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Exploring Predictors of Sense of Belonging in Trinidad and Tobago

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Abstract

Over the past two decades, Trinidad and Tobago has promoted explosive expansion of tertiary education. As with many growing postsecondary education systems, this increase in tertiary enrollment has led to the development of student support services (Haddad & Altbach, 2009). The field of student services is growing throughout the Caribbean (Reynolds, 2008), but there is currently little research on the role of student services in fostering students' sense of belonging specific to the Caribbean cultural context. Using data from over 900 students at the University of Trinidad and Tobago, we examined students' sense of belonging in the context of T&T. Findings point to the key role that student services professionals play in promoting students' sense of belonging, but the limited interactions that students are having

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with student services staff and key differences by students' race, religion, program level, and major should be noted. We also identified the indirect role of cocurricular engagement in promoting sense of belonging and the main barriers that prevent students from participating in more cocurricular activities. These findings have important implications for the work of student services professionals in T&T and also expand our understanding of constructs, such as student engagement and sense of belonging, ideas that have been well-researched in the US to a very different tertiary education system.

Research in the United States has consistently highlighted the importance of students' sense of belonging—or feeling of being connected and supported—to their success in postsecondary education (e.g., Hausmann, Ye, Schofield, & Woods, 2009; O'Keeffe, 2013; Strayhorn, 2012; Thomas, 2012). As Strayhorn (2012) argued, sense of belonging is a critical aspect of students' postsecondary experience and is associated with academic success. Research from the United States has provided ample evidence of some of the ways in which educators can foster students' sense of belonging, including encouraging students' relationships with faculty and peers and providing opportunities for cocurricular engagement (Hausmann et al., 2009; Hoffman, Richmond, Morrow, & Salomone, 2002; Hurtado & Carter, 1997; Johnson et al., 2007).

The research on sense of belonging and student success in US postsecondary education has also guided research and practice in other countries, including Australia (Krause & Coates, 2008), the United Kingdom (Thomas, 2012), and South Africa (Wawrzynski, Heck, & Remley, 2012); however, it is clear that US-based theories and research cannot be transplanted to different cultural contexts wholesale without considering the local context (Niehaus, Cen, Seifert, & Wawrzynski, 2016; Speckman & Mandew, 2014). As postsecondary education expands throughout the world (Altbach, Reisberg, & Rumbley, 2009), more country-specific and culture-specific research is needed to examine how educators can best promote student success.

Our purpose was to examine students' sense of belonging in the context of Trinidad and Tobago (T&T). Over the past two decades, T&T has promoted substantial expansion of tertiary education. As with many growing postsecondary education systems, this increase in tertiary enrollment has led to the development of services to support student success (Haddad & Altbach, 2009). The field of student

services is growing throughout the Caribbean (Reynolds, 2008), but there is currently little research on the role of student services in fostering students' sense of belonging in the context of the Caribbean cultural. As tertiary education is a major contributor to economic and social development throughout the Caribbean (Kapur & Crowley 2008; Miller, 2007), more research is needed to understand how student services professionals in tertiary institutions in T&T can best foster students' sense of belonging and academic success, and thus the future success of the region.

Background

Recently, Caribbean nations have been expanding access to tertiary education. Over the past two decades T&T in particular has invested heavily in increasing access to and participation in tertiary education, with a great deal of success. In 2001 tertiary participation was approximately 7%; in 2008 the rate had jumped to 40% (Herbert & Lochan, 2014), and by the end of 2013 was just over 65% (Government of the Republic of Trinidad and Tobago, 2014). This growth has been supported by the rise in private institutions and in 2004 the creation of a new national university, the University of Trinidad and Tobago (Herbert & Lochan, 2014). Importantly, in 2004 the government of T&T also established the Government Assistance for Tuition Expenses (GATE) program, which covered the full cost of undergraduate tertiary education tuition and up to half of the tuition costs for postgraduate studies at any accredited institution in T&T (Parliament of the Republic of Trinidad and Tobago, 2013). However, due to economic difficulties, starting in the 2017–18 academic year, along with other cost-saving measures, the government began imposing a means test to require students with greater financial resources to pay up to 50% of their undergraduate tuition (Office of the Prime Minister, 2017). With the large financial investments in the growth of tertiary education throughout T&T (Herbert & Lochan, 2014; Parliament, 2013), it is necessary to determine how the current student programs and experiences at these institutions foster or hinder a sense of belonging and thereby student success (Hausmann et al., 2009; O'Keeffe, 2013; Strayhorn, 2012).

Theoretical Framework: Sense of Belonging

With the rapid growth of tertiary education across T&T it is not surprising that research on tertiary student experiences remains limited. Moreover, limited student development research and theories exist for the Caribbean as a whole. Therefore, the foundation for this research was drawn from Strayhorn's (2012) theory of sense of belonging. Although this theory was developed in the US, studies have validated the cross-cultural applicability of US-based student development theory by applying US-based postsecondary education theories in other countries (e.g., Krause & Coates, 2008; Thomas, 2012; Wawrzynski et al., 2012). We used sense of belonging theory as a starting point, leaving open the possibility that the dynamics of students' sense of belonging in T&T might lead to unexpected findings that contradict research from other cultural contexts.

