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What Do International Students Need? The Role of Family and Community Supports for Adjustment, Engagement, and Organizational Citizenship Behavior

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ABSTRACT

This study aimed to investigate the relationships between perceived family support and community support and the organizational citizenship behavior of international students in U.S. higher education institutions. It also examined the mediating effects of cross-cultural adjustment and engagement on the relationships. Data were collected from 1,436 international students in one university located in the southwestern United States. Building on previous studies that have used a top-down managerial approach, this study used a noninstitutional/person-based approach to validate two guiding theories (spillover theory and job demands–resources model) and related former empirical studies. The results help stakeholders visualize a holistic picture of the international student experience. Such knowledge enables higher education institutions to make data-driven decisions about how to strategically prioritize resources to assist international students.

Keywords: adjustment, community support, engagement, family support, international students, organizational citizenship behavior

The number of individuals who have studied abroad has been rising at an approximate 6% annual growth rate worldwide (Organisation of Economic Cooperation and Development [OECD], 2019). International students enrolled at U.S. higher education institutions (HEIs) accounted for 5.2% of the entire student population (OECD, 2019). It is widely recognized that international students contribute to HEIs and local communities in the host country intellectually, culturally, and economically. For example, international students play a significant role in the internationalization of HEIs, which assists institutions in gaining world-class status (Abdullah et al., 2013). International students also bring financial benefits to HEIs and local communities. Furthermore, they add diversity to HEIs by bringing fresh and global perspectives (Egron-Polak, 2012; Martirosyan et al., 2019).

Despite the increasing number and added value to HEIs, this group of student population has received less attention from scholars compared to other groups such as the Black and the Latino population (R. King & Raghuram, 2013). Furthermore, international students have continuously reported great difficulty in integrating, both academically and socially, into the host country (Jindal-Snape & Rienties, 2016). Thus, academic and social supports for international students are critical for their adjustment, engagement, and success (Cho & Yu, 2015; Martirosyan et al., 2019).

To support international students, HEIs have primarily adopted a top-down managerial approach (Abdullah et al., 2013). This approach is grounded in an assumption that international students should assimilate to the societal culture of the host country and the institutional culture of the host HEIs to be academically successful and socially integrated (Chapdelaine & Alexitch, 2004). This assumption is built on the idea that international students exclusively rely on HEIs to establish social capital that allows them to acquire knowledge of the local culture and take advantage of the resources and opportunities offered by their host HEIs (Trice & Yoo, 2007). However, this top-down approach does not fully grant international students access to available social capital in a host country because the approach does not guarantee relationships with various entities or communities in a host country, and particularly does not facilitate international students to acquire resources in their personal domains from other noninstitutional entities (e.g., support from family or community).

Considering the reciprocal relationships between experiences in work-related domains and personal domains (Caligiuri et al., 1998), resources in personal domains are just as important as experiences in work-related domains to ensure international students' academic success, cultural adaptation, and social integration in the HEI context. Nevertheless, previous studies have mainly focused on examining international students' academic performance and related antecedents in work-related domains (Abdullah et al., 2013), while largely overlooking resources they need in personal domains.

The concept of academic performance includes not only grade point averages (GPAs), but also various attitudinal and behavioral outcomes because they have

significant impact on students' academic and career success (Meriac, 2012; Schmitt et al., 2008). Organizational citizenship behaviors (OCBs), such as helping other students solve task-related problems or protecting and conserving organizational resources, have been recently used as a measure of students' behavioral outcomes (e.g., Myers et al., 2015). Since international students tend to earn higher GPAs compared to domestic students (Rienties et al., 2012), an accurate understanding of their performance should go beyond the consideration of GPA as the sole indicator. For this reason, OCBs are included in this study.

The current study explored the role of resources in the academic success and social integration of international students. Specifically, it investigates how perceived family support (PFS) and perceived community support (PCS) were associated with OCBs. It also examined the mediating effects of cross-cultural adjustment (CCA) and engagement on the relationships. In this study, international students are defined as self-initiated expatriates (SIEs) who are different from assigned expatriates with three distinct characteristics (Cerdin & Selmer, 2014). First, the decision to go abroad is made by SIEs not by a home organization. Second, financially, SIEs rely on their personal savings or income earned from employers in the host country, whereas assigned expatriates receive financial support from their home organizations. Third, SIEs strive to meet their own personal goals, whereas assigned expatriates are expected to accomplish tasks assigned by their home organizations. SIEs have drawn increasing attention from researchers and practitioners with the rise in the number of international talents crossing borders for career, travel, education, and lifestyle opportunities (Cerdin & Selmer, 2014). Studying international students with characteristics of SIEs allows us to gain deeper or additional insights into the concept of SIEs and to test the applicability of expatriation theories in the HEI context.

