



Spirituality and Religiosity Among International College Students in the United States: The Benefits and Predictors

Jung Woo Lih
World Mission University, USA
Young K. Kim
Azusa Pacific University, USA
Cameron A. Conn
Baptist Health Sciences University, USA

ABSTRACT

This study examines how the spiritual and religious experiences of international students affect their college outcomes. Prior research has shown the significant influence of spirituality and religiosity on local students' college experiences. However, there is a notable gap in research regarding the spiritual and religious experiences of international students. Findings indicate both growth and decline in spiritual and religious qualities among international students during their college years. Moreover, certain spiritual and religious engagements are found to contribute significantly to cognitive, affective, and civic outcomes among this student population. Additionally, involvement in community service and peer interactions are identified as influential factors in the spiritual and religious development of international students.

Keywords: College experiences, College outcomes, International students, Religiosity, Spirituality

INTRODUCTION/BACKGROUND

American higher education is now being challenged to be more conscious of students' holistic development, including nurturing the spiritual identities of students, faculty, and staff (Astin & Lindholm, 2011; Mayhew et al., 2016). To encourage students to consider their education in a more holistic way, higher education professionals have strived to nurture the balance of college students' internal and external growth by assessing students' emotional maturity, sense of self, and relationships with others as well as their academic performance. Similarly, higher education academia has examined the role of meaning, purpose, and spirituality among college students as they cope with their anxiety, stress, and depression regarding their careers, social justice, and racial issues (Astin et al., 2011a, 2011b; Bowman & Small, 2012; Mayhew et al., 2016; Park, 2013). Studies on spirituality and religiosity generally suggest that college students who actively engaged in spiritual or religious activity tended to report greater psychological well-being and better cognitive and attitudinal outcomes (Astin et al., 2011a; Jonason & Krause et al., 2013; Mollitor, Hancock, & Pepper, 2015).

While the literature has well established the positive connection between spirituality/religiosity and various outcomes for general college student population, little is known about how international college students develop their spirituality and religiosity in the U.S. higher education institutions, and how it may uniquely shape their college outcomes. To address this research gap, this study attempts to expand our understanding of the role of spirituality and religiosity on international students' learning, by examining how international college students' spirituality and religiosity affect their cognitive, affective, and/or civic outcomes and what college environments and experiences facilitate higher level of spirituality and religiosity among this population. Specifically, this study seeks to answer the following three research questions: (1) To what extent do the levels of spirituality and religiosity among international undergraduate students at U.S. universities and colleges change over the college years? (2) Do spirituality and religiosity affect cognitive, affective, and/or civic outcomes among international college students? (3) If so, what college environments and experiences are associated with a higher level of spirituality and religiosity among this population?

LITERATURE REVIEW

International Students in American Higher Education.

The term 'international student' refers to "an individual from another country who is in the United States temporarily on a student visa, and who is

registered at an accredited institution of higher education” (Bevis & Lucas, 2007, p. 11). The formerly used term ‘foreign students,’ has been replaced by ‘international students’ because the term ‘foreign students’ was viewed to imply negative meanings such as ‘underdeveloped country’ and ‘illegal alien’ (Bevis & Lucas, 2007; Clark, 2009). For this reason, the term, ‘international student’ has been universally used and widely accepted in colleges and universities.

International students in the 21st century have made economic and societal influences on American higher education (Altbach & Knight, 2006; Petrisko, 2014). According to the 2019 Open Doors’ annual report, the number of international students enrolled in U.S. universities and colleges in the 2018/19 school year was over 1 million (1.08 million); international students studying at U.S. universities, over the past decade, have contributed significantly to the operation of U.S. universities, by bringing in about \$39 billion in national economic effects (Open Doors, 2017). The presence of international students also positively affects the U.S. campuses, nurturing a more diverse and culturally enriched educational environment (Zhao, Kuh, & Carini, 2005; Younger, 2018). For example, local American students took advantage of the opportunity to “increase their cultural sensitivities and skills in working with various people” from different racial and ethnic backgrounds (Zhao et al., 2005, p. 210). Furthermore, international students are important human resources of American higher education to build global networks (Open Doors, 2019). However, research show that American universities and colleges have not provided international students with appropriate support systems that commensurate with their economic and social benefits (Bang & Montgomery, 2013; Hyun, Quinn, Madon, & Lustig, 2007; Lee & Rice, 2007).

Spirituality and Religiosity of College Students

American higher education has become increasingly interested in research on how spiritual and religious experiences uniquely impact college outcomes (Astin et al., 2011a). As an important study of spirituality and religiosity, a national study of students’ spiritual development, initiated at UCLA’s Higher Education Research Institute in 2003, found that a large majority of contemporary students were actively engaged in a spiritual quest (Lindholm et al., 2011). The national study at UCLA found that many incoming undergraduate students expressed high expectations for their spiritual development by means of intentional sacred meditation. For example, two-thirds of freshmen indicated that it was either very important or essential for college to help develop their personal values and to enhance self-

understanding (Astin et al., 2011a). In addition, more than eight in ten participants reported that finding their purpose in life was at least a somewhat important reason for attending college (Astin et al., 2011a; Lindholm et al., 2011). Thus, Astin et al. (2011a & b) indicated that students' spiritual lives and religious practices in American higher education should be included as essential college experiences to improve their self-awareness, equanimity, empathy, and concern for others.

Findings from an international study of spirituality and higher education (English & Mayo, 2012) also supported the notion that many students came to college today seeking spaces where their contributions and self-worth mattered beyond salaries, GPAs, or prestigious future careers. Specifically, Lindholm et al. (2011) showed that providing students with more opportunities to connect with their "inner selves" would facilitate growth in their academic and leadership skills, contribute to their intellectual self-confidence and psychological well-being, and enhance their satisfaction with their college experience. Additionally, Astin and Lindholm (2011b) indicated that college students' academic and spiritual connections led to distinct benefits through their college experiences, including student-faculty interactions, peer interactions, and diversity experiences. While spiritual and religious qualities of college students were recently recognized and studied by American higher education scholars, research on development and support for international students' spirituality is still challenging to find.