Strayhorn (2012) defined *sense of belonging* as "students' perceived social support on campus, a feeling or sensation of connectedness, the experience of mattering or feeling cared about, accepted, respected, valued by, and important to the group (e.g., campus community) or others on campus (e.g., faculty, peers)" (p. 3). Strayhorn described sense of belonging as particularly important "in environments or situations that individuals experience as different, unfamiliar, or foreign" (p. 10). Such environments and situations might include being away from home for the first time or attending college in an unfamiliar environment.

A number of studies have identified key links between students' sense of belonging (or other, related constructs, such as social integration or sense of community) and student success. For example, research has linked sense of belonging to numerous positive outcomes, including retention (Hausmann et al., 2009; O'Keeffe, 2013; Thomas, 2012), intention to persist in college (Hausmann et al., 2009), and academic progress and achievement (Meeuwisse, Severiens, & Born, 2010). In addition to student success, research also suggests that sense of belonging is associated with positive self-perception (Pittman & Richmond, 2008) and well-being and mental health (Hagerty, Williams, Coyne, & Early, 1996).

Importantly, sense of belonging has been found to be a key predictor of student success and well-being for a wide breadth of

student populations (e.g., Johnson et al., 2007) and at a wide array of institutional types (e.g., Morrow & Ackerman, 2012; Maestas, Vaquera, & Zehr, 2007). For example, researchers have identified the importance of sense of belonging for students from minoritized racial and ethnic groups in the United States, including African American, Hispanic/Latinx, and Asian Pacific American students (Johnson et al., 2007; Strayhorn, 2008a, 2008b, 2012). Sense of belonging is also an important contributor to student success at community colleges (Morrow & Ackermann, 2012) and 4-year institutions (Freeman, Anderman, & Jensen, 2007), as well as at institutions that serve specific student populations, such as Hispanic-serving institutions (Maestas et al., 2007) and predominately White institutions (Strayhorn, 2008a).

Although much of the research on sense of belonging has been conducted in the US, there are a number of studies outside of the US that have focused on sense of belonging or related constructs such as social integration. In a study of student engagement in Australia, Krause and Coates (2008) found a strong correlation between “beyond class engagement,” which reflected both cocurricular involvement and overall sense of belonging, and peer engagement. They found a moderate correlation between beyond class engagement and staff engagement, focusing on positive interactions with academic teaching staff. In a study of students in the United Kingdom, Thomas (2012) identified “feelings of isolation and/or not fitting in” (p. 8) as one of the main reasons why students leave higher education, arguing that nurturing a sense of belonging needs to be a priority for institutions. Two of the main factors that promoted sense of belonging were supportive peer relationships and interactions with academic staff. In South Africa, Wawrzynski et al. (2012) found that students who lived off campus reported a stronger sense of connection to their campus community resulting from cocurricular activities than did students who lived on campus, which runs contrary to findings from research in the US. These studies demonstrate the conceptual relevance of sense of belonging in contexts outside of the US, but also the ways in which the predictors of and outcomes related to sense of belonging might be different in different cultural contexts.

Review of the Literature

Student Services Staff and Sense of Belonging

Considering the strong link between sense of belonging and positive student outcomes (e.g., Hausmann et al., 2009; Meeuwisse et al., 2010; O’Keeffe, 2013; Pittman & Richmond, 2008; Thomas, 2012), it is important to consider the ways in which institutions can foster students’ sense of belonging. The US-based and international literature has pointed to the ways in which student services staff in particular can foster students’ sense of belonging by promoting cocurricular experiences, facilitating interactions between students and staff, and encouraging students’ peer interactions. One of the key predictors of students’ sense of belonging in the US and international postsecondary education literature is the extent to which students are engaged on campus, including their interactions with educators and peers (Hausmann et al., 2009; Hoffman et al., 2002; Hurtado & Carter, 1997; Johnson et al., 2007; Krause & Coates, 2008; Morrow & Ackermann, 2012; Schreiner, Noel, Anderson, & Cantwell, 2011; Thomas, 2012) and their participation in cocurricular activities (e.g., Hurtado & Carter, 1997; Krause & Coates, 2008; Strayhorn, 2012; Wawrzynski et al., 2012). Kuh (2003) described *student engagement* as “the time and energy students devote to educationally sound activities . . . and the policies and practices that institutions use to induce students to take part in these activities” (p. 25). Importantly, student engagement is not just what happens inside the classroom, but also what happens when students leave class and engage in other activities on and off campus.

One key way in which student support services fosters sense of belonging is through promoting student engagement with cocurricular activities (e.g., Hurtado & Carter, 1997; Krause & Coates, 2008; Wawrzynski et al., 2012). Although the concept of student engagement comes out of the context of tertiary education in the US, researchers have begun to use student engagement as a framework to understand student learning and development in contexts around the world. In the South African context, Wawrzynski et al. (2012) found a link between student engagement in cocurricular activities (e.g., sports, student societies, and residence events) and outcomes such as positive self-concept, sense of institutional connection, interaction with people from diverse backgrounds, stress relief, and career

decision making. Research on the positive outcomes associated with student engagement has also been conducted in Malaysia (Ali, Jusoff, Ali, Mokhtar, & Salamat, 2009), Australia (e.g., Baik, Naylor, & Arkoudis, 2015), The Philippines (Magpily & Mercado, 2015), New Zealand (Radloff & Coates, 2011), and the United Kingdom (Yorke & Longden, 2007).

