

Belonging and Social Transitions: The Role of  
Belonging Needs During a Period of Social Transition

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THESIS

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This thesis is dedicated to my wife, Kate, who will always be my inspiration and to my son, Gavin, my true capstone.

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## Abstract

This study examined the role of belonging needs during the social transition to a new environment. Differences in the need to belong and reported belonging levels of 211 first year students were examined as predictors of successful social adjustment and transition to a new college environment. Subjects completed an on-line questionnaire at the mid-point of their first year. A smaller sub-sample ( $n = 77$ ) completed an additional questionnaire at the end of the first year. The need to belong was positively related to transition outcomes including satisfaction and identification with the new environment, academic success and attitudes toward social support. Feeling like you belong, however, was a better predictor of indicators of successful transition including satisfaction, identification, academic success, intentions to transfer, willingness to reenroll and both the location and valuation of students' social support networks. Consistent with experimental research, reported need to belong was highest when belonging threats were salient, but decreased and remained stable at subsequent time points. An opposite pattern emerged for feeling like you belong. Reported feelings of belonging were lowest during the first month and increased at later time points. Together, these findings suggest that both the need to belong and actually feeling like you belong are important components of social transitions.

## Chapter 1: Introduction and Theoretical Rational

The feeling of having significant, stable social relationships is not only important, but a fundamental motivation of all humans. The need or desire to belong may be intensified when an abrupt separation from home or the familiar leaves individuals with a perceived loss of important bonds. Belonging theory predicts that, after a social loss, individuals should be motivated to replace lost bonds by forming new relationships or re-establishing existing bonds (Baumeister & Leary, 1995). Forming or maintaining important bonds may be difficult or impossible during periods of social transition if individuals are separated from their prior social relationships and pre-existing social support systems. If having stable and lasting relationships is a fundamental need, the instability that may result from changes in social contexts may heighten an individual's attention to their belonging status, which may in turn influence perceptions of the new context. Belonging needs should therefore be an important component of individuals' judgments about their new environment during a period of social transition.

The purpose of this study was to investigate the relationship between belonging needs and psycho-social adjustment during a period of social transition. Specifically, the present study aimed to extend both the need to belong and social transition and adjustment literatures by examining several questions: First, are individual differences in the *need to belong* positively related to satisfaction with and successful social adjustment to a new social environment after a transition? Second, do individual differences in the need to belong influence the extent to which individuals draw support from their social networks and shift those networks to the new environment? Third, are belonging needs

related to identification with the new environment? Fourth, are belonging needs related to commitment to and persistence in the new environment? Finally, how do belonging need levels and reported belonging vary over the course of the transition and what, if any, ramifications exist when individuals are unable to meet their need in the new environment?

This study examines the need to belong during a common social transition – the transition to college. This context is a period where transitioning students can reasonably be expected to experience threats to their belonging status. Matriculating to college also typically coincides with the development of new relationships, behaviors and self-perceptions, each of which have been considered common features of adult transitions (Parkes, 1971; Schlossberg, Waters, & Goodman, 1995). Therefore, identifying relationships between the need to belong and the transition to college may shed light on features of social transitions more broadly.

Because social transitions typically involve changes in relationships (Schlossberg, Waters, & Goodman, 1995), the opportunity and ability to form relationships in a new social environment should be contributors to success and persistence in that environment. At the same time, changes in old relationships as a result of leaving a former environment may lead to psychological consequences that impede integration and adjustment to the new context. Determining when and how (or if) individuals form valued relationships during periods of transition and whether those new bonds adequately meet an individual's belonging need may be an important indicator of fit and satisfaction with the new environment.



Despite an abundance of experimental evidence demonstrating the deleterious effects of not belonging (DeWall, 2007; Gardner, Pickett & Knowles, 2005; Leary, Tambor, Terdal, & Downs, 1995; Williams & Zadro, 2001), far fewer studies focusing on belonging have examined the effect of belonging needs on an individual over time and have not addressed the relationship between the need to belong and the satisfaction individuals feel after a transition to a new environment. Further, additional work may help to explain the relationship between belonging needs and whether an individual is motivated to identify with and persist in a new social context. Finally, more work is needed to establish whether belonging needs are relatively stable in individuals – that is, do individual need levels change naturally over time or, barring some form of deprivation, do need levels remain fairly constant?

### **The Need to Belong**

As social beings, it is important for humans to feel satisfied in their relationships with other people. Although not always labeled as “belonging,” psychologists have argued that engaging in social relationships is an innate human need or, at the very least, a basic desire (Baumeister & Leary, 1995; DeWall, Maner & Rouby, 2009; Hagerty, Williams, Coyne, & Early, 1996; Lee & Robbins, 2000; Ryan, 1995). The need for affiliation (Atkinson, Heyns, & Beroff, 1954; Brehm, Kassin, & Fein, 2002) is thought to drive individuals to seek out rewarding relationships and, like other biological needs or motivators, this drive waxes and wanes as the person’s need is (or is not) met through contact with others (Atkinson, 1981). Maslow (1968) included social belonging immediately above survival motivations (food, sleep, security, etc.) in his hierarchy of human needs. Similar to other deficiency needs (e.g. hunger, sleep, shelter), once the

belonging need is met, motivation for fulfilling it should decrease. Bowlby (1969) argued that contact with and attachment to others is important to development and is related to negative consequences when attachment bonds are broken. Deci and Ryan (1985; Ryan & Deci, 2000) contend that relatedness is one of several innate needs that are the basis of self-motivation and are necessary for optimal functioning and personal well-being. While distinct lines of research, each line points to a similar underlying role of social relationships in psychological well-being.

Strengthening the claims of the universality of the need, the concept of belonging is found within psychoanalytic (Bowlby, 1969), ecological (Verbeek, 2005), behavioral (Cohen & Syme, 1985) and anthropological (McClelland, 1953) approaches to the study of human motivation and is described here as a need to form and maintain at least a minimum quantity of positive, stable interpersonal relationships (Baumeister & Leary, 1995). Baumeister and Leary (1995) offer criteria for belonging as a fundamental motivation in that it should a) apply to all people in most conditions, b) have affective and cognitive consequences, c) impact goal oriented and other behavior, d) be non-derivative from other motives, and e) cause the individual to experience negative effects when their need is not met (p. 498). Others have suggested that a sense of belonging must also include a feeling of integration and importance to the person's system or environment (Hagerty, et al., 1996) or a sense of community (Osterman, 2000).

Forming and maintaining relationships allows individuals to meet their belonging needs. Belonging needs can be satisfied not only with dyadic interpersonal relationships, but also with group membership (Hornsey & Jetten, 2004). Social acceptance, inclusion or being welcomed are related to fulfilling belonging needs and typically lead to positive

emotions (e.g. happiness, calm), whereas rejection, exclusion or being ignored are symptoms of not-belonging and are generally associated with negative emotions (e.g., anxiety, grief) (Osterman, 2000). Individuals typically are excellent monitors of their social belonging status and are cognizant of their social standing even at a very young age (Leary, Tambor, Terdal, & Downs, 1995; Over & Carpenter, 2009).