College Experience and Outcomes of International Students

The literature has addressed the impact of students' college experience on a broad range of college outcomes, including moral and ethical outcomes, psychological and physical well-being, satisfaction, and academic achievement (Astin et al., 2011; Kim et al., 2017; Rennick et al., 2013). For example, Kim and Sax (2009) observed that student-faculty interactions were positively related to college students' outcomes, including college GPA, degree aspiration, integration, critical thinking and communication, cultural appreciation and social awareness, and satisfaction their college experience. However, Perry (2016) examined that among international students, Asian students seemed to struggle most with language issues "as many had difficulty in understanding lectures from American professors," which then ultimately affected their cognitive processes and GPA (p. 715). In general, English language proficiency played a crucial role for international students in academic areas, including active learning experiences (Wang et al., 2018), participating in personal or group projects (Li et al., 2010; Martirosyan et al.,

2015), and conducting problem-solving activities (Johnstone et al., 2002; Zhang & Mi, 2010).

Furthermore, some research, including Trice and Yoo (2007), Bista and Foster (2011), and Moore and Popadiuk (2011), examined international students' participation in educational activities, including diverse ethnic/racial students as unique experiences that related to college outcomes. Astin (2011a), Schreiner (2013), and Derrico et al. (2015) found that college students' psychological sense of community while participating in volunteer work positively impacted their cross-cultural competencies and increased social adaptability. They also described civic experiences—participating in community services, interacting with diverse cultures, and peer interaction—as essential college experiences of international students. During college, these civic experiences have been found to positively affect international students' spiritual and religious development as well as academic and social skills/abilities (Astin et al., 2011a; Coulson & Harvey, 2013; Hatcher & Studer, 2015). Moreover, cross/inter-cultural ability helped college students have a better understanding of themselves in relationships with others and the world. Additionally, cross/inter-cultural ability enhanced college students' global competency, including attitude, relational skills, communication, and humility (Taylor, 2013; Taylor et al., 2013). These various items related to global competency also positively influenced their retention and graduation rate, typical markers of student success over the years (Kuh, 2008; Zhou, 2010).

RESEARCH METHOD

Data Source and Sample

This study used the secondary dataset of the College Students' Beliefs and Values (CSBV) survey. The CSBV survey was completed by 236 institutions in the fall of 2004 involving first-year students with a two-page addendum to the four-page freshman survey administered annually by the Cooperative Institutional Research Program (CIRP) of the Higher Education Research Institute (HERI) at the University of California at Los Angeles (UCLA) (Sax et al., 2004). The third and final administration of the CSBV involved a longitudinal follow-up of students from 136 of the 236 institutions that had participated in the 2004 freshman survey (Astin et al., 2011).

The CSBV dataset included a total of 14,527 students who participated in the 2004 and 2007 surveys administered by the HERI at UCLA (Astin et al., 2011). The CSBV data were collected from thirteen different types of institutions based on terms of control (public or private), religious affiliation (nonsectarian, Roman Catholic, Evangelical, or other religious

affiliation), and selectivity (very high, high, medium or low SAT composite score).

Among 14,527 students who participated in the 2004 and 2007 CSBV surveys, only 216 data samples reflected undergraduate international students studying at U.S. universities and colleges. Participants in this study included international students who had completed their junior years of college before the fall of 2007. Of the international students observed, 186 students (86.1%) held a native language other than English, and 30 students (13.9%) spoke English as their first language. Table 1 provides a detailed description of the sample demographics of international students.

Table 1
Demographic Characteristics (N = 216)

Characteristic		n (216)	% (100)
Gender			
	Female	100	46.4
	Male	116	53.6
Ethnic/Race			
	Asian	99	45.8
	Non-Asian	117	54.2
	Black/African	16	7.4
	Mexican/Latino	33	15.3
	White/Caucasian	38	17.6
	Others	30	13.9
Religious Preference		<i>(1 missing)</i>	
	Christian	116	53.9
	Protestant	79	36.7
	Roman Catholic	37	17.2
	Non-Christian	99	46.1
	Mormon	25	11.6
	Islamic	14	6.5
	Buddhist	10	4.7
	Jewish	7	3.3
	Hindu	5	2.3
	Other	9	4.2
	None	29	13.5

High School Grade		(5 missing)	
	A or A+	61	28.3
	A-	68	31.5
	B+	49	22.6
	Mostly B	22	10.3
	B-	7	3.2
	Others	4	2.5
Majors			
	STEM	131	60.7
	Social Science	49	22.8
	Biological Science	43	20.0
	Engineering	20	9.3
	Physical Science	19	8.8
	Non-STEM	85	39.3
	Business	34	15.8
	Professional	15	7.0
	Arts and Humanities	13	6.0
	Education	12	5.6
	Technical	6	2.8
	Others	9	4.2
Institutional Control			
	Public	116	53.7
	Private	100	46.3

Variables

This study's dataset contained six constructs measuring spiritual and religious qualities, cognitive, affective, and civic college student outcomes operationalized into six dependent variables, and various student characteristics and college experience variables used as independent variables for the analyses. All variables and principal component factor analysis (PCA) are presented in Table 2.

