Development and Validation of the Need for Relatedness at College Questionnaire (NRC-Q)

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Research indicates that reasons for attending college influence college success and that college students of color (CSC) can be motivated to attend college for different reasons than White college students (WCS). The Need for Relatedness at College Questionnaire (NRC-Q) was developed and tested to provide an instrument for identifying and understanding the various ways in which needs for relatedness, a salient motivator for many CSC, affect college success. On the basis of the recommendation from D. Guiffrida's (2006) cultural critique of V. Tinto's (1993) theory, the scale was developed with a self-determination theory (E. L. Deci & M. R. Ryan, 1991) perspective. Results support the content validity, internal consistency, temporal stability, and construct validity of the scale items, and a confirmatory factor analysis supported the underlying structures of the scale. Results also suggest that college students' needs for relatedness at home are more complex than previous research has suggested.

Keywords: relatedness, college student of color, self-determination theory

Despite significant research and student support efforts over the past 20 years, college students of color (CSC) continue to have lower grade point averages and persistence rates than White college students (WCS). Once framed largely as an issue of academic preparation, recent research indicates that there are a number of institutional factors that can affect the academic achievement and persistence of CSC. In particular, campus climate research indicates that CSC who perceive their college environments as closed or hostile toward them are especially at risk for attrition (Hurtado & Carter, 1997; Smedley, Myers, & Harrell, 1993). This line of research has been central in encouraging college administrators, faculty, and staff to thoroughly examine and improve upon cultural practices that can impede the social integration of CSC.

However, in addition to understanding students' perceptions of the campus environment, campus climate research also seeks to identify and understand the ways in which students form their expectations regarding relationships with others while at college, which is an area that has received much less attention from researchers (Baird, 2000; Hurtado, Milem, Clayton-Pederson, & Allen, 1999). In a multicultural critique of Tinto's (1993) seminal theory of student departure, Guiffrida (2006) argued that the theory could be made more culturally sensitive, particularly with regard to understanding how cultural differences affect relationships with others at college, by identifying the reasons students choose to attend college (i.e., motivational orientation). On the basis of a review of literature in higher education and social and cross-cultural psychology, Guiffrida asserted that motivational orientation influences the ways in which students seek to form social, cultural, and academic connections while at college and that this construct provided potential for illuminating key differences in the experiences of CSC and WCS.

Guiffrida (2006) proposed that self-determination theory (SDT; Deci & Ryan, 1991), one of the most referenced and validated theories used to explain student motivation toward learning, provided a valuable lens for recognizing how

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culture shapes student motivation for attending college. According to SDT, people are most likely to succeed in learning when they are motivated by intrinsic interests, which include the need for autonomy, competence, and relatedness to others, as opposed to being motivated primarily to obtain extrinsic rewards or to avoid punishment.

Although there have been numerous studies validating the efficacy of SDT for understanding motivation toward learning, including studies conducted in higher education settings, most of these studies have assessed students' perceptions of how well their campuses satisfied the three basic intrinsic needs outlined in SDT (i.e., autonomy, competence, and relatedness; see Reeve, Deci, & Ryan, 2004, for a review). A literature review revealed only one study, conducted by Vallerand and Bissonnette (1992), which assessed relationships between why students chose to attend college (i.e., motivational orientation) and academic success from an SDT perspective. However, although this study validated the importance of students being motivated to attend college for intrinsic reasons, it did not include any CSC, which is a salient limitation given research indicating that CSC can be motivated to attend college for different reasons than those for WCS (Guiffrida, 2006; Phinney, Dennis, & Osario, 2006). Vallerand and Bissonnette's (1992) study also failed to assess motivational orientation toward relatedness. This omission of relatedness, a core component of intrinsic motivation from an SDT perspective, is particularly problematic for understanding the unique experiences of CSC, given the recent findings that CSC attributed much greater importance to family-oriented motives for attending college than WCS did (Phinney et al., 2006).

