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Reconceptualizing Student Engagement: Investigating the Validity of CCSSE Benchmarks as Indicators of International Student Engagement

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ABSTRACT

International students in the United States have been increasingly attracted to community colleges as a starting point to higher education. Recently, their enrollment has been dropping. Research highlights the importance of student engagement to international students. However, few studies investigate their engagement experiences in community colleges. This study investigated the validity of the Community College Survey of Student Engagement (CCSSE) benchmarks as proxies for international student engagement in community colleges. The original CCSSE benchmarks were a poor fit for international students. Resulting constructs and underlying items differed significantly from the original benchmarks and demonstrated poor reliability. Findings highlight the inapplicability of CCSSE benchmarks in representing international student engagement. Recommendations include adding culturally relevant variables to the CCSSE structure more applicable to international student populations, and accompanying the survey with qualitative input for in-depth knowledge of

international student experiences.

In recent years, community colleges have witnessed an influx of international students (Lau et al., 2019; Zhang, 2017). During the 2018–2019 academic year, there were 86,351 international students studying at U.S. community colleges, representing 8.3% of total international enrollment in the United States (Institute for International Education, 2019). Essentially, community colleges fulfill a vital mission in providing open-access education to students from a multitude of cultures, educational backgrounds, and ethnicities (Cohen et al., 2014). Their affordability, emphasis on English language skill building, and diverse campus climates make community colleges an attractive educational environment for international students (Evelyn, 2005; Glass & Westmont, 2013; Montgomery & McDowell, 2009).

Community colleges offer international students a second chance to pursue a postsecondary education that they would not have otherwise had access to since many of them cannot afford tuition in a 4-year institution, and many did not graduate from high school or were not accepted to university in their home countries due to more stringent admission criteria (Anayah & Kuk, 2015). The community college is a viable option to gain a postsecondary education as it offers a pathway to a 4-year institution (Hagedorn & Lee, 2005; Zhang, 2017). Studies have shown that most international students at community colleges intend to transfer to 4-year institutions (Bevis & Lucas, 2007; Bohman, 2010; Hagedorn & Lee, 2005), demonstrating the importance of community colleges as stepping stones for international students' bachelor's degree attainment (Bohman, 2010).

Given that community colleges have been serving the needs of international students for over two decades, the continuous influx of these students into community colleges justifies a deeper understanding of the characteristics of this unique subpopulation to enable community college leaders and educators to ensure that they are meeting the needs of all students (Garcia et al., 2019). For this reason, this study examines whether current student engagement tools are accurate and applicable indicators of engagement for the international student population across U.S community colleges.

LITERATURE REVIEW

International Students in U.S. Higher Education

International students undergo challenges that affect their engagement with different aspects of their educational experiences in the United States. One of the most frequently mentioned challenges faced by international students in the United States is the language barrier (Chen, 1999; Furnham & Alibhai, 1985; Gallagher, 2013; Smith & Khawaja, 2011; Wu et al., 2015). According to Chen

(1999), second language anxiety can negatively impact international students both academically and socially, affecting their ability to write assignments, communicate with peers and faculty, and understand lectures. In social contexts, social language anxiety impedes international students' ability to interact and befriend domestic students (Montgomery & McDowell, 2009). Also, international students often have difficulties adapting to Western Styles of teaching, particularly students coming from collectivist cultures who are accustomed to more stringent teaching methods (Edgeworth & Eiseman, 2007; Misra et al., 2003).

Aside from academic stressors, international students also suffer from sociocultural stressors due to being away from their home country (Sherry et al., 2010). Homesickness, culture shock, and isolation are just a few of the challenges these students face upon arriving at their new educational destination (Korobova & Starobin, 2015; Smith & Khawaja, 2011). Due to cultural disparities, international students may feel overwhelmed by differences in cultural norms and religious values and beliefs, as well as social activities conducted in the new environment (Banjong, 2015; Furnham & Alibhai, 1985).

Collective findings from the literature have shown that international students experience higher levels of discrimination than domestic students, causing them to gravitate more toward forming friendships with other international students they can identify with (Poyrazli & Lopez, 2007; Schmitt et al., 2003). Research also highlights the significant role of faculty in alleviating the difficulties of acclimatization and adjustment among international students. Literature on student–faculty interactions of international students emphasizes the importance of faculty in creating inclusive classroom environments for international students and exhibiting emotional cues that signal inclusion or exclusion among international students (Glass et al., 2015; Urban & Palmer, 2015). Studies have also highlighted the significant role of student–faculty interactions in providing international students with additional academic and social support to succeed through college (Glass & Westmont, 2014; Lau et al., 2019). Studies have also found that domestic students express disinterest in forming friendships with international students, which could further alienate international students from the mainstream campus culture, although these relationships could be extremely beneficial in increasing international student engagement and overall sense of adjustment (Korobova & Starobin, 2015).

