

 THE GLOBAL CONTEXT

The Association of Two Demographic Factors with the Integration and Commitment of West Virginia's International University Students

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This study explored the association of two independent variables (i.e., class standing and living status) with the academic integration, social integration, and institutional commitment (the dependent variables) of international students attending seven public regional universities in West Virginia. A researcher-developed, Likert-type questionnaire was used to examine the potential relationships among the variables. Results from point-biserial correlations indicated the relationships among the two demographic variables and each of the three dependent variables were not statistically significant, although a few statistically-significant correlations were noted among the dependent variables' sub-scale items. Results from independent samples t-tests also indicated a number of statistically-significant mean differences among the sub-scale items. Implications and recommendations for future research were provided.

Globally, the American higher education system has placed among the best since the end of World War II. From quality degree programs to cutting-edge research, the U.S. higher education market is markedly branded as a decentralized system that is largely autonomous and free from federal regulations, which makes American universities even more appealing to a significantly large pool of international college hopefuls (Education

USA n.d.). In 2017 (i.e., pre-pandemic year), American higher education institutions enrolled 24 percent of the total number of international students seeking post-secondary education away from their home countries (Study International 2018), making the United States the world's top destination for international education. Following the United States in the ranking of the 4.6 million students studying abroad were the United

Kingdom with 11 percent and China with 10 percent. The United States maintained its status as the top international education destination in 2020, with more than one million international students enrolled in U.S. colleges and universities, followed by Canada and the United Kingdom, with about half a million international students (Statista 2023).

These may sound like record numbers, but the international student population is only projected to grow exponentially. The Organization for Economic Cooperation and Development (OECD) expects the number of students seeking postsecondary education abroad to rise to eight million and global mobility to hit 60 percent by 2025 (Hughes 2019). It follows that international education is the fifth largest export service sector of the U.S. economy, with international students contributing \$45 billion to the national budget (IEE 2020). Similarly, in 2019, international education added 458,290 jobs to the U.S. economy (National Association of Foreign Student Advisors 2020).

Beyond the tuition benefits that come with enrolling international students, college campuses also benefit from the rich cultural and intellectual contributions of these students (Luo and Jamieson-Drake 2013). Among other benefits, not only do the international students who are enrolled in different undergraduate and graduate degree programs add value to the classroom, but the domestic students they mingle with can also develop their cultural intelligence (Upton and Butters 2019). The presence of international students in the American classroom expands domestic students' global intellectual competence and amplifies their interest in study abroad programs. Traveling abroad and experiencing foreign cultures will, in turn, give domestic students a competitive edge in the global market (Luo and Jamieson-Drake 2013).

The benefits of enrolling international students have been well documented, but like domestic students, the international students attending U.S. higher education institutions have historically faced a host of academic, social, and institutional challenges along the way to graduation (Can, Poyrazli, and Pillay 2021; Okai 2020; Tinto 1993). Many international students may not make

it to graduation day, and others struggle to persist from one academic year to the next.

Academic Integration

On the academic side, many international students, unlike their domestic counterparts, are challenged by their low level of language proficiency (Luo, Wu, Fang, and Brunsting 2019). This affects international students' academic performance as well as their ability to communicate with and understand their professors (Chen and Yang 2014). The system and culture of the American higher education system pose another potent challenge. Many international students are accustomed to their home countries' academic educational systems and receive little guidance on the U.S. higher education system (*e.g.*, choice of major, registration process, differing academic calendars, campus culture, student-professor relationship and interaction, interactive classroom setting, availability of and interaction with advisors, grading scales, etc.) prior to official matriculation into a new degree program (Hung and Hyun 2010). This unfamiliarity with the new academic system takes many international students by surprise (Wang 2003).

