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EMOTIONAL INTELLIGENCE AND COLLEGE EMBEDDEDNESS
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Abstract

This study aims to contribute to the college retention literature by examining two psychosocial constructs, emotional intelligence (EI) and college embeddedness (CE), as potential predictors beyond the usual academic factors. EI was measured with the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT V2.0, 2003) and was scaled using consensus scoring. CE was measured using modified versions of the composite job embeddedness measure (Mitchell et al., 2001) and global job embeddedness measure (Crossley et al., 2007). Academic records, including a previously validated predictor of first-year academic success at the time of admission and retention status measured during the first three weeks of the student's sophomore year, were obtained from a sample of n = 745 first-time freshman enrolled at a large southwestern university. After pairing the academic records with the EI and CE measures, multiple logistic regression was used to evaluate the incremental predictive value of EI and CE. The study found that both EI and CE provided incremental predictive value (AUC = .785) over standard academic predictors, with high levels of CE being strongly associated with increased retention and, contrary to the hypothesis, high levels of EI being weakly associated with decreased levels of retention. Implications of these results for retention scholars and practitioners are discussed.

Keywords: Student retention, emotional intelligence, college embeddedness

Introduction

The Issue of College Retention

Retention is a measure of success for students and the universities that they attend. For students, retention is primarily a binary outcome measure of maintaining enrollment and returning for subsequent semesters versus not returning, or attrition. Student retention is an indicator of a university's ability to meet the goal of student growth, satisfaction, and accomplishment. For the purpose of this study, the focus is specifically regarding first-time, full-time freshmen retention to their sophomore year. As more is learned and contributed to the retention literature, more is understood about why students leave, and more emphasis needs to be place on understanding why students stay, and how institutions can help them to stay (Tinto, 2006).

The first year of college represents a considerable shift in a young person's life full of new responsibilities, stressors, and excitement. The entry into postsecondary education typically is a period of instability for students' lives that has the potential to thwart their persistence. Many first year students relocate for their postsecondary education, which means separation from their loved ones for likely the first time in their lives. Students have to adjust to a new academic life that requires greater responsibility and maturity. They are confronted with new expectations from their respective college or university faculty. They will need to form new networks of relationships at their institutions, some maybe having no current friends enrolled with them, so they are starting fresh. All of these new experiences and expectations are sources of stress that cannot be overlooked as having a great impact on freshman students' adjustment to higher education.

Background of Retention Research

Retention research in higher education has a history of approximately 80 years and has its foundations in individual student characteristics and interactionalist theory (Reason, 2009). Student attrition was largely seen as a student problem, that the students held the responsibility for not returning in subsequent years. Research placed the onus on the students' psychology, that their attrition was a reflection of their inabilities or weaknesses (Tinto, 2006). From this perspective, those that did not return were understood to be less motivated, less able, and less interested reaping the benefits of a college degree. As Tinto (2006) stated, this emphasis on student failure and not institutional failure can be referred to as victim blaming.

One of the earliest studies, conducted by Astin (1964), considered individual factors, such as rank in high school class and mother's educational level, and environmental factors, such as affluence and homogeneity. Much of what Astin (1964) found to be significant are still predictors in use today, like high school grades, ACT or SAT scores, and student demographics. In another early study, Tinto (1975) discussed dropout as the outcome of a multidimensional process concerning the relationship between the individual and the institution. Likening a college to a social system and comparing dropout -removing oneself from the institution's social system, to suicide- removal of oneself from society, heavily emphasizes the importance of connection within the college's network. This research by Tinto (1975) suggests that greater integration into an institution's academic life resulted in higher levels of institutional commitment, which then contributed to higher likelihood of being retained.

A majority of research has been of the quantitative variety, leaving a chance for qualitative research to present additional insight into retention and attrition. Martin (2017) studied narrative descriptions from non-returning students describing positive and negative

freshman year experiences. It was found that these students who left had very little connection to their university and struggled physically, socially, and financially (Martin, 2017). Perhaps institutions should focus greater efforts toward encouraging involvement in campus activities and foster an environment of inclusivity and connectivity. Also, emphasis should be placed less on the individual differences of the students and more on the ability of the institution to meet the students' needs. The relationship between academic ability, primarily defined by high school GPA and SAT/ACT scores, and retention is monotonically increasing. Therefore, universities that ascribe to more stringent selection processes have higher rates of retention as a result (Levitz et al., 1999). Predictors that are fixed, like high school rank and GPA, gender, and socioeconomic status do not provide ways that universities can strengthen retention except to look for an ideal student (Copeland & Levesque-Bristol, 2011; Tucker, 1999).

Implications of Retention

There are important implications of retention for both the student and the university. For institutions of higher education, retention is seen as an indicator of status and is used to evaluate the institution's effectiveness (Martin, 2017; Levtiz et al., 1999). Beyond status, retention and attrition have financial implications. For every student that is not retained the university experiences financial losses in tuition and fees for the subsequent years following that individual's attrition. The financial losses go beyond the university, according to an American Institutes for Research report in 2010, freshman to sophomore year attrition cost the nation over $6 billion in subsidies between 2003 and 2008 that were paid to the institutions to fund the educations of students who did not return (Schneider, 2010). These funds that are lost due to high attrition rates do not reflect well on colleges and universities (O'Keefe, 2013). Lost investments and the effects they have on an institution's reputation are not the only losses suffered by a college or university, as a student also has value in non-monetary terms. Each student has the

ability to bring to their classrooms diverse thoughts and experiences that can lead to impacts on their campus (Veenstra, 2009).

For the student, the implications of not completing a bachelor's degree are lifelong. As level of educational attainment increases, unemployment rate decreases, and earnings increases (U. S. Department of Labor, 2016). According to the U. S. Department of Labor (2016), median weekly earnings for those with a high school diploma in 2015 was $678, as compared to those with a bachelor's degree who earned $1,137 on average. Unemployment rate in 2015 for individuals who earned a bachelor's degree was 2.8%, while those with only a high school diploma experienced a rate of 5.4% (U. S. Department of Labor, 2016). Students that are able to stay and complete their time as an undergraduate student and earn a bachelor's degree set themselves up for a much brighter outlook for employment and earnings.

Recent Retention Research

First-to-second year retention of undergraduate students at universities has become increasingly studied, as institutions acknowledge various potential sources of prediction beyond the commonly used academic predictors. Academic predictors such as high school GPA and scores on standardized tests such as the ACT have long demonstrated strong predictive ability for student retention, however considering these predictors alone leaves a considerable gap in the explanation of attrition (Reason, 2009). Thus, in recent years institutions have made efforts to increase retention and understand it better by examining non-academic and psychosocial factors (Sparkman, Maulding, & Roberts, 2012).