Experimental research has demonstrated a number of psychological consequences related to feelings of belonging. Belonging is associated with positive affect (Hornsey & Jetten, 2004), better physical health (Carvallo & Gabriel, 2006), feelings of having control, reduced stress and psychological well being (Diener, Sapyta & Suh, 1998; Haggerty et al., 1996). In contrast, those who feel like they do not belong experience more anxiety, as well as higher rates of stress and loneliness (Carvallo & Gabriel, 2006; Moody, 2001), poorer cognitive functioning (Baumeister, Twenge, & Nuss, 2002), and attention and memory biases toward social cues and social information (Gardener, Pickett & Brewer, 2000; Picket, Gardner & Knowles, 2004).

Research suggests that cognitive and affective reactions to belonging needs are in turn related to behavior. Threatening social situations such as the possibility of exclusion from a group or the loss of an important relationship (e.g. friend, boy/girlfriend or spouse) can activate belonging needs, and individuals often engage behavioral schemes that allow them to meet their need. For example, when belonging needs are activated, cognition directs attention toward social stimuli that could help meet belonging needs, but also toward potential threats (Gardner et al., 2005). Threats to belonging status are also associated with a desire and efforts to create (or renew) social bonds (Maner, DeWall, Baumeister & Schaller, 2007; Stevens, Martina & Westerhof, 2006), however,

excluded or rejected individuals are less selective regarding choices for potential bonds (Rudich & Vallacher, 1999). This suggests that need deprivation can override typical willingness to interact with others or standards of acceptability for acquaintances one holds.

The role of cognition in interpreting belonging status and guiding subsequent behavior implies an *active* component in that individuals do not passively wait for others to form relationships around and with them, nor are belonging needs necessarily satisfied once individuals have formed a social relationship. Rather, how aggressively people seek to satisfy their need to belong, much like other motivations, will largely be dependent on the individual and the *context* in which that individual operates. Further, individual differences in energy and desire for involvement with others may predict the extent to which belonging needs motivate an individual (Hagerty, Lynch-Sauer, Patusky, Bouwsema, & Collier, 1992). That is, just as different people require different amounts of sleep, so too might an individual differ in the number of social relationships requisite to satisfy their need. Baumeister and Leary (1995) also contend that in order to form stable relationships, individuals cannot rely on passing or casual acquaintances, which implies that the objective quantity of social relationships is independent of the perceptions regarding the quality of those bonds. In other words, research focused on the need to belong in a particular social context must consider not just the opportunity to form relationships, but whether those potential bonds would be steady and ultimately valued by the individual. Research has largely supported the importance of deeper relationships (Cohen & Syme, 1985), however in some studies, minimal levels of contact have lessened feelings associated with not belonging (Rudich & Vallacher, 1999).

Social network size may play a role as well in that a larger network provides more opportunities for supportive relationships. Cohen and Willis (1985) found that stress was mitigated by larger social networks. In contrast, Brissette, Scheier and Carver (2002) reported that support gleaned from others increased with higher quality friendships rather than more extensive networks. On the whole, however, the distinction between “quantity versus quality” has been somewhat overshadowed in the need to belong literature by a greater focus on the consequences of belonging deprivation and questions still remain regarding whether quantity or quality (if either) plays a more important role, or whether achieving satisfaction with one could compensate for a deficit in the other (e.g. does a close friendship or romantic relationship meet belonging needs as well as five or six less intimate relationships).

Empirical studies lend support to the need to belong as a motivator for behavior and demonstrate that individuals not only monitor their belonging status, but also that threats to a person’s belonging status can lead to a number of negative cognitive and affective consequences. If not belonging is associated with negative emotions as well as need seeking behaviors, periods when belonging needs are threatened should be of particular concern. One potential belonging threat that could be better explored is that of changing to new social environments.

### **Social Transitions**

Social transitions are periods in the life course where, due to either controllable or uncontrollable factors, an individual is faced with a new social environment for an indefinite or extended period of time. Social transitions are particularly relevant when considering belonging needs as transitions are typically accompanied by changes in

relationships (Schlossberg, Waters, & Goodman, 1995) and such changes could both threaten an individual's current social ties and may also create uncertainty around the possibility of new acquaintances. In addition to changes between the self and significant others, social transitions also include changes in social roles and identities (Glass & Maddox, 1992). An abrupt separation from a support network due to a transition may be even more upsetting and lead to greater uncertainty regarding social status or acceptance.

Previous experimental work indicates that, regardless of individual differences in belonging needs, a new social environment should raise the same threats to belonging status (Gardner et al., 2005; Williams & Zadro, 2005). Further, because periods of time without meeting the need to belong should lead to more need-directed behavior, periods of transition where social bonds may not be readily accessible are likely to be associated with need-seeking behaviors at the expense, perhaps, of other demands. Consequently, the ability to contend with and adapt to a new social environment may be influenced by the person's belonging needs. Individuals with a higher need to belong should be more motivated to add new members to their social network and may replace old network members faster, thus reducing their need by meeting internal pressures to connect with others. Moreover, extended periods of not belonging could lead someone to remove him/herself from the new context or even extend to extreme forms of exclusion and loneliness (e.g. depression, potential thoughts of suicide).

In addition to meeting belong needs through new social contacts, successful transitions to new social environments should also depend on how well prior friendships or support networks help individuals meet their needs during the transition. Previous research suggests that both emotional and instrumental social support was related to

positive outcomes during a transition (Glass & Maddox, 1992). It is difficult to predict, however, what impact the separation or loss of a person's former network would have on successful adjustment. Those leaving emotionally close and supportive relationships may carry that support to the new context or they may feel the separation more acutely than individuals leaving environments with little or no social support. In addition, maintaining former friendships or familial bonds during a transition may be an important component of belonging needs.

Given that social relationships may fluctuate during periods of social transition, the ability of an individual to meet his or her need to belong should be related to overall satisfaction with and persistence in a new social environment. Previous literature and studies focused on the need to belong predict that individuals with salient belonging needs should find abrupt separation from their formal social networks and acclimation to their new environment more difficult than those with lower need levels. In addition, those who cannot meet their need in the new environment should experience negative cognitive and affective consequences. Finally, a prolonged state of unmet belonging needs should increase one's attention to their status and efforts to meet their need, whereas those meeting their belonging needs should show no appreciable change in their need behavior. These findings suggest that belonging needs may be an important component of psychosocial adjustment to new environments, particularly when the transition necessitates separation from former social networks.