This study contributes to the international higher education literature in several ways. First of all, this study provides empirical evidence that will inform HEIs of critical resources in personal domains needed by international students for successful academic achievement and social integration. Second, unlike previous studies focusing on a top-down managerial approach, this study adopted a noninstitutional/individual-focused approach; thus, the findings provide insights that will enable HEIs to make data-driven decisions about how to strategically prioritize resources to assist international students. Finally, considering the fact that more than 60% of the studies related to international students are atheoretical (Abdullah et al., 2013), this study was guided by two well-developed theories. Grounding this study in a sound theoretical foundation allows for generation of more reliable results that will contribute toward theory testing and theory building. Meanwhile, this study also provides a new framework that can be used to guide future studies with underrepresented populations in HEIs.

THEORETICAL FRAMEWORK

This section describes two guiding theories and the five constructs examined in this study. It also presents hypotheses derived from relevant literature.

Spillover Theory

Spillover occurs when emotions and attitudes are conveyed from work to home or vice versa (Caligiuri et al., 1998). Caligiuri et al. (1998) applied the spillover theory to the cross-cultural context when examining whether family support, family communication, and family adaptability are significantly related to expatriate adjustment. For international students as SIEs, the work domain (e.g., class tasks, study, and/or research) and the personal domain are interrelated; in other words, international students cannot succeed in one while failing in the other; thus, support from personal entities (e.g., family and the community) is crucial for their adjustment and academic success (e.g., Aldawsari et al., 2018; Martirosyan et al., 2019).

The spillover theory is useful to the current study because it helps describe the impact of resources in personal domains (e.g., PFS and PCS) on work-related attitudinal and behavioral outcomes of international students as SIEs (i.e., CCA, engagement, and OCBs). The resources in personal domains may help international students establish healthy autonomous bonds with others outside their family and still feel connected to their family (Minuchin, 1974). This connection generates some level of emotional support for international students, leading to better CCA, deeper engagement, and eventually more positive behaviors/attitudes (Cho & Yu, 2015).

Job Demands–Resources Model

Demerouti et al. (2001) proposed the job demands–resources (JD-R) model as a comprehensive approach to influence employee well-being. The JD-R model categorizes job characteristics into job demands and job resources. Job demands refer to "physical, social, (psychological,) or organizational aspects of the job that require sustained physical or mental effort and are therefore associated with certain physiological and psychological costs," whereas job resources refer to the aspects of jobs that help people "(a) be functional in achieving work goals; (b) reduce job demands at the associated physiological and psychological costs; or (c) stimulate personal growth and development" (Demerouti et al., 2001, p. 501).

The JD-R model proposes that job demands may lead to employees' mental and physical strain that can result in exhaustion and health problems, while job resources are considered the potential motivation, leading to engagement and performance (Bakker & Demerouti, 2007). Bakker and Demerouti (2007) also highlighted an interaction between job demands and job resources in the JD-R model. Job resources play a buffering role in enhancing individuals' well-being from the consequences of job demands. For example, when international students feel fully supported by their family, their emotional and physical job demands are reduced. Job resources are also highly associated with human motivation when job demands are intense. As individuals acquire, maintain, and protect the quantity and quality of their job resources, a high level of job resource loss or job demands strengthens the relationships between job resources and motivation (Demerouti et al., 2001). With a high level of job resources, motivated individuals are likely to meet their goals and to feel engaged in their work, whereas exhausted individuals with a high level of job demands may experience burnout (Nahrgang et al., 2011).

International students as SIEs face unfamiliarity as they attempt to adjust to a foreign culture and local HEI policies. They also do not typically have any social networks in a foreign country. All these challenges can be considered job demands for international students. With such high job demands, international students try to gain more resources to maintain their level of job resources (e.g., PFS and PCS), which may (a) buffer the influence of job demands on strain and (b) motivate them to be engaged and demonstrate OCBs (Bakker & Demerouti, 2007). Although the JD-R model is widely used in various organizational contexts, the applicability of the model in the HEI context has not been empirically examined (Rattrie & Kittler, 2014). This study is one of the first attempts in this direction. In this study, the term "resources" is used as a replacement of "job resources" to reduce a possible confusion from readers.

