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Retaining College Students Experiencing Shocks: The Power of Embeddedness and Normative Pressures

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# ABSTRACT

Why do college students persist with their education, especially when facing challenges? We answer this question by exploring the complexities surrounding college student retention, using the organizational research lenses of job embeddedness, normative pressures, and the unfolding model of turnover. We first developed a college embeddedness scale and adapted a measure of normative pressures on college persistence. Then, we surveyed 287 first-year students from a broad range of racial and ethnic groups to understand their re-enrollment intentions and behavior. We found a positive relationship between re-enrollment intentions and normative pressures. Additionally, both college embeddedness and normative pressures predicted actual re-enrollment. Next, we examined how these forces interact with critical events (shocks) that prompt students to contemplate leaving, finding that college embeddedness and normative pressures mitigated the impact of shocks on re-enrollment intentions. Theoretical and practical implications are discussed, including the utility of job embeddedness theory for identifying heretofore neglected forces underlying college student retention.

# Keywords

College student retention; student attrition; embeddedness; normative pressures; shocks

# Introduction

Student retention is of utmost importance to universities, their students, and society. For universities, student retention yields numerous benefits ranging from continued financial sustainability to public reputation of quality and mission fulfillment (Braxton et al., [11]). Retention is especially crucial for students since degree attainment brings greater lifetime earnings, preparation for civic participation, pride in work, and a sense of occupational accomplishment (Ma et al., [35]), with degree attainment being particularly impactful for the economic and social well-being of graduates from underrepresented groups (Banks & Dohy, [6]; Hu & St. John, [28]). Additionally, students who withdraw from college face many obstacles in continuing their education. One study reported that only 22.6% of students who withdrew from a university subsequently re-enrolled and graduated within six years, with significant disparities between students of color and their White counterparts (e.g., 10.7% of Black men who withdrew from a university earned a degree within six years; Shapiro et al., [53]). A potential reason for this pattern of reduced re-enrollment is that despite the increase in lifetime earnings (Ma et al., [35]), the rising cost of education can impose a financial burden that follows students for many years (Robb et al., [50]). Costs also highlight wider societal impacts of college student retention. First-year student attrition reduces the number of people who have the knowledge and skills necessary for substantial contributions to employers and other organizations, decreases the likelihood of their children graduating from college (Cataldi et al., [16]), and creates losses associated with the broader pursuit of social justice and equity across demographic and socioeconomic groups (Banks & Dohy, [6]). In sum, college student retention is critically important to a wide range of stakeholders.

Education scholars have long recognized the significance of college student retention and have utilized various social science theories to explain student persistence. Foundational theoretical perspectives focus on students' personal factors and perceptions of alignment with the university (Tinto, [57]), as well as crucial situational factors (e.g., involvement in campus activities) that shape students' perceptions and commitments (Bean, [7]). Decades of student retention research have extended these dominant models to better account for the nuanced factors influencing students' decisions to stay or withdraw by including students' understanding of expectations and success factors, their academic and social support, and their sense of belonging (Reason et al., [49]; Strayhorn, [55]). Scholars have paid particular attention to disproportionate barriers and challenges faced by students of color, students from low-income backgrounds, and those who are first-generation college students (Banks & Dohy, [6]; Pratt et al., [47]). Yet, while this body of work has identified many factors driving students' persistence or withdrawal, important questions remain. Of particular significance are questions surrounding: ( 1) a comprehensive set of factors that implicitly or explicitly promotes student re-enrollment, and ( 2) whether these drivers of student persistence hold up when a disrupting event is experienced. Thus, in an effort to understand how undergraduate students form intentions and make decisions to re-enroll, our guiding research questions were: what forces promote college persistence, and how do they contribute to intentions and behavior when students face upending challenges?

We advance the existing student retention literature by extending theoretical perspectives that have informed employee turnover and retention — a body of work that has long inspired and influenced college persistence research (Cabrera et al., [15]; Larkin et al., [33]). We do this by incorporating core constructs from three contemporary theories on incumbents' decisions to stay or leave a job: embeddedness, normative pressures, and shocks.

First, we adapt Mitchell et al.'s ([40]) theory of "job embeddedness" to develop the construct of "college embeddedness." From this theoretical perspective, which is detailed below in our review of student retention theories and literature, we posit that students' perceived compatibility (*fit*) with the university, networking (*links*) within the university environment, and anticipated personal loss (*sacrifice*) from leaving the university embed students and, thus, influence their intentions to stay (Larkin et al., [33]).

Second, we consider the explicit normative pressures felt by students when significant others like family, friends, and professors weigh in on their re-enrollment intentions and behavior — an especially crucial consideration for college-age individuals who often look to their referent groups for support and approval (Sanchez et al., [52]). Such pressures likely influence re-enrollment decisions, with recent embeddedness theory and research demonstrating that this effect is independent of the original embeddedness construct (Hom et al., [27]; Ramesh & Gelfand, [48]). Normative pressures can yield reasoned actions that consider reactions of those most important to an individual (Hom et al., [27]), making such considerations especially relevant to re-enrollment intentions and behavior.

Third, we investigate the effects of these forces for staying in the context of challenges that students face. Employee turnover research has long recognized that critical events (otherwise known as "shocks") can prompt individuals to contemplate leaving (Lee & Mitchell, [34]; Pleskac et al., [46]). Drawing from Lee and Mitchell's "unfolding model" ([34]), we depict how critical events can impact students' re-enrollment attitudes and decisions. Building on recent critiques of the turnover literature prescribing identification of moderators that clarify *when* shocks initiate leaving (Hom et al., [27]), we address the need for similar efforts that better reveal the complexities of college student retention and the environment that university officials can foster to reduce social and structural barriers inhibiting student persistence.

In sum, we seek to understand why students continue their college education in the face of significant challenges. Our goal is to advance theory on undergraduate student retention and offer practical implications for those who can influence the environments that support student re-enrollment intentions and behavior. In the sections that follow, we explain the theoretical underpinnings and key constructs of our expanded model of student persistence (see Figure 1), and then detail our methodology and empirical findings. Our methodology contributes to higher education literature by creating and validating a new college embeddedness scale. Additionally, our findings provide further contributions by showing that re-enrollment intentions are affected by interactions of college embeddedness and normative pressures with shocks, while re-enrollment behavior (i.e., re-enrollment for the second year) is directly influenced by college embeddedness and normative pressures. Finally, we discuss implications of our findings, noting how students from varying backgrounds experience college retention-related factors differently.



Figure 1. An expanded model of student persistence

# Student retention theories and literature

Our exploration begins with a general inquiry of the literature: what are the key drivers of college persistence? An expansive body of research spanning five decades speaks to this question, with most studies employing at least one of two long-established models. The student integration model (Tinto, [57]) emphasizes that student persistence arises from students aligning with a university's academic values and integrating socially, while the student attrition model (Bean, [7]) recognizes essential nonacademic factors (e.g., involvement in campus activities) that shape perceptions, preferences and commitments. While the student attrition model overcomes a major gap in the more academically-oriented student integration model (Cabrera et al., [14]), there is considerable overlap of factors that foster psychological processes underlying persistence or withdrawal. Thus, substantial work has supported and extended these two models to explain this highly complex phenomenon (e.g., Millea et al., [39]; Reason et al., [49]; see Burke, [12] for a summary). We now review the progression of these models and recent advances in this work.