### **Belonging and the Transition to College**

Given the importance of social relationships and the negative ramifications when relationships are lost, belonging needs may be an important component to college

students' successful transitions to their new campus environments. Higher education and student affairs literatures have long recognized the importance of social integration for students transitioning to their campus (Astin, 1984; Tinto, 1980). Further, previous research suggests that the transition to college is both a period of uncertainty and social loss (Christie & Dinham, 1991; Paul & Brier, 2001). Examining the relationship between the need to belong and the transition to college provides an opportunity to learn how belonging needs affect and are in turn affected by this particular transition.

The transition to college is a naturalistic setting where incoming first year students can reasonably be expected to be experiencing a transition to a new social environment and, in many cases, a separation from their social network (Paul & Brier, 2001). Previous literature examining the transition to a new college environment suggests that those who are able to form valued and lasting relationships with others in their new campus surroundings will have greater academic success and be more likely to persist through their first year of higher education (Lee & Robbins, 2000; Pacarella & Ternzini 1980; Tinto, 1980). This suggests that individuals more willing to seek out new relationships on campus may be more likely to commit to the new environment and ultimately graduate. Because transition to college studies often have academic outcome foci, few operationalize a social belonging variable (usually limited to including an acceptance and/or campus fit related sub-scale in a broader satisfaction or adjustment measure) and fewer still measure the need to belong directly.

Individual differences in the need to belong have the potential to be important contributors to both social and academic success (Walton & Cohen, 2007; 2011). The disruption of a social transition (i.e. the changes in social relationships that result from



transitions) should affect belonging needs and be related to the formation of new bonds on campus. Although most students should experience at least some threat to their belonging status, those who may be coming to the campus from longer distances, know fewer people on campus when they matriculate, or have less contact with their former social network may have a heightened need. Further, young adults able to meet their need in the new campus context are likely to rate their social experience as positive, and social belonging may contribute to academic factors such as seeking academic support from faculty members or peers, positive study habits, and academic success (e.g. GPA, earned credit hours). Finally, extended periods of unmet needs during the transition to college should have more marked effects on the individual than temporary unmet needs. More specifically, prolonged periods where an individual is unable to meet their needs in the new environment may be related to decisions to leave or drop out before graduation.

Previous literature and studies focused on the need to belong predict that individuals with high belonging needs should find abrupt separation from their formal social networks and acclimation to their new environment more difficult than those with lower need levels. If belonging needs are in fact related to subjective evaluations of the new context, those able to meet their belonging needs in the new environment should rate their experience more favorably than those whose needs are unmet. Alternatively, those struggling to meet their belonging needs may begin to doubt their fit at the institution (Walton & Cohen, 2007). Hence, my first question of interest is as follows:

**Q<sub>1</sub>:** *Are individual differences in the need to belong related to satisfaction with and successful social adjustment to a new social environment after a transition?*

Given the previous findings, I hypothesize that:

**H<sub>1</sub>:** *Individuals able to meet their belonging needs on campus will be more satisfied with their campus environment and rate it more favorably than those who cannot.*

Separation from former social networks will likely influence behavior as well. A logical consequence of social loss due to a transition would be both efforts to form new relationships as well as maintain previous ones (Maner et al., 2007; Stevens et al., 2006). The threat of an impending social transition may motivate individuals to shift the location of their important relationships to the new context. That is, the need to belong may predict whether individuals report more important bonds in the new environment after a transition. At the same time, belonging needs may also be related to how much individuals depend on social support from their previous network. A second question of interest, then, seeks to investigate the relationship between belonging and social networks during a transition. Specifically:

**Q<sub>2</sub>:** *Are individual differences in the need to belong related to the extent to which individuals draw support from their social networks and shift those networks to the new environment?*

Given the previous findings, I hypothesize that:

**H<sub>2</sub>:** *Belonging needs will be positively related to greater desire for social support from members of individuals' former and new social networks. Higher needs will also be associated with a more extensive network in the new context.*

In addition, regardless of belonging need, those who cannot meet their need in the new environment should experience negative cognitive and affective consequences. Hagerty et al. (1996) argue that the environment must be valued by the individual in order to meet their belonging needs, and that they must in turn be integrated into that environment. Consequently, whether or not students identify with their new institution and participate in campus events and activities may be related to their need to belong. If a sense of belonging entails feeling part of a community (Osterman, 2000), the extent to which new students incorporate the campus into their social identity should be one potential measure of belonging in the new campus environment. Students with a higher need to belong may be more willing or eager to adopt and embrace campus norms and culture and be more affected when that aspect of their identity is viewed negatively.

**Q<sub>3</sub>:** *Are belonging needs related to identification with the new environment.*

I predict that:

**H<sub>3</sub>:** *Belonging needs will be positively related to campus identification. Those with higher reported need to belong will be more likely to endorse aspects of institutional identification.*

Next, a prolonged state of unmet belonging needs should increase one's need as well as attention to their status and efforts to meet it, whereas those meeting their belonging needs should show no appreciable change in their need levels. Belonging and social adjustment to campus are associated with academic gains and higher self-esteem and persistence toward a degree, while *lack* of belonging is associated with diminished motivation, lower self-confidence, poorer academic performance and dropout (Christie & Dinham, 1991; Montgomery and Cote, 2002; Osterman, 2000; Walton & Cohen, 2011).

Therefore, if students leave their support groups during the transition to university, it becomes important for them to develop new avenues of support as they become integrated into their new campus environment. Students unable to meet their needs may be less likely to access academic support channels and exhibit poorer performance than those who feel they belong. Continual inability to meet belonging needs through peers or other campus affiliates is likely to lead to further disillusionment with the environment and perhaps to dropout or transfer.

**Q<sub>4</sub>:** *Are belonging needs related to academic commitment and persistence in the new environment?*

I hypothesize that:

**H<sub>4</sub>:** *Belonging needs will be related to academic success and persistence through the first year of college. In particular, not belonging will be associated with lower grade point average, intentions to transfer, a higher likelihood of dropout and greater concern with social experience. Higher need to belong will be related to prioritization of non-academic activities.*

Lastly, previous literature does not lead to any clear hypothesis regarding change or stability within the need to belong during a period of transition. It may be the case that individuals enter a new social context with dispositions that make it more difficult to form the bonds needed to adjust to the new environment. Baumeister and Leary (1995) note that natural differences in the strength and intensity of the need to belong are to be expected, as are individual satiation levels or substitution tolerance (i.e. how many relationships are requisite to meet the need and whether, for example, a new friend can take the place of an old friend). It is unclear, however, if differences in belonging needs

are relatively stable over time or if they fluctuate in predictable patterns (e.g. reactions to threats to belonging status).

The belongingness hypothesis also states that *maintaining* attachments is fundamental to meeting a person's need to belong and that a continually changing sequence of partners or relatedness without frequent contact will both be viewed as unsatisfactory (Baumeister & Leary, 1995). It could be the case that new students will have difficulty meeting belonging needs in their new environment because new relationships formed on campus will take time to develop through shared experiences and intimacy (Sternberg, 1986). Need levels, then, may reflect the extent to which supportive relationships on-campus have replaced off-campus relationships. As students form more on-campus attachments, their need should diminish and they should show less interest in forming additional relationships.