Perceived Family Support

As one of the primary resources in personal domains for SIEs, family support refers to the degree of intimacy family members feel towards one another (Caligiuri et al., 1998). Spending time and sharing thoughts and feelings together are examples. Through a critical review of expatriate adjustment literature, Takeuchi (2010) found that very few studies had focused on the impact of family support on expatriates' adjustment. Among the few studies, Caligiuri et al. (1998) revealed a significant relationship between family support and expatriates' CCA, based on 110 expatriate families in a host country. In the international higher education literature, results about the influence of family support on international students' outcomes in HEIs are inconsistent. Aldawsari et al. (2018) studied 94 international students in the United States and found that social support from family and friends significantly affected international students' psychological adjustment. Bulgan and Çiftçi (2018), however, found a nonsignificant relationship between social support and psychological adjustment based on their study with 243 married international graduate students in the United States. More importantly, social support is a composite construct of support from family, friends, and significant others, and we found no study examining the impact of support primarily from family on outcomes of international students. Informed by the empirical studies and the theoretical framework, the following hypotheses are proposed for this study:

H1: Perceived family support is positively related to cross-cultural adjustment.

H2: Perceived family support is positively related to engagement.

H3: Perceived family support is positively related to organizational citizenship behavior.

Perceived Community Support

The concept of community covers a broad meaning ranging from a physical place within a geographical territory where people share something in common to a group of people connected based on shared interests (Crow & Allen, 1994). Herrero and

Gracia (2007) measured PCS regarding social integration into the community, participation in the community, and use of community organizations. Community integration is the sense of belongingness and/or identification with a community. While community participation is the level of involvement in social activities, use of community organizations refers to the degree of support a person receives from the community.

Being involved in and connected with a community provides international students with cultural learning experience (Gresham & Clayton, 2011), which facilitates their intercultural adjustment in the host countries. International students who maintain a connection with the community have less difficulty in adjusting to a new culture and feel less depressed (Jackson et al., 2013), which may lead to engagement and OCBs (Herrero & Gracia, 2007). Thus, the following hypotheses are proposed for this study:

H4: Perceived community support is positively related to cross-cultural adjustment.

H5: Perceived community support is positively related to engagement.

H6: Perceived community support is positively related to organizational citizenship behavior.

Cross-Cultural Adjustment

International students' ability to adapt to a new culture determines their work and life success since CCA is one of the most crucial factors influencing SIEs (Takeuchi, 2010). CCA refers to the degree to which a SIE psychologically feels comfortable with various aspects of a host culture (Black, 1988). Unlike researchers who treated CCA as a unitary construct, Black (1988) identified CCA as a multifaceted construct including general adjustment, interaction adjustment, and work adjustment. General adjustment refers to the degree of comfort in which an expatriate experiences general living conditions in everyday life in the host country such as food, weather, and entertainment. Interaction adjustment is the extent to which an individual interacts with host country nationals and the comfort they feel working and/or interacting with other people, such as general host nationals, professors, and colleagues. Finally, work adjustment is the degree to which SIEs are concerned about their job including performance standards, supervisory responsibilities, and working conditions.

In the international higher education literature, scholars have primarily examined psychological and academic adjustment (J. Wang, 2009; Yusoff, 2012). However, in the current study, adjustment to a host culture is considered critical to international students as SIEs. In the SIE literature, CCA has been widely used as an indicator of outcomes and/or a mediator of effectiveness. CCA is positively associated with job satisfaction (Froese & Peltokorpi, 2013) and contextual performance (Wu & Ang, 2011), both of which are significantly related to OCBs. Moreover, the JD-R model has indicated the positive impact of CCA on engagement. Thus, the following hypotheses are proposed:

H7: Cross-cultural adjustment is positively related to engagement.

H8: Cross-cultural adjustment is positively related to organizational citizenship behavior.

Engagement

Engagement is a "positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption" (Schaufeli et al., 2002, p. 74). With vigor, employees are devoted to their work and persevere even when they are confronted with difficulties. Dedication is a "psychological identification with one's job" while absorption refers to "being fully concentrated and engrossed in one's work" (Schaufeli et al., 2002, pp. 74–75). In the international higher education literature, engagement has been considered as a critical outcome of students since it is significantly related to several positive outcomes (Green, 2019), including OCBs. Surveying 1,174 students across 10 U.S. HEIs, Schmitt et al. (2008) identified that OCBs were related to student satisfaction, which is conceptually overlapped with engagement. The JD-R model also supports the impact of engagement on positive outcomes such as OCBs. Therefore, the following hypothesis is proposed:

H9: Engagement is positively related to organizational citizenship behavior.