Recent research has indicated that the general attitude toward the college in which they are enrolled was related to subsequent enrollment, demonstrating that students may be aware from an early point if their campus is a good fit (Campbell & Mislevy, 2013). This is supported

by research on sense of belonging and the experience of first-year college students (Hausmann, Schofield, & Woods, 2007). Hausmann and colleagues (2007) found that students who indicated more peer support, peer-group interactions, and interactions with staff reported a higher sense of belonging which was found to be a significant predictor of intention to persist.

Current Study

This study aims to further understand patterns of retention from freshman to sophomore year by assessing two psychosocial factors: emotional intelligence and college embeddedness. The goal is to assess the predictive ability of these two factors, as well as examine what can be learned about why students stay, as a result of the findings. Past research leaves a gap in retention research that examining emotional intelligence and college embeddedness may fill in. Emotional intelligence and college embeddedness will be further discussed now.

The Psychosocial Construct of Emotional Intelligence

As discussed earlier, the life of a first-time full-time freshman is fraught with stressors that can inhibit success in their new environment. Leaving family and friends, experiencing a considerable gain in responsibilities and expectations, and navigating new friendships and relationships with others on campus requires certain self-awareness, time management, conscientiousness, and so on. The social adjustment demands placed on freshmen include the integration of a new college social life, creating a network of support, and balancing their new social freedoms. Social adjustment, or the inability to adjust, is a commonly reported difficulty during a student's first year, as they navigate all of it with feelings of homesickness and loneliness (Gerdes & Mallinckrodt, 1994).

Previous studies on academic achievement and college student retention present compelling arguments for the importance of emotional intelligence and regulation. In adjusting

to their new academic life, students' personal or emotional problems may present themselves as depression, anxiety, low self-esteem, and distress, and of these, anxiety has continually been linked to student attrition and depression has been consistently observed as the primary psychiatric disorder amongst students (Gerdes & Mallinckrodt, 1994). In one study is was found that optimistic students were more likely than their less optimistic peers to persist, demonstrating that self-regulation and motivation are important for student retention (Solberg Nes, Evans, & Sergerstom, 2009). Emotional intelligence is a promising construct to study in these regards, as potentially capable of capturing the differences between those students who stay and those who leave before their sophomore year.

Concept of Emotional Intelligence

The construct of emotional intelligence has recently gained more interest, resulting in increased exposure to it from the media and researchers alike. Emotional intelligence incorporates a set of abilities involving the perception and understanding of emotions of oneself and others', as well the resulting thoughts and actions. The creators of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) define the construct of emotional intelligence as a set of skills, measurable by ability-based scales, that deal with attending to emotion-relevant information (Mayer, Salovey, Caruso, & Sitarenios, 2003).

Mayer and Salovey (1993) explain that the construct incorporates the verbal and nonverbal expression and appraisal of emotion, the regulation of emotion in self and others, and the utilization of emotional content in problem solving. Beyond emotions, which are the core of this model of emotional intelligence, social and cognitive functions necessary for the expression, regulation, and utilization of emotions are necessary (Schutte et al., 1998).

The construct has been said to overlap with other well-known psychosocial constructs like social intelligence, empathy, alexithymia, and emotion regulation (Barchard, 2003). While it is related to other constructs, proponents of emotional intelligence maintain that it is its own construct separate from those that are similar (Freeland, Terry, & Rodgers, 2008). Measuring an individual's emotional intelligence alongside outcome variables, retention in this case, may provide support for the construct as its own individual construct.

Emotional Intelligence and Retention

Research on the relationship between emotional intelligence and retention has considered the necessity of the emotional intelligence abilities for the transition from high school to college (Parker, Summerfeldt, Hogan, & Majeski, 2004). This is understandable as the movement to higher education often entails many novel experiences for incoming freshmen. A successful college student is one that can navigate the challenges and stressors that are faced in the transition from high school, an environment with limitations and control, to college where they are faced with a greater variety of options and higher stakes decisions (Sparkman et al., 2012).

Several studies have demonstrated a positive relationship between emotional intelligence and student academic achievement measures such as GPA, and more recently, retention (Parker et al., 2006). Barchard (2003) found that some sections of the MSCEIT had a positive, significant correlation with academic success, measured as end-of-year grades. With several models and measures of emotional intelligence available to researchers, more work needs to be done to understand and validate the relationship between emotional intelligence and retention.

Measures of Emotional Intelligence

The construct of emotional intelligence has gained much recent traction in research and with that, many measures exist in the literature for measuring it. Because different theories and definitions exist for the construct, there is not clarity about how to measure it. There has been

debate regarding the type of measure, self-report or ability-based, for accurately measuring emotional intelligence (O'Connor Jr. & Little, 2003; Freeland, Terry, Rodgers, 2008). Self-report measures of EI tend to correlate highly with already well-established personality dimensions because they consist of items focusing on a range different individual differences that load onto the personality dimensions (Conte, 2005). In contrast, measures that are ability-based differ more from establish personality construct measurements and tend to measure more like those instruments for general intelligence (Conte, 2005). The measure used in this study, the MSCEIT, is among the most commonly used and discussed instrument for emotional intelligence (Brackett & Mayer, 2003).

The MSCEIT

There exist several measures of emotional intelligence, so it was necessary to choose the measure the was most appropriate and valid. For the study, the MSCEIT was used to assess students' emotional intelligence. This study employed MSCEIT Version 2.0 (Mayer, Salovey, Caruso, & Sitarenios, 2003). The measure contains different sections of skill measures that capture the four branches of emotional intelligence: (a) perceiving emotions, (b) facilitating thought, (c) understanding emotions, and (d) managing emotions. Each branch is measured with two separate tasks, resulting in eight task scores and four branch scores. Each task is comprised of either individual items or item parcels, which are groups of items following one stimulus, such as five items following one landscape image.

The perceiving emotions branch measures the ability to discern one's own emotions as well as the emotions of others and recognize emotions that are present in other stimuli such as art, music, and stories. This branch is measured with the faces and the pictures tasks. The faces task asks participants to respond to item parcels each with a picture of a face as the stimulus with

five-point scale response options measuring specific emotions present in the face. The pictures task is identical but uses landscapes and abstract designs for the stimulus with cartoon faces of emotions as response options.

The facilitating thought branch measures the ability to generate, apply, and sense emotions in a way that allows one to communicate their feelings or to use them in other cognitive processes. This branch is measured with the sensations and the facilitations tasks. The sensations task has items parcels in which the stimulus generates an emotion for participants and response options are sensations to match with the emotion. The facilitation task has item parcels in which the stimulus is a specific task or behavior and the participants must decide which responses best fit with it.