Strategies to meet one's need may change over time as well. Individuals may enter a new context and try and form as many relationships as possible, but then try to pare down their network to a select group of close friends. This is consistent with work by Caldwell and Peplau (1982) who identified preferences for fewer, more intimate relationships compared to a higher number of casual relationships.

Given the potential patterns of change/stability in the need to belong across a major social transition, I propose the following exploratory research question and hypothesis:

**Q<sub>5</sub>:** *How do belonging need levels and reported belonging vary over time and what, if any, ramifications exist when individuals are unable to meet their need in the new environment?*

**H<sub>5</sub>:** *Need to belong will decrease over time as students acclimate to their new environment. Reported belonging needs, however, will reflect changes in students' social networks. Students who have formed new relationships on campus or maintained previous relationships will report lower (and more stable) need to belong levels. Students who have severed old ties but not yet formed new relationships will report the highest levels of belonging needs and show greater fluctuation in reported need level.*

## **Chapter 2: Literature Review**

In order to investigate the relationship between belonging needs and psychosocial adjustment during a period of social transition, the evolutionary underpinnings of the need to belong are examined to support the need as a universal motivator that should direct cognitive resources and behavior for all individuals in order to meet their need. Second, a review of social psychological and development literature outlines the psychological consequences associated with belonging and the role of group membership and belonging needs. Next, the relationship between social transitions and the need to belong will be examined and the transition to college is introduced as an empirical context that provides an opportunity to determine what impact, if any, belonging needs have on successful integration into a new social environment. Finally, a summary and statement of the research problem, research questions and hypotheses are presented.

### **The Need to Belong as a universal motivator**

Evolutionary characteristics are those that a species developed over generations that enabled them to survive and procreate and should therefore be present in all future generations (i.e. universal). A universal and non-derivative need or motivation should be prevalent across cultures and their members. In the case of belonging, all people should be motivated to form a certain number of bonds to meet their need. Here ‘motivation’ refers to psychological motivation, or an internal state that arouses, directs, and maintains behavior (Deci & Ryan, 1995). Consistent with a universal motive, research indicates that the desire to form and maintain groups is represented across individuals and cultures (Coon, 1946).

Social interaction serves a variety of purposes which are still germane today despite the fact that individuals face different adaptive challenges than previous generations. Throughout history, banding together has allowed humans to create civilizations, ward off threats and accomplish feats no solitary individual could accomplish alone. Before humans developed complex social structures, however, the need for belonging could be traced to a far more fundamental aspect of evolutionary adaptation. Membership in groups serves as a buffer between group members and the environment (Caporael & Brewer, 1995). From a natural selection perspective, those individuals who formed in groups would then have a greater chance of surviving their habitat. Even today individuals remain dependent on others, particularly in their youth, and humans seem predisposed to attach or bond to their early caregivers (Bowlby, 1979). However, once attachment bonds are formed, breaking of said bonds (or even the threat of breaking) results in noticeable distress and anxiety, paradoxically creating an even stronger attachment (Holmes, 1993). Even though Bowlby (1979) hypothesized that attachment is essentially instantaneous and almost always occurs between the mother and her offspring, attachment bonds are not limited to mothers and are formed throughout the life cycle, with the concomitant negative effects when bonds are broken (Lapsley, Rice & Fitzgerald, 1990).

For older children and adults, the negative effects of broken bonds may be most readily demonstrated by the anxiety and stress that results from social exclusion. If an individual is dependent on others to help contend with his or her surroundings, exclusion or ostracism from a valued social group could result in individual harm or worse if the individual is unable to protect herself from the environment alone (Williams & Zadro,



2001; 2005). Environmental dangers may manifest as both threats to a person's physical safety as well as psychological threats to a person's sense of self-esteem, self-worth or well being. Because feelings of belonging help to buffer or mitigate environmental threats, the loss of a buffer to the environment may account for behaviors aimed toward forming or reestablishing bonds that typically follow exclusion (or the threat of exclusion) from a social group – for example, norm conformity, increased cooperation or heightened attention to social information. Grouping with others serves as a buffer to the dangers of the environment, but also appears to have advantages beyond physical safety and sustenance. For example, social relationships serve as buffers to non-environmental challenges such as stress or anxiety which would likely reinforce the desire to have close companions (Towsend & Whirter, 2005).

Critics of belonging theory argue a contrary evolutionary explanation - that attachments are explained by the provision of food or that grouping together in general is simply a pathway to reciprocal altruism (Trivers, 1971). That is, belonging or grouping behavior is a correlate to a zero-sum exchange model and what is done for others is expected to be returned equivalently. However, infant primates have been shown to prefer terrycloth covered surrogate mothers over wire mothers with feed bottles (Harlow, 1958). The preference for warmth and comfort over food in closely related species suggests a primary drive and desire for such relationships. Evidence suggests that humans, too, gain more from social relationships than just nourishment or protection, and that physical closeness and comfort, play, and group membership are related to positive growth and development (Ginsberg, 2007; Osterman, 2000) . In fact, purely reciprocal friendships based on balanced exchange may hinder rather than strengthen friendship

bonds (Silk, 2002). This suggests that individuals can have basic biological needs met and still be motivated to form and maintain their social relationships.

Even though the apparent biological genesis of the need to belong may account for the universality of the drive, as well as certain affective responses and behaviors, it is less conducive in explaining individual differences to the extent that the drive is present (met versus unmet). Research suggests that both individual differences and the behavioral reactions to certain social stimuli indicate a cognitive component operating with the need to belong.

### **Belonging, cognition and behavior**

Belonging needs should have both affective and cognitive consequences, while also affecting behavior when not satisfactorily met. These ideas point to an important role for cognition in belonging motivation. One of the most important contributions of cognitive functioning would be to recognize when the belonging need has been or could potentially be unmet and activate internal systems to facilitate meeting that need.

Festinger (1958) proposed a model of dissonance acting as a motivating state. Dissonance theory suggests that when thoughts (e.g. about ourselves, about the world) interact but do not 'fit,' the disparity will lead to a certain amount of stress and a desire to "reduce or eliminate" such dissonance (p. 70). From this conception, when individuals who view themselves as sociable and likeable people are met with resistance, disapproval or exclusion, they should experience discomfort from the discordant inputs. The theory indicates, then, that subsequent actions should work to relieve that disparity. For instance, the individual might engage in conversations or attempt to remedy the source of disapproval. Here the reduction of cognitive dissonance is the internal mechanism that

prompts a particular behavior. Since humans have a biological need to form bonds with others, dissonance theory may provide an explanation for the anxiety or negative cognitive affect experienced by persons excluded from a group or situation. It may also explain why individuals often exhibit goal oriented behavior (e.g. forming or maintaining bonds that can help meet belonging needs) when their need to belong has not been met or is threatened.