In addition, interactions with peers and staff directly influence the sense of belonging experienced by students (e.g., Morrow & Ackerman, 2012; Johnson et al., 2007). For example, O’Keeffe (2013) found that the development of strong relationships between students and faculty and staff members led to increased sense of belonging. Student services staff also indirectly support sense of belonging by fostering interactions between peers through cocurricular programming. Other researchers have identified a positive relationship between faculty/staff interactions and students’ intentions to persist in college (e.g., Hatch & Garcia, 2017; Morrow & Ackermann, 2012). Research indicates peer interactions, often with diverse peers, can lead to sense of belonging. Johnson et al. (2007) found that students’ social transition to college had a strong relationship with sense of belonging. Strayhorn (2008a) found that interactions with diverse peers were significant predictors of sense of belonging for Black male students, while Maestas et al. (2007) found that “socializing with diverse peers” positively affected sense of belonging (p. 251).

Purpose and Research Questions

Despite numerous studies exploring sense of belonging and student engagement in the US and other countries, limited research has been conducted on the relationship between the two in the Caribbean. Considering the vital role that tertiary education plays in national development within the Caribbean in general (Kapur & Crowley, 2008; Miller, 2007), and in T&T specifically, it is of vital importance to build a foundation of theory and research for understanding how to best support student success in this unique cultural context. Although there is wide recognition of the importance of local context in identifying the goals of tertiary education broadly, and of student services specifically (e.g., Louisy, 2004; Speckman & Mandew, 2014), most of the models, theories, and research to inform student services practice come from the

US (Reynolds, 2008). Borrowing theories and models from foreign (primarily US) contexts can be helpful to student services practitioners in the Caribbean, but as Speckman and Mandew (2014) noted of similar efforts in South Africa, this borrowing can be “both a blessing and a curse” (p. 1). Borrowed US-based models must be paired with local knowledge about the goals and contexts of tertiary education, along with research specific to the Caribbean context, in order to inform local student affairs practice.

Our purpose for this study was to explore student engagement and sense of belonging within tertiary education in T&T, and specifically at the University of Trinidad and Tobago (UTT). Specifically, we sought to answer the following questions:

1. To what extent and in what ways are students at UTT engaged with student services staff, with their peers, and in cocurricular activities?
2. What barriers do UTT students report to engagement in cocurricular activities?
3. What is the relationship between students’ sense of belonging at UTT and their engagement with student services staff, with their peers, and in cocurricular activities?

Method

Study Site: The University of Trinidad and Tobago

Established in 2004, the UTT is one of three universities in T&T, and the only public, national university. Initially, curricular emphasis was on engineering and technology, but over time UTT expanded its program offerings to include performing arts, fashion, aviation, criminology, and maritime studies. At the time of this study UTT had 10 teaching campuses across T&T. With total enrollment around 7,500 students, individual campuses ranged greatly in enrollment, with the smallest campus enrolling 122 students and the largest 1,735.

The Student Support Services Department of UTT was created to support students’ holistic development by providing out-of-classroom experiential learning activities. The purpose of the department was to provide programs and services on all 10 campuses based on the

unique qualities and needs of UTT students with the aim of eliminating barriers to student success and fostering their holistic development. At the time of the study, the department comprised the following units: (a) Student Development, responsible for Student Life, Transportation, Residence Life, and Disability Services; (b) Counseling Services; (c) Career Development; (d) Student Social Responsibility and Volunteerism, which provided opportunities for community and civic engagement; (e) Personal Enhancement, which provided support to student athletes and developed professional development workshops for staff; and (f) Cafeteria Services. Student Support Services offices and staff were distributed across all 10 campuses, and while students could visit staff at any campus, staff with responsibility for more than one campus travelled to campuses to provide and support programs and services. Although T&T is a relatively small island, transportation can be challenging and expensive. For this reason, most activities were campus specific; however, in an effort to build a UTT identity, Student Support Services staff arranged or supported participation in a number of university-wide events. These included Sports Day, carnival competition, health fair, career fair, and intercampus sporting competitions.

Sources of Data

The data for this study came from a survey of over 900 students enrolled at UTT during the semester of Spring 2017. The survey was developed with student services professionals at UTT in order to reflect their specific needs and to ensure cultural and linguistic relevance; we conducted a pilot study during Spring 2016 and made appropriate revisions to the survey to ensure comprehensiveness and clarity. Survey items focused on students' demographic information, enrollment status, interactions with peers and student services staff, club and organization involvement, barriers to involvement, and relationship to the institution.

Instructors in seven large undergraduate courses—chosen by the UTT Assistant Vice President for Student Support Services to reflect a range of the most popular areas of study at UTT at the time—administered the paper-and-pencil survey in class during the spring semester. Program areas included aviation technology, sports studies, engineering, applied science, fine arts, fashion design, and education.

Courses ranged across all class levels and program types (e.g., certificate, diploma, bachelor's degree).

The majority of students who responded to the survey took courses primarily during the day (78.2%) and were enrolled full time (79%) at UTT. A plurality identified as Indian (41.9%) with almost a third identifying as Black (34.3%) and others identifying as mixed race (15.9%) or with another racial/ ethnic group (7.1%). The majority, 62.7%, identified as Christian, with 20.2% identifying as Hindu, 6.9% as Muslim, 6.9% with no particular religious affiliation, and 3.2% with another religion. Although UTT publishes limited information about its student profile, an analysis of the data that were available indicated that our sample overrepresented full-time students, as only about 60% of the 7,752 students enrolled at UTT during the 2016–17 academic year attended full time (although this total does include graduate as well as undergraduate students).