## Academic drivers of student persistence

Extending his original model, Tinto ([59]) argues that academic integration creates avenues for information-sharing, support and learning and, thus, promotes retention and academic success. Integration is even more critical for first-year students, who are most susceptible to feelings of isolation (Thomas, [56]) and are minimally influenced by their institution (Tinto, [59]). Scholars have relied on behavioral coping, self-efficacy, and attribution theories to explain how students become academically and socially integrated (e.g., Bean & Eaton, [8]), with a variety of options found to foster integration. For example, learning communities — characterized by peer and faculty support, common academic objectives, and inclusion — create a sense of belonging that enhances academic and social integration deemed critical for retention in both models (Bean & Eaton, [8]; Sanchez et al., [52]). Keup ([31]) agrees that learning communities, along with first-year seminars, can reinforce student integration, and finds that service-learning creates the greatest opportunity for involvement that underpins integration.

More recent work has linked involvement and integration with social and personal competence, showing positive relationships with academic, co-curricular, and extracurricular engagement (Reason et al., [49]). This complementary relationship between social and personal competence is further supported by meta-analyses of psychosocial and study skill factors, in which academic self-efficacy and skills enhance persistence (Robbins et al., [51]), with social involvement and support also contributing. For first-year students, developing confidence that the academic program and supporting faculty will help them build competencies strengthens their beliefs that continued enrollment will help them achieve a fulfilling life (Reason et al., [49]). Further, greater persistence emerges when engagement with faculty and peers goes beyond the traditional transfer of explicit knowledge to promoting competence-, career-, and life-enhancing tacit knowledge (Larkin et al., [33]).

## Social drivers of student persistence

Consistent with the student integration and student attrition models, education scholars also recognize the importance of social integration. Strayhorn ([55]) frames student-oriented integration as a psychological state of belonging and importance to others. Such feelings are primarily considered in a social context (with links to the academic setting) and promote a sense of identification within the college community, generating positive affect that reduces intentions to leave (Robbins et al., [51]).

While faculty and staff play a role in students' sense of belonging and satisfaction (Jones & Andrews, [29]; Tinto, [59]), relationships with peers play the *most* prominent role in facilitating belonging (Strayhorn, [55]). Universities often structure formal peer interaction (e.g., peer mentoring, learning communities, first-year orientation), and such efforts have been found to foster a sense of belonging (Braxton et al., [11]). Peer interaction can also be fostered by paying close attention to the student residential experience, as this form of peer interaction has been shown to increase students' sense of belonging and is critical for the integration and success of underrepresented groups (e.g., first-generation students, see Garvey et al., [21]; African American, Latinx, Native American and Asian American students, see; Winkle-Wagner & Locks, [63]). Additionally, universities can promote a sense of belonging via collective campus identification, such as support for university athletic teams, openness to groups identifying with faith traditions, or the promotion of identity and prestige derived from being a student and future alumnus (Mangold et al., [38]). Yet, much of the research on student persistence has echoed Tinto's ([60]) argument that university faculty and staff lack control over students' private lives and related external events that influence social integration. Thus, while attention and speculation have been given to actions that universities can undertake to create social integration (see Robbins et al., [51]), the relationship can be further specified by examining the desired state — that a student becomes embedded — and its relationship to persistence.

In short, although much has been learned from the examination of academic and social integration factors as persistence drivers, we believe that additional contributing forces can broaden our understanding of student persistence, as reflected in both re-enrollment intentions and behavior. Below, we explain our focal constructs and predictions.

## College embeddedness

We contend that applying an established, comprehensive construct from organizational behavior research on employee turnover — namely, job embeddedness — can enhance our understanding of student retention above and beyond traditional theoretical frameworks focusing on academic and social drivers.

Up until the 21st century, turnover scholars primarily explored why and how employees leave their jobs, but neglected why they stay (Holtom et al., [25]; Mitchell & Lee, [41]). Because psychological processes and motives associated with leaving versus staying likely differ, Mitchell et al. ([40]) drew from field theory and the notion of embedded figures, positing that individuals perceive themselves as immersed in a space among various aspects of their lives that are loosely or tightly connected, and describing embeddedness as "a net or a web in which an individual can become stuck" (Mitchell et al., [40], p. 1104). These authors pioneered "job embeddedness" to represent a comprehensive, multidimensional construct comprising *fit* (workplace or community compatibility), *links* (connections to corporate and community constituents), and *sacrifice* (benefits forfeited when leaving). This perspective departs from conventional wisdom by more thoroughly capturing the full range of exit costs and inducements for staying (Griffeth & Hom, [22]). Apart from potential tangible forfeitures, an employee's personality and values may fit closely with those of other employees and management. Furthermore, employees may gain social resources within and outside of the workplace (Maertz et al., [37]). These unique networks, coupled with shared values, bind employees to firms, with employees who leave potentially feeling a deep, personal loss.

We propose that this dominant theoretical view on staying (Hom et al., [26]) can similarly explain why students remain in collegiate institutions. Analogous to Mitchell et al.'s ([40]) job embeddedness construct, we define college embeddedness as a college student's "net or web in which he or she can become stuck" (or set) in a specific institution of higher education (Mitchell et al., [40], p. 1104). As job embeddedness goes beyond conventional views of institutional commitment, we contend that, within the context of college students, the essential components of *fit, links*, and *sacrifice* are equally relevant to student persistence. Personal links with individuals, the university, and social and academic institutions are an essential antecedent of embeddedness (Larkin et al., [33]). Equally important is compatibility between the university and a student's values, preferred environment, and intended career directions (Blau et al., [10]). Furthermore, college students may associate leaving college with substantial loss from discontinued friendships, withdrawal from enjoyable university activities, and forfeiture of scholarships or money spent on tuition (Larkin et al., [33]). Thus, we extend prior arguments regarding involvement, integration and a sense of belonging (Garvey et al., [21]; Strayhorn, [55]) by asserting that the composite of a range of embedding forces within a university strengthens college students' re-enrollment intentions and behavior.

*Hypothesis 1: College embeddedness is positively associated with college persistence.*

## Normative pressures to stay

In addition to embeddedness, we propose that students' central reference groups influence their re-enrollment intentions and behavior. Reference groups comprise individuals who have highly valued relationships with the student, including family members, professors, and friends within and outside of the university. Unique to each individual, their reference group creates a distinctive source of identification and commitment that is internalized as a sense of duty, loyalty, and a need for approval, culminating in social pressures that drive behavior (Ajzen & Fishbein, [1]). Separate from embeddedness (notably links), normative pressures from referents may shape decisions to stay or leave as they involve reasoned actions that consider reactions and approval from those they deem most important (Hom et al., [27]; Ramesh & Gelfand, [48]). Specific to college students, education scholars have long argued that normative pressures to remain enrolled in college are rooted in a need for approval by family, friends and faculty (Antonio, [3]), who may also furnish material, informational, or emotional support for continued enrollment.

In line with our view, Cabrera et al. ([14]) contend that Bean's ([7]) student attrition model more effectively explains student retention by explicitly recognizing how factors external to the college affect student persistence. Later, Cabrera et al. ([15]) empirically corroborated the effects of external factors, revealing that encouragement from family and friends contributes to students' commitment to their academic goals and to their social integration in the college environment. Tinto ([58]) similarly contends that close personal relationships promote college persistence by providing aid to help students overcome their short-term hardships. Alternatively, some studies on normative pressures to stay enrolled disclose weaker effects. Bean and Vesper ([9]), for example, in an exploratory examination of many factors theorized to predict students' second-year re-enrollment, found that need for family approval was one of only a few external factors that affect persistence. Despite the abundance of scholarly inquiries into college student retention, relatively few studies investigated the influence of normative pressures from a broad array of referents on student persistence.