Although the SDT (Deci & Ryan, 1991) concept of relatedness as a form of intrinsic motivation for attending college provides tremendous potential for understanding the experiences of CSC, little is known regarding the varied and complex ways in which the need to relate to others can influence college student success, and a scale does not exist to assess these motivations. The Academic Motivation Scale (AMS; Vallerand et al., 1992), the only instrument designed to assess motivational orientation for attending college from an SDT perspective, only assesses motivational orienta-

tions toward autonomy and competence and fails to assess motivational orientation toward relatedness. The purpose of the present study was to develop a valid and reliable instrument to identify and understand students' needs for relatedness with others while at college from an SDT perspective. Given the relative importance of relatedness as a motivator for academic success, and given research that has indicated potential variations in relatedness needs for many CSC, the instrument has potential to allow for and encourage future research that expands our understanding regarding relationships between culture, motivation, and the academic achievement and persistence of CSC.

Method

Development and testing of this instrument occurred in three distinct phases. In the first phase, we developed questions for the scale that were based on a review of extant motivational and higher education literature and related assessment instruments. In the second phase, we conducted an exploratory factor analysis of the scale items and used the results to decide on the best questions for the final version of the scale. We also performed tests of internal consistency, temporal stability, and convergent validity in this second phase. In the third phase, we performed a confirmatory factor analysis with data collected from a much larger and more diverse sample than the one used in the pilot test. We also tested the relationship between items from the Need for Relatedness at College Questionnaire (NRC-Q) and items that assess intention to drop out of college to determine whether scores on the measure related to an academic outcome in a way that is consistent with SDT (Deci & Ryan, 1991).

Phase I: Development of the NRC-Q Items

Literature describing the construct of relatedness from an SDT perspective was thoroughly reviewed (e.g., Deci & Ryan, 1991; Reeve et al., 2004), along with several related assessment instruments. Although no instrument is currently available that measures *motivational orientation* toward relatedness, there are several valid and reliable instruments that measure *feel-*

ings of relatedness. Deci et al.'s (2001) Basic Need Satisfaction at Work Scale and Richer and Vallerand's (1998) Feelings of Relatedness Scale provided a basic model for wording questions designed to assess this construct from an SDT perspective.

College retention literature was also extensively reviewed to understand the types of relatedness that were likely to be of importance to college students. Much of the retention research was based on Tinto's (1993) theory of student persistence, which indicated that relationships with college peers, faculty, and staff were most important to college retention. Additionally, more contemporary college retention and student development research pointed to the importance of college students' maintaining supportive relationships with their families and friends from home, especially for CSC (Guifrida, 2006). The importance of relationships with family members to CSC was highlighted in a study conducted by Phinney et al. (2006), who identified two salient areas that motivated CSC to attend college: (a) not letting parents down and (b) helping their families financially after graduation.

On the basis of this extensive literature review, we created subcategories designed to assess the following relationships as motivation for attending college: (a) relatedness with college peers, (b) relatedness with faculty and staff, and (c) relatedness with family and friends from home. Consistent with the AMS (Vallerand et al., 1992), the scale began with the statement, "I go to college . . .," which was followed by 18 sentence stems that participants were asked to rate on the basis of how accurately the statement represented their reasons for attending college. The Likert-type scale ratings ranged from 1 (*does not correspond at all*) to 7 (*corresponds exactly*). Examples of the sentence stems used to complete the statement for each construct include (a) to be able to help my family (relatedness with family and friends from home), (b) to meet friends who can relate to me and with whom I'm comfortable (relatedness with peers at college), and (c) to connect with a mentor who will support me and look out for me (relatedness with faculty and staff).

Content validity of the initial version of the NRC-Q was established by the extensive literature review mentioned earlier and by consulting with three judges familiar with SDT (includ-

ing one of the founders of SDT), who read the instrument and commented on the specificity, language, categories, and exhaustiveness of the questions. After making minor changes suggested by the expert reviewers, which included altering some potentially confusing language, the instrument was prepared for field testing with undergraduate college students.

Phase II: Initial Tests of Validity and Reliability

After developing an initial pool of 18 scale items, we conducted several tests of item reliability and validity with a small sample of college students. A convenience sample of 338 students from five different types of colleges and universities, including a community college ($n = 98$), a public teaching college ($n = 82$), a private teaching college ($n = 42$), a public research institution ($n = 8$), and a private research institution ($n = 108$) participated in Phase II of the study. Participants were recruited by college faculty and staff members at each institution who were familiar with and supportive of this line of research. Participants from the community college and from the public teaching college were informed about the study by an academic advisor at each institution. Participants from the private teaching college completed the instrument during an introduction to education course and participants from the private research institution were informed about the study by a resident assistant, an academic advisor, or a Greek letter organization advisor. All participants were informed that the scale was being developed to understand college students' motivations for attending college. Students were also informed that their identities would be kept confidential and that they were under no obligation to participate.