While dissonance theory offers an explanation for why individuals are motivated to reduce unpleasant feelings associated with mismatching inputs (what you think vs. what the world is telling you), dissonance research does not account for social perceptions of acceptance or belonging as a potential source of dissonance. That is, it does not address how individuals identify potential threats to their need to belong or recognize when it has not been met.

People are typically well-aware of their social standing with others, even as young children (Anderson, Srivastava, Beer, & Spataro, 2006; Over & Carpenter, 2009). Leary, et al. (1995), for example, contend that individuals possess an internal mechanism that alerts the mind when the need for belonging has not been satisfactorily met. These authors propose that individuals' feelings act as a barometer that continuously scans a person's social environment for any indication that they might be rejected or excluded by those around them. Threatening social events (e.g. the possibility of being excluded from a conversation or activity or feeling like an "outsider") affect the person's level of self-esteem, which ultimately serves as a gauge calling for a self-evaluation of exclusionary status. Similar to dissonance theory, if a person's need to belong is activated, lower

levels of self-esteem are accompanied by motivation to raise self esteem which can be accomplished by forming social bonds (Leary, 2004).

Self-esteem may serve as the connection between monitoring behavior and the cognitive dissonance that promotes actions. Global self esteem is an evaluation that is the result of a variety of inputs from one's environment (O'Mara, Marsh, Craven & Debus, 2006) and could be a basis for dissonance. The simultaneous belief of oneself as a likable individual and a rejection situation identified by threats to self-esteem may create a motivating state. In studies examining the relationship between perceived belonging and self-esteem, Leary, Haupt, Strausser & Chokel (1998) found that participants in exclusion conditions showed significant reductions in self-esteem. Rudich and Vallacher (1999) also identified a connection between self esteem and motivation to form social relationships. The authors found that individuals with low self-esteem were more likely than those with high self-esteem to interact with someone who expressed interest in forming a relationship. The prospect of developing relationships was more salient for lower self-esteem individuals and they were more interested in others who would reciprocate their relational feelings or efforts to form a social bond. Neither study, directly compares the need to belong and self-esteem levels, therefore the relationship between the two variables is speculative. It could be the case that one precedes the other (i.e. unmet belonging needs lead to a drop in self-esteem) or that they are simply (negatively) correlated (i.e. recognition of 'outsider' status may tend to be accompanied by a spike in belonging needs and a drop in self-esteem).

After recognizing an unmet need, cognition should also direct attention to help meet that need (Gleitman, Gross & Reisberg, 2007). In addition to self-esteem

indicators, Gardner, et al. (2005) proposed that an internal social monitoring system is activated when belonging needs are unmet. The function of the system is to scan the external environment for social avenues to mitigate the threat to their belonging need. This activation is followed by increased attention to stimuli that would better assist individuals in interpreting the environment and the intentions of other individuals, which in turn increases the likelihood of acceptance or reconnection to the group. If, for example, a person's self-evaluation recognizes that they have been excluded from a group conversation, their monitoring system may direct attention to the behavior of a well-liked member whose behavior they could replicate in order to gain acceptance or to a different group where they may be accepted. Experimentally, excluded individuals in rejection situations were shown to have heightened attention to both positive and negative social cues and were better able to report socially related information in memory tasks (Gardener, et al., 2000; Picket, et al., 2004). In these studies, social rejection directly impacted cognitive functioning and shifted attention toward need-related behavior.

Research by Leary et al. (1995) and Gardner et al. (2005) show that individuals have both an internal system acting as a warning for the belonging need and another serving to help individuals regain belonging status if necessary. Cognitive dissonance may be the impetus driving these two systems. Dissonance theory, along with social self-monitoring theories, suggests that the need to belong is more than a biological impulse but that cognitive factors influence a person's evaluation and interpretation of their social environment. Current and past research has examined the cognitive, affective and behavioral impact that the need to belong can have when individuals have or have not met their need. In particular, need to belong literature offers insight into what could be

expected if an individual were suddenly separated from his or her social support system for an extended or indefinite period of time.

### **Psychological consequences of belonging**

Social bonds and friendships arise quickly and without much effort, often when little or no similarities are detected between the people involved (Baumeister & Leary, 1995). Once these relationships form, attachment research suggests that a number of positive outcomes are associated with maintaining social bonds and that these bonds are accompanied by reduced anxiety and greater positive feelings (Bowlby, 1969). More generally, belonging is associated with positive affect (Hornsey & Jetten, 2004), better physical health (Carvallo & Gabriel, 2006), feelings of having control, reduced stress and psychological well being (Diener, et al., 1998; Haggerty et al., 1996).

When a person feels that he or she does not belong, it is followed by a number of negative psychological and behavioral consequences. Those who feel like they do not belong experience more anxiety, as well as higher rates of stress and loneliness (Carvallo & Gabriel, 2006; Moody, 2001). Baumeister, et al. (2002) demonstrated that this level of anxiety was sufficient enough to impact cognitive functioning, including reduced effort and speed of processing. In their experiment, Baumeister and colleagues provided participants with false feedback regarding whether or not they would most likely be alone later in life based on a personality inventory. Participants faced with the threat of no social contacts in the future performed worse on reasoning and complex thinking tests (e.g. IQ test, Analytical GRE questions) than participants faced with a high likelihood of belonging in the future and those faced with impending misfortune (e.g. accidents/injuries). Participants completing simple cognitive tasks such as rote

memorization and recall of straightforward information from a text passage, however, did not perform differently regardless of whether they were given threatening or non-threatening social information.

In addition to impeded performance on complex cognitive tasks, individuals with unmet belonging needs or uncertainty of their belonging status are also more likely to pay more attention to both positive and negative social cues and bias their memory toward socially relevant information (Pickett, et al. 2004; Gardner, et al., 2000). Pickett et al. showed that individual differences in levels of belonging were related to accuracy in identifying vocal tone and facial emotion during a social empathy task, but found no differences in a non-social cognitive task. High need to belong subjects were more sensitive to interpersonal cues than were lower need subjects. In other work pertaining to need to belong and social information, Gardner et al. (2000) simulated a computer chat environment where computer confederates engaged in a virtual conversation with participants. Depending on condition, the confederates either responded positively to chats by the participant or directed the conversation away from the participant. In cases where the participant was excluded, rejected subjects retained more social information from the conversations than included participants. That is, drive-relevant (i.e. belonging) information was remembered better when participants felt they were being excluded.