We reason that normative expectations most affect student withdrawal when emanating from those with whom one has strong affective bonds. We develop this argument from scholarly work on job incumbency, in which Maertz and Griffeth ([36]) theorized that others' expectations (especially friends and family) for continuance ("normative forces") influence staying in a distinctly different manner than embeddedness (which emphasizes the number of links; Holtom et al., [25]). This argument is further corroborated by Ramesh and Gelfand ([48]), who established that family pressures to stay promote persistence beyond the level attained by the standard embedding forces of fit, links, and sacrifice. Through the lens of reasoned action and planned behavior (Ajzen & Fishbein, [1]), students are *motivated to comply* with behavioral prescriptions or demands from important others and, thus, are more likely to conform.

*Hypothesis 2: Normative pressures to stay are positively associated with college persistence.*

## Shocks in the context of embeddedness and normative pressures

As summarized above, many scholarly inquiries into college student retention consider how overall satisfaction drives intentions and decisions to re-enroll, emphasizing individual factors (academic, social and environmental; Braxton et al., [11]). Other work focuses on university interventions to boost student persistence (e.g., support systems, Nora & Cabrera, [45]; first-year programs, Keup, [31]). Yet, scant attention is paid to the role that sudden, triggering events can play in undermining student persistence. This is surprising, as recent employee turnover studies largely conclude that triggering events (i.e., shocks) often underlie employees' decisions to leave workplaces (Holtom et al., [24]; Hom et al., [26]).

Within the turnover literature, Lee and Mitchell's ([34]) unfolding model proposes that a shock is "a very distinguishable event that jars the employee toward deliberate judgments about his or her job and, perhaps, to voluntarily quit the job" (Lee & Mitchell, [34], p. 60). Broadening the context to consider our focus on college students, a shock or significant disruption can serve as the catalyst to engage in a cognitive process that provokes questions of institutional fit, relative satisfaction, and possible alternatives to staying. Shocks can be positive or negative and can arise from experiences within one's organization (e.g., an opportunity to join a highly selective program, encountering microaggressions attributed to demographic or other differences, perceiving institutional inequity or unethical behavior) or they can be personal and externally-oriented (e.g., pregnancy, unanticipated financial hardship, family member illness; Holtom et al., [24]).

Pleskac et al. ([46]) extended the unfolding model to college students and asserted that specific shocks trigger preexisting cognitive scripts that activate students' withdrawal intentions (i.e., "certain states"). Other types of shocks, however, induce students to engage in mental deliberations comparing their current state and other possible states (i.e., "uncertain states"). Values, goals and expectations serve as criteria in this comparison process, with the ultimate decision to withdraw or not withdraw determined by perceived fit (Pleskac et al., [46]). Although finding that both certain and uncertain states affect withdrawal decisions, these authors found that only six of 21 shocks they identified underpin withdrawal intentions and only four underpin imminent withdrawal intentions. In their work, Pleskac and colleagues treat shocks in isolation from other factors influencing student persistence and, thus, do not address why *most* shocks fail to elicit withdrawal intentions among students encountering them.

As noted above, emerging perspectives integrating the unfolding and embeddedness models suggest that forces embedding employees may play a buffering role, preventing the shocks from inducing withdrawal (Burton et al., [13]; Mitchell & Lee, [41]). In parallel, we advance the proposition that embeddedness can attenuate the negative effects of shocks on college student retention (cf. Larkin et al., [33]). Specifically, we posit that a student who experiences a shock and enters the unfolding models' uncertain state is cognitively drawn to consider his or her level of embeddedness with the university. Consideration of fit, links, and sacrifice may distinctly or jointly make it easier for the student to endure the shock (via support or paths for resolution) or provide a preferred alternative state in which the student's values, goals and expectations remain intact. Consequently, we hypothesize the following:

*Hypothesis 3: College embeddedness moderates the relationship between shocks and college persistence, such that this relationship is weaker for highly embedded students than less embedded students.*

In parallel to the interaction of embeddedness and shocks in predicting persistence, we also theorize that normative pressures can moderate the relationship between shocks and college persistence. As stated previously, normative pressures to stay represent referent demands and expectations that shape decisions of whether to stay or separate (Ramesh & Gelfand, [48]). Recall that the unfolding model (see Lee & Mitchell, [34]), in the context of a college student, posits that a student incurring a shock engages in a cognitive process to judge fit and relative satisfaction with the university, as well as possible alternatives to staying enrolled.

Some shocks may directly relate to a student's college life, in which some university referents (e.g., professors, on-campus friends) may be familiar with details, involved parties, and possible consequences from certain types of shocks. To illustrate, an unanticipated bad grade is positively related to intentions to withdraw and transfer (Pleskac et al., [46]). Yet, some university referents (e.g., faculty) may quell withdrawal intentions by drawing attention to possible paths to remedy poor performance and its implications, including tutoring, access to study groups, and alternative course schedules (Jones & Andrews, [29]). Moreover, some referents are positioned to affirm and reinforce the student's original objectives in attending the university. Challenges such as clinical depression may also predispose students to think about withdrawing (Pleskac et al., [46]). Referents within and outside of the university (e.g., parents, faculty, close friends) might guide such a student to professional counseling, assist the student in seeking necessary accommodations, and minimize contacts that could trigger depressive episodes.

Taken as a whole, referents who advise or exhort students to remain enrolled may supply emotional or tangible support, interrupting the unfolding model's information gathering and decision processes that might otherwise lead students to exit after they have encountered a shock.

*Hypothesis 4: Normative pressures to stay moderate the relationship between shocks and college persistence, such that this relationship is weaker for students with greater normative pressures to stay than for students with less normative pressures to stay.*

# Method

## Study overview

To test our hypotheses, we first developed, in iterative fashion, a college embeddedness scale. This scale captured elements within the university environment that align with Mitchell et al.'s ([40]) concept of embedding forces. This process involved a series of surveys and focus group meetings with students to support the development and validation of the new scale (detailed below). Once the final 31-item scale (reflecting college fit, links, and sacrifice) was created, we administered it to a sample of 287 first-year college students to test our hypotheses. Analyses confirmed good reliability and discriminant validity for the new scale.

In addition, we constructed a measure to assess normative pressures to stay enrolled. This instrument, which used 13 key referents for each participant, also demonstrated high reliability.

College embeddedness and normative pressures were each examined in relation to re-enrollment intentions and behavior. We predicted that both forces would be associated with persistence, above and beyond factors from previous college persistence models. We also expected an interactive effect, such that embeddedness and normative pressures, respectively, would mitigate the impact of shocks on re-enrollment intentions and behavior.

## Sample

Students were recruited from a large and diverse public university in a major metropolitan area in the southwestern United States. The university offers various undergraduate and graduate degree programs through its many colleges. While many students live on campus, the university also enrolls a considerable number of commuters. The university's current ethnic/racial composition of domestic students is 47.8% White, 25.3% Latinx, 7.8% Asian American, 4.6% two or more races, 4.2% African American, 1.3% Native American, and 1.2% other or unspecified. International students comprise 7.7% of the student body.

To test our hypotheses, we recruited 287 first-year students from a list of 1028 students intending to major in business and 1000 students from a large psychology class. The students recruited represented a similar ethnic/racial composition as the university. We administered an online survey (assessing *re-enrollment intentions, college embeddedness* and other predictors) to these students in April (sending reminders through early May) of the Spring semester. To determine *re-enrollment* and obtain additional control variables for the participants, we accessed university records during the subsequent semester.

## College embeddedness scale

Following approaches prescribed by DeVellis ([18]), our first objective was to create and validate a measure of college embeddedness with a sample of first- and second-year college students. First- and second-year students were recruited as participants as they are most prone to leave a university (Braxton et al., [11]).