Moreover, environmental stressors including financial issues and visa restrictions can place a great deal of strain on international students throughout their academic journey (Bohman, 2014). Most international students studying at U.S. universities and community colleges hold F-1 or M-1 visas, which are temporary student visas valid for the length of the educational period (Institute of International Education, 2018). Visa requirements include enrolling full time, and work eligibility is restricted to on-campus employment for the first academic year. As a result of these restrictions, international students feel enhanced pressure to maintain their full-time enrollment status while struggling to find suitable employment that could provide some financial support, particularly because international students are ineligible for any kind of federal financial aid (Hagedorn

& Lee, 2005), the majority of international students rely on personal or family income to support them through college (Institute of International Education, 2018). Collectively, the above research findings concerning the challenges faced by international students in the United States, in addition to the recent influx of international students to U.S. community colleges, further justifies the need to gain a better grasp of their experiences in community colleges.

Purpose of the Study

Given the unique characteristics of international students enrolled in community colleges and the gap in the literature surrounding their experiences in this setting, this study examines whether the Community College Survey of Student Engagement (CCSSE) benchmarks and the items measuring each construct are empirically valid indicators of international student engagement. The overarching goal of this study is to develop a reconceptualized model of student engagement specific to international students in community colleges. In particular, the study addresses the following research questions:

1. What are the sociodemographic, precollege, and academic characteristics of international students studying at U.S. community colleges?

2. To what extent are the five CCSSE benchmarks of effective educational practices valid constructs of international student engagement in the community college context?

This study adds to the scant body of literature surrounding international student experiences in community colleges by reevaluating items in engagement constructs that may apply differently to international students as compared with their domestic peers. Findings can provide community colleges with a reconceptualized model that reveals items reflective of underlying engagement constructs specific to characteristics of international students. Community college leaders can use these findings to reassess their curricular and co-curricular components in ways that better support international students' academic success.

Assessing Student Engagement

Research demonstrates the importance of student engagement in achieving successful learning outcomes in college (Astin, 1993; Chickering & Gamson, 1987; Tinto, 1994). Student engagement has been defined as the quality of interactions with faculty and peers (Pascarella & Terenzini, 2005), involvement in active and collaborative learning (Chickering & Gamson, 1987), and the time spent using college resources (Pascarella & Terenzini, 2005). Recently, the increased demand on institutions to demonstrate effective engagement practices has led to the use of assessment instruments, namely the National Survey of Student Engagement (NSSE) and the Community College Survey of Student Engagement (CCSSE), to measure the frequency of educational practices that positively predict academic outcomes (CCSSE, 2005; Kuh, 2009; McClenney,

Marti, & Adkins, 2006). Both instruments measure how institutions are promoting student engagement across five key areas of effective educational practices, and these practices are hypothesized to measure institutional effectiveness (McClenney & Marti, 2012).

Tailored to community colleges, the CCSSE collects data from students regarding their engagement in five key benchmarks of effective educational practices. Despite the vast extent to which the CCSSE has been used for higher education development and assessment, some scholars have questioned the construct validity of the CCSSE benchmarks, particularly for students from different cultural backgrounds (Angell, 2009; Mandarino & Mattern, 2010; Nora et al., 2011). Given that international students at community colleges come from a variety of cultural backgrounds and experiences, their engagement constructs and underlying items may differ from their domestic peers. These differences could uncover meaningful information about the support services and engagement components central to international student success.

The CCSSE theorizes five key benchmarks of student engagement that are positively related to student outcomes, which include (a) active and collaborative learning, (b) student effort, (c) academic challenge, (d) student–faculty interaction, and (e) support for learners (McClenney, 2006). Several studies have demonstrated the validity of both NSSE and CCSSE benchmarks as a proxy for positive student outcomes in higher education (e.g., Carini et al., 2006; McClenney, 2007; McClenney et al., 2012; Price & Tovar, 2014). While findings of these studies broadly confirmed the reliability of engagement benchmarks, some scholars have questioned these results (e.g., Angell, 2009; Campbell & Cabrera, 2011; Mandarino & Mattern, 2010; Nora et al., 2011). Angell (2009) examined the construct validity of the CCSSE benchmarks using survey responses from a sample of 450 students. Results showed differences in the items that were loaded onto each benchmark, reflecting major differences in the way various engagement constructs are defined and characterized differently by international students, as compared with their domestic peers. Mandarino and Mattern (2010) also tested the validity of CCSSE benchmarks using confirmatory factor analysis, and found that the student effort benchmark had lower reliability compared to data reported by CCSSE (α = .38).