The understanding emotions branch measures the ability to process emotional information which includes understanding the information, processing the ways in which emotions combine and change, and appreciating the meanings of the emotions. This branch is measured with the blends and the changes tasks. The blends task presents individual items to participants in which they decide which emotions could be combined to form other emotions. The changes task presents individual items to participants in which they are presented with an intensified feeling and must choose an emotion that would result from it.

The managing emotions branch measures the ability to allow oneself to experience and regulate one's own emotions and feelings, as well as others' in a way that leads to personal growth and understanding. This branch is measured with the emotion management and the emotional relationships tasks. The emotion management task contains item parcels in which the stimulus is short story and asks participants to decide which actions would be most effective for obtaining a certain emotional outcome for the character in the story. The emotional relationship

task presents item parcels that ask participants to decide with actions would be most effective to use in the management of another individual's feelings.

The Psychosocial Construct of College Embeddedness

Based on prior work that emphasized the importance of integration into the social system of the college that one is attending, an adaptation of the job embeddedness construct seemed fitting for the university setting. Students' college embeddedness will be assessed in the present study through measures created based on the well-known construct, job embeddedness, in the industrial-organizational literature. The construct of job embeddedness was introduced by Mitchell, Holtom, Lee, Sablynski, and Erez (2001) to explain employee retention. Mitchell et al. (2001) proposed three critical aspects, links, fit, and sacrifice, that will be discussed in depth below. The three critical aspects as they pertain to the community and organization, create a 3x2 (3 critical aspects x 2 dimensions) composite measure of job embeddedness created by Mitchell and colleagues (2001).

The focus of job embeddedness rests on why employees stay rather than why or how they leave (Lee, Mitchell, Sablynski, Burton, & Holtom, 2004). Retention gains a lot of attention in organizational psychology as the personal and organizational costs of employee attrition are very high (Mitchell et al., 2001). Colleges face the same attrition concern as organizations, wanting to retain as many individuals as possible, and with that, to better understand what influences them to stay. Retention of students and employees is highly important to their respective organizations, yet they have not shared in theoretical attempts to understand the underlying causes of attrition. As supported by Larkin, Brasel, and Pines (2013), the parallel of organizational employee turnover to college student attrition yields a new way to consider student retention using the contemporary constructs of the industrial-organizational psychology

literature. It has been found that embeddedness is correlated with intention to stay, a good indicator that a more highly embedded student is more likely to be retained (Larkin et al., 2013).

Previous research on college embeddedness has shown that it is predictive of first semester freshman year GPA, a benchmark indicator of student success (Krantz, Terry, Judice-Campbell, Bogaski, & Sweis, 2019). Measures to assess college embeddedness were created from preexisting job embeddedness measures and completed by students during the first semester of their freshman year. After data collection, analyses were completed to test the predictive ability of college embeddedness scores for first semester GPA and results supported the use of the measures (Krantz et al., 2019).

The Links Aspect of Embeddedness

The connections between an individual and other people or institutions, formal or informal, constitute the links aspect (Mitchell et al., 2001; Holtom et al., 2006). These links are the various connections that someone has with the people around them, such as their immediate family and coworkers, as well as the community they live in. The more connections a person has, the less likely they are to leave, as though these links are anchoring them to their job and community. Factors like being married, having young children, being older, and having tenure are associated with likeliness to stay (Mitchell et al., 2001).

For this study, it is expected that links will operate in much the same way, but they will be relevant to college freshmen. These links may include roommates, new friends, classmates, lab partners, instructors and professors, on-campus and off-campus organizations, and so on. It is also expected that the students' links to their families will play an important role, as social support has been seen as an important factor for student retention (DeBerard, Spielmans, & Julka, 2004; Gerdes & Mallinckrodt, 1994).

The Fit Aspect of Embeddedness

The critical aspect of fit is defined by Mitchell et al. (2001) as the perceived comfort or compatibility an employee senses with an organization and their environment. Individuals will assess how well their career goals, personal values, and plans for the future align with the demands of their job and the culture of the corporation (Holtom et al., 2006; Mitchell et al., 2001). It is expected that the greater the fit of an individual to the organization and the community, the more likely they are to stay.

For the present study, it is expected that fit for the university student to the university will operate similarly in that those who feel more aligned with their institution's culture will be more likely to stay. Fit in this context will presumably encompass factors like overall political stance, courses offered, opportunities to be involved or volunteer, and opportunities to have experiences that are important to that individual. Fit to the community will likely include factors like weather, safety of the area, options for activities, and proximity to home.

The Sacrifice Aspect of Embeddedness

Sacrifice pertains to the losses one would experience if they left their job. According to Mitchell et al. (2001), this critical aspect involves perceived costs of material and psychological benefits that would be given up as a result of not staying in the job. For employees these are elements like salary, tenure, stock options, colleagues, and interesting projects (Mitchell et al., 2001). Sacrifices related to the community mostly matter for relocation and include things like commute time, nice neighborhood, and attractive school districts.

For this study, it is expected that university students will have their own versions of sacrifice. Perhaps they have a leadership position in an organization, they have made many friends, have student season football tickets, or really enjoy their courses. Potential community

sacrifices could pertain to their living situation, accessibility of fitness centers and activities, and college student perks for shopping or activities.

Composite Measure vs. Global Measure

The measure created by Mitchell et al. (2001) to measure job embeddedness is known as the composite measure of job embeddedness because it assesses each of the six aspects proposed by the job embeddedness theory. It places equal emphasis on off-the-job and on-the-job embeddedness. This measure follows the notion that the whole is equal to the sum of its parts (Zhang, Fried, & Griffeth, 2012). The composite measure of college embeddedness used in this study comes from Mitchell and colleagues' composite measure of job embeddedness. Each item in the measure was reconstructed to be applicable to a college and the community surrounding it. When rewriting the items, care was taken to change only the necessary parts of the item to make it related to college instead of job. The composite measure of college embeddedness can be found in Appendix A (Krantz et al., 2019).

Crossley, Bennett, Jex, and Burnfield (2007) developed a global measure of job embeddedness. This measure is much shorter and uses general questions to measure employees' overall perception of attachment to an organization (Crossley et al., 2007). This measure follows the notion that the whole is greater than the sum of its parts (Zhang et al, 2012). The global measure of college embeddedness used in this study is created directly from Crossley and colleagues' global measure of job embeddedness. Creation of the items often required only changing one word, "job" to "college". The global measure of college embeddedness can be found in Appendix B (Krantz et al., 2019).

Both measures have their strengths and weaknesses. Zhang et al. (2012) compared the composite and global measures in their review of job embeddedness. The global measure created

by Crossley et al. (2007) does not differentiate between on-the-job and off-the-job embeddedness; it also does not differentiate between fit, sacrifice, and links. Due to the lack of distinction amongst aspects in the global measure, individuals can weigh on-the-job and off-the-job embeddedness perceptions for themselves, as compared to the composite measure that equally weight them (Zhang et al., 2012). For college embeddedness, this means participants are able to perceive the meaning of the items in their own way, allowing them to consider their connection to the university as a whole instead of by certain aspects.