The definition of academic integration was based on two dimensions inspired by Tinto (1975): (1) structural, entailing "meeting the explicit standards of the college or university" and (2) normative, pertaining "to an individual's identification with the normative structure of the academic system" (Braxton and Hirschy 2005, 67). Schaeper (2020) proposes a third dimension, motivational dimension, representing "the affective dimension of academic integration and concerns identification with the major and enjoyment of studying" (97). A number of studies (*e.g.*, Bastien, Seifen-Adkins, and Johnson 2018; Lowinger, *et al.* 2014) have also explored academic integration and social integration simultaneously, as the latter has been argued to be an integral component of the former. Academic integration was measured by participants' responses to survey items one through twelve.

Social Integration

Socially, the language barrier, coupled with cultural barriers (*e.g.*, intercultural competence, interpersonal

skills, etc.), may follow international students outside the classroom and may hinder their ability to establish friendships with local students (Andrade 2005). The negative experiences created by these cultural barriers may intimidate international students, making them feel alienated and disinclined to participate in campus activities or join student clubs. Driven by a few important factors, like sudden changes in food choices, being thousands of miles away from home, and enduring changing weather conditions, international students may also feel homesick and depressed in their new foreign environment, which affects their social adjustment (Galloway and Jenkins 2009).

In addition to social integration being directly and indirectly linked to academic persistence, it can be defined as “students’ interaction and congruency with the social system of the institution” (Milem and Berger 1997, 15). Social integration also “occurs primarily through informal peer group associations [...] and semi-formal extracurricular activities within the college,” and “the concepts of social integration are composed of students’ levels of interaction with peers and involvement in campus life and participation in extra-curricular activities” (Milem and Berger 1997, 15–16). Social integration was measured by participants’ responses to survey items thirteen through nineteen.

Institutional Commitment

International students’ academic and social challenges may be further amplified by a negative perception of and lack of commitment to the host institution. It has been argued that host institutions have invested little effort toward both understanding and addressing these challenges, which makes international students’ academic journey more challenging (Lee 2007). Among other factors, many international students have cited the lack of or inadequate support services as one of the factors affecting their academic performance and social integration (Lee and Rice 2007). This is especially true of universities that have historically enrolled a low number of international students, including those in the Appalachian region, where support groups of students who share the same interests and belief systems

may be scarce or non-existent (Lee 2010). International students may also leave their host institutions because the latter lack ample employment opportunities, do not offer adequate first-year orientation sessions and support services, or lack communication across departments (Evans 2001).

The definition of institutional commitment was closely related to students’ opinions about, satisfaction with, and commitment to their brick-and-mortar host campuses. Students are committed to their institutions when they intend to stay enrolled in and graduate from their host universities (Bean 1990). The institutional commitment variable is multi-layered in that it encompasses elements of academic integration (Berger and Braxton 1998) and social integration (Keup and Stolzenberg 2004). Institutional commitment was measured by participants’ responses to survey items 20–27.

International Students in West Virginia

West Virginia’s higher education institutions have recruited many international students over the years. The financial contribution of international students has helped boost the state public institutions’ budgets. According to NAFSA: Association of International Educators (2020), in 2018, prior to the COVID-19 pandemic, the West Virginia higher education institutions enrolled 4,152 international students, supporting 1,250 jobs and contributing \$131.7 million to the West Virginia economy.

West Virginia University topped the list with more than half of the financial contribution, \$77.6 million, and supported 855 jobs. Marshall University followed WVU with \$16.9 million in additional revenues and 168 jobs. In Congressional District 2, a total of 959 international students attended Marshall University, Concord University, WVU Institute of Technology, and Bluefield State College. International students contributed \$22.7 million to the district’s economy, and colleges supported 197 jobs (NAFSA 2020).

Only a few studies, however, have documented the academic and social adjustment challenges faced by West Virginia’s international students at the university level (*e.g.*, Okai 2020; Yanagihara 2017). These studies,

nonetheless, either may not reflect the realities of contemporary international students or focus on the international students attending a single West Virginia higher education institution. The present study sought to expand the pool of students by inviting participation from multiple universities in West Virginia, hence giving a voice to a relatively larger, heterogeneous international student population.