Table 2
Variable Definitions and Coding Schemes

Variables	Coding Schemes
Outcome Measures	CSBV Construct
Cognitive Outcomes	
<i>GPA</i>	8-point scale: 1 = D, to 8 = A or A+
<i>Intellectual Self-esteem</i>	5-point scale: 1 = lowest 10%, 2 = below average, 3 = average, 4 = above average, 5 = highest 10%
Academic ability	
Intellectual self-confidence	
Drive to achieve	

Affective Outcomes*Psychological Sense of Community*

Sense of community on campus
Interaction with other students

4-point scale: 1 = very dissatisfied, 2 = somewhat dissatisfied, 3 = somewhat satisfied, 4 = very satisfied

Satisfaction with College Experience

Relevance of coursework to everyday life
Career counseling and advising
Amount of contact with faculty
Overall college experience

4-point scale: 1 = very dissatisfied, 2 = somewhat dissatisfied, 3 = somewhat satisfied, 4 = very satisfied

Civic Outcomes*Social Ability*

Cooperativeness
(Social) Self-confidence
Understanding of others
Interpersonal skills

5-point scale: 1 = lowest 10%, 2 = below average, 3 = average, 4 = above average, 5 = highest 10%

Global (Diversity) Ability

Understanding of social problem facing our nation
Understanding of different culture and global issues
Ability to get along with people of different races/cultures
Acceptance of different religious/spiritual beliefs

5-point scale, 1 = much weaker, 2 = weaker, 3 = no change, 4 = stronger, 5 = much stronger

Input Measures**Student (Demographic) Characteristics***Gender*

Male & Female (2)

Dichotomous: 1 = male, 2 = female

Race/Ethnicity

Asian & Non-Asian (2)

All dichotomous: 1 = Asian, 2 = non-Asian

Current Religious Preference

Christian & Non-Christian (2)

All dichotomous: 1 = Christian, 2 = non-Christian

High School GPA

8 scale: 1 = D, to 8 = A or A+

Academic Major

STEM & Non-STEM (2)

All dichotomous: 1 = STEM, 2 = non-STEM

Institutional Features*Institutional Selectivity*

Mean score of M+V SAT (includes ACT)

Institutional Control

Public & Private (2)

All dichotomous: 1 = public, 2 = private

College Experiences	
<i>Student-Faculty Interaction</i>	3-point scale: 1 = "Not at all" to 3 = "Frequently"
Assisted you in your career decisions	
Encouraged you to pursue post-graduate study	
Enhanced your self-understanding	
Taken an interest in your personal welfare	
<i>Active Learning (Course Experiences)</i>	3-point scale, 1 = rare, 2 = Some, 3 = Most
Portfolios	
Reflective writing/journaling	
Student evaluations of each other's work	
Student evaluations of their own work	
Student-selected topics for course content	
<i>Diversity Experiences</i>	3-point scale, "Not at all" to "Frequently"
Socialized with someone of another racial/ethnic group	
<i>Community Service Experiences</i>	3-point scale, "Not at all" to "Frequently"
Community service as part of coursework	
Performed community service	
<i>Peer Interaction</i>	8-point scale: 1 = none, to 8 = over 20 hours/per week
Student clubs/groups	

Spiritual/Religious College Experiences

(Spiritual Qualities)

<i>Spiritual Quest</i>	
Searching for meaning/purpose in life	3-point scale: 1 = "Not at all" to 3 = "To a great extent"
Having discussions about the meaning of life with my friends	
Are searching for meaning/purpose in life	
Finding answers to the mysteries of life	4-point scale: 1 = "None" to 4 = "All"
Attaining inner harmony	4-point scale: 1 = "Not important" to 4 = "Essential"
Attaining wisdom	
Seeking beauty in my life	
Developing a meaningful philosophy of life	
Becoming a more loving person	
<i>Equanimity</i>	
Been able to find meaning in times of hardship	3-point scale: 1 = "Not at all" to 3 = "Frequently"
Felt at peace/centered	
Feeling good about the direction in which my life is headed	3-point scale: 1 = "Not at all" to 3 = "To a great extent"
Being thankful for all that has happened to me	
Seeing each day, good or bad, as a gift	

Ecumenical Worldview

Having an interest in different religious traditions	4-point scale: 1 = "Not important" to 4 = "Essential"
Believing in the goodness of all people	
Feeling a strong connection to all humanity	
Understanding of others	3-point scale: 1 = "Not at all" to 3 = "To a great extent"
Accepting others as they are	
Improving my understanding of other countries and cultures	5-point scale: 1 = "Lowest 10%" to 5 = "Highest 10%"
Improving the human condition	3-point scale: 1 = "Not at all" to 3 = "To a great extent"
All life is interconnected	
Love is at the root of all the great religions	4-point scale: 1 = "Not important" to 4 = "Essential"
Non-religious people can lead lives that are just as moral as those of religious believers	
We are all spiritual beings	4-point scale: 1 = "Disagree strongly" to 4 = "Agree strongly"
Most people can grow spiritually without being religious	

(Religious Qualities)

Religious Engagement

Attended a religious service	3-point scale: 1 = "Not at all" to 3 = "Frequently"
Attended a class, workshop, or retreat on matters related to religion/spirituality	
Reading sacred texts	
Religious singing/chanting	
Other reading on religion/spirituality	
Prayer	2-point scale: 1 = "No" or 2 = "Yes"
Do you pray?	8-point scale: "None" to "Over 20" hours
Prayer/meditation	4-point scale: 1 = "None" to 4 = "All"
Go to church/temple/other house of worship	

Religious Commitment

Seeking to follow religious teachings in <u>my</u> everyday life	4-point scale: 1 = "Not important" to 4 = "Essential"
Religiousness	5-point scale: 1 = "Lowest 10%" to 5 = "Highest 10%"
I find religion to be personally helpful	
I gain spiritual strength by trusting in a Higher Power	4-point scale: 1 = "Disagree strongly" to 4 = "Agree strongly"
Feeling a sense of connection with God/ (Higher Power) that transcends my personal self	
Felt loved by God	3-point scale: 1 = "Not at all" to 3 = "To a great extent"
	3-point scale: 1 = "Not at all" to 3 = "Frequently"
Are one of the most important things in <u>my</u> life	4-point scale: 1 = "Disagree strongly" to 4 = "Agree strongly"
Provide me with strength, support, and guidance	