One basic behavioral response to a feeling of not belonging is to try and establish or re-establish relationships (Baumeister & Leary, 1995; Stevens, Martina, & Westerhof, 2006). This was demonstrated empirically by Maner, DeWall, Baumeister and Schaller (2007) who showed that experimentally manipulated threats of social exclusion were found to elicit a desire to renew social bonds. In this study, participants wrote a story

about a time they were included, excluded or about a neutral event. After writing their stories, the experimenters measured participants' interest in signing up for a student service that offered opportunities and help to make new friends. Those who had written about an exclusion memory were more interested in signing up for the student service (despite an associated financial cost) compared to those in the inclusion and neutral conditions which did not differ. Individuals who do not feel they belong will invoke a variety of strategies to reconnect to others including mimicking desired behavior, increased cooperation, working harder on group tasks and conforming to group opinions (Gardner et al., 2005; Williams & Sommer, 1997). Many efforts to satiate belonging desires operate subconsciously. For example, Gardner et al. (2005) demonstrated that in laboratory exclusion experiments, participants were often unaware that they were mimicking other peoples' behaviors.

When making effort to meet their need, people with unmet belonging needs are less likely to discriminate with whom they interact, raising or lowering their standards for an acceptable partner based on their current need (Rudich & Vallacher, 1999). More strikingly, Gonsalkorale and Williams (2007) showed that even rejection from despised groups was related to negative feelings. In their experiments, subjects were excluded while playing a ball-toss game on a computer, ostensibly by two other subjects who were supporters of the subject's own political party, a rival political party or the Ku Klux Klan. In each case, being excluded resulted in lower levels of belonging, self-esteem and feelings of meaningful existence. The feelings of ostracized participants were as negative when the excluders were supporters of the white supremacist group as they were when the excluders were members of their own group or members of a rival political party.



Importantly, while laboratory studies demonstrate that the need to belong can be met with a low level of stimulus (e.g. a new person or even the possibility of a new relationship), these studies do not consider long term impacts of a “take what you can get” approach and whether social connections for the sake of social connections will help individuals meet their need for an extended period of time. Further, stability in relationships, though an important component of belonging, may not be as critical when a person is not able to meet his or her need. That is, when faced with a loss of important relationships or a rejection situation, efforts may be focused on establishing new relationships as quickly as possible, without considering long term potential. However, once an adequate number of bonds have been forged, individuals may then consider strength of ties and evaluate (in)stability for the future.

The level of control the individual has in the transition may also play a role in how the need to belong is assessed. That is, when the individual makes the decision that results in a loss of social bonds, it may be viewed differently than when uncontrollable factors result in a perceived loss. Feelings of control have been shown to reduce anxiety and depression when confronting serious illness (Taylor, Helgeson, Reed & Skokan, 1991), bolster confidence (albeit to the point of bias) (Langer, 1975) and mitigate fear (Slovic, 2007). Conversely, Ward and Kennedy (1992) found that an external locus of control was associated with poorer adjustment to a new context after a cross-cultural transition. Belonging threats may be reduced when the individual makes the decision to separate from particular relationships. In contrast, feeling excluded is likely to accompany feelings of lost control.

The effects of not belonging may be exacerbated when exclusion is intentional. In cultures around the world, social ostracism has been used as a form of punishment and typically leads to the same negative affects for the person(s) separated from the group or culture (Williams, Forgas, Von Hippel & Zadro, 2005). In contemporary society, social exclusion manifests itself in a variety of ways, from malevolent reasons (e.g. teasing or bullying; racism, etc.) to more self-interested rationale (preserving group norms) (Thorkildsen, Reese & Corsino, 2002). When ostracism is felt by an individual, it affects not only that person's sense of belonging, but also his or her self-esteem, well-being, sense of control over life and whether he or she views existence as meaningful (Carvalho & Gabriel, 2006; Williams & Sommer, 1997). These negative feelings are strong enough to blind individuals to situations where it is better to be excluded. For example, van Beest and Williams (2006) showed that even when being excluded was associated with relative gains, the excluded individual reported more negative feelings than included participants. In those experiments, the authors paired monetary losses or gains with numbers of times participants were either included or excluded during an experiment. Even when exclusion resulted in retaining more money, subjects still felt negatively about the outcome.

Moreover, excluded individuals may not be accurate judges of intentionality in certain situations. Even in cases where the exclusion is not total - that is, a person is excluded by one or more people but another person offers to include them - individuals still experience negative feelings as if they were excluded by everyone. In a ball toss experiment where participants played a game where one person excluded them, but another person included them at the same time, participants still perceived that they had

been excluded which lead to lower feelings of belonging than when a participant was included by both parties (Chernyak & Zayas, 2010). Interestingly, post game evaluations of the player that had included the subject were found to be inaccurate.

Typically, when individuals are rejected, they lower their opinions of those rejecting them and reason that the rejecters do not know them well enough (Bourgeois & Leary, 2001). This is an attribution mechanism that would allow them to maintain positive affect after being rejected. Results from Chernyak and Zayas (2010) support these ideas, but add an important finding for those trying to include a rejected person. Although the player that included the subject was judged more positively than the excluder, participants significantly underestimated the number of times the inclusive player included them in the game. Despite an equal number of throws from the 'includer', participants still remember the includer throwing the ball to the other person more often (on average, two-thirds of the time) than they threw it to them.

Chernyak and Zayas' results raise questions regarding the need to belong and the quantity of relationships in cases where the individual perceives exclusion. It may be that one person's extension of an olive branch to an excluded individual may not help that person meet their need to belong and that instead the friendly gesture would be seen as further exclusion. And while rejection situations are usually followed by a desire to create new bonds, rejected individuals tend to avoid attempts to reconnect with those who perpetrated the exclusion (Maner, et al. 2007), and have even been shown to be aggressive toward perceived excluders in certain instances (Buckley, Winkel & Leary, 2004).

Beyond the psychological consequences of not belonging, research points to somatic responses as well. Cohen and Syme (1985) note that a perceived lack of social support is related to poorer physical health when compared to those who perceive they have supportive networks. Cacioppo, Hawkley, and Bernston (2003) found that not belonging was related to reduced physiological functioning including components of blood pressure and sleep, as well as persistent activation of the sympathetic nervous system - a system devoted to mobilizing the body when under stress (e.g. fight or flight). Although work cited previously points to need-seeking behaviors that are exhibited when belonging needs are threatened, Cacioppo et al. note they did not find that their subjects differed in health-related behaviors (behaviors not directly related to meeting the need to belong, e.g. exercise, smoking, use of seat belts, diets) with the exception of slightly higher rates of alcohol consumption among subjects who reported loneliness. This suggests that the link between the need to belong and behavior may be limited to need-relevant actions and may not spill over into other aspects of a person's behavior. In related work, Cacioppo and Hawkley (2003) found that social isolation was also related to reduced immune system functioning. In a small sample ( $N = 11$ ), punch biopsy wounds on the hard palate took longer to heal when the participants perceived themselves to be socially isolated. Convalescence for participants was independent of whether they were faced with a low (summer vacation) or high (3 days prior to an examination) stress situation.