Organizational Citizenship Behavior

The concept of academic performance includes not only GPAs, but also various attitudinal and behavioral outcomes since the latter may prevent or enhance productivity and success of students (Meriac, 2012; Schmitt et al., 2008). As one of the popular behavioral outcomes, OCBs refer to performance of individual behavior that is "discretionary or volitional behavior" and "not explicitly recognized by an organization's reward system" (Organ et al., 2006, p. 3). Examples of OCBs include helping other students solve task-related problems and protecting and conserving organizational resources. According to Williams and Anderson (1991), OCBs occur at two levels—organizational and individual. An OCB at the organizational level (OCBO) directly benefit the organization (e.g., informing in advance of an absence) and is considered generalized compliance. An OCB at the individual level (OCBI) benefit organizational members (e.g., assisting those who work overnight) and is considered altruism.

Since international students relocate with their own mission—academic achievement—they tend to work hard to earn high GPAs. In this case, it is difficult to determine their academic achievement and integration based solely on their GPAs. Therefore, we consider their OCBs as a critical positive outcome. Based on the empirical studies and the theoretical framework, the mediating effects of engagement and CCA between resources in personal domains and OCBs could be assumed. Thus, the following hypotheses are proposed:

H10: Cross-cultural adjustment mediates the relationships between resources in personal domains and organizational citizenship behavior.

H11: Cross-cultural adjustment mediates the relationships between resources in personal domains and engagement.

H12: Engagement mediates the relationships between resources in personal domains and organizational citizenship behavior.

METHOD

Data Collection

We collected data from international undergraduate/graduate students at a large public university in Texas. Once the Institutional Research Board reviewed and confirmed the research proposal, we distributed an online survey to all international students of the university (N = 5,108) via email. To increase the response rate, we implemented three strategies. First, we translated the survey from English into eight different languages to provide linguistic convenience for a diversity of participants. We used a forward-backward translation technique to ensure the accuracy of translation. Second, we entered survey respondents entered twice in a raffle to win one of 12 gifts upon completion of the survey. Third, we sent a reminder email to candidates three times. A total of 1,847 responses were returned (36.1% response rate). After removing incomplete cases, 1,526 responses were retained. After data screening based on literature on univariate/multivariate outliers, normality, and multicollinearity, 1,436 cases were included for final analysis. The demographic characteristics of the participants varied: gender (male = 61.7%; female = 38.2%; other = 0.1%); pursuing degree (undergraduate = 12.7%; masters = 35.1%; PhD = 51.3%; other = 0.9%). International students were involved in various types of communities: student organizations (27.4%), ethnicity groups (24.5%), religious groups (17.1%), local social groups (16.1%), and others (14.9%).

Measures

A 7-point Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*) was used in this study. The quality (validity and reliability) and practicality (easy to use and short) were considered for the selection of specific measures.

Perceived Family Support

The 34-item Family Support Inventory was developed by L. A. King et al. (1995) to measure two dimensions of PFS: emotional sustenance (PFSE) and instrumental assistance (PFSI). Nasurdin and O'Driscoll (2012) validated a short version with eight items of PFSE and four items of PFSI (α = .90). In this study, participants who were with their family in the United States (n = 288) only responded to four items of PFSI. A sample item of PFSI is, "My family leaves too much of the daily details of running the house to me." A sample item of PFSE is, "Members of my family are interested in my academic work."

Perceived Community Support

Ng et al. (2014) shortened Herrero and Gracia's (2007) origianl 14-item instrument to a 10-item version. The reliability estimates for three dimensions were

0.79 (integration), 0.69 (participation), and 0.70 (organization). A sample item includes, "In my community, I could find people that would help me feel better."

Cross-Cultural Adjustment

CCA was assessed in three dimensions (Black, 1988): general (CCA_G: seven items), interaction (CCA_I: four items), and work adjustment (CCA_W: three items). The reliability estimate for each dimension was .89, .82, and .91, respectively (Black & Stephen, 1989). We removed the item of "supervisory responsibility" because international students do not supervise others, so only 13 items were asked in this study. Sample items of each dimension are "cost of living," "interacting with Americans on a day-to-day basis," and "specific academic responsibilities."

Engagement

The Utrecht Engagement Scale was developed by Schaufeli et al. (2002) with 17 items. We adapted a 9-item shorter version ($\alpha = .89$) in this study to measure the engagement level of international students. A sample item includes "When I do my academic work, I feel bursting with energy."