As a first step, an open-ended survey was administered to 51 students enrolled in an introductory business course to generate items for the three embedding dimensions: college fit, links, and sacrifice. From respondents' most frequently mentioned answers, we generated 17 close-ended items that were then administered via an online survey to 95 students enrolled in an introductory communications course. These students also responded to items representing well-established predictors of student attrition (see Cabrera et al., [14], [15]), which allowed discriminant validity to be assessed relative to traditional attrition predictors (see Mitchell et al., [40]). Seven predictors associated with Cabrera and colleagues' traditional attrition model were derived using principle components analysis. To gauge the new scale's predictive validity, the students also responded to two questions associated with re-enrollment intentions. We accessed university records the following fall semester to determine students' re-enrollment (nine of the 95 students did not re-enroll).

Although the embeddedness construct represents a causal rather than reflective indicator measurement model, we — like Mitchell et al. ([40]) — used exploratory factor analysis (EFA) and Cronbach's alpha (α) reliability estimates to assess the internal consistency of items within a given dimension. The 17-item scale achieved satisfactory reliability (α =.75) and the average factor loading was comparable to, but lower than, dimensions in Mitchell et al.'s ([40]) job embeddedness scale. As expected, the new *college embeddedness* scale was significantly correlated with students' *re-enrollment intentions* (*r* =.38, *p* <.05) and *re-enrollment* (*r* =.30, *p* <.05). However, when assessing the scale's incremental predictive validity, college embeddedness was not found to significantly explain unique variance in *re-enrollment intentions* or *re-enrollment* beyond variance explained by conventional student attrition predictors. Thus, we undertook further steps to improve the incremental predictive validity of the college embeddedness scale.

Focus group meetings were held with 38 first-year students enrolled in a university-wide first-year orientation class during the Spring semester. The intention of these meetings was to seek information regarding salient embedding forces not captured in our previous open-ended survey with 51 students. From the information received in these meetings, the *college embeddedness* scale was increased from 17 to 31 items.

Subsequent analyses using the final sample of 287 students demonstrated higher reliabilities for the 31-item scale (α =.90), and for each subscale (fit α =.89; links α =.73; sacrifice α =.77). As with the previous iteration, we also performed an EFA for items in each subscale. Scree tests suggest a primary factor for each set of items (cf. Mitchell et al., [40]), and average factor loadings improved with this scale revision. Appendix A shows the 31 items and factor loadings for the *college embeddedness* scale.

## Normative pressures to stay

To capture normative pressures to stay, we presented participants with 13 referents who might influence whether students stay or leave their collegiate institutions, including family members, friends (within and outside of the university), members from their campus organizations, and romantic partners. Using a five-point scale, respondents indicated whether each referent disapproved, or was unsupportive, indifferent, mildly supportive or highly supportive of their university attendance. By combining the ratings for each student's referents, we created a measure from 1 to 5 of *normative pressures to stay* in which the midpoint ( 3) suggested that the student had no pressures or, more likely, that pressures to stay or leave were balanced across referents. Notably, the responses suggested that some students had normative pressures to *leave*, since the measure was below 3 for 35 of the 287 students in our sample. The measure exhibited high reliability (α =. 91) and an EFA, according to a scree plot, identified a single factor with an average factor loading of.68.

## Shocks

Our measurement of shocks followed a two-step process, in which students first indicated whether they had experienced a shock and then assessed the shock's perceived magnitude. Consistent with standard practice, we asked study participants if they had encountered a significant event (e.g., denied admission to a program, family illness) in the past month that made them think about leaving college (e.g., Kammeyer-Mueller et al., [30]). Next, using a three-point scale, they rated how strongly the event made them consider leaving. We multiplied the dichotomous indicator of shock experience by its impact on intentions to leave to generate our *shock* index.

## Alternative student attrition models

As noted above, we assessed traditional predictors using items from Cabrera et al. ([14]). From principal components analysis, these predictors were grouped into seven categories: *student satisfaction; campus integration; peer integration; degree value; school stress; transfer difficulty*; and *financial distress*.

## Control variables

Based on past research on predictors of college outcomes (e.g., Robbins et al., [51]), we obtained information about students' college and high school grade point average (GPA) from institutional records. Our survey also assessed other well-documented predictors of college attrition, namely *parental education* (average of parents' educational level, a proxy for socioeconomic status), *race*, and *gender*.

# Analysis

Multiple imputation was used in our analysis models to account for missing data (Asparouhov & Muthén, [4]). This method accommodates a variety of regression models (Allison, [2]) and provides greater statistical power with less biased parameter estimates than classic listwise or pairwise deletion (Newman, [43]). As a result, the entire sample (N = 287) was included for analyses using ordinary least squares regression with *re-enrollment intentions* as the dependent variable, while N equaled 267 for analyses using logistic regression with *re-enrollment* as the dependent variable. For each dependent variable, we first entered the control variables into regression equations and then entered the seven predictors specified by traditional student attrition models. Next, we added our new predictors (*college embeddedness* and *normative pressures to stay*) to the equations to assess their incremental predictive validity. Lastly, we added the interactive terms to the regression equations to assess how *college embeddedness* and *normative pressures to stay* moderate the impact of *shock* on student re-enrollment intentions and re-enrollment.

# Results

Table 1 presents descriptive statistics and correlations. Given the aforementioned missing data, an expectation-maximization algorithm was used to generate correlations (see Enders, [20]). Consistent with our hypothesized model, *college embeddedness* and *normative pressures to stay* are positively correlated with *re-enrollment intentions* and *re-enrollment*, while *shock* is negatively correlated with these outcomes.

Table 1. Descriptive statistics and correlations

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variables | Mean | Std Dev | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 1. Race | N/A | N/A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2. Parental Education | 3.20 | 1.12 | −.192\*\* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3. Gender | 0.36 | 0.48 | −.026 | .076 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4. Weekly Work Hours | 10.14 | 11.58 | −.046 | −.172\*\* | −.013 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5. College GPA | 3.23 | 0.60 | −.087 | .104 | .099 | −.119\* |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6. High School GPA | 3.55 | 0.37 | .019 | −.062 | −.030 | −.024 | .430\*\* |  |  |  |  |  |  |  |  |  |  |  |  |
| 7. Student Satisfaction | 3.75 | 0.73 | .017 | .078 | .018 | −.133\* | .112 | .061 |  |  |  |  |  |  |  |  |  |  |  |
| 8. Financial Distress | 3.25 | 1.02 | .112 | −.049 | −.075 | .045 | −.263\*\* | −.250\*\* | −.096 |  |  |  |  |  |  |  |  |  |  |
| 9. Academic Stress | 2.83 | 0.99 | −.071 | .024 | .006 | .061 | −.136\* | .022 | −.163\*\* | .181\*\* |  |  |  |  |  |  |  |  |  |
| 10. Degree Value | 4.70 | 0.62 | −.104 | .127\* | −.148\* | −.017 | .089 | .059 | .401\*\* | −.021 | −.011 |  |  |  |  |  |  |  |  |
| 11. Peer Integration | 3.45 | 0.88 | .006 | .098 | −.019 | −.086 | −.125\* | −.095 | .535\*\* | −.049 | −.114 | .276\*\* |  |  |  |  |  |  |  |
| 12. Campus Integration | 1.63 | 0.45 | .066 | −.025 | .079 | .058 | .093 | .037 | .169\*\* | .058 | .006 | −.002 | .109 |  |  |  |  |  |  |
| 13. Transfer Difficulty | 2.93 | 1.19 | .093 | −.100 | −.051 | −.007 | −.095 | −.024 | .212\*\* | .017 | .020 | .041 | .174\*\* | .015 |  |  |  |  |  |
| 14. College Embeddedness | 0.00 | 0.68 | .007 | .180\*\* | .108 | −.091 | .075 | .044 | .560\*\* | −.133\* | −.021 | .183\*\* | .598\*\* | .204\*\* | .216\*\* |  |  |  |  |
| 15. Normative Pressures | 0.00 | 0.66 | −.054 | .109 | .033 | .048 | .045 | .043 | .572\*\* | −.056 | −.012 | .286\*\* | .437\*\* | .144\* | .307\*\* | .656\*\* |  |  |  |
| 16. Shock | 0.00 | 0.88 | −.043 | −.039 | −.079 | .071 | −.060 | −.011 | −.229\*\* | .102 | .137\* | −.012 | −.124\* | −.038 | −.113 | −.219\*\* | −.216\*\* |  |  |
| 17. Re-Enrollment Intentions | 0.00 | 0.93 | .029 | .057 | −.080 | −.019 | .216\*\* | .199\*\* | .470\*\* | −.114 | −.072 | .223\*\* | .204\*\* | .105 | .279\*\* | .310\*\* | .423\*\* | −.167\*\* |  |
| 18. Re-Enrollment | 0.92 | 0.28 | .021 | −.037 | .046 | .008 | .098 | .160\*\* | .240\*\* | .022 | −.054 | .016 | .148\* | .082 | .196\*\* | .259\*\* | .258\*\* | −.158\*\* | .588\*\* |