Literature Review

International students' academic, social, and institutional challenges and integration at the higher education level have been understudied in areas of low population diversity in the United States (Alharbi and Smith 2018), especially in the Appalachian region (Guyton 2017). The purpose of this study was to contribute to the body of research that addresses international student persistence and institutional retention in higher education, focusing on the potential development of effective retention strategies for both current and future international student cohorts. The goal was to provide policy and other administrative recommendations based on possible associations between the demographic factors and the selected persistence variables.

Although the body of literature on international student adjustment and persistence is small compared to the literature on domestic students, the international recruitment boom that started in the early 2000s has increased research in the area, as several studies have addressed international student retention practices, international student challenges, and factors predicting persistence among international students with important implications to host institutions' internationalization practices (*e.g.*, Ammigan 2019; Haverila and Haverila 2020). Most of these studies, however, approach international student challenges from a holistic and heterogeneous perspective (Bista 2019), and the findings may not reflect the challenges and needs of all international students in different parts of the country. International students attending public regional universities in the Appalachian and rural regions are one such population whose experiences most studies fail to account for. Notable focus in the available literature has been on the

variables of academic integration, social integration, and institutional commitment. Each of these variables is examined below.

In examining academic integration among international students at the university level, several academic performance studies indicated that grade point average (GPA) was shown to be positively related to student persistence (*e.g.*, Thomas 2000; Velez 1985). Stoyhoff (1997) examined factors associated with the academic achievement of 77 first-year international students during their first six months at a four-year institution. One major finding was language proficiency, which was found to correlate with students' academic performance (as measured by GPA, one of three dependent variables) (Stoyhoff 1997). In terms of academic involvement in the classroom, Kuo (2011) examined international students' language proficiency and its effects on academic performance. Results from a survey administered to 152 international graduate students enrolled in an Alabama university suggested the students faced listening comprehension and oral proficiency challenges that inhibited their ability to understand and engage with classroom lectures. Factors were domestic students' (and professors') inability to understand international graduate students' English; the southern accent was identified as another major impediment to listening comprehension.

Many studies similarly investigated international students' social integration challenges. Mahmood and Burke (2018) analyzed acculturative stress and sociocultural adaptation levels (as they relate to select demographic characteristics) among international students at a nonmetropolitan university in the United States. The results showed that increased competency in five sociocultural adaptation subscales (*i.e.*, interpersonal communication, academic and work performance, personal interests and community involvement, ecological adaptation, and language proficiency) decreased acculturative stress levels among the students. Similarly, Owens and Looms (2010) investigated the benefits of a social integration program for international students attending four separate metropolitan campuses of an Australian university. Results from survey responses indicated that "interpersonal interactions with staff and

other students in ranging contexts generate high levels of student satisfaction, enhance cultural transition and mitigate the negative effects of culture shock” (285).

Nicpon, *et al.* (2006) examined the association between academic persistence and the variables of loneliness, social support, and living arrangements and decisions. A series of standardized instruments was administered to 401 college freshmen. Results revealed that social support was positively related to decisions regarding academic persistence, and higher GPAs were associated with freshmen living on campus compared to those living off campus.

Most studies on institutional commitment overwhelmingly investigated the effects of institutional retention efforts on domestic students’ institutional commitment, especially as they relate to campus student services (*e.g.*, Al Hassani and Wilkins 2022; Gordon 2016; Thomas 2010). The effect of robust on-campus student services on students’ persistence was shown to be positive in some studies (*e.g.*, Barbera, *et al.* 2020; Webber and Ehrenberg 2009), while the association between investing in student services and students’ degree completion was not statistically significant in other studies (*e.g.*, Ryan 2004; Titus 2006). Academic advising was also found to significantly improve international students’ first-to-second-year persistence (Mamiseishvili 2012). Other studies found that orientation programs that included student-faculty and student-advisor interactions significantly boosted students’ degree completion odds (*e.g.*, Derby 2007).