Conceptual Framework

Following much of the US-based higher education literature on student outcomes, we utilized Astin's inputs–environments–outcomes (I-E-O) model to help structure our analyses (Astin & Antonio, 2012). As Astin argued, measuring outcomes alone does not adequately assess the impact of the college experience, as it fails to account for students' entering characteristics (i.e., inputs). Similarly, efforts to assess college impact should also include measures of what students actually experience in college (i.e., college environments), because environments "can be controlled or changed . . . [and] offer the possibility of improving outcomes in the future" (p. 23).

Outcome. The outcome of interest in this study was students' sense of belonging, measured with a 4-item scale adapted from the National Study of Living-Learning Programs (Inkelas, Szelenyi, Soldner, & Brower, 2007). Students were asked the extent to which they agreed with the following four items: (a) I feel like I belong at this institution, (b) I feel like a member of the campus community, (c) I would choose the same institution again, and (d) I feel comfortable on campus. Response options were a scale from 1 (*strongly disagree*) to 5 (*strongly agree*). See **Table 1**.

Table 1. Descriptive Statistics and Factor Loadings for Sense of Belonging

<i>Item</i>	<i>M</i>	<i>SD</i>	<i>Standardized Factor Loading</i>
I feel like I belong at this institution.	3.51	1.000	.767
I feel a member of the campus community.	3.33	0.930	.663
I would choose the same institution again.	3.53	1.048	.841
I feel comfortable on campus.	3.73	0.966	.822

Scale reliability $\alpha = .874$. CFA Model Fit Indices: RMSEA = .056, CFI = .997, SRMR = .007.
First two items were allowed to correlate.

Inputs. The student input variables in this study were students' race/ethnicity, prior tertiary experience, religious affiliation, socioeconomic status, and marital status. These inputs were chosen based on the literature on sense of belonging (e.g., Johnson et al, 2007; Strayhorn, 2012) and the relevance of these variables to student services practitioners in T&T.

For race/ethnicity, students were asked to check all that applied from the following options: Black/African descent, Indian descent, Asian descent, Syrian/Lebanese, White, and other (with a write-in option). All students who selected more than one option or who selected other and wrote in some variation on mixed race were classified as mixed. Due to the relatively small number of students who selected Asian, Syrian/Lebanese, White, or other (without writing in some version of mixed race), these students were grouped into the other category, leaving us with variables representing Black, Indian, mixed, and other. Although these categories are different from what might be relevant in the US or other contexts, they reflect the most relevant racial and ethnic groups in T&T. According to the 2011 T&T Census, 36% of the population identified as being of African descent, 38% of East Indian descent, and 24% as mixed, with only 2% of the population identifying with some other race or ethnicity (Central Statistics Office, 2011).

Religious affiliation was measured by asking students to select Christian, Muslim, Hindu, Buddhist, Spiritual Baptist, no religious affiliation, or other (with a write-in option). Christian, Spiritual Baptist, and all write-in affiliations that clearly fell under a Christian umbrella (e.g., Anglican, Adventist, Pentecostal, Presbyterian) were grouped together as Christian. Other write-in affiliations that clearly matched

an existing group (e.g., Atheist, Muslim, Spiritual Baptist) were also recoded to match the existing group. Due to the small numbers in the Buddhist group, it was collapsed into the other category with write-in affiliations that were not recategorized. This left us with variables reflecting Christian, Hindu, Muslim, no religious affiliation, and other.

Both race and religious affiliation were coded using effect coding, a strategy that allows researchers to obtain parameter estimates for all groups rather than leaving out one referent group as is necessary in the more typical dummy coding procedure (Mayhew & Simonoff, 2015). Effect coding is preferable to dummy coding “in any research context where a categorical variable without a natural reference group (e.g., college major) is a potential predictor” (p. 170).

Prior tertiary experience was measured with a single question which asked students to indicate whether they had previously attended any other tertiary institution (no = 0, yes = 1). Based on input from UTT staff members, socioeconomic status was measured with a single question asking students to indicate whether they would describe their family’s current financial situation as *wealthy (very comfortable financially)*, *middle income (fairly comfortable financially)*, or *poor (really struggling financially)*. Because very few students (< 3%) selected *wealthy*, we collapsed the wealthy and middle income groups to create a dichotomous variable (wealthy/ middle income = 0, poor = 1). Finally, marital status was measured by asking students to indicate whether they were *married*, *living with a partner*, or *single*; this was collapsed into a single dichotomous variable (single = 0, married/living with a partner = 1).

Bridge Variables. Astin and Antonio (2012) discussed the ways in which certain variables, such as major and enrollment status, reflect decisions that are made prior to enrollment, but “continue to affect the student’s development during the college years” (p. 80); they referred to these factors as “bridge variables” because they bridge student inputs and college environments. We included four bridge measures: program level, major, time of attendance, and enrollment status. These variables reflected the primary ways in which students engage differently in UTT.

Program level reflected whether students were enrolled in a certificate, diploma, or bachelor’s degree program, and major reflected

whether the student's program was in the broad fields of engineering, education, arts/fashion/ humanities, science and technology, or another field. Major field groupings were guided by UTT staff to ensure relevance within the UTT context. As with race and religious affiliation, program level and major were coded using effect coding in order to obtain parameter estimates for all groups. Time of attendance reflected whether students took the majority of their courses during the day (0) or evening (1). Enrollment status reflected whether students were enrolled part time (0) or full time (1).