The composite measure more clearly assesses job embeddedness as it is outlined in job embeddedness theory (Zhang et al., 2012). This is also reflected in the composite college embeddedness measure, students are presented items that discussed specific aspects of the college and college community. Further, the composite measure is more theoretically sound and provides to the literature of job embeddedness more so than the global measure (Zhang et al., 2012). Due to this, it is expected that the composite measure of college embeddedness will likely provide more predictive power for student retention. For this study, both measures will be used to assess college embeddedness and analyses will be performed to determine which is the most reliable and valid.

A third measure, the College Embeddedness Measure, comprised of the college-related items from the composite measure of college embeddedness will be assessed. A previous study (Krantz et al., 2019) showed that this shorter, college specific measure may be the best predictor of freshman year academic success of the three college embeddedness measures, as it was the most predictive of first semester freshman year GPA. The College Embeddedness Measure can be seen in Appendix A as the college-related items from the composite measure.

Current Study's Research Goals

The purpose of this study is to examine the two psychosocial constructs of emotional intelligence and college embeddedness, as measured by the previously discussed instruments, as potential predictors of freshman to sophomore retention. The goals are to determine the extent to which each psychosocial construct predicts student retention, and if they provide incremental prediction to an existing validated algorithm used to predicting retention, PredRet.

Method

Participants

The participants for this study consisted of 745 first-time, full-time freshmen students at the University of Oklahoma during the 2018-2019 academic year. Of the participants, 71% were female. Students participated while enrolled in an introductory psychology course during either their fall or spring semester of freshman year. All university freshmen that were enrolled in introductory psychology were eligible to participate and were recruited via an online platform. Participation in university studies is a course requirement for students enrolled in introductory psychology courses, therefore no further recruitment was required. Participation in the study resulted in the students earning course credit. A majority of the subjects (79%) participated during the fall 2018 semester. Retention data for the participants was obtained from the university following their consent provided for access to their academic data.

Measures

In order to assess the effects that emotional intelligence and college embeddedness have on a student's likelihood to return to college following their freshman year, this study used a measure of emotional intelligence and measures to analyze college embeddedness based on existing job embeddedness measures. Emotional intelligence was assessed using the Mayer Salovey Caruso Emotional Intelligence Test (MSCEIT). For college embeddedness this study

employed three new measures to assess college embeddedness. First, a composite job embeddedness measure modeled after the composite job embeddedness measure created and validated by Mitchell and colleagues (2001). Second, a global measure of college embeddedness modeled after the global job embeddedness measure created and validated by Crossley and colleagues (2007). Finally, a college embeddedness measure that takes items from the composite college embeddedness measure strictly pertaining to the college, with all community related items removed.

Mayer Salovey Caruso Emotional Intelligence Test

The study used the most current version of the MSCEIT, the MSCEIT V2.0, which comes after measurement predecessors for related constructs like nonverbal perception, emotional creativity, and social intelligence (Mayer et al., 2003). The MSCEIT V2.0 is a 141-item measure of emotional intelligence involving eight tasks, two for each of the four branches that measure specific skills of emotional intelligence (Mayer et al., 2003). The four skills are: perceiving emotions, using emotions to facilitate thought, understanding emotions, and managing emotions (Mayer et al., 2003). Based on Mayer and colleagues (2001) hypothesis of emotional intelligence being embedded in the communication and social context, scoring of the MSCEIT is based on consensus scoring, so the participants responses inform the best answer to each item. Following the rank ordering of most frequent (rank of 5) to least frequent (rank of 1) responses to each item, a IRT-based graded response model was used to examine and calibrate each of the 8 scales at the task level (Samejima, 1997). For each scale at the task level, item characteristic curves were examined and those items with either flat slopes (i.e. slopes near zero) or negative slopes were removed. After each task was assessed and poor-fitting items were removed, Expected A Posteriori (EAP) scaling was implemented to create scores for each

participant (Bock & Mislevy, 1982). Once scoring was finished, the MSCEIT was ready to be analyzed for the purposes of the study at any of the three levels of analysis.

Composite College Embeddedness

A composite college embeddedness was created from the job embeddedness measure of Mitchell and colleagues (2001). Items in the measure were similar to the composite measure of job embeddedness but had to be altered to be appropriate for the research goals. This measure is intended to assess students' links, fit, and sacrifice as related to the university and the surrounding community. There were 19 items for this measure and participants responded using a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree) and numerical responses to some questions. An example of an item is "It's really important to me that my degree is from this university". The composite measure demonstrated high reliability (α = .91).

Global College Embeddedness

The global measure is based on the global job embeddedness measure (Crossley et al., 2007). This measure consists of seven items meant to measure college embeddedness overall, using the same items as the validated global job embeddedness measure, simply replacing "organization" with "university". Participants responded to the items using a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree). An example of an item is "It would be difficult for me to leave this university". The measure demonstrates high reliability (α = .97).

College Embeddedness Measure

The College Embeddedness Measure was created using only the university specific items from the composite measure, which can be seen in Appendix A. The items from the composite measure of job embeddedness that were associated with the community (i.e., community links, fit in community, and sacrifice if leaving the community), as well as the global measure of

college embeddedness, were not considered for this third measure. This measure was created to address the nature of the relationship students have with the university. Students in their first semester have not yet had the time to make the connections with the community, and due to their short time in the area before graduating, assessing embeddedness in the community is not an appropriate predictor. An example it is "I fit with the university's culture". The items for this measure used a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree). This measure showed high reliability (α = .87).

PredRet

Predicted Retention, called PredRet, is an algorithm, available at enrollment, in which data from every applicant is processed to find a score that determines their likelihood of being retained to their sophomore year (Pleitz, Terry, & Campbell, 2011). The PredRet algorithm provides a single score for each incoming freshman student based on academic factors of high school GPA and standardized test score, high school academic rigor, the logarithm of high school class size, and application date (Lewis, Terry, & Campbell, 2016). This algorithm demonstrates strong predictive ability for retention, so we wish to see if it can be strengthened incrementally by college embeddedness and emotional intelligence (Pleitz et al., 2011; Lewis et al., 2016).