Give meaning/purpose to my life	4-point scale: 1 = "Disagree strongly" to 4 = "Agree strongly"
Lie behind my whole approach to life	
Have helped me develop my identity	
Help define the goals I set for myself	
<i>Religious Struggles</i>	
Feeling unsettled about spiritual and religious matters	3-point scale: 1 = "Not at all" to 3 = "To a great extent"
Feeling disillusioned with my religious upbringing	
Struggled to understand evil, suffering, and death	3-point scale: 1 = "Not at all" to 3 = "Frequently"
Felt angry with God	
Questioned [my] religious/spiritual beliefs	
Felt distant from God	
Disagreed with [my] family about religious matters	

Spiritual and religious variables. Students' spiritual and religious qualities were measured by three spiritual variables (spiritual quest, equanimity, and global citizenship) and three religious variables (religious engagement, religious commitment, and religious struggles) in this study. For the first research question, changes in these six spiritual and religious constructs from the first year of college to the end of the junior year of college were measured. Then these six variables were used as the independent variables of interest in the second research question of the study. Lastly, the items of spirituality and religiosity were used as dependent variables to answer the third research question, and control variables (students' characteristics, institutional features, and students' college experiences) that have been proven to affect college outcomes through previous research were used as independent variables (Astin et al., 2011a; Lindholm et al., 2011).

College outcome variables. The college outcomes examined in this study were tested as six separate regressions. The college student outcome measures were grouped by using the following CSBV variables: (1) two cognitive outcomes (i.e., students' overall grade point average [GPA] and intellectual self-esteem); (2) two affective outcomes (i.e., psychological sense of community and satisfaction with college experiences); and (3) two civic outcomes (i.e., social (global) ability and (cross-) cultural ability).

Control variables. To answer research question two and determine whether spirituality and religiosity affect college outcomes, control variables were grouped into three blocks by the order in which they occur: (a) student

characteristics, (b) institutional characteristics, and (c) non-spiritual and religious college experiences, followed by the independent variables of interest- spiritual and religious qualities. The first block consisted of student characteristics, including gender, race/ethnicity, high school GPA, current religious preference, and academic majors. The second consisted of institutional features including institutional selectivity and institutional control (public and private). The third block consisted of non-spiritual and religious engaged college experiences and activities since entering college. These college experiences covered the following activities: student-faculty interaction, active learning (course) experiences, diversity experiences, community service experiences, and peer interaction.

To answer research question three and determine what college environments and experience may be associated with higher levels of spirituality and religiosity among international students, three blocks of independent variables were employed. The three blocks of independent variables for research question three mirrored the first three blocks for research question two: student characteristics, institutional features, and college experiences.

Analysis

This study employed three phases of data analysis of international students' spirituality and religiosity: principal component factor analyses (PCAs), paired-sample *t*-tests, and hierarchical multiple regression analyses. First, PCAs were performed to reduce the number of variables to support conceptually-grounded factors for five of the college outcomes variables (intellectual self-esteem, psychological sense of community, satisfaction with college, social ability, and global/diversity ability) and three college experience variables (student-faculty interactions, course teaching methods, and community service experiences). The values of Cronbach's Alpha are reported in Table 3.

Secondly, paired-sample *t*-tests were conducted to compare how international students responded to the six spiritual and religious CSBV constructs during their first year in college and the end of their junior year. *T*-tests were used to identify any significant development or decline during the college years among this population. Third, a series of hierarchical multiple regression analyses were conducted, including student characteristics and college experiences, to determine the predictors of college outcomes in relation to the spirituality and religiosity of international students. If the regression analyses identified significant effects of spiritual and religious qualities on college outcomes of international students, additional hierarchical

multiple regression analyses were performed to determine significant predictors of those spiritual and religious qualities.

Table 3:
Composite Measures with Factor Loadings and Reliabilities for Variables

Composite and Constituent Variables	Factor Loadings Reliabilities	Internal Consistency (<i>alpha</i>)
Outcome Variables		
<i>Intellectual Self-esteem</i>		
Intellectual self-confidence	.88	.78 (n =214)
Drive to achieve	.83	
Academic ability	.79	
<i>Psychological Sense of Community</i>		
Sense of community on campus	.90	.77 (n =214)
Interaction with other students	.90	
<i>Satisfaction with College Experience</i>		
Overall college experience	.80	.76 (n =214)
Relevance of coursework to everyday life	.78	
Career counseling and advising	.75	
Amount of contact with faculty	.71	
<i>Social Ability</i>		
Interpersonal skills	.82	.78 (n =211)
Cooperativeness	.79	
(Social) Self-confidence	.78	
Understanding of others	.73	
<i>Global (Diversity) Ability</i>		
Understanding of different culture and global issues	.80	.77 (n =213)
Understanding of social problems facing our nation	.80	
Acceptance of different religious/spiritual beliefs	.75	
Ability to get along with people of different races/cultures	.71	
College Experiences Variables		
<i>Student-Faculty Interaction</i>		
Assisted you in your career decisions	.85	.84 (n =213)
Encouraged you to pursue post-graduate study	.85	
Enhanced your self-understanding	.75	
Taken an interest in your personal welfare	.69	
<i>Active Learning Engagement</i>		
Student evaluations of each other's work	.79	.83 (n =214)
Student evaluations of their own work	.77	
Student-selected topics for course content	.73	
Reflective writing/journaling	.73	
Portfolios	.67	
<i>Community Service Experiences</i>		
Community service as part of coursework	.93	.83 (n =210)
Performed community service	.93	

Composite and Constituent Variables	Factor Loadings Reliabilities	Internal Consistency (<i>Alpha in 2007</i>)
Spiritual & Religious Qualities ^a		
<i>Spiritual Quest</i>	9 items	.82 (<i>n</i> =214)
<i>Equanimity</i>	5 items	.72 (<i>n</i> =214)
<i>Ecumenical Worldview</i>	12 items	.70 (<i>n</i> =214)
<i>Religious Engagement</i>	9 items	.88 (<i>n</i> =214)
<i>Religious Commitment</i>	7 items	.97 (<i>n</i> =214)
<i>Religious Struggles</i>	7 items	.77 (<i>n</i> =214)

^a Factor loadings of Spiritual & Religious Qualities from CSBV in 2007, developed by the HERI at UCLA.