Organizational Citizenship Behavior

We adapted the 11-item version of OCBs ($\alpha = .88$ [OCBI], $\alpha = .75$ [OCBO]) from Williams and Anderson (1991) in this study. A sample item for OCBI is, "I help others who have heavy workloads." A sample item for OCBO is, "I pass along information to peers."

We conducted an estimation of reliability for the five instruments. Cronbach's alpha was used to check the internal consistency of the items in the constructs. The reliability estimates of the five instruments were PFSI ($\alpha = .82$), PFSE ($\alpha = .85$), PCS ($\alpha = .97$), CCA_G ($\alpha = .82$), CCA_I ($\alpha = .94$), CCA_W ($\alpha = .81$), engagement ($\alpha = .93$), OCBI ($\alpha = .85$), and OCBO ($\alpha = .82$).

Data Analysis

We examined and found no issue with (a) the univariate normality of the variables by checking the skewness and kurtosis, (b) the multivariate normality based on the two-sided multivariate skewness and kurtosis tests of fit ($p < .01$), and (c) multicollinearity based on the variance inflation factor. We also checked a common method effect using Harman's single-factor test and found no issue as the majority of the variance was not accounted for by one general factor (12.6%). We primarily employed confirmatory factor analysis and structural equation modeling to examine the relationships between the nine latent factors (including the dimensions of each construct) and the 51 observed variables, as well as to confirm the hypothesized model. We also conducted standardized path coefficients, decomposition of effects, and the bias-corrected bootstrap method conducted to test the research hypotheses.

RESULTS

We present the results below (Table 1). We used the descriptive statistics and intercorrelations for the dimensions. All of the correlations, except for the correlation between instrumental PFS and CCA_I, were statistically significant ($p < .01$), ranging from .11 to .53.

Table 1: Descriptive Statistics and Intercorrelations

	M	*SD*	1	2	3	4	5	6	7	8	9
1. PFSI	5.75	0.94	1								
2. PFSE	5.43	1.17	.30**	1							
3. PCS	4.86	1.37	.12*	.23**	1						
4. CCA_G	5.19	0.93	.27**	.15**	.29**	1					
5. CCA_I	4.73	1.42	.08	.11**	.29**	.47**	1				
6. CCA_W	5.63	0.98	.24**	.21**	.26**	.50**	.48**	1			
7. WE	5.26	1.01	.19**	.32**	.29**	.29**	.24**	.44**	1		
8. OCBI	5.30	0.89	.16**	.34**	.29**	.26**	.25**	.36**	.53**	1	
9. OCBO	6.09	0.79	.20**	.30**	.19**	.25**	.19**	.38**	.42**	.48**	1

Note. PFSI = instrumental perceived family support; PFSE = emotional perceived family support; PCS = perceived community support; CCA_G = general cross-cultural adjustment; CCA_I = interaction CCA; CCA_W = work CCA; WE = work engagement; OCBI = organizational citizenship behaviors at an individual level; OCBO = OCBs at an organizational level. **Correlation is significant at the 0.01 level; *Correlation is significant at the 0.05 level.

Measurement Model

We conducted a confirmatory factor analysis to examine the validity of the measurement model for the participants. We evaluated the model fit with the collected data using five fit indices, including χ^2/df for maximum likelihood (ML) estimation (2.0–5.0), root mean square error of approximation (RMSEA) (<.10), standardized root mean residual (SRMR) (<.10), comparative fit index (CFI) (>.90), and Tucker Lewis index (TLI) (>.90). However, the fit indices were not acceptable. Therefore, we conducted a confirmatory factor analysis with SPSS to check the relationships between the nine latent variables and 51 items. We found that the item of health care facilities was not related to CCA_G but stood independently. The first question of OCBI about helping absent people in meetings, classes, or labs was also not combined with the other questions. We removed these questions because we believe that the unique context of graduate/undergraduate students (they mostly do academic work by themselves) would have an impact on the question. The seventh question of OCBI about passing along information to peers was also not associated with the others. We deleted the question due to the unique context of students in HEIs where students do not have many opportunities to share critical/secret information because most information on their academic work is open. Finally, Kline (2011) strongly

recommended that intercorrelations among indicators for the same latent factor should be positive and at least moderately high in magnitude (>.50). As we examined the correlation matrix among the indicators for each of the nine latent factors, the correlation coefficients of the first and second questions of engagement were below .50. Thus, the two items were correlated.