Data Analysis

Full participation in the study required participants to give consent to researchers to access their academic records in order to track their eventual retention or attrition. Before any participation in the study, participants were asked for consent to provide researchers access to their academic records. If participants denied access to records then they were directed to the end of the survey thanking them for their time. After completing the study, participants are awarded credit and their responses are recorded. Data was collected from Qualtrics where the survey took

place. All data was downloaded from the site. As participants consented, academic records were accessed for PredRet scores and retention status, and students' information from the survey was paired with their academic records. In order to determine if emotional intelligence and college embeddedness are predictors of student retention, binary logistic regression will be used. Binary logistic regression will be conducted on every measure and aspects within each measure to understand what measures and elements of them might best provide incremental prediction above and beyond PredRet. Following univariate binary logistic regressions of each piece alone with student retention as the outcome, a series of model comparisons will be conducted. For the model comparison tests, binary logistic regression with student retention will be the outcome and will start with PredRet as the first predictor and build from that using the measures that provide the greatest predictive ability. Wald's chi-square tests will be used for assessing statistical significance, and Area under the ROC Curve (AUC) for examining predictive accuracy.

Results

A summary of the data analyses and results will be provided in this section to answer the research questions proposed. To better understand and predict freshman to sophomore year retention of college students, two psychosocial factors, emotional intelligence and college embeddedness, were measured, alongside a previously validated predictor, the PredRet algorithm. First, each psychosocial factor alone was assessed as a predictor of student retention. Following this, each was added to the existing algorithm PredRet and assess their ability together to provide incremental prediction. Because the outcome variable is binary, retained or not retained, logistic regression analyses were used.

Descriptive Statistics

To start, descriptive statistics analyses were performed to better understand the predictive variables present in the study, see Table 1.

Comparing retention rate of the student participants in the two semesters revealed a marginally significant difference in retention between the two semesters. Students that participated during the Fall semester had a lower rate of retention than students that participated in the Spring semester, $\chi^2 = 3.93$, $p < 0.05$. Eleven observations of the total 754 had missing values and were therefore removed from the analyses. Of the remaining 743 participants, roughly 89%. were retained.

Table 1. Descriptive statistics for each measure and elements of measures present in the study

Variable	N	Mean	Std. Deviation	Minimum	Maximum
Perceiving Emotions	734	-0.07	0.72	-2.92	1.16
Facilitating Thought	734	-0.05	0.65	-2.09	1.31
Understanding Emotions	732	-0.03	0.71	-2.60	1.28
Managing Emotions	732	-0.04	0.75	-2.19	1.11
Experiential E.I.	734	-0.06	0.56	-2.48	1.11
Strategic E.I.	732	-0.04	0.64	-2.21	1.11
Global C.E.	740	25.86	7.41	7	35
Composite C.E.	730	66.71	10.40	18	92
College Embeddedness Measure	730	39.20	6.25	10	53
Fit	730	23.38	4.07	6	30
Links	730	18.72	5.25	6	35
Sacrifice	730	28.46	5.08	7	35
PredRet	745	88.59	6.74	52	98

Note. E.I. = emotional intelligence; C.E. = college embeddedness

Emotional Intelligence

After running scoring algorithms and item response theory on the data resulting from completed MSCEIT responses, the remaining items were analyzed for their relationship with the outcome variable of retention. As discussed earlier, the MSCEIT has four branches: perceiving

emotions, facilitating thought, understanding emotions, and managing emotions. Logistic regression was performed with each branch with retention as the outcome. See Table 2 for logistic regression results for all branches and areas, as well as the whole, of the MSCEIT.

Table 2. Binary logistic regression results of the MSCEIT and its elements

Variable	Coefficient	Chi-square	AUC
Perceiving Emotions	-0.419	5.215*	0.590
Facilitating Thought	-0.203	1.187	0.539
Understanding Emotions	-0.222	1.572	0.557
Managing Emotions	-0.493	7.373*	0.605
Experiential Emotional Intelligence	-0.497	4.513*	0.579
Strategic Emotional Intelligence	-0.502	5.223*	0.597
MSCEIT	-0.682	6.240*	0.602

Note: The Wald's Chi-Square are with 1 degree of freedom

For each of the four branches of the MSCEIT a binary logistic regression was conducted. The first branch, Perceiving Emotion, was found to have a significant, negative relationship with student retention, $\chi^2(1, 734) = 5.2481$, $p < 0.05$. The AUC for this branch is second highest of the four branches of the measure, c = 0.590. Facilitating Thought and Understanding Emotions branches both did not demonstrate a predictive relationship with student retention, $\chi^2(1, 734) = 1.187$ $p = 0.28$ and $\chi^2(1, 734) = 1.57$, $p = 0.21$, respectively. The fourth branch, Managing Emotions, was found to have a significant, negative relationship with student retention, $\chi^2(1, 734) = 7.37$, $p < 0.05$. The AUC for this branch is the highest of all four MSCEIT branches, but still does not reach an acceptable level, c = 0.605. While the Perceiving Emotions and Managing Emotions branches demonstrated significant predictive ability for student retention, it should be noted that it has a small effect size, and likely is significant because the dataset is large, thus giving the study high power.

The MSCEIT has two overall sections, each containing two of the previously discussed branches, experiential emotional intelligence and strategic emotional intelligence. Experiential emotional intelligence consists of perceiving emotions and facilitating thought, and it was found that this section of the MSCEIT provides a significant, negative prediction of student retention, $\chi^2(1, 734) = 4.51$, $p < 0.05$. The AUC for this section shows that there is better prediction than random outcome, but is not strong, c = 0.579. Strategic emotional intelligence consists of understanding emotions and managing emotions, and it was found that this section of the MSCEIT also demonstrated significant, negative prediction of student retention, $\chi^2(1, 734) = 5.22$, $p < 0.05$. The AUC for strategic emotional intelligence is again better than no discrimination in the data, however, is lower than preferred, c = 0.597.

After assessing the individual branches and overall sections of the test, the MSCEIT exam, after IRT, was assessed. Logistic regression of the MSCEIT demonstrated that the instrument has a significant, negative relationship with student retention, $\chi^2(1, 734) = 6.24$, $p < 0.05$. The AUC for the measure is not at the acceptable level but is greater than chance and higher than any single branch or section of the measure, c = 0.602. If considering the MSCEIT alone as a predictor of retention, one could expect that for every unit change in MSCEIT score, the log odds of retention would decrease by 0.682. Using the entire test fit better as a predictor of retention as an outcome than any single branch or section of the test, so this is what used in the overall predictive model.

College Embeddedness

All measures of college embeddedness were analyzed for their respective predictive abilities with the outcome variable retention. Within the composite measure of college embeddedness lies questions pertaining community, so separate analysis was performed on that.

Next, from the composite measure, questions pertained to either fit, links, or sacrifice, and separate analyses were performed on each of the three subsets of questions. See Table 3 for logistic regressions results for college embeddedness measures and their elements.