RESULTS

Changes in Spirituality and Religiosity

The results of the paired-sample *t*-tests revealed significant longitudinal changes in most spiritual and religious qualities among the international student population ($p < .001$), excluding two variables, namely religious engagement and religious commitment.

Table 4: Change in Spiritual & Religious Qualities among International College Students

Variables	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
<i>Spiritual Qualities</i>						
Spiritual Quest	190			5.19	189	.000***
2007		24.95	4.18			
2004		23.24	4.65			
Equanimity	178			3.50	177	.001***
2007		12.30	1.91			
2004		11.70	2.47			
Ecumenical Worldview	190			5.31	189	.000***
2007		34.88	3.78			
2004		33.07	4.74			
<i>Religious Qualities</i>						
Religious Engagement	196			-.742	195	.459
2007		22.98	8.93			
2004		23.29	9.08			
Religious Commitment	179			-1.08	178	.284
2007		34.57	9.79			
2004		35.05	9.11			
Religious Struggles	173			3.61	172	.000***
2007		11.60	2.88			
2004		10.84	2.50			

$N = 216$ / *** $p < .001$ ($|t| \geq 3.30$)

Specifically, all spiritual qualities of international students showed a statistically significant increase in the mean levels of spiritual quest ($\Delta M =$

1.71, $p < .001$), equanimity ($\Delta M = .60$, $p \leq .001$), and ecumenical worldviews ($\Delta M = 1.81$, $\Delta SD = .68$). International students' ecumenical worldview was the largest increase in comparison to the other spiritual variables. Among the religious variables, international students reported a small but statistically significant increase in religious struggle between the freshman year ($M = 10.84$) and the junior year ($M = 11.60$), with $t(172) = 3.61$, $p < .001$. Table 4 provides the results of the paired-sample t -tests.

Spiritual and Religious Predictors of College Outcomes

Six hierarchical multiple regression models represented approximately 5% to 37% of the variance for international students' college outcomes (adjusted $R^2 = .05$ to $.37$). The percentage of variance attributed to international student characteristics, institutional features, and college experiences variables constituted 11% to 24% (adjusted $R^2 = .11$ to $.24$) of their college outcomes. Thus, spiritual and religious variables added an average of 12% to the explanation of international students' college outcomes. Similar to previous studies (Astin et al., 2011; Reymann et al., 2015; Walker & Dixon, 2002), this present study found growth in international student spirituality during the college years. However, unlike the previous studies that found a positive correlation between spirituality and GPA, this study did not find that spiritual and/or religious qualities made any significant contribution to GPA. While not concerned with student ethnicity or national status, the aforementioned studies demonstrated both positive (Reymann et al., 2015) and negative (Astin et al., 2011) relationships between religious engagements and GPA. Table 5 presented the results of the hierarchical multiple regression models for the aggregate analysis.

Predictors of College Outcomes

First, international students' characteristic variables are associated with their college outcomes. For example, positive correlations between non-Asian international students and their college—cognitive, affective, and civic—outcomes were found in the results of the regression analyses. Similar to the racial/ethnic regression analysis result, non-Christian religious groups among international students were also positively related to their psychological sense of community and social ability. An unusual finding was that none of the international students' characteristics and college experiences were significantly related to the cognitive outcome of GPA. Their demographic characteristics, the institutional characteristic of selectivity, and experiences with active learning did, however, significantly affect students' reported levels of intellectual self-esteem.

Second, the college experiences of international students were mixed (positive and negative) predictors of their college outcomes. Among the college experiences, student-faculty interaction had a significant positive impact on the psychological sense of community and satisfaction with college. Peer interaction also contributed to their affective outcomes and global/diversity ability. However, international students' active learning engagement had negative relationships with their intellectual self-esteem and social ability. Interestingly, community service experiences and international students' interactions with diverse individuals had no significant relationship with their college outcomes. Table 5 presents the results of the hierarchical multiple regression models for the six college outcomes.

Table 5:
International Students' College Outcomes

Independent Variables	Cognitive Outcomes		Affective Outcomes		Civic Outcomes	
	GPA	<i>Intellectual Self-esteem</i>	<i>Psychological Sense of Community</i>	<i>Satisfaction with College Experience</i>	<i>Social Ability</i>	<i>Global (Diversity) Ability</i>
Student Characteristics						
Gender: Female (2)	-.020	-.119	-.039	.138*	-.193**	.048
Race/Ethnicity: Non-Asian (2)	.016	.248***)	.170*	.241***)	.167*	-.010
High School GPA	.138	.160*	.016	.027	.063	-.107
Religious Prefer: Non-Christian (2)	-.141	.138	.275***)	.075	.168*	.108
Academic Majors: Non-STEM (2)	-.154	-.263***	.039	-.203**	-.048	-.098
Institutional Features						
Institutional Selectivity	.072	.173*	.088	.078	.088	-.045
Institutional Control: Private (2)	-.031	-.122	.020	.034	-.144	-.172*
College Experiences						
<i>Student-Faculty Interaction</i>	-.019	.165	.319***	.201*	.103	.000
<i>Active Learning Engagement</i>	-.114	-.367***	-.046	.078	-.199*	.275**
<i>Community Service Experiences</i>	-.120	-.134	-.125	-.088	.032	.029
Diversity	.079	.103	-.116	-.032	.102	.050
Peer Interaction	-.031	-.034	.140*	.146(*)	-.088	.152*
Spiritual & Religious Qualities						
Spiritual Quest	-.092	.179*	-.197*	-.195*	.215**	-.084
Equanimity	-.030	.189*	.383***	.281***)	.389***	.170*
Ecumenical Worldview	.071	.092	-.088	-.054	.116	.192*
Religious Engagement	.039	.037	-.208	-.085	.057	-.262
Religious Commitment	-.077	-.125	.376**	.119	-.084	.272
Religious Struggles	-.026	-.016	-.034	-.057	.021	.200**
R²	.139	.364	.433	.359	.387	.339
Adjusted R²	.050	.298	.373	.292	.323	.271