We conducted another confirmatory factor analysis with the model respecification (Kline, 2011) and the fit indices were satisfactory: $\chi^2(823) = 2435.753$, $p < .001$; RMSEA (.05); SRMR (.40); CFI (.93); and TLI (.92). All factor loadings in the measurement model were statistically significant ($p < .001$) and the standardized factor loadings ranged from .48 to .95, which were satisfactory (>.30).

Structural Model

The results of the estimation of our structural model are summarized in Figure 1. Regarding the overall fit of the proposed model, the chi-square of the model was statistically significant ($\chi^2[829] = 2968.650$, $p < .001$), indicating that the model was not consistent with the covariance data because of the large sample size ($n = 1{,}436$).

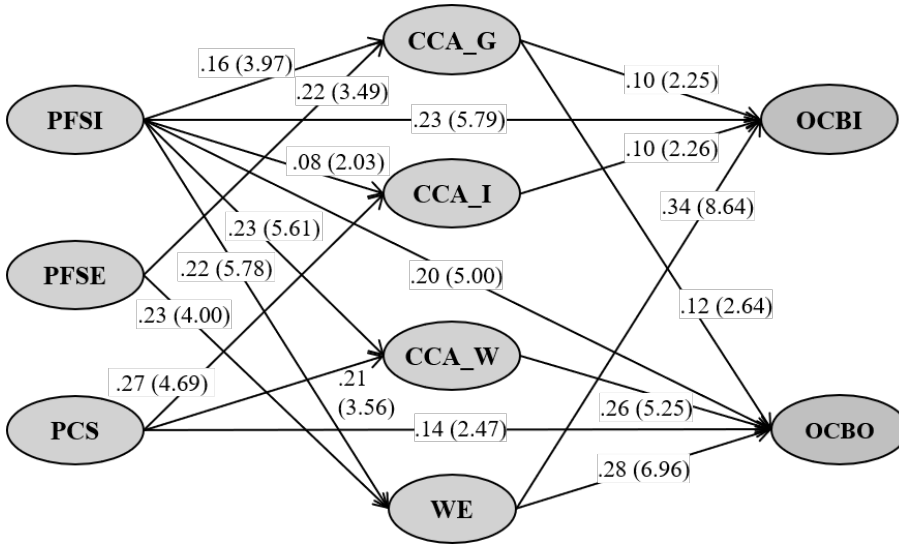

Figure 1: Structural Equation Model with Standardized Path Coefficient Estimates

Note. PFSI = instrumental perceived family support; PFSE = emotional perceived family support; PCS = perceived community support; CCA_G = general cross-cultural adjustment; CCA_I = interaction CCA; CCA_W = work CCA; WE = work engagement; OCBI = organizational citizenship behaviors at an individual level; OCBO = OCB at an organizational level.

All other model-data fit indices were satisfied in terms of RMSEA (.06), SRMR (.08), CFI (.91), and TLI (.90).

Squared multiple correlations (R^2) indicated that OCBI (R^2 = .298), OCBO (R^2 = .315) had large effect sizes; CCA_G (R^2 = .138), CCA_W (R^2 = .147), engagement (R^2 = .162) had medium effect sizes; and CCA_I (R^2 = .112) had small effect sizes based on Cohen's R^2. Signs and magnitudes of parameter estimates in both the measurement and structural models made sense, and no negative variances and values were out of range (i.e., $r < 1$).

Hypothesis Testing

We utilized standardized path coefficients estimates and a bootstrap method to measure the magnitudes of the paths and examine the mediating effects among the research variables. As shown in Figure 1, except for the insignificant impacts of emotional PFS on CCA_I and CCA_W, Hypothesis 1 was supported given the statistical significance of the direct effects of the two dimensions of PFS and three dimensions of CCA: PFSI-CCA_G (β = .16, $p < .01$), PFSI-CCA_I (β = .08, $p < .05$), PFSI-CCA_W (β = .23, $p < .01$), PFSE-CCA_G (β = .22, $p < .01$), and PFSE-CCA_W (β = .23, $p < .01$).