Woosley and Miller (2009) investigated the extent to which institutional commitment, among other variables, could predict retention to the following year among a sample of 2,744 first-time, first-year students enrolled in a large public Midwestern institution. Results suggested institutional commitment has a positive effect on retention and grade point average (GPA). In the same way, Ammigan and Jones (2018) assessed the degree to which international students (enrolled at 96 institutions in Australia, the United Kingdom, and the United States) were satisfied with various aspects of their campus experience as they related to arrival, liv-

ing, learning, and support services. Using data from the International Student Barometer (ISB), multiple regression analyses revealed a positive association between the four satisfaction aspects and students’ overall campus experience (Ammigan and Jones 2018).

There is a question, then, regarding whether key demographic factors (as they relate to select variables) could better address international students’ perceptions of their educational experiences in rural Appalachia, which could in turn help explain their decision to remain in or leave their host institutions. This study was, in large part, inspired by Bean’s (1985, 1990) and Tinto’s (1993) student attrition model that focused on academic integration, social integration, and institutional commitment, as well as Tinto’s (1975, 1987) departure theory. It’s also worth noting that, although academic integration and social integration were explored separately in this study, several studies explored the intersection between academic and social integration as potential indicators/predictors of persistence at the college level (*e.g.*, Severiens and Wolff 2008; Wilcox, Winn, and Fyvie-Gauld 2005). Tinto (1975), for instance, measured academic integration based on students’ grade performance and intellectual development. Social integration was simultaneously investigated based on interactions with peers and faculty. Tinto’s (1975) model also stresses that students’ social and academic integration has a positive impact on their institutional commitment, which could in turn enhance students’ persistence to graduate.

While the cultural and adjustment aspects of international students’ higher education experience have been widely explored, research on international students’ persistence is almost non-existent (Barbera, *et al.* 2020). The scope of the present study could be viewed as a combination of both adjustment and persistence in the sense that the focus was on students’ ability to continue on to the next term (and year), contingent upon their ability to integrate academically, socially, and institutionally. The researcher, however, did not seek to make predictions or establish causations but simply investigate possible associations between select demographic variables and key integration variables.

Research Methods

Research Design

This study followed a non-experimental, descriptive design to identify possible relationships between common persistence variables identified in the literature and selected demographic attributes among a representative sample of degree-seeking international students at various public regional universities in West Virginia. A non-experimental design was appropriate because the independent variables (*i.e.*, class standing and living status) could not be manipulated, and the research questions focused on relationships or associations (*i.e.*, between the independent variables and the students' responses to survey items).

The following research question was answered: To what extent do the selected demographic attributes (*i.e.*, class standing and living status) affect international students' perceptions of their academic integration, social integration, and institutional commitment? A cross-sectional survey design was used, as all variables and outcomes can be researched at once, and prevalence for all variables can be measured (Wang and Cheng 2020). The survey was distributed electronically to the international students attending various public higher education institutions in West Virginia.

Population and Sample

The participants for this study ($n=154$; $N=1,202$) were enrolled for credit at the selected universities in the 2022-23 academic year. They were not domestic students (*i.e.*, native speakers) or U.S. citizens. For the purposes of this study, the international students were in the United States on a temporary visa and are not immigrants (*i.e.*, I-51 or Green Card holders), undocumented immigrants, or refugees. Residency in the state (*i.e.*, the minimum full one-year residency) was not a necessary condition, either.

The participants also had physical presence on campus (*i.e.*, attend in-person classes) per U.S. immigration laws. Although U.S. immigration laws require that international students attend college on a full-time basis, part-time students (*i.e.*, enrolled under this status due to special circumstances like medical conditions) were

included in the survey. Participants were recruited with help from the office of international programs and international student services at the selected universities, including the relevant international student groups/organizations.