Lastly, Nora et al. (2011) employed data reduction techniques using CCSSE data from a sample of 393 students, which produced latent constructs that were significantly different from CCSSE benchmarks. To begin with, the factor analysis produced two separate constructs for active and collaborative learning, conflicting with CCSSE's findings that they present one benchmark. Second, items originally under the CCSSE benchmark of student–faculty interaction did not group into a single construct but rather loaded onto other constructs including collaborative learning and faculty interactions. Items included under the academic challenge and support for learners' benchmarks also contained significant differences compared to the CCSSE benchmarks. In addition, like findings by Angell (2009), the student effort benchmark demonstrated a lack of reliability (Nora et al., 2011). These results provide further support regarding the differences in the way international students engage with the different facets of their

educational experience, and give reason to further explore a more adept method of defining engagement constructs specific to international student populations.

CONCEPTUAL FRAMEWORK

Due to the lack of theoretical frameworks that specifically focus on international student populations, the conceptual framework chosen for this study is the international student engagement (ISE) model, which was drawn from multiple perspectives and theories on international student experiences, including Astin's (1993) model and Harris and Wood's (2016) socioecological outcomes model. Literature on the challenges of international students in the United States highlights the effect of cultural barriers, stereotypes, and language difficulties on the academic success and social integration of students (Banjong, 2015; Furnham & Alibhai, 1985; Smith & Khawaja, 2011; Zhang, 2017).

Model Constructs

The ISE model is presented in Figure 1. The ISE model is divided into seven key constructs, categorized into input factors, socioecological domains, and outputs. The first two constructs of the model include background and societal factors and describe background factors that have an influence on the academic success and cultural adjustment of students (Gallagher, 2013; Smith & Khawaja, 2011).
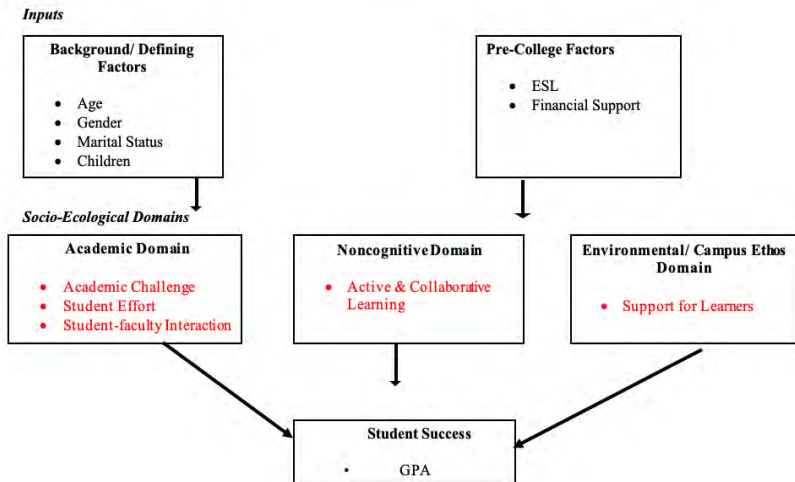
Figure 1: The International Student Engagement Model Depicting Factors Influencing the Grade Point Average and Sense of Belonging of International Students in the United States

The second construct of the model, societal factors, encompasses sociocultural forces that attract students to community colleges. For international students, sociocultural forces represent the precollege factors, including English language proficiency and financial support, that attract them toward community colleges as a starting point to U.S. higher education. Also, international students enrolled at community colleges come from a variety of different academic levels, all of which could have a significant effect on their academic achievement through college (Anayah & Kuk, 2015). For this reason, it was important to include their highest academic credential earned in this construct.