Participants' ages ranged from 17 to 50, with a mean age of 21.9 ($SD = 6.2$); 55% ($n = 186$) of the participants identified themselves as female, 35% as male ($n = 118$), and 10% ($n = 34$) did not respond to this question. To assess the temporal stability of the instrument, we asked a smaller sample of 60 students from the private teaching college ($n = 42$) and the private research institution ($n = 18$) to complete the NRC-Q a second time approximately 3 weeks later.

Phase II Instruments

In addition to completing the initial pilot version of the NRC-Q, participants also completed two other instruments to establish convergent validity. The first was by assessing correlations between the NRC-Q subscales and subscales from the Educational Participation Scale (EPS; Boshier, 1982), which has been used widely to understand the motivational orientations of adult learners. The EPS is divided into seven subscales, three of which were used to assess convergent validity of the relatedness subscales on the NRC-Q (social contact, social stimulation, and family togetherness). Students completed six items from each of the three subscales of interest from the EPS, for a total of 18 questions.

Adult learners who score high on social contact participate in college for the joy of learning with others and are generally considered "healthy," as opposed to those who score high on social stimulation, who attend college because they are lonely or bored. People who score high on family togetherness attend college to keep up with their children or to feel closer to their family members. Because the EPS was designed to assess adult learners' motivational orientations only, some of the family togetherness questions were adapted slightly to be more appropriately worded for traditional-aged undergraduate students. For example, the question, "To keep up with my children" was changed to "To keep up with family members or friends from home." The EPS has shown high coefficient alphas ranging from .76 to .91 and a test-retest coefficient of .65 (Boshier, 1991). A subsequent study supported the overall reliability of the EPS and confirmed the seven-factor structure of the scale. Internal consistency for the EPS with the present sample was .88.

Convergent validity was also assessed through correlations between the NRC-Q relatedness scales and two scales from the Millon Index of Personality Styles (MIPS-R; Millon, 2004): Asocial/Withdrawing (24 true-false items) and Internally Focused (14 true-false items). The MIPS-R has been tested extensively with college students and has an overall alpha value of 0.76. When used with college students, the two scales of interest for this study, Asocial/Withdrawing and Internally Focused, had alpha values of 0.79 and 0.76, respectively, and test-

retest reliabilities of .91 and .86, respectively (Millon, 2004). The internal consistency for the two MIPS-R subscales for the present sample was .87.

Both subscales of interest from the MIPS-R measure personality characteristics that are likely to be negatively correlated with needs for relatedness with others. According to Millon (2004), people scoring high on the Asocial/Withdrawing scale show social indifference; tend to be quiet, passive, and uninvolved; are unable to make friends; and appear apathetically disengaged. People scoring high on the Internally Focused scale tend to gain inspiration and stimulation from themselves (as opposed to others) and find comfort by distancing themselves from others. These personality characteristics, both of which emphasize a need to distance the self from others, should be negatively correlated with scores from the NRC-Q, which assess the degree to which students attend college to socially connect with others.

There are, however, aspects of the MIPS-R that prevent it from being an effective tool for assessing relatedness needs at college. Most important, the MIPS-R is not designed to measure motivational orientations for participating in a particular activity. Furthermore, the subscales of the MIPS-R do not distinguish between types of relationships that students seek or avoid. For example, a student could show social indifference with peers but be very connected with family members (and vice versa), which the MIPS-R cannot distinguish. It is expected, therefore, that a negative relationship would exist between these two scales of the MIPS-R and the relatedness subscales of the NRC-Q. It is also expected, however, that this relationship would be modest because both instruments address distinct constructs, thus supporting the need for the development of an additional instrument geared toward understanding college student relatedness needs as motivation for attending college.