Survey Content

This study used a personal, researcher-developed questionnaire that was created following a meticulous review of the literature on student persistence, adjustment, and retention at the post-secondary level. The survey was, in large part, inspired by Bean's (1985, 1990) and Tinto's (1993) student attrition model that focused on academic integration, social integration, and institutional commitment, as well as Tinto's (1975, 1987) departure theory. The study and questionnaire were also inspired by the Michigan International Students Problem Inventory (MISPI) (Porter 1966), the College Persistence Questionnaire (CPQ) (Davidson, Beck, and Milligan 2009), as well as a number of studies addressing international students' adjustment and persistence challenges (*e.g.*, Can, Poyrazli, and Pillay 2021; Okai 2020). The MISPI and CPQ, however, were not used as the main instruments.

The personal electronic survey was used to identify possible associations between key demographic factors (*i.e.*, class standing and living status) and three persistence variables: academic integration, social integration, and institutional commitment.

Data Collection and Analysis

Associate directors and program managers at the offices of international student services from seven universities were contacted. The relevant international student organizations at West Virginia's largest campus were also contacted and invited to email their international students a link to the survey. A point-biserial correlation was used for analysis as it measured potential relationship(s) between a continuous dependent variable and a dichotomous independent variable—in this case between students' responses to items regarding the three persistence variables and the selected independent variables of class standing (undergraduate/

TABLE 1 ► Academic Integration Mean Differences for Class Standing

Academic Integration Survey Items		Undergraduate		Graduate		<i>t</i>	<i>p</i>
		M	SD	M	SD		
1	Language Satisfaction	4.79	1.17	5.12	0.93	-1.94	0.036
2	Comfort in Class Discussion	4.36	1.59	4.68	1.31	-1.37	0.087
3	Understand Professor	5.07	0.96	5.32	0.84	-1.69	0.267
4	Instruction Satisfaction	5.09	0.99	4.92	1.10	1.01	0.509
5	Instruction Improved English	4.50	1.41	4.65	1.42	-0.63	0.842
6	Instruction Job Match	4.61	1.30	4.94	1.12	-1.68	0.033
7	Homework Stressful	3.93	1.47	4.19	1.28	-1.19	0.086
8	Professor Moral Support	4.28	1.54	4.42	1.21	-0.60	0.042
9	Family Moral Support	4.94	1.45	5.24	1.21	-1.38	0.021
10	On-Time Graduation	5.12	1.27	5.14	1.04	-0.13	0.101
11	Procrastination	3.73	1.47	3.38	1.73	1.33	0.024
12	Late Homework	1.69	1.04	1.55	1.01	0.80	0.576

Abbreviation Key

- M = Mean
- SD = Standard Deviation

graduate), and living status (on campus/off campus). Independent samples *t*-tests were also used to check for statistical significance in mean differences among variables. The three survey sections—academic, social, and institutional commitment—were treated as subscales, and an overall composite score was calculated.

Data were analyzed to answer the following research question: To what extent do the selected demographic attributes (*i.e.*, class standing and living status) affect international students' perceptions of their academic integration, social integration, and institutional commitment? Demographic attributes, in addition to responses from the academic integration (AI), social integration (SI), and institutional commitment (IC) sections of the researcher-developed questionnaire, were used to answer this question.

Results

Academic Integration and Class Standing

The correlations were not statistically significant ($p \leq 0.05$) between academic integration and class standing (r_{pb} [149] = 0.111, $p = 0.175$). There was some statistical support, however, from an independent samples *t*-test

suggesting graduate participants showed significantly stronger perceptions of their academic integration ($p \leq 0.05$) in five academic areas (*i.e.*, item #1, $p = 0.036$; item #6, $p = 0.033$; item #8, $p = 0.042$; item #9, $p = 0.021$; and item #11, $p = 0.024$) compared to undergraduate participants. Results from the *t*-test can be seen in Table 1.

Academic Integration and Living Status

Correlations were not statistically significant ($p \leq 0.05$) between academic integration (AI) and living status (r_{pb} [149] = -0.067, $p = 0.410$). There was a statistically-significant ($p \leq 0.05$) association, however, for one AI survey item (*i.e.*, item #4, $p = 0.011$). There was additional statistical support from an independent samples *t*-test suggesting that participants living on campus showed significantly stronger perceptions of their academic integration ($p \leq 0.05$) in two academic areas (*i.e.*, item #6, $p = 0.021$, and item #12, $p = 0.041$) compared to participants living off campus.