Environments. The environmental variables in this study reflect the prior literature on sense of belonging and engagement in the US and internationally (Hausmann et al., 2009; Hoffman et al., 2002; Hurtado & Carter, 1997; Johnson et al., 2007; Krause & Coates, 2008; Strayhorn, 2008a; Thomas, 2012; Wawrzynski et al., 2012) as well as the most relevant experiences that students had access to at UTT. These included caring interactions with student services staff, interactions with peers, and involvement in clubs and organizations.

First, caring interactions with student services staff were measured using a 4-item scale. Students were asked to indicate the extent to which they agreed with the following four statements: (a) Student support services staff on this campus have taken an active interest in my life, (b) I have at least one student support services staff member on this campus who I know I can go to when I have a problem, (c) I feel a sense of connection to one or more student support services staff members on this campus, and (d) I have been mentored by a student support services staff member on this campus.

Second, we examined students' peer interactions by asking them about their interactions with diverse peers and their course-related group work. Because of the existing US-based literature pointing to different outcomes from positive and negative diversity interactions (e.g., Hurtado et al, 2007; Mayhew & Engberg, 2010), students' interactions with diverse peers was measured by two items asking students to indicate how frequently they had positive and negative interactions with people different from themselves: 0 (*never*), 1 (*rarely*), 2 (*occasionally*), or 3 (*frequently*). Course-related group work was similarly measured by asking students to indicate how frequently they participated in group assignments or activities for classes.

Finally, students' involvement in clubs and organizations was measured by asking students how frequently they engaged in common formal and informal activities available at UTT: student government/guild, volunteering, sports, religious, academic, cultural, arts, and social with response options 0 (*never or not available*), 1 (*rarely*), 2 (*occasionally*), or 3 (*frequently*). Students were also asked to select from a list of potential barriers to engaging in out-of-class activities (detailed in the Results section), adapted from Wawrzynski et al.'s (2012) work in South Africa. As we were interested more in students' overall level of involvement rather than specific types of activities, we created a composite measure by summing all eight participation items, so that higher values on the composite measure indicated more frequent involvement in more activities overall. This approach to measuring students' overall cocurricular involvement is consistent with student engagement theory (Kuh, 2008) and foundational studies on student engagement in the US (e.g., Johnson et al., 2007; Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008) and internationally (e.g., Wawrzynski et al., 2012).

Data Analysis

Although much of the research using Astin's I-E-O model uses linear regression, simply examining direct effects in a regression framework fails to capture the interrelatedness of student inputs, bridge variables, and environments. As Bryant, Gaston Gayles, and Davis (2012) pointed out, student inputs not only affect outcomes, but they also affect what students do in college (environments). To better capture the direct and indirect relationships between our predictor variables (student inputs, bridge variables, and environments) and students' sense of belonging, we developed the conceptual model shown in **Figure 1**. This model hypothesizes that students' background, enrollment characteristics, and major may influence students' sense of belonging directly, but also indirectly by influencing their group work, cocurricular involvement, and their interactions with peers and student services staff. Similarly, this model hypothesizes interrelationships among students' experiences on campus in ways that may influence their sense of belonging. Specifically, the model hypothesizes that the extent to which students engage in group work and are involved in cocurricular

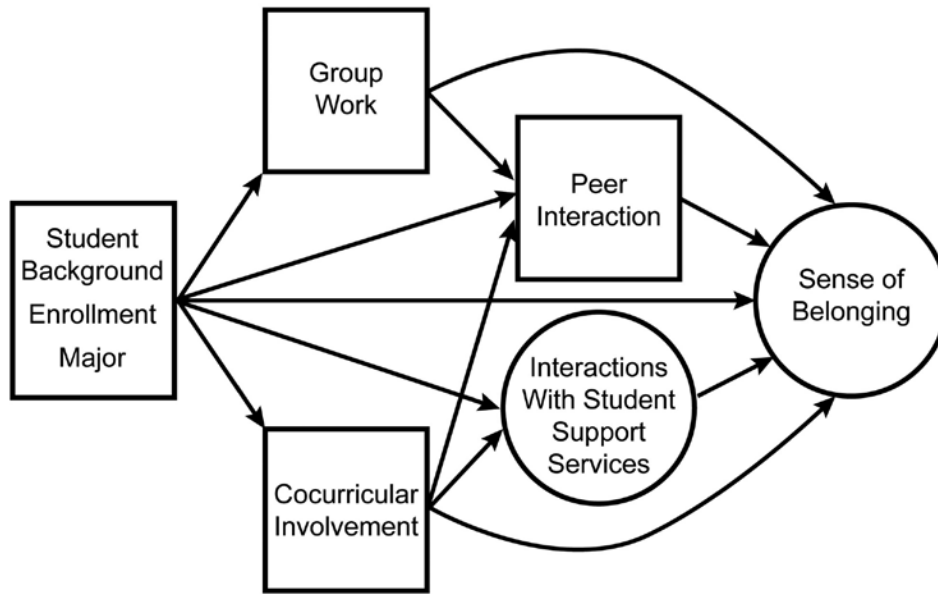


Figure 1. Conceptual Model of the Predictors of Sense of Belonging at UTT

activities could directly influence their sense of belonging, but may also indirectly influence their sense of belonging by affecting their interactions with peers and student services staff.

