8.

Table 8

Regression Analysis Summary for Gender, Classification, Length of Stay and Country of Origin Predicting Gains in Science and Technology (N = 705)

Variable	B	SE B	β	t	P
Gender	.31	.06	.20	5.15	.000**
Academic Level	.08	.06	.05	1.32	.189
Length of Stay	-.003	.001	.09	-2.45	.015*
D1 East Asia	.15	.08	.09	1.67	.095
D2 South & Central Asia	-.004	.10	-.002	-.04	.97

Note. $R^2 = 0.063$, $F(5, 699) = 9.37$, $p < .001$, $N = 705$, $B =$ Unstandardized Regression Coefficient, $\beta =$ Standardized Regression Coefficient, * $p < .05$, ** $p < .001$

Gains in General Education. Regression results indicate that the overall regression equation was significantly predictive of gains in general education, while the effect size was small, $R^2 = .052$, $R^2_{adj} = .045$, $F(5, 699) = 7.69$, $p < .001$. This model accounted for 4.5% of variance in general education by gender, academic level, length of stay and country of origin. Note that academic level (undergraduate = 1, graduate = 2) and East Asian (yes = 1, no = 0) predicted gains in general education when all variables were included. The magnitude of academic level (undergraduate vs. graduate) difference in gains in general education was about 0.28 units when controlling for the effect of gender, length of stay, and country of origin. In

other words, undergraduate students' gains in general education were about 0.28 units higher than gains of graduate students. This difference is statistically significant: $t(699) = 4.73, p = .000$. Gains in general education for East Asian students were 0.17 units higher than non-East Asian students when all other variables were controlled, and this difference is statistically significant: $t(699) = 2.12, p = .035$. A summary of coefficients is presented in Table 9.

Table 9

Regression Analysis Summary for Gender, Classification, Length of Stay and Country of Origin Predicting Gains in General Education (N = 705)

Variable	B	SE B	β	t	P
Gender	-.09	.06	-.06	-1.56	.120
Academic Level	.28	.06	.19	4.73	.000**
Length of Stay	.00	.001	-.02	-.65	.52
D1 East Asia	.17	.08	.12	2.12	.04*
D2 South & Central Asia	.16	.09	.10	1.67	.096

Note. $R^2 = 0.052, F(5, 699) = 7.69, p < .001, N = 705, B =$ Unstandardized Regression Coefficient, $\beta =$ Standardized Regression Coefficient, * $p < .05, ** p < .001$

Gains in Vocational Preparation. The results of regression analysis indicates that the overall regression equation was partially predictive of gains in vocational preparation, $R^2 = .021, R^2_{adj} = .014, F(5, 699) = 3.032, p = .010$. This model accounts for 1.4% of variance in vocational preparation. Note that gender (male vs. female) and country of origin partially predicted gains in vocational preparation when all variables were included in the equation. That means, male Asian students' gains in career preparation were about 0.14 units higher than female Asian students' gains. This difference is statistically significant: $t(699) = 2.32, p = .021$. Gains in career preparation (a Likert scale of 1 = *very much* to 4 = *very little*) for East Asian students were 0.18 units lower than gains of South and Central Asia and Southeast Asian students. This difference is statistically significant: $t(699) = 2.08, p = .038$. A summary of regression model and the beta coefficients are presented in Table 10.

Table 10

Regression Analysis Summary for Gender, Classification, Length of Stay and Country of Origin Predicting Gains in Vocational Preparation (N = 705)

Variable	B	SE B	β	t	P
Gender	.14	.06	.09	2.32	.021*
Academic Level	-.05	.06	-.03	-.83	.409
Length of Stay	.001	.001	-.04	-.118	.24
D1 East Asia	.18	.09	.12	2.08	.038*
D2 South & Central Asia	.10	.10	.06	.99	.322

Note. $R^2 = 0.021, F(5, 699) = 7.69, p < .05, B =$ Unstandardized Regression Coefficient, $\beta =$ Standardized Regression Coefficient, * $p < .05$

Gains in Intellectual Skills. The results of regression indicate that the overall regression equation was partially predictive of gains in intellectual skills, $R^2 = .030, R^2_{adj} = .023, F(5, 699) = 4.367, p = .001$. This model accounted for 2.3% of variance in intellectual skills. When all variables included in the equation, length of stay in the US (in months) predicted gains of Asian students in intellectual skills. The slope for the prediction of gains in intellectual skills from length of stay in the US is statistically significant: $t(699) = -2.84, p = .005$. Asian students who

lived in the US for 24 months or more reported a higher level of gains in intellectual skills (at least .10 points more on a scale of 1 = *very much* to 4 = *very little*) compared to students who lived for 12 months or less.