Socioecological Domains

The four socioecological domains of the ISE model represent the interactions between sociological and environmental factors that influence the academic success of international students. These domains consist of the noncognitive domain, the academic domain, the environmental domain, and the campus ethos domain (Harris & Wood, 2016). Using supporting literature and empirical findings from the CCSSE data source employed by this study, the CCSSE benchmarks of effective educational practice for international students were used to represent the socioecological domains of the SEO model. The noncognitive domain contains social variables reflecting students' emotional responses and interactions with the different contexts in a community college (Harris & Wood, 2016). This domain is represented by the active and collaborative learning benchmark, reflecting important facets of the engagement experience such as student–faculty interactions and cross-cultural interactions between domestic and international students that positively impact the engagement and belonging of international students (Garcia et al., 2018). The academic domain consists of variables associated to students' academic experiences and success in community colleges (Hagedorn et al., 2001).

The academic challenge benchmark characterizes the degree of mental challenge required by students in their coursework (CCSSE, 2016). The student effort benchmark describes time on task variables describing the amount of work students put into their academics (CCSSE, 2016). Studies on international student engagement found that students dedicate more effort than domestic students on noninteractive academic engagement, such as studying and working on class assignments, (García et al., 2016; García et al., 2018).

The environmental domain reflects external student commitments that may deter students from focusing their time and effort on academic pursuits (Harris & Wood, 2016; Horn & Nevil, 2006). These commitments include family responsibilities and financial stressors that impede the academic progress of students (Wood & Williams, 2013). Finally, the campus ethos domain represents institutional programs and internal supportive agents that shape the academic experience of students in the community college (Dowd & Bensimon 2013; Harris & Wood, 2016). Both the environment and campus ethos domain were captured in the support for learners' benchmark of the CCSSE.

METHOD

Data Source and Sample

The data used for this study was obtained from the CCSSE, an assessment tool used by community colleges since 2001 to identify institutional practices that encourage student engagement (McClenney et al., 2006). The CCSSE's survey instrument, the Community College Student Report (CCSR), is administered each spring to students in classrooms of participating community colleges (CCSSE, 2012). Eligibility of courses was assessed on whether students were in credit courses and had regularly scheduled meeting times where the survey could be administered (CCSSE, 2019). The CCSR contains 38 items asking students questions related to their engagement behaviors across the five key benchmarks of effective educational practices. Table 1 lists all 38 CCSSE items and response scales.

Table 1: Description of CCSSE Benchmarks and Item Response Scales

Benchmark	Description of items and response scales

Active and collaborative learning	• Contained seven survey items.
	• A 4-point response scale (*Never*, *Sometimes*, *Often*, *Very Often*) measured the frequency of the following college activities:
	  o Made a class presentation
	  o Asked questions or participated in class discussions
	  o Worked with students on a project in class
	  o Discussed ideas from class readings with others outside of class
	  o Participated in a community-based project as part of coursework
	  o Tutored other students

Academic challenge	• Contained 10 survey items.
	• A four-item response scale (*Very little*, *Some*, *Quite a Bit*, *Very Much*) measured the extent to which students did the following four activities:
	  o Analyzed basic ideas of an element of theory
	  o Synthesized and organized ideas in new ways
	  o Made judgements about the soundness of information
	  o Applied information to perform a new skill
	• A five-item response scale (*None*, *1–4*, *5–10*, *11–20*, *More then 20*) was used to measure the following two items:
	  o Number of written papers or reports
	  o Number of assigned readings, textbooks, or manuals

	• A seven-item continuous response scale (1 = *extremely easy*, 7 = *extremely challenging*) was used to measure item: ○ The extent to which exams have challenged students to do their best work
Student effort	• Contained eight survey items. • A four-item response scale (*Never*, *Sometimes*, *Often*, *Very Often*), measured the frequency of the following six activities: ○ Prepared two or more drafts of a paper before submission ○ Worked on a paper that required integrating ideas from various sources ○ Came to class without completing readings or assignments ○ Used peer or other tutoring ○ Used skills lab (writing, math, etc.) ○ Used computer lab • A five-item scale (*None*, *1–4*, *5–10*, *11–20*, *More than 20*) measured the following activity: ○ Number of books read on your own (not assigned) • A six-item scale (*None*, *1–5*, *6–10*, *11–20*, *21–30*, *More than 30*) measured the following activity: ○ Number of hours spent preparing for class in a 7-day week

The dataset contains a 25% a random sample of a 3-year cohort of students, beginning in Spring 2013 and ending in Summer 2015. The full sample ($N = 107,429$) includes data from 694 community colleges located in 47 states. Courses that did not count for institutional credit were administered to high school or incarcerated populations, as well as online courses, were excluded from the sample. International students represented 6.1% of the sample ($n = 6,739$). For this study, only international students enrolled in credit courses with a grade point average were included in the study. This reduced the sample to $n = 6,015$ students.