To test this hypothesized model, we employed structural equation modeling (SEM) in Mplus (version 7.11) with robust standard errors to account for the nesting of students within classrooms during the data collection and maximum likelihood estimation to account for missing data. As our model contains two latent variables (sense of belonging and interactions with student services staff), we first used confirmatory factor analysis (CFA) to test the measurement of each factor. Once we had assured proper fit of the measurement model, we tested the full structural model represented in Figure 1. As we used effect coding for a number of variables in our model, we conducted the analysis twice in order to obtain parameter estimates for each of the groups in the model (Mayhew & Simonoff, 2015). For both the measurement model and the structural model we consulted a variety of fit indices to assess model fit, following Hu and Bentler's (1999) recommendations for cutoff values for determining good model fit: the root mean square error of approximation ($RMSEA < .06$), comparative fit index ($CFI > .95$), and the standardized root mean square residual ($SRMR < .08$).

Limitations

It is important to note a few key limitations. First, we do not have an accurate measure of the response rate to the survey; instructors were asked to indicate the number of students in attendance on the day the survey was administered but generally did not give us that information. Since the survey was administered in class, it is likely that most students who were present completed the survey. Second, although we selected courses in programs that represent a range of popular majors at UTT, we did not take a random sample of students at the institution; as such, it is possible that our findings may not be generalizable to all UTT students. Third, consistent with prior research on student engagement (e.g., Johnson et al., 2007; Kuh et al., 2008; Wawrzynski et al., 2012) we used a composite measure of students' cocurricular activities. Although this allows us to identify the overall relationship between cocurricular involvement and sense of belonging, future researchers might look at whether different types of cocurricular activities affect students' sense of belonging differently. Finally, recent significant changes to the GATE tuition program that had previously provided free access to higher education for all students will inevitably shape higher education in T&T moving forward and may change the relationship between student engagement, sense of belonging, and student success.

Results

Engagement: Types, Frequency, and Barriers

Students overall reported fairly low levels of caring interactions with student services staff, with means across all four items falling between 2.40 and 2.97 (between *disagree*, 2, and *neutral*, 3; see **Table 2**). The most common form of interaction with student services professionals was having at least one student services staff member at UTT who students knew they could go to when they had a problem (22.3% agreed or strongly agreed). The least common form of interaction was having been mentored by a student services staff member at UTT (10.8% agreed or strongly agreed).

Table 2. Descriptive Statistics and Factor Loadings for Interactions with Student Services Staff

<i>Item</i>	<i>M</i>	<i>SD</i>	<i>Agree or Strongly Agree</i>	<i>Standardized Factor Loading</i>
Student support services staff on this campus have taken an active interest in my life.	2.97	0.951	18.8%	.655
I have at least one student support services staff member on this campus who I know I can go to when I have a problem.	2.89	1.218	22.3%	.781
I feel a sense of connection to one or more student support services staff members on this campus.	2.58	1.047	11.0%	.945
I have been mentored by a student support services staff member on this campus.	2.40	1.055	10.8%	.754

Scale reliability $\alpha = .863$. CFA Model Fit Indices: RMSEA < .001, CFI = 1.00, SRMR = .007.

In terms of students' peer interactions, the majority of students (89.6%) reported engaging in group assignments or activities for class. A majority of students (92.1%) also reported that they had positive interactions with people different from themselves at UTT, while fewer (69.6%) reported having negative interactions with those different from themselves.

Students reported a relatively high level of cocurricular engagement overall: almost 75.0% of students were involved in at least one club or organization at least rarely, and only 26.9% of respondents indicated that they were never involved in any of the clubs or organizations listed, or that the opportunities were not available to them. The most popular form of involvement was volunteer clubs and organizations, with 57.8% of participants involved in some way, followed by those for sports (47.8%), social (41.0%), academic (39.7%), religious (37.1%), cultural (34.4%), arts (33.3%), and student government/guild (29.3%).

Students were also asked to indicate what barriers they faced to being more involved on campus. The most commonly cited barrier was the day and time of activities (56%), followed by other

time commitments (52.3%), class conflicts (44.2%), transportation (38.5%), lack of knowledge of activities (36.2%), family commitments (35.6%), lack of money (33.7%), job or work conflicts (30.6%), extracurricular activities outside of the university (24.3%), limited interest (20.4%), religious commitments (16.2%), and feeling isolated or not fitting in (12.3%).

Predictors of Sense of Belonging

Confirmatory factor analysis (the measurement model) showed good model fit for both latent variables in our model: sense of belonging (RMSEA = .056, CFI = .997, SRMR = .007, after allowing the first two items to correlate) and caring interactions with student support services staff (RMSEA < .001, CFI = 1.00, SRMR = .007). All factor loadings were above .650 across both measures (see Tables 1 and 2), and Cronbach's alpha indicated a high level of reliability for each ($\alpha = .874$ for sense of belonging and $\alpha = .863$ for caring interactions with student support services staff).

Table 3 details the results of our SEM analysis predicting students' sense of belonging (the structural model). Model fit indices indicated good model fit (RMSEA = .035, CFI = .958, SRMR = .024). We found no direct effect of student's background or enrollment characteristics; however, we did find that some students' experiences on campus did have an effect on their sense of belonging. We found that students' interactions with student services staff had a positive effect on their sense of belonging, while their peer interactions were mixed. We found a negative effect of negative interactions with diverse peers on sense of belonging, but no effect of positive interactions with diverse peers or of group work in class. We also did not find students' cocurricular involvement to have a direct effect on their sense of belonging.