Feeling pain may also be related to not belonging. Research on "social pain" suggests that the body has mechanisms akin to physical pain tolerance and pain management that may be operating to allow for continued functioning. MacDonald and

Leary (2005) posit that rejection is tied to peoples' physical pain system and that 'social pain' activates the same threat-defense responses that would be stimulated if they were in physical danger (p. 204). This theory was supported by Eisenberger and colleagues (Eisenberger & Lieberman, 2004; Eisenberger, Lieberman & Williams, 2003) who showed that 'social pain' activates the same neural pathways as physical pain. In their study, Eisenberger et al. (2004) used fMRI imaging as participants played a ball-toss game on a computer. Exclusion while playing the game was related to more activity in the anterior cingulate cortex, which activates a sense of distress and an innate internal alarm system for physical pain (Foltz & White, 1968). The avoidance of such pain may also serve as a motivator for individuals to maintain their sense of belonging. Pain stimulates cognition and behavior that will lead to a reduction of the unpleasant stimulus (Wall, 1999) and the avoidance of social pain may be an alternative explanation to why belonging acts as a motivator.

The social pain that can accompany rejection or exclusion should not be interpreted as the *physical* sensation that people typically call pain (e.g. bodily harm). Treatments for physical pain, however, may also alleviate social pain. DeWall and Baumeister (2006) showed that exclusion can result in a reduction of pain immediately after a rejection situation. In these studies, participants given a lonely future forecast based on a personality questionnaire had a higher tolerance and threshold for pain and were less sensitive to personal emotional reactions as well as the emotional reactions of others (i.e. less empathetic). The authors theorized that a natural response to physical injury is a numbness to pain that would allow for escape from dangerous situations. Similarly, rejected people tend to have a decreased sensitivity to social pain which would

decrease vulnerability after a rejection situation. Preemptive dulling of the pain system may also decrease the adverse effects of exclusion or not belonging. In studies focused on the affect of pain killers on social pain, DeWall et al. (2008) found that daily intake of a physical pain reliever (Tylenol) was related to lower reports of hurt feelings and reduced negative effects on self-esteem after exclusion situations.

The studies cited thus far offer compelling evidence for the importance of the need to belong, as well as detailing the many negative ramifications for when the need is unmet. Studies that rely on experimental manipulations and the need to belong are usually measured immediately following such manipulations. These studies do not provide a great deal of evidence concerning the need to belong over time and to what extent social support networks buffer feelings of not belonging. For example, the negative effects of laboratory exclusion or ostracism may be negated later in the day when the subjects can reconnect with members of their social network. It is uncertain what might happen if social networks were not available, as would potentially be the case during a transition to a new environment. That is, the studies reviewed above lend less evidence to what might happen when there is a sustained loss, rather than just an immediate adverse stimulus (e.g. rejection scenarios).

This is not always the case. Baumeister et al.'s (2002) experiments had participants face the possibility of being alone in the future. The knowledge of impending social deprivation, presumably, would be relatively fixed and would not have the advantage of being buffered by current bonds. Another question that remains is whether a perceived loss of social relationships is the same as the presentation of an exclusion or ostracism situation. It could be that a loss of social bonds that occurs more

naturally during the life course (e.g. moving from friends or neighbors; death of a spouse or loved one) may affect belonging needs differently than when a person is deliberately excluded.

### **Need to Belong and Group Membership**

Belonging needs are not only limited to dyadic relationships, but can be satisfied with group memberships as well. When looking at bonds formed between multiple people, those that have been included in a group can feel connected and a certain similarity to the other group members, while at the same time the group can often become a part of a person's social identity (Abrams et al. 2003; Pickett & Brewer, 2005). The motivation to belong to a group also allows members to construct shared understandings that facilitate group functioning (Fiske, 2003) while also potentially bolstering a person's individual identity through their identification with the status of their group (Hogg, 2006). Self-esteem may be tied to this self-enhancement. Social identity theory emphasizes the relationship between group membership and an individual's self-enhancement and distinctiveness, as well as uncertainty reduction. In general, social identity theory predicts that people want their in-group to be viewed as positive and be distinct from out-groups. Research by Brewer (1991), however, points out that individuals do not necessarily want to sacrifice their own uniqueness for a group identity. That is, they need to have a balance between the conflicting motives for inclusion or sameness (group membership) and the desire to be distinctive and unique (individuality) (Brewer, 1991). The need to belong may be an indicator of how willing individuals are to give up their personal identity in order to feel accepted by their group or, alternatively, it could be the case that group dynamics affect a person's need.

The feeling of belonging to a group is sometimes associated with certain negative outcomes, albeit for marginal or non-group members. These include increased pressure on dissenters, decreased opinions of outgroup members and more exclusionary behavior (Abrams et al., 2003; Marques, Abrams, Paez, & Hogg, 2001). That is, groups can behave in a manner opposite of what belonging theory would suggest. Rather than forming new bonds, ingroup members seem more concerned with maintaining and strengthening current bonds. This may be the result of the satiation of one's belonging need to such an extent that forming or maintaining new bonds is unnecessary. It also perhaps a consequence of group dynamics such as maintaining a group identity, stereotypes of outgroup members, or threats to cohesiveness. In the latter case, weakening of group bonds through dissent or the presence of outsiders may represent a threat to one's belonging status. In cases where a person's belonging need is tied to a particular group identity, the individual may exhibit conforming or anti-outgroup behaviors if they fear their current bonds could be broken. For example, in large group situations, individuals with a high need to belong were more likely to cooperate with their fellow members, even if they were frustrated with the ultimate decision of the group (De Cremer & Leonardelli, 2003).

Despite the positive feelings of belongingness associated with group membership, belonging to a group is often accompanied by pressures to conform to group norms and behaviors (Marques, et al., 2001). Steinel and colleagues (2006) showed that, in a computer-mediated negotiation experiment, individuals with a high need to belong and who felt they were on the periphery (i.e. had lower standing) of their group adhered more closely to group norms. In the experiment, participants entered negotiations with



outgroup members. Steinel et al. (2006) hypothesized that, in an effort to be accepted by their own group, high need to belong subjects would negotiate in a style (competitive vs. cooperative) that is favored by their ingroup. Consistent with their expectations, those motivated to be accepted by their ingroup negotiated in a manner more consistent with group norms (fewer concessions for competitive groups, more concessions for cooperative groups) than those with a low need to belong. Prototypical members (those with high standing) were not influenced by group norms regardless of their reported need to belong. This interaction suggests that people already accepted and ensconced in their group membership do not face the same abandonment threats that more periphery group members may experience. Prototypical group members usually behave in a manner that exemplifies the group's identity (Hogg, 2006) and would be much less likely to be censured or pressured for not following group norms. Because the fear of losing relationships is not salient for these members, they would not need to exert effort to secure their social bonds.