Table 3. Binary logistic regression results of college embeddedness measures and their elements

Variable	Coefficient	Chi-square	AUC
Global C.E.	0.101	46.215*	0.701
Composite C.E.	0.089	51.792*	0.743
College Embeddedness Measure	0.146	55.409*	0.738
Community Items Composite C.E.	0.124	36.622*	0.701
Fit Composite C.E.	0.136	24.541*	0.652
Links Composite C.E.	0.174	36.549*	0.714
Sacrifice Composite C.E.	0.145	43.136*	0.697

Note: C.E. = college embeddedness; The Wald's Chi-Square are with 1 degree of freedom

It was found that all three measures of college embeddedness, as well as the community-related items from the composite measure of college embeddedness provided positive, significant results when analyzed with the binary outcome of student retention.

When assessing global college embeddedness in the logistic regression, it was found that the ability of the measure of global CE to predict retention was significant, $\chi^2(1, 740) = 46.215$, $p < 0.05$, c = 0.701. The AUC for this measure is c = 0.701, meaning it is providing an acceptable estimate of the outcome. If considering global college embeddedness alone as a predictor of retention, one could expect that for every unit change in global college embeddedness score, the log odds of retention would increase by 0.1011.

Next, the measure of composite college embeddedness to predict retention was examined and also found a significant result, $\chi^2(1, 730) = 51.79$, $p < 0.05$, c = 0.743. The AUC for the composite college embeddedness demonstrated acceptable fit, c = 0.743. A one unit increase in

composite college embeddedness results in a 0.088 unit change in retention. The AUC and chi-square statistic show that between global and composite measures of college embeddedness, the composite measure provides better model fit to the data.

The College Embeddedness Measure, just the items within the composite measure of college embeddedness specifically pertaining to college and not community, was assessed to see if it fit better than the overall composite model. College Embeddedness demonstrated significant results, $\chi^2(1, 730) = 55.41$, $p < 0.05$. The AUC of the College Embeddedness Measure demonstrates that these items as a measure provide acceptable fit to the data, c = 0.738. If considering only College Embeddedness as a predictor of retention, one could expect that for every unit change in College Embeddedness score, the log odds of retention would increase by 0.146. Because the items pertaining specifically to college from the composite score fit the data nearly as well as the overall composite score, both the College Embeddedness Measure and the composite measure should be considered. It should be noted that those items pertaining to community were also assessed and provided significant results, furthering the support of using the entire measure, college and community items included, $\chi^2(1, 730) = 36.62$, $p < 0.05$. Like the college-related items, the community-related items also had a good AUC demonstrating good fit for the data, c = 0.701.

To better understand which elements of college embeddedness, measured using the composite college embeddedness test, are the best predictors, each set of questions was assessed. All three areas of college embeddedness provided significant results; fit, $\chi^2(1, 730) = 24.54$, $p < 0.05$, c = 0.652, links, $\chi^2(1, 730) = 36.549$, $p < 0.05$, c = 0.714, and sacrifice, $\chi^2(1, 734) = 43.136$, $p < 0.05$, c = 0.697. Of the three elements, links demonstrated most significant predictive ability for student retention. The AUC for links items was slightly higher than the global measure

of college embeddedness, c = 0.714. If student retention were to be predicted only using links items from the composite college embeddedness measure, the log odds of retention would increase by 0.174 units for every one unit increase in links embeddedness.

PredRet

For the sample, the average PredRet score was M = 88.59 with a minimum score of 52 and maximum score of 98. PredRet, the already validated algorithm that is highly predictive of retention was also analyzed singularly with the outcome of retention. As expected, the PredRet algorithm provided significant results when analyzed with the outcome variable of retention, $\chi^2(1, 745) = 13.61$, $p < 0.05$. The AUC for this algorithm demonstrates that it has better fit for the data than chance, c = 0.61. For every unit increase in PredRet, a student's log odds of retention would increase by 0.053 units.

Model Comparisons

After separate analyses for each component, the final research question was how emotional intelligence and college embeddedness might contribute incrementally to PredRet's predictive ability of freshman to sophomore year university retention. In order to check the incremental prediction provided by the two psychosocial factors of interest, a series of model comparisons were conducted.

First Set of Comparisons

The first model was the current algorithm PredRet as the predictor of student retention, the logistic regression most previously discussed. Next, college embeddedness was added into the logistic regression for the second model. Finally, the MSCEIT was added as a third predictor alongside college embeddedness and PredRet. See Table 4 to see the model comparison statistics.

In Model 1, PredRet was the only predictor of student retention, and provided a positive, significant prediction, χ^2 = 14.572, $p < 0.05$. With an AUC = 0.61 this model predicts fairly well, however leaves room for improvement in model fit for prediction. The second model, combining college embeddedness as measured by the composite college embeddedness measure with the PredRet algorithm, also provides a positive, significant prediction, χ^2 = 70.177, $p < 0.05$. This model provides an AUC = 0.761 which is a considerable increase from Model 1. Finally, emotional intelligence, as measured by the MSCEIT, was added to college embeddedness and PredRet to form Model 3. Model 3 provided a positive, significant prediction of student retention as well, χ^2 = 80.818, $p < 0.05$. This model had an AUC = 0.778, a slight increase from Model 2.

Table 4. Binary logistic regression results for model comparisons

	Model 1			Model 2			Model 3		
Variable	Coefficient	Chi-square	p-value	Coefficient	Chi-Square	p-value	Coefficient	Chi-Square	p-value
Intercept	-2.568	4.198*	0.0405	-7.461	21.991*	< .0001	-7.538	22.390*	< .0001
PredRet	0.053	13.612*	0.0002	0.046	8.363*	0.0038	0.044	7.811*	0.0052
Comp. C.E.				0.088	48.637*	< .0001	0.092	51.225*	< .0001
MSCEIT							-0.924	9.826*	0.0017
Model Chi-Square (df)		14.572* (1)			70.177* (2)			80.818* (3)	
Model AUC		0.613			0.761			0.778	

Note: Comp. C.E. = composite college embeddedness; The Wald's Chi-Square are with 1 degree of freedom

Second Set of Model Comparisons

When looking at the college embeddedness measures, it was apparent College Embeddedness provided strong predictive ability, practically equivalent to the full composite college embeddedness measure. Because it has a good AUC and predicts significantly, while being about half the length of the full measure, it should also be considered for model comparison as an addition to PredRet. See Table 5 for model comparison statistics using the College Embeddedness Measure.

Model 1 here is the same as the previous Model 1, just PredRet as the predictor of student retention. Model 2 adds college embeddedness as measured by the College Embeddedness Measure. This model demonstrates significant, positive predictive ability for student retention, $\chi^2 = 74.861$, $p < 0.05$. The AUC for this model is greater than for PredRet alone as a predictor, c = 0.757. The AUC for Model 2 in this model comparison is nearly the same as the previous Model 2 using the full college embeddedness composite measure, while having a greater chi-square value. Model 3, incorporating the MSCEIT as a measure of emotional intelligence, provides the highest AUC and is also a significant, positive predictor of student retention, $\chi^2 = 88.421$, $p < 0.05$, c = 0.785.