Social Integration and Class Standing

The correlations were not statistically significant ($p \leq 0.05$) between social integration (SI) and class standing (r_{pb} [149] = -0.088, $p = 0.285$). They were statistically

significant ($p \leq 0.05$) for one SI survey item (*i.e.*, item #14, $p = 0.018$). These results can be seen in Table 2.

Statistical support from an independent sample *t*-test showed no significant differences ($p \geq 0.05$) between the class standing means as they relate to social integration.

Social Integration and Living Status

While most correlations were not statistically significant ($p \leq 0.05$) between social integration and living status (r_{pb} [149] = -0.087 , $p = 0.288$), they were statistically significant ($p \geq 0.05$) for two SI survey items (*i.e.*, item #14, $p = 0.046$, and item #18, $p = 0.041$). Statistical support from an independent samples *t*-test also failed to return significant differences ($p \leq 0.05$) between the living status means as they relate to social integration.

Institutional Commitment and Class Standing

The correlations were not statistically significant ($p \leq 0.05$) between respondents' perceptions of their institutional commitment (IC) and their class standing (r_{pb} [149] = -0.023 , $p = 0.782$), although they were statistically significant ($p \geq 0.05$) for four individual IC survey items (*i.e.*, item #24, $p = 0.009$; item #25, $p \leq 0.001$; item #26, $p = 0.013$; and item #27, $p \leq 0.001$). These findings are reported in Table 3.

There was additional statistical support from an independent sample *t*-test suggesting graduate participants showed significantly stronger responses ($p \geq 0.05$) in four particular institutional commitment areas (*i.e.*, item #24, $p \leq 0.001$; item #25, $p \leq 0.001$; item #26,

TABLE 2 ► Social Integration Correlations Based on (n=149)

Social Integration Survey Items		Class Standing	
		r_{pb}	p
13	Socialize With Classmates	0.097	0.236
14	Socialize With Other Students	-0.192	0.018
15	Easy of Making American Friends	-0.143	0.080
16	Easy of Making International Friends	0.010	0.904
17	Participate in Student Clubs/Organizations	-0.069	0.399
18	Enjoy Social Life	-0.157	0.054
19	Challenge Being Away From Family	0.105	0.201

TABLE 3 ► Institutional Commitment Correlations Based on Class Standing (n=149)

Institutional Commitment Survey Items		Class Standing	
		r_{pb}	p
20	University Right Place for Me	-0.060	0.465
21	Feel Welcomed on Campus	-0.075	0.361
22	Feel Respected on Campus	-0.072	0.379
23	Satisfaction With Support Services	-0.152	0.062
24	Plan to Be Here Next Semester	0.213	0.009
25	Plan to Graduate From This University	0.365	<0.001
26	Plan to Transfer to Another University	-0.205	0.013
27	End School and Go Home Without Degree	-0.323	<0.001

$p = 0.011$; and item #27, $p \leq 0.001$) compared to undergraduate participants (Table 4, on page 65).

Institutional Commitment and Living Status

Although correlations were not statistically significant ($p = < 0.05$) between institutional commitment and living status (r_{pb} [149] = -0.144 , $p = 0.078$), they were statistically significant ($p \leq 0.05$) for seven individual IC survey items (*i.e.*, item #20, $p = 0.022$; item #21, $p = 0.018$; item #22, $p = 0.018$; item #23, $p = 0.015$; item #25, $p \leq 0.001$; item #26, $p = 0.024$; and item #27, $p \leq 0.001$).

There was additional statistical support from an independent sample *t*-test suggesting off-campus participants showed significantly stronger commitment ($p \leq 0.05$) in three institutional areas (*i.e.*, item #24, $p = 0.046$; item #25, $p \leq 0.001$; and item #27, $p \leq 0.001$) when compared to on-campus participants.