Note: Variables in italics are factors, which are presented in Table 3 and Appendix A. Standardized coefficients are reported. N = 191; *p < .05, ** p < .01, *** p < .001

Predictors of Spirituality and Religiosity

An additional six hierarchical multiple regression models employed to detect predictors of spiritual and religious outcomes among international students identified 8% to 31% of the variance in these type of outcomes among international students in the sample. All students' characteristic

variables, except the STEM major variable, affected their spiritual and religious qualities. For example, female and Asian international students had higher levels of their religious engagement and religious commitment compared to males and non-Asian ethnic students. Additionally, international students with a Christian religious preference had a higher level of religious engagement, commitment, and struggle than others having a non-Christian religious preference including Mormon, Islam, Buddhism, Judaism, and Hinduism. Similarly, international students with a Christian religious preference ($\beta = -.185, p < .05$) had a higher level of spiritual quest than the other students with a non-Christian religious preference.

Table 6
Spiritual and Religious Outcomes among International College Students

Independent Variables	Spirituality			Religiosity			
	Spiritual Quest	Equanimity	Ecumenical Worldview	Religious Engagement	Religious Commitment	Religious Struggles	
Student Characteristics							
Gender: Female (2)	.10	.04	-.00	.14*	.14*	.02	
Race/Ethnicity: Non-Asian (2)	-.05	.02	-.00	-.15*	-.16*	-.06	
High School GPA	.01	-.04	.05	-.18**	-.06	-.03	
Religious Prefer: Non-Christian (2)	-.19*	-.11	-.03	-.20**	-.36***	-.25**	
Academic Majors: Non-STEM (2)	.04	.10	-.00	-.05	-.05	.06	
Institutional Features							
Institutional Selectivity	-.19*	.06	-.16	-.23**	-.27(****)	-.06	
Institutional Control: Private (2)	.17*	-.04	.15	.08	.03	.14	
College Experiences							
<i>Student-Faculty Interaction</i>	.07	.17*	-.03	.06	-.08	-.23(**)	
<i>Active Learning Engagement</i>	.12	.08	.05	-.19*	.05	.02**	
<i>Community Service Experiences</i>	.16	.23**	.11	.35***	.26(****)	.03	
Diversity	.08	.20(**)	.14	.06	.06	.17*	
Peer Interaction	.05	.15*	.16*	.29***	.25***	.00	
	R²	.22	.23	.14	.35	.32	.14
	Adjusted R²	.17	.18	.08	.31	.27	.09

Note: Variables in italics are factors, which are presented in Table 3 and Appendix A. Standardized coefficients are reported. N = 191; *p < .05, ** p < .01, *** p < .001

In examining the second block of independent variables, the institutional selectivity of international students was found to negatively affect their spiritual and religious qualities, including religious engagement, religious commitment, and spiritual quest. However, attending a private college had a positive effect on the spiritual quest of international students because most of the private schools included in the CSBV survey were established based on faith-based institutions, and properly provided students' spiritual and religious activities. Finally, most college experiences of

international students in the third block were found to have significant predictive power in their spiritual and religious qualities. Most college experiences (student-faculty interaction, community service experiences, experiences with diverse individuals, and peer interaction) positively affected the equanimity. Moreover, international students' experiences with diverse individuals and peer interaction experiences positively contributed to their ecumenical worldview, religious engagement, and religious commitment. Their active learning and diverse experiences also increased the level of religious struggles. However, more student-faculty interactions reduced the level of international students' religious struggles. Table 6 presents the results of the six hierarchical multiple regression analyses for the six outcomes (spiritual quest, equanimity, ecumenical worldview, religious engagement, religious commitment, and religious struggles).

DISCUSSION AND CONCLUSIONS

Changes in Spirituality and Religiosity of International Students

The current study found that international students' spirituality and religiosity changed during their college years. The spiritual quest, equanimity, ecumenical worldviews, and religious struggles of international students increased between freshman and the end of junior years. However, their religious engagement and religious commitment decreased during the college years. Among spiritual qualities, the level of the ecumenical worldview of international students changed the most in this study. According to the comprehensive study of changes in the spirituality of college students conducted by Astin et al.'s (2011b), an increase in "ecumenical worldview" suggests that students are experiencing growth in their sense of connectedness and their acceptance of individuals from other countries and cultures. Like the ecumenical worldview, international students' average level of 'spiritual quest' also increased more than the non-international students during the college years. However, unlike the two spiritual qualities - ecumenical worldview and spiritual quest - their equanimity produced relatively lower mean scores compared to domestic students. This finding implies that international students are less likely to develop a sense of equanimity, which relates to activities of finding peace, a state of grace, or imperturbability during times of hardship. Moreover, international students' anxieties about the stressors attending college internationally and adjusting to a new culture, which are significantly associated with decreasing their equanimity, cause difficulties in increasing their psychological health and well-being (Philip et al., 2019).

The current study also revealed that international students' mean level of "religious commitment" and "religious engagement" declined during their college years. International students often face severe distress or even depression by adjusting to language barriers, different academic systems, homesickness, cultural conflicts, and social isolation (Hirai et al., 2015; Smith & Khawajar, 2011). Johnson et al. (2018) also reported that cultural differences related to religious conflicts of international students hindered their religious commitment. Astin et al. (2011b) examined several reasons for this decline in college students' religious engagement. First, they indicated that many college students moved away from home for college education, thus being separated from direct parental influence on attending religious services. Second, they also stated that the pressures of exams, studies, and assignments of studies were a reason for the decline in college students' religious engagement.