There were a number of significant direct effects on students' interactions with student services staff, including a negative effect of identifying as mixed race and a positive effect of identifying with a religion other than Christian, Muslim, or Hindu. Being enrolled in a bachelor's program or majoring in science and technology areas were also positively related to students' interactions with student services staff, while majoring in education was negatively related. Being more involved in cocurricular activities was also positively related to interactions with student services staff.

Table 3. Direct Effects

	<i>Group Work</i>	<i>Negative Peer Interactions</i>	<i>Positive Peer Interactions</i>	<i>Involve- ment</i>	<i>Interactions with Student Services</i>	<i>Sense of Belonging</i>
Black ^a	—	0.084	-0.057	-0.121	0.040	-0.028
Indian ^b	—	0.048	-0.012	0.369	0.063	0.142
Mixed Race	—	0.031	0.039	-0.513	-0.055*	-0.044
Other Race	—	-0.163*	0.029	0.265	-0.048	-0.070
Prior Tertiary Experience	—	-0.048	-0.055	-0.685**	0.026	-0.122
Muslim ^a	—	-0.070	-0.030	0.640	-0.034	0.085
Christian ^b	—	-0.097*	-0.059	-0.034	> 0.001	0.063
Hindu	—	-0.089	-0.050	1.502***	-0.097	0.086
Other Religion	—	0.132	-0.005	0.356	0.195*	-0.110
No Religious Affiliation	—	0.124*	0.144***	-2.465***	-0.065	-0.124
Socioeconomic Status (Poor)	—	0.093	-0.058	0.498	-0.047	0.038
Marital Status (Married/with Partner)	—	-0.149	-0.126	-0.003	-0.086	0.036
Certificate Program ^a	0.119***	-0.132*	0.008	-0.204	-0.017	0.058
Diploma Program ^b	-0.210**	0.032	0.008	0.073	-0.045	-0.052
Bachelor's Program	0.091	0.100*	-0.015	0.131	0.062**	-0.006
Major: Education ^a	0.128	0.040	0.008	-0.773	-0.169***	-0.104
Major: Engineering ^b	-0.034	0.071*	0.013	-0.656*	0.037	-0.051
Major: Arts/Fashion/Humanities	-0.166*	0.057	0.038	-0.555	-0.070	-0.004
Major: Science & Technology	0.248	-0.115*	0.075	0.613	0.131*	0.039
Major: Other	-0.175***	-0.052	-0.134*	1.371***	0.071	0.121
Time of Class Attendance (Day)	-0.157	-0.130	0.315**	0.805	-0.225	0.029
Enrollment Status (Part Time)	0.081	0.115	-0.274*	-2.185*	0.307	0.054
Caring Interactions with Student Services Staff	—	—	—	—	—	0.337***
Positive Interactions with Diverse Peers	—	—	—	—	—	0.102
Negative Interactions with Diverse Peers	—	—	—	—	—	-0.105**
Group Work in Class	—	0.149***	0.574***	—	—	0.053
Cocurricular Involvement	—	0.023***	0.022***	—	0.019***	0.008
<i>R</i> ²	0.037*	0.062***	0.421***	0.077***	0.065***	0.164***

Model Fit: RMSEA = .035, CFI = .958, SRMR = .024.

a. Variable excluded in first analysis.

b. Variable excluded in second analysis.

* $p < .05$; ** $p < .01$; *** $p < .001$

Students' cocurricular involvement was positively related to identifying as Hindu, but negatively related to having prior tertiary experience or no religious affiliation. Students majoring in engineering and those attending school part time had lower levels of involvement than their peers, while students majoring in other areas (not among those listed) had significantly higher levels of involvement than those in education, engineering, science and technology, and arts/fashion/humanities.

Finally, there were a number of direct effects on students' interaction with peers. Students with no religious affiliation reported more frequent interactions with diverse peers, both negative and positive, while those identifying as Christian or as another race (besides Black, Indian, or mixed race) reported less frequent negative interactions than did their peers. Students in bachelor's programs and those majoring in engineering reported more frequent negative interactions with diverse peers, while those in certificate programs and those majoring in science and technology reported less frequent negative interactions than did other students. On the other hand, students majoring in other fields and those attending school part time reported less frequent positive interactions with diverse peers, while those attending class primarily during the day reported more frequent positive interactions than did other students. Interestingly, students' cocurricular involvement and the frequency with which they engaged in group work in class was a significant, positive predictor of both positive and negative interactions with diverse peers.

When it came to group work, those enrolled in diploma programs, those majoring in other fields, and those majoring in arts/ fashion/ humanities all reported significantly less frequent group work than their peers; those enrolled in certificate programs, however, reported significantly more frequent group work.

Although only two variables had a direct effect on students' sense of belonging—interactions with student services staff (positive) and negative interactions with diverse peers (positive)—the SEM analysis also pointed to a number of meaningful indirect effects on sense of belonging. Importantly, the frequency with which students engaged in group work in class had a negative indirect effect on students' sense of belonging, by increasing the frequency with which they had negative interactions with diverse peers. The indirect effect of cocurricular involvement on sense of belonging was mixed. Involvement had

an overall negative indirect effect on sense of belonging through its effect on negative interactions with diverse peers, but an overall positive indirect effect on sense of belonging through its effect on interactions with student services staff.