Phase II Results and Discussion

Statistical analysis for Phase II involved the following: (a) exploratory factor analysis to identify the underlying structures of the scale and establish construct validity, (b) intercorrelations among the NRC-Q items to assess internal consistency, (c) correlations between score

at Time 1 and score at Time 2 for students who took the instrument twice within a 1-month period (test–retest) to assess temporal stability, and (d) correlations between the scales of the NRC-Q and scales of the EPS (Boshier, 1982) and the MIPS-R (Millon, 2004) to establish convergent validity.

Validity. Although our research in Phase I provided us with some indications regarding relationships among the scale items, we remained unsure about the number of factors that would emerge given the complexity of the construct and the interrelationships among some of the proposed scale items, especially the items assessing relationships with families and friends from home. Therefore, we chose to begin our empirical study with an exploratory factor analysis as a means of consolidating the observed variables and generating more advanced hypotheses regarding the relationships among the scale items. It is recommended for factor extraction to have at least 300 participants, or a minimum of five cases for each observed variable (Tabachnick & Fidell, 1989). In our case, we surpassed that goal by gathering more than 300 observations. Before proceeding with the exploratory factor analysis, we tested for the factorability of the data using Bartlett's test of sphericity and Kaiser's measure for sampling adequacy, for which an obtained value of .60 or higher is required. We obtained a value of .89 for the Kaiser measure and for Bartlett's test of sphericity, and a $\chi^2(153) = 3275.516, p < .000$, indicating that the data lend themselves well to factor analysis.

Next we conducted a common factor analysis (FA) using SPSS 14.0 for Windows. In their review of psychological scale development research, Worthington and Whittaker (2006) recommended the use of FA for scale development because (a) the technique allows researchers to understand latent constructs that account for shared variance among the items and (b) the results are more likely to generalize to a confirmatory factor analysis (CFA) than other preliminary extraction methods, such as a principle components analysis. Examination of the scree plots of the initial eigenvalues (Nunnally & Bernstein, 1994) indicated that a four-factor structure offered the most parsimonious solution for explaining interrelationships among the data while accounting for approximately 68% of the variance in the data. Table 1 shows the

matrix structure coefficient for each item after an oblique rotation of the initial solution (Tabachnick & Fidell, 1989). We chose an oblique rotation because of the likelihood that the factors may be correlated. The rotation generated a simple and clear structure with all but one item loading highly on only one factor.

The items were clustered into the following four categories, which we labeled (I) relatedness with peers at college, (II) relatedness with family and friends from home (give back), (III) relatedness with faculty and staff, and (IV) relatedness with family and friends from home (keep up; see Table 1). Particularly interesting to us was that relatedness needs with family and friends from home loaded on two separate factors. Although we were aware that students were likely to be motivated to attend college to fulfill different needs for relatedness at home, we believed that these distinctions would be relatively minimal and that the items would load together on one "family and friends from home" factor. Instead, the items that assessed a dimension of relatedness revolving around going to college to "keep up" with family and friends from home loaded separately from the items that addressed more altruistic reasons, such as helping family and friends from home, making them proud, or giving back.

In addition to clarifying the number of factors and identifying two distinct motivational orientations related to family and friends from home, the FA results also assisted us in eliminating several items to optimize the length of the scale. Our goal was to retain the three best items for each scale to allow the test to be taken quickly without sacrificing factor reliability (Worthington & Whittaker, 2006). After eliminating one item that cross-loaded on Factors I and III, we next decided upon the best three items to retain for Factors I and III. In addition to retaining the two items with highest factor loadings for Factor I, we also retained the question "To become a member of an interesting and fun student organization," because this question captured a different area of relatedness with peers (student organizations) that research suggests is important to the success of CSC (Guiffreda, 2003). For Factor III, we also chose to retain the two items with the highest loadings on this factor along with the item "To connect with a mentor who will support me and look out for me." Thus, we retained what we believed to be the

Table 1

Exploratory Analysis: Oblique Rotated Common Factors Analysis (N = 338)