Variables

Guided by the tenants of the ISE model, we categorized the independent variables included in this analysis into input characteristics (including sociodemographic and precollege characteristics) and socioecological domains.

Data Analysis

To answer the research questions, we used both descriptive and inferential statistics. For the first research question, we used descriptive statistics including frequencies and percentages to indicate the proportional distributions of international students according to sociodemographic and precollege characteristics. We then used χ^2 tests to examine whether proportional differences exist between these characteristics, allowing us to highlight significant differences in predictor variables among international students.

Table 2: List of Variables and Coding Scheme

Variables	Coding scheme
Predictors: Background characteristics	
Gender	0 = male, 1 = female
Age	0 = <20; 1 = 20–29; 2 = 30–29; 3 = 40–50; 4 = >50
Married	0 = yes; 1 = no
Children	0 = yes; 1 = no
Predictors: Pre-college characteristics	
Enrollment status	0 = part time; 1 = full time
Developmental English (ESL)	0 = not required; 1 = required
Predictor: Socioecological domains	
Active and collaborative learning	Continuous (scale) raw benchmark score
Academic challenge	Continuous (scale) raw benchmark score
Student effort	Continuous (scale) raw benchmark score
Support for learners	Continuous (scale) raw benchmark score
Student–faculty interaction	Continuous (scale) raw benchmark score

For the second research question, to determine the validity of the CCSSE benchmarks and their applicability to international students at community colleges, we conducted quantitative data reduction procedures on all 38 survey items. First, we used a confirmatory factor analysis to assess the model fit of the five CCSSE structure. Subsequently, we conducted an exploratory factor analysis on all 38 CCSSE items and compared the results of these factors to the original five CCSSE benchmarks. As part of the analysis, we conducted an examination of eigenvalues, factor loadings, cross loadings, and percentage of variance

explained. Statistically significant items were then given labels that matched the underlying construct depicted. The scales produced we then subjected to a reliability test, and we examined Cronbach's alpha coefficients for each scale to determine the reliability of each construct.

To calculate the raw benchmark scores of the constructs established through the factor analysis, we employed the CCSSE (2014) procedures for benchmark calculations. Table 2 displays the descriptive statistics of the newly established scales. Finally, we employed a confirmatory factor analysis on the newly established constructs in order to compare their model fit indices with the original CCSSE structure.

RESULTS

Descriptive Characteristics of International Students at U.S. Community Colleges

Descriptive findings revealed several noteworthy results regarding international student populations at U.S. community colleges. Females comprised 54% of the sample, while males comprised 46%. The majority of international students (73.6%) enrolled full time, and 26.4% enrolled part time. Of those students enrolled part time, a significantly higher proportion were females ($p <$ .005). Most students in the sample were single (79.6%) and had no children (76.4%); however, results of the chi-square tests revealed that a significantly higher proportion of female students in the sample were married and had children compared with male students ($p < .005$). In terms of age, a larger number of international students were in the younger age groups, with 57.4% of students in the 20–29 age group and 24.7% of students in the below 20 age group.

In terms of precollege characteristics, over half (57.4%) of international students in the sample required remediation in English (English as a second language) courses. Three categorical variables measured the source of financial support for students, including grants/scholarships, personal income, or family income. A higher proportion of students listed parental income as a major source of financial support (39.3%), as compared to other sources.

Validity of CCSSE Engagement Constructs

To assess the validity of CCSSE engagement constructs, we conducted a confirmatory factor analysis on the original five CCSSE benchmarks to assess how representative these engagement constructs are for the international student sample. Fit indexes for the original CCSSE structure showed a statistically significant chi-square test with a value of 7273.181, $p < .005$. The NFI (Normed-Fit Index) (.729), IFI (Incremental Fit Index) (.747), CFI (Comparative Fit Index) (0.747), TLI (Tucker Lewis Index) (.728), and SRMR (Standard Root Mean Square Residual) (.061) collectively indicated the model was a poor fit for the data.

Then, we performed an exploratory factor analysis of all 38 CCSSE survey items to analyze the five-factor structure of the CCSSE benchmarks. As this study's goal was to analyze the validity of the original CCSSE benchmarks and their applicability to international student populations, we used the five-factor framework used by CCSSE in the exploratory factor analysis. Prior to running the analysis, the data were screened by assessing descriptive statistics on each survey item to ensure no univariate or multivariate assumptions were violated. The five-factor structure produced by the data reduction process revealed noticeable differences between the original CCSSE benchmarks and the underlying items within each construct for international students. Differences in items associated with each factor are summarized in Table 3.