Race is coded 0 for White and 1 for all other ethnic groups. Gender is coded as 0 for women and 1 for men. Variables 14 through 17 are mean-centered.

Expectation-maximization (EM) used to address missing data for some variables.

N equals 287 for all variables except Re-enrollment. N equals 267 for Re-enrollment and all correlations involving re-enrolloment are based on N of 267.

\*\*Correlation is significant at the 0.01 level (2-tailed).

\*Correlation is significant at the 0.05 level (2-tailed).

## Re-enrollment intentions

Panel A in Table 2 reports regression models for predicting *re-enrollment intentions*. Model 1 assesses control variables and reveals that *college GPA* explains unique variance in *re-enrollment intentions*, while Model 2 adds traditional predictors of student persistence and shows that *student satisfaction* and *transfer difficulty* also explain unique variance in *re-enrollment intentions*. In a test of Hypothesis 1, Model 3 examines the main effect of *college embeddedness* on *re-enrollment intentions* and does not find any significant effect. Thus, Hypothesis 1 is not supported for *re-enrollment intentions*. However, Model 4 identifies a significant interaction between *college embeddedness* and *shock* (*b* = 0.149, *p* <.05). Figure 2 plots this interaction, which illustrates that among students who experience greater shock intensity, those who are highly embedded in college have greater intentions to re-enroll than those with low embeddedness. These findings support Hypothesis 3 for *re-enrollment intentions*.

Table 2. Main effects and interactions with re-enrollment intentions and re-enrollment

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Dependent Variable: Re-enrollment Intentions | Dependent Variable: Re-enrollment |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Predictors | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 | Model 8 | Model 9 | Model 10 | Model 11 | Model 12 |
| Control Variables |  |  |  |  |  |  |  |  |  |  |  |  |
| Race | 0.100 | 0.056 | 0.054 | 0.055 | 0.075 | 0.076 | 0.145 | −0.280 | −0.389 | −0.422 | −0.325 | −0.363 |
|  | (0.113) | (0.099) | (0.099) | (0.098) | (0.098) | (0.097) | (0.495) | (0.570) | (0.597) | (0.610) | (0.584) | (0.586) |
| Parental Education | 0.054 | 0.050 | 0.043 | 0.041 | 0.037 | 0.036 | −0.122 | −0.267 | −0.411 | −0.376 | −0.338 | −0.34 |
|  | (0.049) | (0.043) | (0.044) | (0.043) | (0.043) | (0.042) | (0.215) | (0.252) | (0.270) | (0.279) | (0.263) | (0.263) |
| Gender | −0.184+ | −0.179+ | −0.189+ | −0.166+ | −0.192\* | −0.167+ | 0.404 | 0.084 | 0.044 | 0.143 | 0.181 | 0.194 |
|  | (0.112) | (0.098) | (0.099) | (0.099) | (0.097) | (0.096) | (0.515) | (0.577) | (0.592) | (0.612) | (0.590) | (0.605) |
| Weekly Work Hours | 0.001 | 0.005 | 0.005 | 0.006 | 0.003 | 0.004 | 0.003 | 0.014 | 0.018 | 0.043 | 0.008 | 0.013 |
|  | (.005) | (0.004) | (0.004) | (0.004) | (0.004) | (0.004) | (0.021) | (0.023) | (0.023) | (0.029) | (0.023) | (0.024) |
| College GPA | 0.266\* | 0.210\* | 0.204\* | 0.231\* | 0.203\* | 0.216\* | 0.275 | 0.537 | 0.434 | 0.697 | 0.41 | 0.479 |
|  | (0.104) | (0.095) | (0.095) | (0.096) | (0.094) | (0.093) | (0.381) | (0.422) | (0.445) | (0.469) | (0.429) | (0.437) |
| High School GPA | 0.247 | 0.218 | 0.212 | 0.205 | 0.205 | 0.214 | 1.161\* | 1.750\* | 1.890\* | 1.923\* | 1.893\* | 1.934\* |
|  | (0.163) | (0.142) | (0.142) | (0.142) | (0.141) | (0.140) | (0.574) | (0.663) | (0.715) | (0.718) | (0.690) | (0.697) |
| Alternative Model |  |  |  |  |  |  |  |  |  |  |  |  |
| Student Satisfaction |  | 0.528\* | 0.502\* | 0.472\* | 0.423\* | 0.378\* |  | 0.870\* | 0.419 | 0.255 | 0.419 | 0.320 |
|  |  | (0.082) | (0.086) | (0.087) | (0.088) | (0.089) |  | (0.372) | (0.408) | (0.449) | (0.424) | (0.435) |
| Financial Distress |  | −0.032 | −0.028 | −0.027 | −0.031 | −0.031 |  | 0.386 | 0.495+ | 0.529+ | 0.392 | 0.418 |
|  |  | (0.048) | (0.048) | (0.048) | (0.048) | (0.047) |  | (0.252) | (0.262) | (0.275) | (0.262) | (0.262) |
| Academic Stress |  | 0.009 | 0.004 | 0.015 | −0.002 | −0.002 |  | −0.284 | −0.242 | −0.140 | −0.263 | −0.230 |
|  |  | (0.048) | (0.049) | (0.049) | (0.048) | (0.047) |  | (0.282) | (0.281) | (0.299) | (0.282) | (0.283) |
| Degree Value |  | 0.034 | 0.041 | 0.064 | 0.020 | 0.045 |  | −0.428 | 0.107 | 0.266 | −0.220 | −0.165 |
|  |  | (0.085) | (0.085) | (0.085) | (0.084) | (0.083) |  | (0.417) | (0.455) | (0.484) | (0.413) | (0.420) |
| Peer Integration |  | −0.045 | −0.075 | −0.051 | −0.080 | −0.055 |  | 0.529 | 0.252 | 0.460 | 0.557 | 0.645 |
|  |  | (0.064) | (0.072) | (0.072) | (0.064) | (0.064) |  | (0.365) | (0.384) | (0.412) | (0.377) | (0.393) |
| Campus Integration |  | 0.052 | 0.039 | 0.038 | 0.035 | 0.036 |  | 0.153 | 0.070 | 0.047 | 0.198 | 0.200 |
|  |  | (0.106) | (0.107) | (0.106) | (0.104) | (0.103) |  | (0.653) | (0.675) | (0.712) | (0.691) | (0.698) |
| Transfer Difficulty |  | 0.164\* | 0.159\* | 0.156\* | 0.134\* | 0.129\* |  | 0.704\* | 0.678\* | 0.708\* | 0.616\* | 0.573\* |
|  |  | (0.040) | (0.040) | (0.040) | (0.041) | (0.040) |  | (0.250) | (0.260) | (0.267) | (0.263) | (0.267) |
| Main Effects |  |  |  |  |  |  |  |  |  |  |  |  |
| College Embeddedness |  |  | 0.089 | 0.057 |  |  |  |  | 1.375\* | 1.165+ |  |  |
|  |  |  | (0.095) | (0.095) |  |  |  |  | (0.563) | (0.609) |  |  |
| Normative Pressures to Stay |  |  |  |  | 0.274\* | 0.282\* |  |  |  |  | 1.160\* | 1.080+ |
|  |  |  |  |  | (0.089) | (0.089) |  |  |  |  | (0.541) | (0.566) |
| Shocks |  |  |  | −0.007 |  | 0.023 |  |  |  | 0.312 |  | −0.207 |
|  |  |  |  | (0.058) |  | (0.058) |  |  |  | (0.452) |  | (0.357) |
| Interactions |  |  |  |  |  |  |  |  |  |  |  |  |
| Shocks x College Embeddedness |  |  |  | 0.149\* |  |  |  |  |  | 0.811+ |  |  |
|  |  |  | (0.073) |  |  |  |  |  | (0.480) |  |  |  |
| Shocks x Normative Pressures |  |  |  |  |  | 0.208\* |  |  |  |  |  | 0.111 |
|  |  |  |  |  | (0.083) |  |  |  |  |  | (0.435) |  |
| Constant | −1.892\* | −4.091\* | −3.821\* | −3.978\* | −3.236\* | −3.314\* | −2.308 | −9.796\* | −9.292\* | −11.763\* | −8.622\* | −9.246\* |
|  | (0.566) | (0.685) | (0.743) | (0.740) | (0.732) | (0.723) | (2.083) | (3.535) | (3.839) | (4.142) | (3.729) | (3.809) |
| Nagelkerke R-squared | 0.057 | 0.318 | 0.323 | 0.340 | 0.348 | 0.367 | 0.070 | 0.284 | 0.333 | 0.370 | 0.322 | 0.331 |
| N | 287 | 287 | 287 | 287 | 287 | 287 | 267 | 267 | 267 | 267 | 267 | 267 |