NRC-Q item	Factor matrix			
	I	II	III	IV
To make new friends	.85			
To meet friends who can relate to me and with whom I am comfortable around	.79			
To meet new and interesting people	.79			
To become a member of an interesting and fun student organization	.76			
To meet friends who will care for me and look out for me	.63			
To join organizations which are fun and allow me to make a difference	.60			
To give back to my family		.86		
To be able to help my family		.73		
Because I want to make my family and friends from home proud of me		.48		
Because I am interested in connecting with faculty who have expertise in my areas of interest			.85	
To get to know faculty and staff whom I can learn from and feel comfortable around			.78	
For the opportunity to get to know faculty and staff who are dedicated to their students' successes			.78	
To learn from an expert in my field of study			.61	
To connect with a mentor who will support me and look out for me			.50	
To learn in an environment where you're not viewed as just a number	.31		.39	
To keep up with family members or friends from home				.76
To relate to my friends from home who have gone to college				.69
To help me talk to my friends or family members				.56
Sums of squared loadings	5.82	2.528	4.835	3.897
% variance explained	41	11	10	6

Note. NRC-Q = Need for Relatedness at College Questionnaire.

best three items for each scale, resulting in a 12-item instrument.

Reliability. We assessed the internal consistency of the 4 three-item subscales using Cronbach's alpha. Values ranged from 0.74 to 0.84 (see Table 2). The reliability coefficient for the entire scale was .85. Results of a second test using Carmines' Theta (Carmines & Zeller, 1979) resulted in a value of .86 ($\lambda = 8.14$), which further supported the internal consistency of the scale. Results of the test-retest correlations (shown in Table 2) indicate correlations that range from .67 to .77, which is comparable to test-retest coefficients of the two most closely related instruments (EPS = .65; AMS = .79). These results provide support for both the internal consistency and temporal stability of the NRC-Q items.

Convergent validity. We next established convergent validity of the questions by examining correlations between the scales of the NRC-Q and selected scales from the EPS (Boshier, 1982). It was hypothesized that positive relationships would exist between social contact (EPS) and relatedness with peers (NRC-Q), as both scales assess the degree to which people are motivated to attend college to meet and interact with new friends. Similarly, positive correlations were predicted between family togetherness (EPS) and relatedness at home (keep up) as motivators to attend college. As Table 2 demonstrates, the predictions were upheld. The correlation between social contact and relatedness with peers was .77 ($p < .001$), and the correlation between family togetherness and relatedness at home (keep up) was .69 ($p < .001$).

Table 2

NRC-Q Internal Consistency; Descriptive Statistics; and Correlations With EPS, MIPS-R, and Intention To Persist

NRC-Q subscale	<i>M</i>	<i>SD</i>	α	Test-retest	Social stimulation	Family togetherness	Social contact	Asocial/withdrawing	Internally focused	Intention to drop out
Relatedness at home (give back)	13.12	4.71	0.74	.75**	.18**	.44**	.13*	-.12*	-.01	-.12**
Relatedness at home (keep up)	7.51	4.19	0.79	.67**	.39**	.69**	.42**	-.14*	-.05	.02
Relatedness with peers	11.03	4.88	0.84	.77**	.19**	.34**	.77**	-.31**	-.21**	-.06**
Relatedness with faculty	10.96	4.33	0.81	.71**	.13*	.27**	.35**	-.24**	-.09	-.16**
NRC-Q total	42.72	13.43	0.86	.72**	.29**	.58**	.56**	-.29**	-.14*	-.11**

Note. NRC-Q = Need for Relatedness at College Questionnaire; EPS = Educational Participation Scale; MIPS-R = Million Index of Personality Styles Revised.

* $p < .05$ level (2-tailed). ** $p < .01$.

.001). As predicted, modest positive correlations were found between (a) relatedness at home with social contact and social stimulation; (b) relatedness with peers with family togetherness and social stimulation, and (c) relatedness with faculty and the EPS subscales. These findings support the convergent validity of the NRC-Q.

We also established convergent validity by correlating scores between relatedness subscales on the NRC-Q and the Asocial/Withdrawing and Internally Focused scales from the MIPS-R (Millon, 2004). As expected, negative but relatively weak relationships were found between all the relatedness subscales on the NRC-Q and the two scales from the MIPS-R (see Table 2). This finding of low correlations compared, for instance, with the correlations found between the Relatedness to Home (keep up) and the EPS Family Togetherness subscales, indicates that the Relatedness scales on the NRC-Q capture a construct that is necessarily distinct from the personality characteristics assessed by the MIPS-R.