Table 3: Comparison of CCSSE Benchmarks with Analysis Results

CCSSE benchmark	Scale for international students
Academic challenge	
• Frequency of working harder than expected to meet teachers' expectations	• Academic challenge
• Amount of course emphasis on analyzing basic elements of a theory	• Academic challenge
• Amount of course emphasis on synthesizing new ideas or organizing ideas from various information sources	• Academic challenge
• Amount of course emphasis on making judgments about the value of soundness of information, arguments of methods	• Academic challenge
• Amount of course emphasis on applying theories and concepts to practical problems	• Academic challenge
• Amount of course emphasis on using information learned to perform a new skill	• Academic challenge
• Number of assigned textbooks, manuals, books, or book-length packs of course reading	• Student effort
• Number of written papers of reports	• Did not load onto any factor
• Rate the extent to which your examinations have challenged you to do your best work	• Student–faculty interaction
• Amount of emphasis by college to encourage you to spend significant amounts of time studying	• Academic challenge
Active and collaborative learning	
• Frequency of asking questions of contributing to class discussions	• Active and collaborative learning
• Frequency of making class presentations	• Active and collaborative learning
• Frequency of working with other students	• Active and collaborative

CCSSE benchmark	Scale for international students
on projects during class	learning
• Frequency of working with other classmates outside of class to prepare class assignments	• Active and collaborative learning
• Frequency of tutoring other students (paid or voluntary)	• Active and collaborative learning
• Frequency of participating in a community-based project as part of a regular course	• Did not load onto any factor
• Frequency of discussing ideas from readings with others outside of class	• Active and collaborative learning
Student effort	
• Frequency of preparing two or more drafts of a paper or assignment before turning it in	• Student effort
• Frequency of working on a paper that required integrating ideas or information from various sources	• Did not load onto any factor
• Frequency of coming to class without completing readings or assignments	• Did not load onto any factor
• Number of books read on your own not assigned	• Student effort
• Hours spent a week preparing for class	• Did not load onto any factor
• Frequency of use: Peer or other tutoring	• Support for learners
• Frequency of use: Skills lab	• Support for learners
• Frequency of use: Computer lab	• Support for learners
Student–faculty interaction	
• Frequency of using email to communicate with an instructor	• Academic challenge
• Frequency of discussing grades of assignments with an instructor	• Active and collaborative learning
• Frequency of talking about career plans with an instructor or advisor	• Active and collaborative learning
• Frequency of discussing ideas from your readings or classes with instructors outside of class	• Active and collaborative learning
• Frequency of receiving prompt feedback from instructors on your performance	• Academic challenge
• Frequency of working with instructors on activities other than coursework	• Active and collaborative learning
Support for learners	
• Amount of emphasis by college in providing the support to help students succeed at college	• Student–faculty interaction
• Amount of emphasis by college to	• Student–faculty interaction

CCSSE benchmark	Scale for international students
encourage contact among diverse students	
• Amount of emphasis by college to help students cope with nonacademic responsibilities	• Student–faculty interaction
• Amount of emphasis by college to provide financial support	• Student–faculty interaction
• Frequency of use of academic advising/planning	• Support for learners
• Frequency of use of career counseling	• Support for learners

Academic Challenge

Ten items were contained in the original CCSSE benchmark. For international students, only seven items loaded onto the academic challenge component. This newly established scale was renamed Cognitive Learning.

Student Effort

Six of the items originally included in the student effort benchmark did not load onto any factor for international students. This scale was renamed Academic Tasks to reflect the focus on time spent on a task for academic variables represented in this construct.

Support for Learners

For international students, the support for learners benchmarks mainly reflected frequent student use of support services, while the original benchmark combined items indicating use of support services and amount of college emphasis in providing student support. This scale also included items reflecting students' use of career counseling, academic advising, and tutoring services, and was renamed Academic Support.

Student–Faculty Interaction

None of the items under the original CCSSE benchmark were reflected in the student–faculty interaction benchmark for international students. While the original benchmark contained items reflecting the amount of interaction and feedback occurring between students and their instructors, the benchmark established through the data reduction process contained items showing college emphasis on student support in various aspects of their college experience. Accordingly, the title of the benchmark was changed to Environmental Support.

Active and Collaborative Learning

Four of the items originally under the student–faculty interaction benchmark loaded onto the active and collaborative learning scale for international students. Items under this scale reflect student collaboration with both peers and faculty on classwork, and was accordingly renamed Collaborative Learning.