\* *p* <.05; + *p* <.10.

Models analyzing re-enrollment intentions use ordinary least squares regression, while models analyzing re-enrollment use logistic regression.

Nagelkerke R-squared calculations exclude methods used to address missing data.

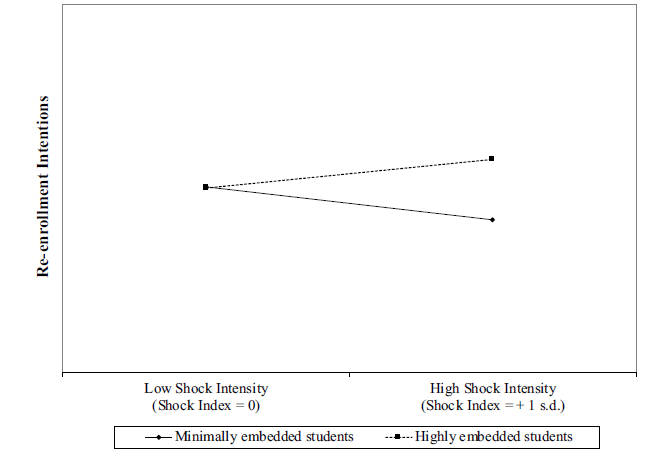


Figure 2. Interaction of college embeddedness with shock intensity

As predicted, Model 5 shows that *normative pressures to stay* has a significant, positive relationship with *re-enrollment intentions* (*b* = 0.274, *p* <.05). Hypothesis 2 is supported for *re-enrollment intentions*. Additionally, Model 6 discloses a significant interaction between *normative pressures to stay* and *shock* (*b* = 0.208, *p* <.05). These findings provide support for Hypothesis 4 with *re-enrollment intentions*. This pattern is plotted in Figure 3, which illustrates that among students who experience a more intense shock, those with stronger normative pressures to stay are more likely to report intentions to re-enroll.

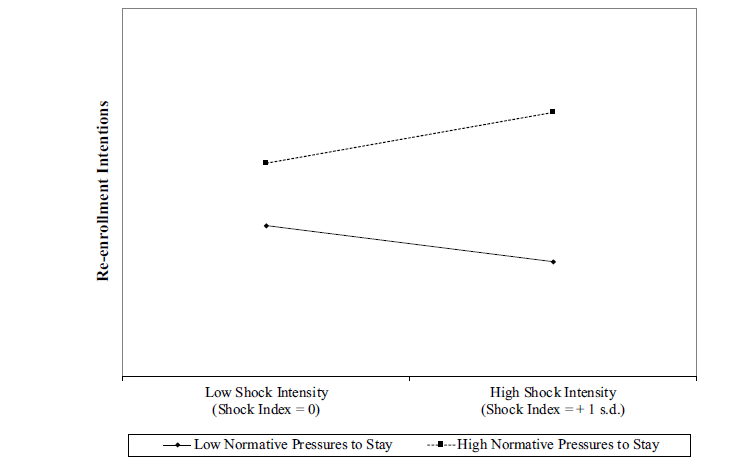


Figure 3. Interaction of normative pressures to stay with shock intensity

## Re-enrollment

Regression results for *re-enrollment* are reported in Panel B of Table 2. Model 7 reveals that *high school GPA* explains unique variance, while Model 8 finds that *student satisfaction* and *transfer difficulty* also explain unique variance for this outcome measure. Model 9 reveals a significant, positive relationship for *college embeddedness* and *re-enrollment* (*b* = 1.375, *p* <.05). Thus, Hypothesis 1 is supported for *re-enrollment*. Model 10 shows a marginally significant interaction between *college embeddedness* and *shock* (*b* = 0.811, *p* <.10), providing partial support for Hypothesis 3 using *re-enrollment*.

Model 11 shows a significant, positive relationship for *normative pressures to stay* and *re-enrollment* (*b* = 1.160, *p* <.05). Hypothesis 2 is supported for *re-enrollment*. As shown in Model 12, no significant interaction emerged between *shock* and *normative pressures to stay*, disputing Hypothesis 4 for *re-enrollment.*

# Discussion

We initiated this study to clarify a critical and ongoing challenge facing college students and their institutions of higher education: student retention, particularly in the face of upending challenges (i.e., shocks) that can threaten continued enrollment. We focused on implicit and explicit forces that shape students' attitudes toward re-enrollment and subsequent re-enrollment behaviors: college embeddedness and normative pressures, respectively. Building on prior student embeddedness inquiries (e.g., Larkin et al., [33]), we adapted a college embeddedness scale from Mitchell et al.'s ([40]) job embeddedness theory and assessed its incremental predictive validity by controlling for a wide array of standard attrition predictors. While previous tests of college embeddedness did not control for alternative retention theories to establish the incremental predictive validity of embeddedness, our findings suggest that college embeddedness explains nearly five percent of additional variance beyond traditional predictors of student re-enrollment.

We posited that embeddedness is likely to be especially salient and impactful for college students when they face an event that prompts them to contemplate continuation of their college enrollment. The concept of shocks, rooted in the unfolding model of employee turnover (Lee & Mitchell, [34]), captures crucial events that prompt an individual to consider leaving a job. Our findings suggest that college embeddedness can *amplify* students' resilience, showing that embeddedness bolsters re-enrollment intentions when students experience high intensity shocks. This extends prior research using signal detection theory, which finds some shocks increase students' intentions to withdraw (Pleskac et al., [46]), and is consistent with prior organizational research that finds embedding forces can offset shocks (Burton et al., [13]; Mitchell et al., [40]).