Phase III: Confirmatory Factor Analysis and Relationship to Academic Outcome

We next administered this revised 12-item scale to a much larger and more diverse sample of undergraduate students to (a) conduct a CFA to test the validity of the four-factor model and (b) assess the relationship between the need for relatedness and an academic outcome (intention to drop out of college). According to the prin-

ciples of SDT (Deci & Ryan, 1991), students who attend college to fulfill relatedness needs should be intrinsically motivated and, therefore, show negative correlations with intentions to drop out.

Phase III Participants

A total of 2,887 students from a community college and a 4-year public college, both located in the northeastern United States, completed the survey as part of a larger online study designed to investigate relationships between motivation and college student academic achievement and persistence (4-year college, $n = 1098$; community college, $n = 1789$). All full-time students at both institutions received an e-mail invitation describing the study, with a link to a Web site hosting the surveys. Students were notified that they were under no obligation to participate but that those who completed the survey would be entered in a drawing to win an iPod. Two weeks later, students who did not participate received a follow-up e-mail invitation to participate in the online survey.

Response rates were approximately 25% for the 4-year college and 13% for the community college. Among the participants, 68% were female and 32% were male. Traditional-aged students (ages 18–24) represented 75% of the sample, 10% were between ages 25 and 30, 9% were between ages 31 and 40, and 6% were over 40 years old. Participant class standings were as follows: 30% freshmen, 33% sophomores, 15% juniors, 16% seniors, and 6%

“other” (e.g., nonmatriculated). Seventy-seven percent of the students identified themselves as White, 8% as African American, 5% as Latino American, 3% as Asian American, 3% as multiethnic, 4% as international students, and less than 1% as Native American.

Phase III Instruments

In addition to taking the 12-item version of the NRC-Q, participants also completed questions that allowed us to correlate the results to an outcome variable (intention to drop out of college) used in a previous study by Hardre and Reeve (2003). The three questions for intention to drop out, which asked participants to respond using a 7-point Likert-type scale, were as follows: “I sometimes consider dropping out of school,” “I intend to drop out of school,” and “I sometimes feel unsure about continuing my studies year after year.” In previous research, Vallerand, Fortier, and Guay (1997) found that college student responses to the first two questions strongly predicted actual dropout behavior 1 year later. In a subsequent study, Hardre and Reeve (2003) added the third question to increase the scope and reliability of the outcome measure and reported high internal consistency (.79) among the three questions. Internal consistency of the three questions with the participants from the present study was .78.

According to the principles of SDT (Deci & Ryan, 1991), students who attend college to fulfill relatedness needs are intrinsically motivated and, therefore, are likely to show negative correlations with intentions to drop out. One possible exception is the Relatedness to Home (keep up) subscale, which assesses a less self-determined (i.e., less intrinsic) form of motivation. Students scoring high on relatedness to home (keep up) may feel forced into going to college for fear of losing previous relationships at home rather than attending college for intrinsic interests in establishing relationships with others. It was expected, therefore, that positive correlations would emerge between this less self-determined form of relatedness to home and the outcome variable.

Phase III Results

We conducted a CFA using Amos 7.0 (Arbuckle, 2006a, 2006b) to test the four-factor

model that resulted from the exploratory FA conducted in Phase II. Model fit was evaluated by examining two absolute fit indexes (goodness of fit index [GFI] and adjusted goodness of fit index [AGFI]); two incremental fit indexes (Bentler–Bonett normed fit index and relative fit index), which allowed us to test the fit of our model compared with a null model; and parsimony-adjusted measures (parsimonious norm fit index and *p* ratio), which allowed us to adjust for the complexity of the model (Brown, 2006).

For our four-factor solution, the GFI was .99 and the AGFI was .98. Conventional interpretation is that GFI and AGFI values of .90 or greater indicate good model fit (Jöreskog & Sörbom, 1993); thus, our values indicate our four-factor model provides excellent model fit. The conclusion that the model fits closely was further supported by the incremental fit indexes. We obtained a normed fit index of .98 and a relative fit index of .97. Additionally, we obtained a parsimonious norm fit index of .77 and a *p* ratio of .78. Parsimony-based measures of .50 or greater are deemed acceptable (Meyers, Gamst, & Guarino, 2005). These results indicated excellent model fit.