We constructed subscales of the benchmarks for international students based on the organization of items loaded onto each newly established scale. All subscales demonstrated good internal consistency except for the academic tasks scale, which had a low Cronbach's alpha coefficient of .57. We conducted a second confirmatory factor analysis to confirm the model fit of the resulting structure. The values for NFI (Normed-Fit Index) (.776), TLI (Tucker Lewis Index) (.776), CFI (Comparative Fit Index)(.747), and SRMR (Standard Root Mean Square Residual) (.057) though indicated improved values from the original CCSSE benchmarks, still indicated an inadequate fit of the data.

DISCUSSION

The results confirm the inapplicability of the original five CCSSE benchmarks as valid constructs for international student populations. The analysis yielded the following conclusions: (a) Data reduction analysis derived items representing the latent construct of academic challenge (renamed Cognitive Learning) that were considerably different than those in the original CCSSE benchmark. (b) All items under the student–faculty interaction scale did not load onto a single factor. Rather, one loaded onto the cognitive learning scale and the remaining items loaded onto the collaborative learning scale. (c) While the original support for the learners benchmark included both environmental support and institutional support items, the factor analysis derived two separate constructs. (d) The model fit indices of the newly established constructs fell short of the guidelines for an adequate model fit.

Results support previous findings by Nora et al. (2011), who found differences in the way students characterized engagement items classically defined as student–faculty interactions as active and collaborative learning. Also, results of García et al.'s (2019) data reduction analysis yielded items in the socioacademic construct that matched those items included in the environmental support benchmark in the present study.

The items loaded onto the newly constructed academic challenge scale (renamed Cognitive Learning) included items originally correlated with the active and collaborative learning and student–faculty interaction benchmarks of the CCSSE structure. These findings highlight that what constitutes academic challenge for a domestic student may differ for an international student. For example, while using email to communicate with an instructor and contributing to class discussions were originally included in the student–faculty interaction benchmarks of the original CCSSE benchmarks, they were considered to be an academic challenge for international students. These results are confirmed by studies that demonstrate international students' difficulty in participating in class

discussions and communicating with faculty due to language barriers, differences in teaching and learning styles, and acculturative stress (Mamiseishvili, 2012; Yu & Shen, 2012).

The lower than desired model fit indices for the newly constructed scales indicate that the 38 CCSSE survey items may not be an adequate representation of these underlying constructs for international students. These findings highlight the need to include culturally relevant variables in student engagement assessment tools, such as sense of belonging and cultural inclusivity (Museus & Quaye, 2009; Nuñez, 2009). While the objective of the CCSSE is to measure behaviors that are positively linked to engagement, research studies have documented the significant role of campus climate and sense of belonging on the engagement behaviors of international students (Banjong, 2015; Glass & Westmont, 2014; Glass et al., 2015). In their response to the criticisms posed by researchers regarding the lack of culturally relevant variables in student engagement surveys, McCormick and McClenney (2012) agreed with the concept that engagement surveys should better assess students from different racial backgrounds. They also suggested that the notion of intercultural effort posted by Dowd et al. (2011) should be expended to include students of different nationalities, social class, and abilities, not only ethnic minorities.

Figure 2 displays the International Student Engagement (ISE) model with the re- established CCSSE scales. Coherent with the premise of the non-cognitive domain of the ISE model, active and collaborating learning of international students is affected by their social and cultural values, particularly for students from collectivist cultures (Edgeworth & Eiseman, 2007). Students who are socialized in cultures where learning is more stringent and less focused on in class discussion may have a difficult time adapting to Western styles of teaching, which often contributes to a sense of isolation from faculty (Misra et al., 2003).
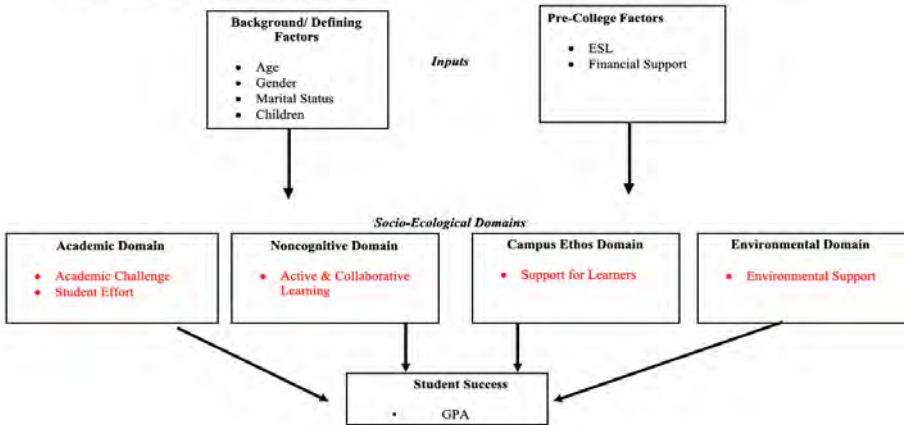
Figure 2: The International Student Engagement Model with Reestablished CCSSE Benchmarks