More importantly, this finding is unique within the college student retention literature as it differentiates the influence of shocks on intentions to withdraw from actual re-enrollment behavior. Despite the short period (approximately four months) between surveying students and their decisions to re-enroll for the following year, we find no evidence that shocks, as a main effect or interacting with embeddedness, influence actual decisions to re-enroll. Instead, college embeddedness directly affects decisions, suggesting a distinctive extension of Lee and Mitchell's ([34]) unfolding model to college student persistence. Consistent with the unfolding model, our findings suggest that a shock may jar a student and prompt a cognitive process to consider fit, links and sacrifice within the college environment. However, effects from the shock seem to dissipate, with only feelings of embeddedness affecting re-enrollment — suggesting that re-enrollment decisions are more deliberate than they are reactive, especially when students are embedded and evaluate the true costs of leaving (cf. Vardaman et al., [61]).

Our findings associated with normative pressures to stay are similar to those associated with college embeddedness, but suggest a notable difference between how these two constructs affect student persistence. Comparable to our findings for the interaction of college embeddedness with shocks, students who feel strong normative pressures to stay are shown to have greater re-enrollment intentions when they experience shocks. The influence of shocks seems to dissipate as the decision to re-enroll approaches (when the costs incurred by leaving college can no longer be discounted; Vardaman et al., [61]), with the main effect of normative pressures to stay explaining nearly four percent of additional variance beyond alternative predictors of re-enrollment.

Unlike college embeddedness, however, normative pressures to stay are also shown to have a strong main effect on re-enrollment intentions, explaining three percent of additional variance beyond alternative predictors of re-enrollment intentions. This difference is important as it suggests that pressures from referents may be ever-present, while feelings of embeddedness may be more latent and only contemplated when students face a shocking event or an imminent decision to re-enroll (Vardaman et al., [61]). Indeed, Mitchell et al. ([40], p. 1108) conceived of job embeddedness as a form of "inertia, or bias toward the status quo." Thus, we extend a crucial argument from the turnover literature to college student retention, as we find that supportive forces (e.g., family, friends within and outside of the university; see Maertz & Griffeth, [36]) bolster student persistence. To the extent that these referents reinforce the value of staying, they likely emphasize a wide range of potential outcomes, including achieving longer-term career and financial goals, sustaining and deepening relationships, and developing personally. While some student retention scholars identify sources of normative pressures (e.g., Antonio, [3]), our study extends past research by bringing to light that normative pressures to stay, unlike other perceptions, may be an especially salient retention mechanism for college students.

## Further student diversity considerations

Despite our focus on a broad population of college students, we recognize that many racial and ethnic groups, as well as struggling socioeconomic groups, face additional, unique challenges and barriers. Strayhorn ([54]), for example, suggests that Black men attending predominantly White institutions may depart due to a lack of belonging and that potential causes of this include marginalization, social isolation, and lack of support from peers and faculty members (see also Museus et al., [42]). Similarly, Lareau ([32]) illustrates that middle- and upper-class students (especially those who are White) are more likely to develop stronger feelings of embeddedness that may emanate from childhood experiences and socialization, in which they gain a sense of entitlement and advantages facilitating cultural capital (see also Strayhorn, [55]). Conversely, first-generation students and those from lower socioeconomic backgrounds are more likely to be constrained by institutional structures and practices, potentially inhibiting their access to supportive relationships outside their existing social structure and possibly reducing self-efficacy and identification with achievement.

For these reasons, we present supplementary analyses that consider patterns associated with race and ethnicity. Overall, we found no significant differences between White students and students of color for college embeddedness, normative pressures to stay, and shocks. We did, however, find that students of color were more likely to report financial distress. For re-enrollment intentions, the positive moderating effects of college embeddedness were significant when tested separately for White students, but not for students of color. While college embeddedness and normative pressures to stay were positively related to re-enrollment for this study's entire sample, these two relationships did not reach statistical significance for either group separately. Lastly, while no significant interactions of college embeddedness and shocks were found when examining re-enrollment for the entire sample, a significant moderation in the predicted direction did emerge when considering only White students. Due to the smaller size of these subgroups, we caution against developing any conclusions on the basis of race or ethnicity. Instead, we urge future researchers to extend our work with larger and more diverse samples of students, including students of color and first-generation students.

## Practical implications

Our findings suggest that institutions of higher education might benefit from promoting retention through embedding mechanisms that reach a broad range of student populations. One such mechanism is interaction with faculty and university personnel, such as academic advisors, who could form bonds, share information, and justify prescriptions for staying that will effectively weigh on re-enrollment intentions. Conveying the importance of these interactions to the faculty members and university staff is a key starting point, highlighting that embedding forces may buffer the effects of shocks and the magnitude of their influence on students. As this is outside of the formal job description for most faculty members, universities may need to consider how they are educating and rewarding faculty for such efforts and if they are hiring faculty members who are willing and able to connect with students in these ways. Given the critical outcomes associated with student embeddedness, universities might consider incorporating actions that increase student embeddedness into the service component of faculty performance evaluations or promotion and tenure criteria. For example, efforts such as coordinating and implementing peer mentorship programs and affinity spaces are integral embedding forces for all students, but are especially vital for underrepresented student groups (Venegas-Muggli et al., [62]). Yet, such efforts are often considered invisible work and, thus, are excluded in faculty performance criteria and compensation plans.

As prior research has shown that social support and integration are early influences of intentions and decisions to re-enroll (Elkins et al., [19]), universities aiming to embed students can also increase or emphasize embedding activities as early as possible. Students could benefit from opportunities, such as face-to-face and social media groups, to socialize and connect with others before and during the summer prior to officially joining the university. Activities could be formalized in the week prior to the semester, or during students' first week on campus, to help students establish relationships with peers and potential mentors. Such efforts might be particularly useful for students unfamiliar with the college context (Covarrubias & Fryberg, [17]). Prior investigations have shown that peer mentoring commencing early in a student's first year enhances student satisfaction, though other forms of mentoring may have greater impact on academic performance and graduation (Sanchez et al., [52]).

It is likely that faculty, staff, and even peers are not aware of all shocks experienced by students, or the frequency with which an upending event may occur for a college student. Incoming students may benefit from previews of shocks that students typically encounter to normalize the experience and inform them about resources that can aid them in minimizing associated disruptions, and may value learning how role models overcame challenges in the college environment (Herrmann et al., [23]). Otherwise, students may believe that things are going smoothly for everyone around them and that they are alone in their challenges, which is certainly not the case (Pleskac et al., [46]). Emphasizing the role of embedding factors in overcoming shocks may motivate students to build the support system that they could eventually lean on when it is needed most, especially if such advice comes from relatable peer sources.

Efforts to inform first-generation students and students from underrepresented racial and ethnic groups about shocks and their prevalence among students may provide even greater benefits (to students, the university and society). For these student populations, interactions with faculty, staff and peers are even more essential for fostering embedding factors (e.g., a sense of belonging, see Garvey et al., [21]; Museus et al., [42]; Strayhorn, [55]) that counteract shocks. Moreover, support systems for these students serve the related essential roles of reinforcing personal worth and developing connections with others who have overcome similar challenges (Winkle-Wagner & Locks, [63]).

## Limitations and future research

Although we ensured a time lag of approximately four months between the measurement of predictors and re-enrollment, this interval is insufficient to show causality. Subsequent research might examine the trajectory of change in our college embeddedness model to ascertain predictive validity. Do temporal changes in model components also foreshadow higher student re-enrollment? Further, our findings are limited to the prediction of second-year re-enrollment. Does our model extend prior work by also predicting retention for subsequent years, as well as college graduation? Additionally, our investigation did not control for measurement errors in predictor measures, which can bias parameter estimates.