In this set of model comparisons using the College Embeddedness Measure as opposed to the full composite measure of college embeddedness it can be seen that the difference is minimal. Of the three models, Model 3 provides the largest AUC and chi-square value. This series of model comparisons, when compared to the prior model comparisons, shows that a shorter measure of the composite college embeddedness instrument, the College Embeddedness Measure, is just as useful for prediction of student retention. Because the measure is more concise it might be more practical in the long run to implement it over its full measure.

Table 5. Binary logistic regression results for model comparisons

Variable	Model 1			Model 2			Model 3		
	Coefficient	Chi-square	p-value	Coefficient	Chi-Square	p-value	Coefficient	Chi-Square	p-value
Intercept	-2.568	4.198*	0.041	-6.944	20.139*	< .0001	-7.181	21.213*	< .0001
PredRet	0.053	13.612*	0.0002	0.042	7.043*	0.008	0.041	6.544*	0.011
College Embeddedness				0.145	51.405*	< .0001	0.154	55.830*	< .0001
MSCEIT							-1.013	11.685*	0.0006
Model Chi-Square (df)		14.572* (1)			74.861* (2)			88.421* (3)	
Model AUC		0.613			0.757			0.785	

Note: The Wald's Chi-Square are with 1 degree of freedom.

Third Set of Model Comparisons

Because the College Embeddedness Measure offers such a promising result aside from its larger measure of composite college embeddedness, it was worth running further model comparison to ensure that community-related college embeddedness might not be necessary for using college embeddedness to predict retention. See Table 6 for model comparison using binary logistic regression with the addition of community-related college embeddedness items.

The first and second models in this set of comparisons are the same as the previous. Model 3 in this set adds the community-related items from the college embeddedness measure and Model 4 adds the MSCEIT as the final predictor.

As can be seen from the model comparison, adding community-related college embeddedness items did not provide significant prediction for student retention when college-related items are already present from the College Embeddedness Measure. This demonstrated that community-related items are not necessary for capturing the effect of college embeddedness and supports the use of college-related items only. So, while community-related items on their own provided a significant, positive prediction of student retention, as seen in the binary logistic regression results earlier, it can be argued that they are not required for measuring college embeddedness.

Table 6. Binary logistic regression results for model comparisons

	Model 1			Model 2			Model 3			Model 4		
Variable	Coefficient	Chi-square	p-value	Coefficient	Chi-Square	p-value	Coefficient	Chi-Square	p-value	Coefficient	Chi-Square	p-value
Intercept	-2.568	4.198*	0.0405	-6.944	20.139*	< .0001	-7.381	21.547*	< .0001	-7.482	22.020*	< .0001
PredRet	0.053	13.612*	0.0002	0.042	7.043*	0.0080	0.044	7.679*	0.0056	0.042	6.966*	0.0083
College Embeddedness				0.145	51.405*	< .0001	0.121	21.353*	< .0001	0.137	25.715*	< .0001
Community-related C.E.							0.038	1.860	0.1726	0.028	1.006	0.3159
MSCEIT										-0.993	11.134*	0.0008
Model Chi-Square (df)	14.572* (1)			74.861* (2)			76.164* (3)			89.077* (4)		
Model AUC	0.613			0.757			0.761			0.785		

Note: C.E. = college embeddedness; The Wald's Chi-Square are with 1 degree of freedom.

Discussion

As student retention has drawn more attention and research, the search has broadened for non-academic predictors. This study aimed to contribute to this field of research by examining two psychosocial factors as potential non-academic predictors. The goal of the study was to assess the extent to which emotional intelligence and college embeddedness might aid in the prediction of student retention. It was expected that both would independently provide positive prediction of student retention, that as a student displayed higher emotional intelligence or greater college embeddedness, that they would be more likely to be retained following their freshman year.

The results from the binary logistic regressions with emotional intelligence showed a negative, significant relationship with student retention, meaning that the higher a student scored on the MSCEIT, the less likely they were to be retained. This finding is contradictory to what was expected. It was believed that those who were higher in emotional intelligence would be more likely to stay because it would show that they possessed greater maturity in a way that would be beneficial with navigating their first year of college. Students entering college are faced with many new challenges, responsibilities, expectations, and new relationships, among other stressors. It was expected that emotional intelligence would be a factor in the success of students to transition into this new stage of life, as social adjustment and integration into college is imperative (Gerdes & Mallinckrodt, 1994). Studies have emphasized the importance of adjustment as well as the negative effects of anxiety and depression for incoming freshmen (Solberg Nes et al., 2009; Gerdes & Mallinckrodt, 1994). The fact that the results not only were not positive but were negative and significant requires further discussion.

One potential explanation for this finding is that the MSCEIT is not an appropriate measure to use with freshman students. It is possible that a predominantly 18-year old sample is not mature enough to respond to the measure in the intended manner. It was expected that because freshman students are technically adults that the MSCEIT measure would be applicable. Consensus scoring was used for the measure, and it showed that the students primarily agreed with each, but perhaps older adults and experts would not. There exists a youth version of the MSCEIT that is intended for 10 to 18-year old subjects that may be more appropriate for freshman students (Mayer, 2014). If it is true that this youth measure would produce more accurate results it leads to questions of delivering measures intended for adults to freshman students. A second potential explanation for the negative significant association between emotional intelligence and student retention is that it may be the case that students are more likely to be retained if they are less emotionally mature, relative to older adults. It could be that students who are less emotionally mature are more prone to group think and enjoy the freshman lifestyle more than those who are more emotionally intelligent.

Binary logistic regressions showed that college embeddedness was a significant, positive predictor of student retention. This finding supported what we expected to find. Data analyses show that the more embedded a student is, the more likely they are to stay. Using college embeddedness alone to predict student retention showed that all measures and elements of the measures provided significant, positive results. Beyond that, all measures and aspects of college embeddedness had AUCs that were promising, showi`ng that they fit the data well and could likely be applied to future student cohorts for predicting retention. After completing independent binary logistic regressions on each measure and each element it was clear that the composite college embeddedness measure provided the highest predictive ability, but not much higher than

college-related college embeddedness. Due to this small difference barely noticeable difference in predictive ability along with the college-related college embeddedness measure being more concise, an argument can be made for using just the college-related measure over the full composite measure. Finally, model comparison results also supported the argument for using just the college-related items over the composite measure. Having a short measure to administer is more efficient and provides nearly no trade-off for not using the composite measure.