The ISE model proposes that international student engagement does not occur in a vacuum but is influenced by a variety of background and socioecological characteristics that influence students' perceptions and emotional responses to the different learning channels of their institution, which subsequently impacts their academic achievement. The model highlights the psychosocial aspect of engagement that includes attitudes, perceptions, and emotional responses, along with the behavioral aspect. This psychosocial aspect of student engagement, while included in some definitions of student engagement (e.g., Saloman & Globerson, 1987; Schuetz, 2008), is lacking in the way student engagement is currently defined through the CCSSE benchmarks.

Findings from this study confirm the need to reassess items contained in student engagement assessment tools in the community college context to include more culturally relevant items (Museus & Quaye, 2009; Nora et al.; 2011; Nuñez, 2009). Benchmarks of effective educational practice can support student learning yet simultaneously lack cultural relevance (Yosso et al., 2009). For this reason, relying solely on CCSSE benchmarks as indicators of ISE in community college is not recommended (Angell, 2009). A more holistic way of approaching research on this topic would be accompanying these assessment instruments with qualitative input from students (Quaye & Harper, 2014). Institutions wishing to better engage international students should establish regular methods to hear students' opinions about the nature of their experiences and challenges in order to uncover emerging patterns in their behaviors (ACPA & NASPA, 2004).

Limitations

There are limitations in this study that warrant discussion. The demographic section of the survey did not include any questions to identify students' country of origin, forcing the study to group all international students into a single population. This restricted the study's ability to account for differentiating characteristics of international students from different countries that could significantly influence their academic and social experiences in community colleges (Ghazzawi et al., 2020). Another limitation of this study is that students are not differentiated by the type of visa they hold. A single question on the CCSSE questionnaire simply asks students if they are international students (on F-1 or M-1 visas) or foreign nationals, and groups both categories as one. Distinguishing between international students holding different types of visas can yield valuable demographic information such as work and enrollment restrictions, which could in turn allow more in-depth research to be uncovered regarding the impact of such restrictions on student engagement and academic progress. Additionally, the self-reported nature of the survey responses limits the reliability of the CCSSE findings. Finally, the sample of international students examined in this study was limited to those in institutions that chose to and could afford to administer the CCSSE. Therefore, results of this study do not represent the wider population of international students present at community colleges not administering the CCSSE.

Recommendations for Policy and Practice

Given this study's findings that emphasize the importance of a holistic approach to student engagement tailored to international students, one of the most important ways that educational leaders can better support international students is by encouraging instructors, academic advisors, and student affairs professionals to learn more about international students, their cultures, backgrounds, and challenges through international student support training (Quaye & Harper, 2014). Also, given the significant role of faculty in creating diverse, comfortable classroom environments for international students, international student support training should include methods through which instructors can better engage international students in class through a variety of new approaches (Campbell, 2007; Lau et al., 2019; Korobova & Starobin, 2015). Instructors who demonstrate intercultural competence, exhibit genuine concern for the well-being and academic success of international students, and promote equitable and diverse classroom dialogue can significantly increase the sense of belonging and engagement of international students (Glass, 2012; Glass & Westmont, 2014; Lau et al., 2019; Urban & Palmer, 2014). Furthermore, it is important for faculty to encourage the social interaction of international students with domestic peers through in-class activities and discussions, as such interactions can reduce second language anxiety and, in turn, increase international student's sense of integration with their academic environment (Garcia et al., 2018).

CONCLUSION

Results suggest that using predefined items to measure international student engagement and success may be ill-conceived. Community college leaders are encouraged to use the recommendations provided by this study as a starting point to reassess their curricular and co-curricular components to provide more inclusive and welcoming campus climates for international students. International students are an extremely valuable asset to community colleges, as increasing enrollments enrich the diversity and global repertoire of these institutions. Given these benefits, it is paramount for community college leaders to provide greater support to allow these students to thrive both personally and academically.

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