Future research should test the generalizability of the current findings to student populations that represent diverse characteristics, including demographic differences (e.g., gender, racial/ethnic group, age), student characteristics (e.g., first-generation, international, graduate students) and program characteristics (direct-admit, face-to-face, online, hybrid). Such explorations may reveal different embedding forces for various student populations. To illustrate, college embeddedness may play a more dominant role in college re-enrollment among second, third, and fourth-year students who develop more or stronger embedding forces over time, such as higher institutional fit from completing requirements for their majors or stronger and more personal links with faculty and classmates. Just as embeddedness scholars have demonstrated that job embeddedness increases performance at work (Holtom et al., [25]), follow-up inquiries might examine whether college embeddedness boosts academic performance. However, embeddedness scholars (e.g., Ng & Feldman, [44]) have shown that excessive embeddedness can produce harmful effects. Can excessive college embeddedness also prove detrimental? To illustrate, some students may become too embedded in college activities (e.g., campus organizations, fraternities), which can undermine their academic performance and thus lead to their expulsion.

Future research that further explores the attributes of normative pressures and shocks is also encouraged. While our measure of normative pressures to stay captures referents important to the student, future research could dissect the effects of pressures from various types of referents across different contexts. For instance, first-generation students and students of color may be more influenced by normative pressures to stay or leave from family members, or may sense that they are obligated to set an example for younger siblings (Azmitia et al., [5]). Additionally, our measure of shocks used the occurrence and intensity of a significant event that made the student consider leaving college. Yet, there are alternative measures of shocks, ranging from a simple dichotomous measure of whether a student experienced a shock to individually detailing the occurrence and intensity of many types of shocks (Pleskac et al., [46]). Future research could extend Pleskac et al.'s ([46]) work by investigating various types of shocks and how they interact with embeddedness and normative pressures. Indeed, embeddedness and normative pressures may interact very differently with shocks associated with personal relationships versus shocks associated with academic matters.

Shocks that influence behaviors and intentions are specific to each individual, and our method for measuring shocks followed those used in past studies to capture significant, personal events (e.g., Burton et al., [13]). However, this measure likely does not fully capture the effects of major shocks that have extensive economic, social and emotional impacts on society. Our data collection preceded the COVID-19 pandemic, which may not only cause the types of shocks captured in our measure, but may also create a new and broader set of reactions that could affect re-enrollment intentions and behaviors. Relatedly, this study's findings suggest that college embeddedness and normative pressures to stay increase re-enrollment intentions when shocks occur and positively influence re-enrollment behavior. Yet, during a global crisis, such as the COVID-19 pandemic, many drivers of embeddedness and normative pressures are likely to be substantially affected. Future research is needed to understand students' reactions to such crises. For example, is a global shock experienced differently from a personal shock? Do measures taken by universities during a global crisis sustain the positive effects of embeddedness and normative pressures on college persistence? Compared to in-person classes before the pandemic, did virtual classes weaken students' links to faculty and other classmates?

Lastly, results associated with the alternative model and control variables shown in Table 2 suggest relationships that merit further investigation. We found a positive relationship between a student's college GPA and re-enrollment intentions, but not re-enrollment behavior. However, our results showed a positive relationship between a student's high school GPA and re-enrollment behavior, but not re-enrollment intentions. Future research could examine how differences between students' self-efficacy and accumulated intellectual capital may affect student retention. Additionally, we found positive relationships for transfer difficulty with both re-enrollment intentions and re-enrollment behavior. Future research could explore whether reduced transfer difficulty influences student retention and other relationships in this study.

# Conclusion

Our study contributes to the existing student retention literature by offering new insights on what keeps college students enrolled, especially in the face of unexpected challenges. We incorporate prevailing theoretical perspectives from research on employee turnover, focusing on college student embeddedness, normative pressures from important others, and the experience of shocks. Our findings suggest that college embeddedness offers a comprehensive take on the largely implicit factors that retain students, and also advance the idea that students can become "stuck" in positive ways that may help them overcome shocks. Additionally, normative pressures to stay are important when considering college persistence and operate similarly when shocks are experienced, as important others exert explicit pressure, encouragement, and support. Our findings have practical implications for all who aim to support students in their educational pursuits and offer guidance to universities who seek to enhance their ability to retain students — even in the face of upending challenges.

# Disclosure statement

No potential conflict of interest was reported by the author(s).

# Appendix A. College embeddedness scale with factor loadings

|  |  |
| --- | --- |
| University Fit | Factor Loading |
| 1. I enjoy the classes and majors offered at \_\_\_\_\_. | .700 |
| 2. I like the facilities that \_\_\_\_\_ has to offer (e.g., computer labs, the library, the rec center, and the student union). | .675 |
| 3. There are enough career/job opportunities (internships, etc.) available through \_\_\_\_\_ to satisfy my needs. | .448 |
| 4. I enjoy the professors, instructors, and advisors I interact with on campus. | .601 |
| 5. I interact with like-minded people at \_\_\_\_\_. | .648 |
| 6. I like the college atmosphere that the \_\_\_\_\_ campus provides. | .788 |
| 7. The physical layout of the \_\_\_\_\_ campus is attractive. | .636 |
| 8. \_\_\_\_\_ tuition is more affordable than other colleges (e.g., in-state tuition, scholarship). | .246 |
| 9. I like the activities and events that are part of dorm life. | .560 |
| 10. I enjoy interacting with \_\_\_\_\_ students. | .774 |
| 11. I take pride in watching and supporting \_\_\_\_\_ sports. | .639 |
| 12. Social life at \_\_\_\_\_ is an important part of my college experience (campus parties, Greek life, campus activities, attending sporting events) | .653 |
| 13. \_\_\_\_\_ provides plentiful opportunities to socialize with and date attractive students. | .683 |
| 14. I like participating in clubs, student groups, campus activities, or intramural sports at \_\_\_\_\_. | .614 |
| University Sacrifice |  |
| 15.If I left \_\_\_\_\_ before graduation, I would lose money (e.g., loss of scholarship, job/internship, or paying higher tuition at a new school). | .417 |
| 16. If I left \_\_\_\_\_ before graduation, I would lose contact with friends. | .632 |
| 17. If I left \_\_\_\_\_ before graduation, I would lose opportunities for internships, summer jobs, or future jobs. | .758 |
| 18. If I left \_\_\_\_\_ before graduation, I would miss the social scene (campus parties, dorm life, campus nightlife district, \_\_\_\_\_ sports events). | .614 |
| 19. If I left \_\_\_\_\_ before graduation, I would lose respect from my family or friends. | .524 |
| 20. If I left \_\_\_\_\_ before I graduated, I would not be associated with another school that has a reputation as good as \_\_\_\_\_. | .503 |
| 21. If I left \_\_\_\_\_ before graduation, I would no longer be involved in the campus clubs and groups I currently participate in. | .552 |
| 22. If I left \_\_\_\_\_ prior to graduation, I would lose some credits (taking me longer to graduate at another school). | .495 |
| 23. If I left \_\_\_\_\_ prior to graduation, I would lose contact with my boyfriend/girlfriend. | .328 |
| University Links |  |
| 24. At \_\_\_\_\_, I regularly interact with my friends. | .641 |
| 25. At \_\_\_\_\_, I regularly interact with my roommates and/or dorm mates. | .555 |
| 26. At \_\_\_\_\_, I regularly interact with \_\_\_\_\_ professors and staff. | .519 |
| 27. At \_\_\_\_\_, I regularly interact with classmates and study group members | .689 |
| 28. At \_\_\_\_\_, I regularly interact with members of clubs and groups I participate in. | .754 |
| 29. At \_\_\_\_\_, I regularly interact with members of my fraternity or sorority. | .585 |
| 30. How many on-campus organizations do you currently belong to? | .205 |
| 31. Are you involved in a Greek organization (fraternity or sorority)? | .308 |

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