Data analyses support the use of college embeddedness, as was expected. Defining college embeddedness in a manner parallel to that of job embeddedness in an organization allowed the use of existing job embeddedness measures (Crossley et al., 2007; Mitchell et al., 2001). These findings align with literature that discusses how job embeddedness would be related to a construct of college embeddedness because one measures intention to stay in an organization and the other might measure intent to stay in an institution (Larkin et al., 2013). Based on this it would be expected that as students are more embedded, the more likely they are to return for subsequent years of college. It also made sense that the College Embeddedness Measure was almost indistinguishable from the full composite measure in predictive ability as students are likely to be more embedded in the college itself rather than the community when the majority of the students are new to the area.

PredRet was tested with the sample using binary logistic regression and was found to provide positive, significant prediction of student retention, as expected. This finding further supports the algorithm's validity and reliability. The best combined model for predicting student retention, after conducting model comparison, was seen to be the model with PredRet, College Embeddedness, and MSCEIT. This model provided strong, positive predictive ability, $\chi^2(3, 745) = 88.421$, $p < 0.05$. The AUC for this model was strong, showing that it fits the data well and

predicts much better than chance, c = 0.785. This model predicted better than any single measure or element of a measure within this study, along with the current algorithm PredRet. Applying this algorithm to future data, the expectation would be that the higher a student's PredRet score, the more embedded, and the less emotionally intelligent, the greater the chance that the student will be retained from their freshman to sophomore year.

This study has weaknesses to be acknowledged. First, students were required to provide consent to academic records in order to participate, resulting in the loss of some participants. It is possible that the sample in this study is not as representative of the full cohort because of this study requirement. Next, the issue of the correct measure of emotional intelligence for freshman college students should be addressed. The finding that emotionally intelligence is a negative predictor of student retention leads to questions of appropriate measurement of emotional intelligence in freshman students. There is a chance that had the youth version of the MSCEIT been administered, the emotional intelligence results would have been different and perhaps positively predictive of student retention.

This study only reflects findings from a large four-year public state school, so can only be generalized to different forms of postsecondary institutions with caution. The findings from this study are likely not indicative of how emotional intelligence, and especially college embeddedness, would impact student retention in a community college. Further, the study only considered first-time full-time freshmen for student retention meaning that these findings may not be generalizable to other students classified as freshmen, such as part-time students or transfer students.

Directions for Future Research

The current study provides contributions to the student retention literature that are worthy of considering and further investigating. Following the emotional intelligence results, it is worth considering studying the appropriateness of the MSCEIT for measuring the emotional intelligence of freshmen students. Implementing the MSCEIT youth version for predicting the effects of emotional intelligence on student retention would likely provide an interesting comparison for this study. If future studies find that the youth version of the MSCEIT is a more appropriate measure for emotional intelligence of freshman students it might raise questions about using adult psychosocial measures on freshman students, as many studies do. Future studies could also examine other measures of emotional intelligence, including shorter measures so that institutions would have a more efficient measure for collecting that information.

Future studies should examine the strength of college embeddedness in various postsecondary institutes, such as community colleges and private institutions. The sample for the current study comes from a large public state college where most students live on campus during their freshman year. It can be expected that level of college embeddedness would differ based on type of higher education institution and whether or not students live on campus. Studying college embeddedness at a community college for instance might show that community-related college embeddedness items are more predictive of student retention there than for a four-year state school. Future studies could also do a comparison of in-state and out-of-state students' college embeddedness and retention rates, as well as the importance of community-related embeddedness. It would be expected that in-state students would likely be more embedded in the community aspect because they are from the area, while out-of-state students would need to be more highly embedded in the college aspect to be retained.

The current study only considered freshman to sophomore year retention as an outcome of emotional intelligence and college embeddedness leaving questions about retention in the coming years as well as the pattern of the evolvement of these psychosocial factors. Future studies could analyze the emotional intelligence and college embeddedness of students in each grade to better understand how these constructs change over the years and relate to future retention and graduation. It is expected that students would become more emotionally intelligent as they enter higher grades, and potentially those who are higher in emotional intelligence as upperclassmen would be more likely to graduate. For college embeddedness it could be expected that embeddedness in the community aspect would increase as students are further along in their postsecondary experience. It is also expected that students' perceived sacrifice would be higher than it was as freshman students. Future studies could highlight the importance of different aspects for college embeddedness throughout the entire experience of a student's postsecondary education.

Lastly, as Tinto (2006) stated in previous research, the model that institutions need is how postsecondary institutions can implement policies and programs that aid in student retention. Research should not stop at understanding which academic and non-academic factors are predictive of a student being retained, studies should also assess the effectives of different programs and policies that are effective for improving student retention. More emphasis should be placed on the postsecondary institution's ability to meet the needs of the students. After finding specific psychosocial factors are highly predictive of student retention, such as college embeddedness, studies should examine how institutions respond to this finding. It is worth exploring what resources, courses, programs, and/or policies can help students feel more embedded and therefore more likely to stay.

Conclusion

This study provides promising findings to contribute to the student retention literature. It was found that college embeddedness is a valid predictor for freshman to sophomore year retention that provides incremental validity over that of PredRet. It was also found that emotional intelligence, as measured by the MSCEIT, provides a negative prediction of student retention. The combination of PredRet, College Embeddedness, and the MSCEIT provided the best predictor of student retention that captures the data well. These findings have future implications for informing future literature on retention and potentially academic institutions' response to retention.

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Appendix A

Composite Measure of College Embeddedness

Items for the measure were adapted from Mitchell and colleagues' (2001) composite measure of job embeddedness. Participants were asked to respond to the questions using a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree), except for questions 7 through 11 where they gave a numerical response.

1. I like the people in my residence hall
2. I feel like I am a good match for my major *
3. I fit with the university's culture *
4. I really love living in this area
5. The weather here is suitable for me
6. The area offers the leisure activities that I like
7. How many university organizations are you a member of? *
8. How many classmates do you interact with regularly?
9. How many high school friends are attending the university? *
10. How many family members live nearby?
11. How many close friends do you have that live in town, including on campus?
12. My family roots are in this community
13. I have a lot of freedom at this university to make my own decisions *
14. I would sacrifice a lot if I left this university *
15. The prospects of continuing attendance at this university are excellent *
16. It's really important to me that my degree is from this university *
17. People respect me a lot in my community
18. I feel safe in this community
19. Leaving this community would be very hard for me

*Items used for the College Embeddedness Measure

Appendix B

Global Measure of College Embeddedness

Items for this measure were adapted from Crossley and colleagues' (2007) global measure of job embeddedness. Participants were asked to respond to the items using a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree).

1. I feel attached to this university
2. It would be difficult for me to leave this university
3. I'm too caught up in this university to leave
4. I feel tied to this university
5. I simply could not leave the university that I attend
6. It would be easy for me to leave this university
7. I am tightly connected to this university