Hypothesis 2 is supported as the direct effects of PFSI (β = .22, $p < .01$), and PFSE (β = .23, $p < .01$) on engagement were significant. Hypothesis 3 is partially supported as PFSI is significantly related to both OCBI (β = .23, $p < .01$) and OCBO (β = .20, $p < .01$) whereas PFSE is not related to both dimensions. Hypothesis 4 is also partially supported as PCS is significantly related to two of three dimensions of CCA: PCS-CCA_I (β = .27, $p < .01$) and PCS-CCA_W (β = .21, $p < .01$). Hypothesis 5 is not supported. Hypothesis 6 is partially supported as PCS is only related to OCBO (β = .14, $p < .05$). Hypothesis 7 is not supported, while Hypothesis 8 is partially supported: CCA_G-OCBI (β = .10, $p < .05$), CCA_I-OCBI (β = .10, $p < .05$), CCA_G-OCBO (β = .12, $p < .01$), and CCA_W-OCBO (β = .26, $p < .01$). Hypothesis 9 is fully supported: engagement-OCBI (β = .34, $p < .01$), engagement-OCBO (β = .28, $p < .01$). Finally, the mediation effect of CCA and engagement were partially significant as shown in Table 2, which partially supported Hypothesis 10 and 11. Since there was no direct relationship between CCA and engagement, Hypothesis 12 about the mediation effect of CCA was not supported.

Table 2: Bootstrap Estimates of the Mediation Effect in the Model

Path: IV → MV → DV	Product of Coefficients			BC 95% CI*	
	a	SE_a	*Z*	Lower	Upper
PFSI → **WE** → OCBI	0.073	0.015	4.880**	0.043	0.103
PFSE → **WE** → OCBI	0.078	0.022	3.583**	0.034	0.122
PFSI → **WE** → OCBO	0.060	0.013	4.515**	0.034	0.086
PFSE → **WE** → OCBO	0.064	0.019	3.402**	0.026	0.102
PFSI → **CCA_G** → OCBO	0.020	0.009	2.217*	0.002	0.038

Path: IV → MV → DV	Product of Coefficients			BC 95% CI*	
	a	SE_a	*Z*	Lower	Upper
PFSE → **CCA_G** → OCBO	0.027	0.013	2.073*	0.001	0.053
PCS → **CCA_I** → OCBI	0.027	0.013	2.042*	0.001	0.053
PFSI → **CCA_W** → OCBO	0.059	0.015	3.917**	0.029	0.089
PCS → **CCA_W** → OCBO	0.055	0.019	2.969**	0.017	0.093

Note. PFSI = instrumental perceived family support; PFSE = emotional perceived family support; PCS = perceived community support; CCA_G = general cross-cultural adjustment; CCA_I = interaction CCA; CCA_W = work CCA; WE = work engagement; OCBI = organizational citizenship behaviors at an individual level; OCBO = OCB at an organizational level. IV = independent variable; MV = mediating variable; DV = dependent variable; a = standardized estimate of the mediating effect; SE_a = standard error; BC = bias corrected; CI = confidence interval; **Significant at the 0.01 level; *Significant at the 0.05 level.

DISCUSSION

The results offer new insights and a deeper understanding that expand our knowledge of the current international higher education literature by investigating PFS and PCS as resources of international students in personal domains and their association with academic success and social integration (i.e., CCA, engagement, and OCBs). In particular, there have been general assumptions about international students' social assimilation, the institutional culture in the host country, and consideration of their social network as an exclusive property offered by HEIs (Trice & Yoo, 2007). However, institutions with a top-down managerial approach do not fully guarantee accessibility to social networks and the approach does not explain other types of resources and opportunities available through noninstitutional social networks and personal resources. In order to visualize a holistic picture of international students' experience, this study examined and confirmed the critical influences of the underexplored factors in personal domains (i.e., PFS and PCS) for international students' academic achievement and social integration.

The results showed that most of the hypotheses were supported. However, the results from the structural model analysis revealed several unexpected and/or insignificant relationships. Specifically, as one of the primary resources within personal domains, instrumental PFS was positively related to all outcome variables, including all of the three dimensions of CCA, engagement, and all of the two dimensions of OCBs. Emotional PFS was positively related to general CCA and engagement only. In addition, PCS was positively associated with interaction and work CCA and OCBO only. One of the possible explanations for the insignificant relationships is the indirect relationships among the variables. For example, the two dimensions of OCBs are indirect outcomes of emotional PFS, mediated by engagement and general CCA as shown in Table 2. In addition, PCS is indirectly related to OCBI through interaction CCA.

The significant direct and indirect effects of PFS and PCS on the outcome variables in this study represented a reciprocal influence between personal and work domains, which supported the spillover theory (Caligiuri et al., 1998). Since work and personal domains are blurred for international students, support from family members and communities is crucial to international students' outcomes (Martirosyan et al., 2019). As the demographics indicate, international students are involved in various types of communities but primarily in student organizations, ethnicity groups, religious groups, and local social groups. According to the results, being involved in various types of communities gives international students opportunities to interact with local people, to obtain resources and information to adjust to their academic work and to demonstrate OCBs. Therefore, the spillover theory is supported by the results of this study.