TABLE 4 ► Institutional Commitment Mean Differences for Class Standing

Institutional Commitment Survey Items		Undergrad		Graduate		Undergrad	Graduate
		M	SD	M	SD		
20	University Right Place for Me	4.70	1.21	4.55	1.34	0.74	0.400
21	Feel Welcomed on Campus	4.75	1.47	4.54	1.35	0.92	0.396
22	Feel Respected on Campus	4.79	1.40	4.60	1.32	0.89	0.509
23	Satisfaction With Support Services	4.75	1.38	4.33	1.32	1.89	0.841
24	Plan to Be Here Next Semester	4.31	2.09	5.11	1.57	-2.67	<0.001
25	Plan to Graduate From This University	4.72	1.87	5.76	0.66	-4.79	<0.001
26	Plan to Transfer to Another University	1.84	1.25	1.38	0.39	2.53	0.011
27	End School and Go Home Without Degree	1.88	1.70	1.08	0.42	4.17	<0.001

Abbreviation Key

- M = Mean
- SD = Standard Deviation

Discussion and Conclusions

Academic Integration

A few statistically-significant correlations with individual scale items were noted. Satisfaction with classroom instruction was significantly correlated to living status, with participants living on campus more likely to report satisfaction with their instruction ($M = 5.29$; $SD = 0.79$). For class standing (*i.e.*, undergraduate vs. graduate), graduate participants reported significantly stronger perceptions of language satisfaction, classroom instruction matching job options, professor moral support, family moral support, and on-time homework completion (*i.e.*, less likely to procrastinate).

Regarding living status, participants living on campus were more likely to report their classroom instruction matched job options and that they submitted their homework on time, lending support for research that has reported on-campus living boosts academic performance (Tinto 1987). These findings are also in concert with higher GPAs being associated with freshmen living on campus compared to those living off campus (Nicpon, *et al.* 2006).

Social Integration

No associations between social integration and the two demographic characteristics (*i.e.*, class standing and living status) were significant in this study. These results are inconsistent with Tinto's (1987) finding that on-cam-

pus living increases students' social connections and interactions and with Christie and Dinham's (1991) report that living on campus facilitates the social integration of first-year students. Unlike the case with academic integration, mean differences among the independent and dependent variables established via a series of independent samples *t*-tests were not statistically significant, either.

A few statistically-significant relationships with individual scale items, however, were noted. Socializing with other students, for instance, was significantly correlated with class standing, with undergraduate participants more likely to report having good relationships with other students ($M = 3.90$; $SD = 1.85$). Socializing with other students and enjoying social life were also significantly correlated with living status, with participants living on campus more likely to report positive perceptions in both cases, ($M = 3.90$; $SD = 1.80$; and $M = 4.12$; $SD = 1.70$ respectively). This is consistent with research that has reported that living on campus and participating in special academic and social programs in the residence foster social integration (Braxton and McClendon 2001).

Institutional Commitment

In the present study, although none of the associations between institutional commitment and the two demographic attributes (*i.e.*, class standing and living status) were statistically significant, a few statistically signifi-

cant associations with individual scale items were noted. Participants' plans to be enrolled in their universities the following semester and graduate from their institutions, as well as their plan to transfer to another university or end school and go home without a degree, for instance, were significantly related to the independent variable of class standing (*i.e.*, undergraduate vs. graduate). Graduate participants showed higher means for enrolling in the next term ($M = 5.11$; $SD = 1.57$) and graduating from the current institution ($M = 5.76$; $SD = 0.66$) and lower means for transferring ($M = 1.38$; $SD = 0.39$) and going home without a degree ($M = 1.08$; $SD = 0.42$).