Last, we tested the relationship between the items NRC-Q and intention to drop out of college (Hardre & Reeve, 2003). Results indicated statistically significant, negative correlations between most of the NRC-Q subscales and intention to drop out (see Table 2). Consistent with SDT, the scale that measures the least self-determined motivational orientation (Relatedness to Home [keep up]) was the only NRC-Q subscale to show a modest, positive correlation with intention to drop out. Although a detailed analysis and description of the differences between the various subcomponents of relatedness and their relationship with academic outcomes is beyond the scope of this article, the results support the validity of the instrument by demonstrating a relationship to an outcome variable (intention to drop out) in a way consistent with SDT.

Conclusions

The purpose of this study was to develop a valid and reliable instrument to assess college student motivational orientation toward relatedness needs in ways consistent with SDT. The results indicate that the NRC-Q has adequate

levels of internal consistency, temporal stability, and convergent validity and the CFA indicated that the four-factor structure adequately explained the relationships among the scale items. Additionally, the scale items correlated with items that assess intention to drop out in a way that is consistent with the propositions of SDT (Deci & Ryan, 1991).

Strong positive correlations between the scales of the NRC-Q and those of the EPS (Boshier, 1982), particularly the most theoretically similar constructs (i.e., Social Contact & Relatedness with Peers; Family Togetherness & Relatedness at Home [keep up]) support the convergent validity of the NRC-Q. Unlike the EPS, the items of the NRC-Q are appropriate for both traditional-aged students (i.e., 18–25 years old) as well as adult learners (i.e., age >25) and are designed to assess these constructs from an SDT perspective. Similarly, the negative relationships between the relatedness scales of the NRC-Q and the Asocial/Withdrawing and Internally Focused scales of the MIPS-R (Millon, 2004) also support the convergent validity of the NRC-Q. These relationships, although negative as expected, were also relatively weak, thus indicating that the NRC-Q assesses a unique construct that could not simply be assessed by reverse scoring items from the MIPS-R.

It is expected that the NRC-Q will allow campus climate researchers to assess students' expectations regarding relationships with college faculty and staff, peers, and family members and friends from home while at college, which provides promise for understanding the unique experiences of CSC. The results of the study may, for example, help future researchers generate more advanced understandings of how motivational orientation can affect the ways students engage with members of their home communities during college. The FAs clearly demonstrated that students maintain connections with members of their home communities while at college to fulfill two very different relatedness needs: The first was related more to going to school to keep up with friends and family, and the second involved more altruistic reasons, such as helping family and friends from home, making them proud, or giving back. Future research in this area can assist researchers and practitioners in understanding if and how these two very different motivations for attending

college, which were related to fulfilling relatedness needs at home, affect student engagement in home and university social systems or academic achievement and persistence. Future research using this instrument also provides potential for understanding other elements of the CSC experience, including why some CSC become involved in ethnic/cultural student organizations to the point that the involvement interferes with academic achievement whereas other CSC describe their involvement as their most important asset to academic success (Guifrida, 2004), or why some CSC arrive at college with elevated expectations regarding the support and mentoring they will receive from faculty and staff (Guifrida, 2005).

Finally, future research with this instrument has the potential to advance Tinto's (1993) seminal theory of student persistence to be more culturally sensitive to the needs of diverse students by recognizing the impact of motivational orientation on academic goal commitment. Such research provides a first step toward understanding the impact of cultural norms and home and university social systems upon student motivation and subsequent academic commitment, performance, and persistence decisions.

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Appendix

Items in the Revised Version of the Need for Relatedness at College Questionnaire

I go to college . . .	can learn from and feel comfortable around.
1. To be able to help my family.	8. To help me talk to my friends or family members.
2. To meet friends who can relate to me and around whom I am comfortable.	9. To become a member of an interesting and fun student organization.
3. To connect with a mentor who will support me and look out for me.	10. To keep up with family members or friends from home.
4. Because I want to make my family and friends from home proud of me.	11. To give back to my family.
5. Because I am interested in connecting with faculty who have expertise in my areas of interest.	12. To make new friends.
6. To relate to my friends from home who have gone to college.	
7. To get to know faculty and staff whom I	

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