However, unlike international students' religious engagement and commitment declines, this study revealed that international students' mean-level of religious struggles increased during the college years. Bryant and Astin (2008) reported that college students' emotional and mental confusion were strongly connected to their religious struggle during the college years. Particularly, their religious struggles were associated with negative psychological well-being, lower self-esteem, and loneliness (Astin et al., 2011b; Bryant & Astin, 2008). In contrast, some studies found that college students' religious struggle experiences promoted their maturation, including patience, compassion, and tolerance to others/diversity (Astin et al., 2011b; Bryant & Astin, 2008; Carter, 2016). Overall, the findings indicate that international students experienced spiritual and religious transformation during their time as undergraduate students. However, discussions regarding the reason for college students' spiritual and religious changes include some speculation because empirical works on international students' spirituality and religiosity are still limited.

Spiritual and Religious Effects on College Outcomes of International Students

The findings of the current study are generally consistent with previous research regarding college students' spiritual effects on their cognitive learning, psychological well-being, and social and global life (Rodrigues et al., 2019; Tolliver & Tisdell, 2006). Specifically, this study suggested that international students' sense of equanimity was significantly connected to emotional and relational capacities, including satisfaction with college, psychological sense of community, and social and global/diverse

ability. Additionally, the findings revealed that international students' equanimity affected their intellectual self-esteem. This holistic insight regarding the effects of international students' equanimity on college outcomes was generally reflected by the studies of Astin and Keen (2006), Astin et al. (2011a, 2011b), and Astin and Lindholm (2011), which showed that college students' spirituality was an influential contributor to and/or predictor of college outcomes.

This study also revealed that international students' spiritual quest affected their holistic identity in terms of both an internal sense of self and interrelationships. Some American higher education scholars agreed that the spiritual quest engaged students within their internal development, such as values and beliefs, emotional maturity, and moral development (Palmer & Zajonc, 2010; Schreiner, 2013; Vance, 2016). Specifically, this study found that international students' spiritual quest positively contributed to their intellectual self-esteem and social ability. However, this study identified that significant but negative relationships exist between international students' spiritual quest and their affective outcomes (the psychological sense of community and satisfaction with college experiences).

Second, this study found some common psychosocial effects of international students' religious qualities. Specifically, it demonstrated that international students' religious commitment and religious struggles significantly affect, respectively, their psychological sense of community and global/diverse ability. The findings of international students' religious effects on their college outcomes can be described as a long-term process that impacts their psychosocial changes and/or development, just as Brown (1972) and Chickering (1981) found that college students' psychosocial changes or progress had emerged as a long-term college effect. For example, this study demonstrated that international students' religious commitment enhanced their psychological sense of community (PSC), defined as psychological and sociological belongingness to the campus community (e.g., sense of belonging by Sapdy [1971], involvement by Hurtado & Carter [1997], and institutional fit by Bean [1990] in higher education research). Additionally, this study demonstrated that international students' religious struggles contributed to a greater openness to their social and global (diversity) abilities, which are associated with interpersonal relationships and intrapersonal internal feelings (Baxter Magolda, 2008). Recently, Ardel (2020) also found that international students who had reported having engaged in more religious commitments and religious struggles fostered higher psychosocial growth than others who had been less involved in these religious experiences. Thus,

the current research suggested that international students' religious commitment and struggles affected their psychosocial changes.

Predictors of Spirituality and Religiosity of International Students

This study also revealed some predictors of spiritual and religious qualities among international students. Specifically, it revealed that international students' spiritual and religious qualities were closely associated with their college experiences more than their input characteristics (i.e., gender, race, pre-college characteristics, and institutional features). International students' demographic characteristics and college experiences both positively and negatively related to their spiritual and/or religious qualities. For example, the high school GPA of international students is negatively associated with their religious engagement. Regarding international student characteristic predictors, Asian female international students were more likely to have higher levels of religious engagement and religious commitment.

College experiences and institutional features affected religious engagement and commitment more so than religious struggle and the spiritual outcome constructs. Regarding the predictors of institutional features (i.e., institutional selectivity and public/private institutions), attending private colleges and universities contributed to increased spiritual quest among international students. Similar to the results of Astin and colleagues' (2011b) research, this current study indicated that private colleges, specifically religious schools (i.e., Catholic, Protestant, and evangelical schools), were positively associated with the spiritual quest. Institutional selectivity was found to be a negative contributor to spiritual quest, and religious engagement and commitment.

Similar to previous studies (Astin et al., 2011a; Einarson & Clarkberg, 2010; Mayhew et al., 2016), this study found that international students' faculty interaction positively impacts their equanimity, psychological sense of community, and satisfaction with college. Among academic experiences of international students, this study showed that active learning engagement positively contributed to their religious struggles, however negatively related to their religious engagement. This study also revealed that international students' civic experiences, including community service experience, experiences with diverse individuals, and peer interaction, were positively associated with both their spiritual (equanimity and ecumenical worldview) and religious (religious engagement, religious commitment, and religious struggle) outcomes. Specifically, six predictors—Christian religious preference, selectivity, student-faculty interaction (SFI),

community service experiences, experiences with diverse individuals, and peer interaction—affected both spirituality and religiosity of international students. These associations were generally consistent with the existing literature on spiritual and religious research (Astin et al., 2011a, 2011b; Lindholm, 2013).

IMPLICATIONS

The current study's findings have both theoretical and practical implications for higher education researchers and practitioners. First, this study expanded theoretical implications to Astin's studies (2011a, 2011b), emphasizing the importance of spirituality and religiosity for college students' holistic development. Also, Maslow's (1943) and Chickering et al.'s (2006) student development theories may be extended to a holistic development theory by adding the spiritual and religious influential predictors of cognitive, affective, and civic outcomes. The findings provide empirical evidence supporting the importance of college students' spiritual and religious engagement as a part of student involvement and development theories in higher education. Thus, this study's results can encourage higher education scholars to include spiritual and religious engagement as an important contributor to international students' cognitive, affective, and civic development during college.