Statistically significant associations were also established between seven individual institutional commitment survey items (*i.e.*, participants' perceptions of their universities being the right place for them, feeling welcomed on campus, feeling respected on campus, being satisfied with campus support services, planning to graduate from their universities, planning to transfer to another university, and ending school and going home without a degree) and the dependent variable of living status (*i.e.*, on-campus vs. off-campus living). Out of the seven scale items, on-campus participants showed stronger perceptions in the first four items (*i.e.*, the university being the right place, feeling welcomed on campus, feeling respected on campus, and being satisfied with campus support services). Off-campus participants showed stronger perceptions in the last three items (*i.e.*, planning to graduate from the host universities, being less likely to transfer to another university, and being less likely to end school and go home without a degree).

These results are not consistent with previous findings that suggested on-campus living, as opposed to off-campus living, boosted students' chances of graduating in four years (Astin 1973), although Astin's findings concerned domestic students. Research has also suggested that living on-campus during the freshman year increased freshmen's graduation chances by 12 percent (Astin 1977). In general, the effect of on-campus living was found to be significant (Herndon 1984; Pascarella 1985). It was also found that living on campus increased students' graduation odds by 43 percent (Velez 1985).

Research in this area, however, is at least 30 years old, and new research is warranted.

Conclusion

Although composite means from the answers to a few survey items could point to a few areas of concern (*e.g.*, procrastination, socializing with classmates outside the classroom, the ease of making American friends, and participating in student clubs/organizations), from the broad perspective, the results seem to suggest international students enrolled in West Virginia's public, four-year higher education institutions do not struggle academically, socially, or institutionally. Persistence and retention data from the West Virginia HEPC (2022), however, suggest that integration could be a challenge for international students and that institutions are facing a number of challenges in their retention efforts (Z. Georgieva, personal communication April 18, 2022). This discrepancy between the HEPC's data and the study's findings warrants further investigation. The researcher, however, noted that academic integration showed a positive association with class standing. Further examination of these relationships could perhaps lead to strategies to improve student persistence, students' perceptions of campus climate, and institutional retention practices.

The survey items used in the present study were inspired by a meticulous review of the available literature but were by no means exhaustive. In addition to the survey items indicating negative experiences under each of the three sub-scales (*i.e.*, academic integration, social integration, and institutional commitment), the researcher recommends future studies' surveys include additional items reflecting financial and psychological stressors (Adams, Meyers, and Beidas 2016) to expand the findings from the present study. Those variables could include age, financial status, and study habits (*e.g.*, how international students study and prepare for exams), among others. Prior research has shown that age could predict psychological adjustment (Bastien, Seifen-Adkins, and Johnson 2018), and that certain academic stressors could motivate international students to perform at a higher level while others could be related

to a possible poor performance on exams (Lin, Su, and McElwain 2019).

Additional independent variables reflecting the personality traits of extroversion, agreeableness, openness, conscientiousness, and neuroticism (Harsha, Iveen, and Oliver 2015; Wang, *et al.* 2023) could be added to future studies' surveys to investigate possible associations among these traits and international students' academic integration, social integration, and institutional commitment. Laskey and Hetzel (2011) used these five personality traits to measure student success, which yielded promising results. Self-determination was also shown to have an influence on students' intercultural integration strategies (Jean-François 2019). Surveys from future studies could encompass items reflecting these personality traits to better understand international students' college experience.

Limitations

The study findings were limited to the international students who agreed to participate from the selected public regional universities in the state of West Virginia, hence limiting the pool of participants and potentially

decreasing the response rate. Therefore, generalizability to the international student population attending higher education institutions in the broader Appalachian region, which includes Appalachian states outside West Virginia, was limited. The response rate, 12.82 percent, was also deemed low. The study could benefit from a higher response rate, hence a robust sample that would be a much stronger representation of the population of international students attending public regional universities in West Virginia.

The length of the survey was an additional hurdle to securing stronger participation as some respondents decided against completion. Social and/or academic experiences, positive or negative, might also have affected participants' responses to certain questions, their perception of/approach to the whole survey, or both. Finally, while the researcher's own personal and academic experiences as a former international student might have encouraged some respondents to participate and allowed for a perspective that could enhance interpretation of responses, researcher bias might have been a potential limitation as well.

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