Table 11

Regression Analysis Summary for Gender, Classification, Length of Stay and Country of Origin Predicting Gains in Intellectual Skills (N = 705)

Variable	B	SE B	β	t	P
Gender	.07	.05	.05	1.36	.173
Academic Level	.10	.05	.08	1.94	.053
Length of Stay	-.003	.001	-.11	-2.84	.005*
D1 East Asia	.11	.07	.09	1.57	.117
D2 South & Central Asia	-.04	.08	-.03	-.52	.602

Note. $R^2 = 0.030$, $F(5, 699) = 4.37$, $p < .05$, B = Unstandardized Regression Coefficient, β = Standardized Regression Coefficient, * $p < .05$

Discussion and Recommendations

Results from the present study provide new information in relation to Asian students' perceived quality of personal contact and self-reported gains in learning. This study shows that there are moderate positive associations between Asian international students' personal contact (with peers, administrative staff, and faculty) and self-reported gains in learning. In other words, Asian students' relationships with peers are related to their gains in science and technology (understanding and applying the nature of science and experiments, etc.), in general education (understanding and appreciating literature, art, music, and drama; and gaining knowledge about people from other parts of the world, etc.), in vocational education (acquiring knowledge and skills applicable to a job; gaining information relevant to a career, etc.), and in intellectual skills (writing clearly and effectively; presenting ideas and information effectively when speaking to others; thinking analytically and logically, etc.). However, because of the small positive correlations, Asian international students' overall quality of relationships with peers is not as strong as those of non-Asian students or their American counterparts (Pike, Kuh, & Gonyea, 2003). Taken together, it may be concluded that the quality of relationships with peers is an important contributor to having an overall positive college experience as well as gains in learning. Peer interaction is valued for social integration when students feel comfortable and connected with students with similar interests and aspirations. These results also suggest a more culturally inclusive, balanced, and sensitive approach to the existing literature. Past studies have referred to Asian practices and norms as "barriers to success," "peculiar," "ancient," "circular," or as possessing a particular "Asianness" (Campbell & Li, 2007; Montgomery, 2010), and the results of this study debunk such oversimplified and misguided beliefs.

The quality of relationships with administrative personnel and offices can help students focus on their academic and non-academic activities. Previous studies have suggested that quality campus support services are essential in assisting international students in orientation, adjustment, housing, and other campus activities (Andrade, 2006; Ikwuagu, 2010; Korobova & Starobin, 2015). However, there is no prior existing literature concerning the quality of relationships of Asian students and gains in learning. The current study may suggest that administrative staff members in the offices of international programs, resident life, student organizations, college departments, career centers, and student health centers are important

contact persons for both Asian and non-Asian international students. The quality of relationships of Asian international students with administrators is valued for smooth college transition, improved initial adjustment, increased proficiency in language development, and meaningful interactions with campus life. The positive correlation between students' academic levels and their gains in general education indicate that having a higher score on classification (*i.e.*, being undergraduate) is associated with a lower score on gains in general education. These findings support the findings of past studies in which student-faculty relationships were correlated positively with academic development, personal and intellectual development, and critical thinking (Pascarella & Terenzini, 2005), as there are no existing precise studies in the context of gains in learning of Asian international students in the U.S.

The demographic variables (e.g. gender, academic level, length of stay, and country of origin) of Asian students partially suggest some information. For instance, East Asian students had lower gains in learning compared to the gains experienced by Southeast Asian students or students from South and Central Asia. Undergraduate students also reported lower gains in learning than graduate students. Asian students who had lived in the US for one year or less reported lower gains in learning than did students who had lived in the US for two or more years.

There were a number of limitations in this study. First, the analysis of this study relied on self-identified Asian students at 25 research universities. Thus, findings should be interpreted with a degree of caution, and generalizability may be limited. Second, a limitation of this study emerged from the process of attempting to determine the quality of relationships of Asian international students with their peers, staff, and faculty using the 2004 *College Student Experience Questionnaire*. Student participants may not have understood "relationship" items due to their social, cultural, or educational backgrounds. There are different terminologies and explanations used in the past studies for the three items of the "relationships" (terms such as "sense of belonging," "student engagement," and "college environment"). These terms may convey different meanings for members of different cultures. Finally, the current study used only a set of selected items from the original CSEQ questionnaire, and the selected variables (relationships and gains in learning) may not be clearly defined for Asian international student participants.

Several recommendations for future research are suggested. First, a comparative study between Asian and non-Asian international students or between international students and American students studying at public and private, four-year, and two-year institutions would be beneficial. Second, a longitudinal study of Asian or all international students is suggested to examine how students' college experiences change over time. This will allow the researcher to understand changes within students from the beginning to the end of their studies in the United States. Finally, a different research instrument is recommended other than the *College Student Experience Questionnaire* and the *National Survey of Student Engagement* if the researcher wants to measure international students or any minority students' experience or gains in learning. There is a need for an instrument which measures diverse international students' social, cultural and educational activities while they are in the United States. Such an instrument should take into consideration the different cultural and ethnic variations within the international student communities.

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