Three dimensions of CCA were directly associated with two dimensions of OCBs except for the relationships between interaction CCA and OCBO and between work CCA and OCBI.In the expatriation literature, the relationship between CCA and expatriate effectiveness, including OCBs, is not clear. According to several studies (e.g., Wu & Ang, 2011), well-adjusted expatriates perform well with more available resources (time, effort, and emotional investment). However, several studies have failed to prove the relationships and suggested that adjustment has little effect on performance (e.g., Takeuchi et al., 2005). The results of this study suggest that different types of CCA may be related to different types of outcomes in the HEI context. Consequently, it is critical to secure three types of CCA for international students to be academically successful and socially integrated.

Engagement was directly associated with two dimensions of OCBs and mediated the relationships between resources in personal domains and OCBs. The significant relationship between engagement and OCBs can be explained by the JD-R model because motivated employees produce positive outcomes (Demerouti et al., 2001). As the JD-R model illustrates, engagement also mediated the relationships between OCBs and resources in personal domains. The JD-R model has been widely used in management literature; however, it has rarely been applied in the context of education, particularly higher education. The current study confirmed the applicability of the JD-R model in the HEI context.

Finally, most hypotheses with the OCBs in this study were significant possibly due to the collectivistic cultural background of most of the international student participants. According to L. Wang et al. (2013), individuals in a collectivistic culture tend to engage in OCBs. In the current study, almost 80% of the participants came from regions that typically have collectivistic cultures (Hofstede et al., 2010): Asia (68%), Middle East (5.4%), and South America (5.6%); hence, a comparative study of the relationships among the samples from various cultural contexts would be meaningful.

Practical Implications

The results from the current study offer several practical insights for multiple stakeholders in HEIs. First, the results indicated that university administrators and faculty need to consider resources in personal domains and their impact on outcomes

of international students. Such knowledge enables HEIs to make data-driven decisions about how to help international students acquire resources in their personal domains (Cox et al., 2017). Based on the significant relationship between community support for international students and their adjustment, offices related to international student services can play a critical role in developing customized programs to help international students become involved in various types of communities for their better adjustment and engagement.

Additionally, HEIs may consider adjusting their criteria for international students' academic achievement and social integration. As indicated by the results, three dimensions of CCA, engagement, and OCBs could be included as outcomes, which can diversify the criteria for international students' effectiveness.

Furthermore, gaining insights into cultural knowledge might help university administrators and student advisors customize and develop their strategies for international students' academic success and social integration. The results from this study indicate that the hypothesized relationships could be strengthened by a collectivistic culture. Collectivism refers to one in which the interests of the group prevail over the interests of the individual (Hofstede et al., 2010). Since international students from the collectivistic culture emphasize *We* rather than *I* and are familiar with engaging in a strong, cohesive in-group with unquestioning loyalty, they consider group memberships (e.g., community) important and might seek a similar kind of support in foreign local communities (Hofstede et al., 2010; Shao & Crook, 2015). University administrators and student advisors could help international students become engaged in various communities and build new social networks in the host countries by leveraging advanced technology or students' own social network systems (e.g., WeChat, Facebook, Kakaotalk). Ensuring international students' success in a foreign country will not only enhance their chance of academic success, but also foster a culture of diversity and promote the university's diversity initiatives. Furthermore, these strategic interventions could lead to greater success in recruiting and motivating international students. Finally, this study provides international students with an opportunity to critically reflect on their own experience and identify resources that are critical for their success.

Limitations, Recommendations, and Future Studies

This study has several limitations. First, data collected for this study are generated from a self-reported perception-based survey. This may cause response bias and common method bias. Although several procedural remedies were incorporated in this study to prevent or reduce such biases, alternative approaches to overcome this potential problem (e.g., multirater approach) may be employed for future research.

Second, although the hypothesized model was supported and most of the hypotheses were fully or partially supported, this model needs further testing for its applicability in various contexts because the model was examined from data collected within one U.S. public university. Future studies need to examine it from other universities, regions, and/or countries.

Next, the collected data were analyzed without controlling for demographic variables since this study aimed to examine the overall relationships between

resources and outcomes in the hypothesized model. The relationships may be different when certain demographic variables are controlled for. Future studies may include control of possibly influential demographic variables at the design stage.

Finally, the hierarchical linear model approach could be employed to capture the differences in the relationships among the variables depending on the national and/or cultural context after several data sets are accumulated. This effort would shed light on future cross-cultural studies, which, in turn, could benefit the HEIs in various countries.

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