Discussion and Implications

Considering the recent growth in tertiary education in T&T (Government, 2014) and the lack of locally based research on tertiary students, we examined how student engagement—particularly students' cocurricular involvement, peer interactions, and interactions with student services staff members—is related to students' sense of belonging. One key finding from this study is the centrality of caring interactions with student services staff in predicting students' sense of belonging. This was the only student engagement measure to have a direct, positive effect on sense of belonging. Our finding that the extent to which students perceived that they had positive relationships and interactions with caring staff members highlights the finding of Schreiner et al. (2011) that effective staff members provide support, encouragement, and a caring environment for students. This is in contrast to the ways in which faculty members generally interact with students in their roles as teachers, inspiring students to learn and opening their minds to new ideas.

We found, unfortunately, that students overall were not having many caring interactions with student services staff. Additional information from our SEM analysis points to ways that UTT student services professionals might work to enhance student interactions. We found a few disparities by race, religion, program level, and major, which may indicate that some students are not seeking out interactions with student services professionals as much as others or that student services professionals on some campuses or working with some program areas have more effective outreach and programming than others. These findings can help student services professionals target their assessment, outreach, and professional development initiatives to increase staff members' positive engagement with students.

Another way to increase students' interactions with student services staff, and thereby their sense of belonging, is to increase their cocurricular involvement. We found that the more engaged students

were in cocurricular activities, the more they agreed that they had caring interactions with student services staff. Increasing investment of time and resources in promoting cocurricular engagement opportunities for students might lead to gains in sense of belonging by increasing students' caring interactions with student services staff members. Conflicts with the timing of activities were the biggest barriers to students' cocurricular involvement, reflected in the fact that the three most commonly cited barriers to cocurricular involvement were the day and time of activities, other time commitments, and class conflicts. These timing issues may be difficult to overcome, but over one third of students noted that transportation, lack of knowledge, and/or financial concerns were also substantial barriers. Student Support Services professionals at UTT might use these findings to better target resources towards transportation, defraying the cost of activities for students, and increasing outreach and advertising. Additionally, we found noteworthy disparities in student involvement in cocurricular activities for different groups of students. Student Support Services professionals might target specific outreach to underinvolved groups in order to encourage greater cocurricular involvement overall.

In addition to increasing students' interactions with Student Support Services staff, more cocurricular involvement was also associated with more frequent interactions with diverse peers, both positive and negative. It is surprising that positive interactions with diverse peers had no effect on students' sense of belonging, as previous research has pointed to a relationship between peer interactions and sense of belonging (e.g., Morrow & Ackermann, 2012; Strayhorn, 2012). It is possible that in focusing only on interactions with diverse peers we missed the potential role of interacting with similar peers in promoting students' sense of belonging at UTT. The dynamics around racial, ethnic, cultural, and other forms of diversity are vastly different in T&T than in the US, so future researchers should explore how students in T&T experience and make sense of diversity in their tertiary education experiences. Future research might also include general measures of interactions with peers, or with peers that one views as similar to oneself in meaningful ways, in contribute to outcomes like sense of belonging.

Our findings regarding negative interactions with diverse peers, however, are consistent with the US literature on diversity interactions. As Mayhew and Engberg (2010) argued, negative interactions

with diverse peers, especially when they happen without an opportunity for adequate reflection, can lead to negative outcomes for students. Our study provides additional evidence to this effect, as we found that more frequent negative diversity interactions were related to lower sense of belonging. As with caring interactions with student services staff, our SEM analysis provides additional insight into students' negative experiences with diverse peers. Group work and co-curricular involvement were related to more negative and positive interactions with diverse peers, indicating that both of these factors increased students' overall peer engagement for better and worse. Student Support Services professionals can use this information to create opportunities for students to learn how to interact with those different from themselves—both in and out of the classroom—in more positive ways and to make sense of the negative interactions that do occur. Some of the group differences in negative peer interactions, particularly when those differences were not parallel for positive interactions, might help guide targeted interventions to help students engage with diversity in meaningful ways.

Outside of group differences in negative diversity interactions, it is still unclear what conditions facilitate positive interactions with difference. Although our model explained 42.1% of the variance in positive interactions with diverse peers, it only explained 6.2% of the variance in negative peer interactions. More context-specific research is needed, particularly on how students engage with diversity through course-based group work and cocurricular activities, in order to understand what leads to negative interactions with diverse peers and what can be done to help students make meaning of these experiences in productive ways.

Our findings point to additional avenues for further research in T&T and the Caribbean broadly. Considering the centrality of interactions with student services staff, researchers should investigate these relationships more closely, especially through qualitative research that can provide a more in-depth understanding of how students services staff are interacting with students and what students get out of those interactions. Future researchers should also examine ways in which the relationship between student engagement and sense of belonging varies by these same background and enrollment characteristics. As we focused only on the domain of student services in our research, others might examine students' in-class engagement and, in particular,

might examine students' experiences with group work more in-depth. Finally, researchers should expand this type of research to other institutions throughout the Caribbean to understand how the dynamics of engagement and belonging play out in other institutional and cultural contexts and for different populations of students.

T&T is not unique in its efforts to expand access to tertiary education; as more countries increase postsecondary enrollments, more support will be needed to ensure student success (Altbach et al., 2009). This study provides important insight into how those seeking to provide student support can bridge US-based theories and local research to better support students. In the case of T&T, the results of this study clearly show the value of the work of Student Support Services professionals, but also the need to facilitate more student engagement opportunities and support students in their interactions with diverse peers.

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