This study's practical implications include a rationale for why higher education practitioners must assist international college students with developing personal beliefs and internal commitments (Chickering & Reisser, 1993; Fidler et al., 2009; Ma, 2003; Parks, 2000). Educators seeking solutions to practically overcome the challenges international students face should recognize that international students' spirituality and religiosity play an essential role in their intellectual, emotional, and social quality of life (Astin et al., 2011a). Students need proper resources and support to develop their own beliefs and methods to face and overcome unique challenges during college. Specifically, the study proved that international students' spiritual and religious activities, including prayer, meditations, spiritual conversations, or other self-reflective exercises, helped them develop their internal maturity and college outcomes. Thus, institutions should place importance on spiritual and religious development in their students' lives, which will in turn positively affect cognitive, affective, and civic outcomes as well (Astin et al., 2011a; Bryant & Astin, 2008; Carter, 2016; Wortman, 2013).

LIMITATIONS

The present study has several limitations, which can be addressed in future research. The first limitation is uncertainty as to whether CSBV survey questions used in this study are appropriate for international students with Asian, Middle Eastern, and African spiritual/religious worldviews. The measures of spirituality and religiosity on the CSBV were developed in the Western Christian context, so it is unknown as to whether international students with Eastern religions such as Buddhism and Hinduism clearly understood the Western (i.e., Christian) spiritual and religious scales used in this study. Consequently, it should be recognized that the concepts of spirituality and religiosity the CSBV used in this study may be less clear to international students than to students who are native to Western cultures, which could produce misleading data.

Second, the small sample size creates a limitation on the reliability of the research results. Specifically, 216 international students from the total longitudinal matching data from 2004 (the beginning of freshman year) to 2007 (the end of junior year) were selected to conduct hierarchical multiple regression analysis in this study. Although this study can inform educators about patterns of international students' spiritual and religious qualities, it is essential to note the presence of any limitations and threats to validity when considering the generalizability of this study's findings. Furthermore, due to the small sample size (216 total international students), this current study was conducted by grouping all international students together, combining, for example, Asian students with other international students. Consequently, this study has a limitation in that international students are classified as one or at most two homogeneous groups. Thus, it should be recognized that this study may produce misleading results because of this grouping of various international students from diverse religious and cultural backgrounds.

Third, the CSBV data used for analysis in this study were drawn from self-reported surveys rather than objective measures of the observed levels of spiritual and religious growth or frequency of student-faculty interaction, active learning engagement, for example. As previous researchers using the CSBV dataset have also reported this limitation of self-reported data to their studies (Carter, 2016), this study likewise used international students' subjective opinion of how they experience peaceful feelings in times of hardship, trusting in a higher power/God, and feeling about spiritual and religious belief. Thus, although the CSBV instrument is documented to have strong levels of reliability and validity (Lindholm, 2013), any biases derived from the use of self-reported measures should be considered when interpreting the findings of this current study.

Lastly, like previous studies using regression analyses, most findings from the current study represent correlational relationships rather than cause-and-effect relationships between variables (Creswell, 2008). Although this study was able to identify multiple significant relationships between international students' spiritual and religious qualities; and (1) their characteristics and college experiences; and (2) their college outcomes, including cognitive, affective, and civic outcomes, it is not possible to gauge the directionality of all of these relationships. As a result, higher education practitioners should interpret and apply with caution with all these limitations in mind. Nevertheless, this study provides an introductory view into an area of international students' spirituality and religiosity that has previously received little attention.

CONCLUSION

This study found the effects of international students' spirituality and religiosity varied across their college outcomes, including cognitive, affective, and civic outcomes. Specifically, three spiritual qualities (equanimity, spiritual quest, and ecumenical worldviews) and two religious qualities (religious commitment and religious struggles) of international students operated as significant predictors of their college outcomes. Therefore, American higher education institutions need to be concerned with international students' spirituality and religiosity as complementary resources to develop their college outcomes.

Moreover, international students' spirituality and religiosity are significantly related to their inner reflection and growth, as well as their characteristics of social/cultural maturity. In other words, international students' spirituality and religiosity are not only linked to college experiences (e.g., student-faculty interaction, peer interaction, and psychological sense of community), but also they play an important role in their holistic inner development—emotional maturity, moral development, and self-awareness. Therefore, American higher education scholars and practitioners, who are interested in developing international students' college outcomes, need careful attention to spirituality and religiosity as essential components to improve their college experiences including their inter and intra-relationship.

In short, this study constitutes a basic evidence in support of the proposition that American higher education should attend more to international students' spiritual and religious development. In short, this study constitutes basic evidence in support of the proposition that American higher education should attend more to international students' spiritual and religious development. However, the current study needs to be updated by re-administering the College Student Values and Beliefs Survey (CSBV) survey

to increase validity when considering the generalizability of this study's findings. Thus, it is suggested that this study become a basic study related to the spirituality and religiosity of international students, and the following future studies be continued; (1) examine the concepts of spirituality and religiosity perceived by international students, (2) design practical measures of spirituality and religiosity that can be used in higher education academia and practice, and (3) study how to measure and evaluate these findings for the future.

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JUN WOO LIH, PhD, serves as an Assistant Professor of Education and directs the MA in Global Leadership program at World Mission University. His research focuses on student assessment within higher education. Email: jwlih@wmu.edu.

YOUNG K. KIM, PhD, is a Professor of Higher Education at Azusa Pacific University. Her research interests include conditional college impact, college experience and outcomes among minoritized college students, and STEM in higher education. Email: ykkim@apu.edu.

CAMERON A. CONN, PhD, serves as the Assistant Dean of Administration, Operations & Services at Baptist Health Sciences University. Her research focuses on examining the effects of college experiences on student outcomes, with attention given to exploring how the effects differ based on students' intersectional identities. Email: Cameron.Conn@baptistu.edu.

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