Group dynamics literature provides more support that belonging needs are related to higher functioning and more positive attitudes. Additionally, separation from one's group (like separation from individuals) is related to stress and anxiety which suggests that sustained or permanent separation from a valued group might also be seen as highly stressful. Moreover, individuals in new social contexts are unlikely to enter them with immediate status, and instead may have feelings associated with being an outsider or a periphery member until they are fully integrated. Popular or high status group members in one context may have more trouble adjusting to a new social environment if they cannot join a high status group after transition. This may lead to a number of normative

or other ingratiating behaviors such as mimicking prototypical group members, adopting negative attitudes toward outgroups and their members, and adapting a group identity over an individual identity, that aid in gaining acceptance in the new environment.

### **The Need to Belong and Social Transitions**

Numerous studies lend support to the need to belong as a ubiquitous motivator and demonstrate that individuals are quickly aware when their need to belong has not been met. Further, threats to a person's belonging status lead to a number of negative cognitive and affective consequences. One potential threat that could be better explored is that of changing to new social environments. Social transitions are typically accompanied by changes in relationships (Schlossberg, Waters, & Goodman, 1995), and such changes could both threaten an individual's current social ties and may also create uncertainty around the possibility of new acquaintances. An abrupt separation from a support network due to a transition may be even more upsetting and lead to greater uncertainty regarding social status or acceptance. Previous experimental work indicates that, regardless of belonging need, a new social environment should raise threats to belonging status. Further, independent of belonging needs, periods of time without meeting the need to belong should lead to more need-directed behavior. It follows that periods of transition where social bonds may not be readily accessible are likely to be associated with need-seeking behaviors. Consequently, the ability to contend with and adapt to the new environment may be influenced by a person's belonging needs.

Individuals with a higher need to belong should be more motivated to add new members to their social network and may replace old network members faster, thus reducing their need by meeting internal pressures to connect with others. Moreover, extended periods

of not belonging could lead individuals to remove themselves from the new context or even lead to extreme forms of maladjustment and loneliness (e.g. depression, potential thoughts of suicide).

A rapid separation from familiar relationships may make the need to belong more salient, particularly when the separation is physical. Direct comparisons between experimental manipulations of belonging and actual experiences of not belonging may, therefore, be inappropriate. For example, even though exclusion studies demonstrate the effects of not belonging, it is reasonable to assume that most participants in those studies still have some sort of social support with which they could reconnect after the experiments. However, in cases of social transitions, those re-connections may not be possible or may be more difficult. It could be the case that individuals recently separated from their social network would have a heightened need to replace lost bonds, but it is also possible that a wealth of new relationship possibilities and the knowledge that the person was just separated can mask any unmet needs. If a transition represents a true separation from former social networks, however, replacing former bonds may not be possible immediately. Steven, Martina and Westerhof (2006) argue that the shared experience and intimacy that represent well-established relationships takes time to develop. Therefore, new acquaintances may be able to replace lost casual friendships, but would be less able to substitute for a deeper, more meaningful lost relationship.

The separation from former networks may be easier when the transition is the result of a choice, rather than external determinant. That is, when the individual makes the decision that results in a loss of social bonds, it may be viewed differently than when uncontrollable factors result in a perceived loss. For example, in a sample of college

students who had left home for the first time, when students felt that the decision to matriculate to a college was a result of their own decision, they reported lower levels homesickness and missing friends than when the decision was not their responsibility (Brewin, Furhnam, & Howes, 1989). This may be a reflection of time to prepare for a loss of relationships, or perhaps is not seen as a loss in the same way as if they had been excluded or ostracized by that same group of individuals.

When a transition away from a social support network leaves individuals facing a new environment that they perceive as threatening or unlikely to contain others who are similar to themselves, they may find integration particularly difficult. For stigmatized group members who may already feel marginalized from the broader culture, it may be more difficult to find others with whom they can relate or compare themselves. When individuals are uncertain about their status in a variety of situations (e.g. work, marriage, or ability) there is a desire to affiliate with others who have had similar experiences (Buunk & Gibbons, 2007). These feelings of connectedness are related to a sense of belonging (Lee & Robbins, 1995). Kulik and Mahler (2000) found evidence that people in situations where they are uncertain of their social status look to associate with others who have information about what they are currently experiencing or who have experienced it themselves in the past.

In addition to meeting belong needs through new social contacts, successful transitions to new social environments should also depend on how well prior friendships or support networks helped the individual meet her need during the transition. Unfortunately, there is little evidence to predict what impact the strength of a person's former network would have on successful adjustment. Those leaving emotionally close

and supportive relationships may carry that support to the new context or they may feel the separation more acutely than individuals leaving environments with little or no social support. Maintaining former friendships or familial bonds during a transition may be an important component of belonging needs.

Given the importance of social relationships and the negative ramifications when relationships are lost, belonging needs may be an important component to successful transitions to new social contexts. The transition to college offers a context to explore how the need to belong can affect acclimation and adjustment to a new social environment. Higher education and student affairs literatures have recognized the importance of social integration for students transitioning to their campus. Further, previous research suggests that the transition to college is both a period of uncertainty and social loss. Examining the relationship between the need to belong and the transition to college provides an opportunity to learn how belonging needs affect and are in turn affected by periods of transition.

### **The Transition to College**

Enrollment into an institution of postsecondary education is a milestone for an increasingly large number of American emerging adults (Pratt, 2000). The independence and autonomy afforded to first year college students, along with many new possibilities and experiences, closely mirrors the new responsibility and freedom young adults achieve when they are no longer financially dependent on their parents. While the college landscape has expanded to encompass learners of all ages, the majority (60 percent) still fall within eighteen to twenty-five, a developmental period now referred to as emerging adulthood (Arnett, 1999; National Center for Education Statistics, 2005). The percentage

is even larger if considering full-time students going to 4-year, liberal arts institutions. Even though students are eager to explore different aspects of themselves and the world, this is still a period of relative semi-autonomy; first year students typically return home for holidays and summer break, most receive some form of pecuniary support from their parents or caregivers, and look to home for advice and support. As new students transition to college, they are likely to experience new threats to their need to belong which they may not be prepared to address.

Whether students choose to attend institutions with on-campus residential opportunities or commute to a local college or university, contact with high-school or hometown friends usually decreases, while interaction with new people on campus dramatically increases (Christie & Dinham, 1991; Arnett, 2004). Transitioning to college also represents a time when students can be suddenly separated from old friends and peers (Paul & Brier, 2001). How emerging adults negotiate their transition and acclimation to this new environment is of particular importance as the majority of students who elect not to finish their degrees leave school during their first year (Bradburn & Carroll, 2002). Integration into the campus community is related to persistence toward a degree (Christie & Dinham, 1991; Tinto, 1980). Social adjustment to campus is also associated with academic gains and higher self-esteem (Montgomery & Cote, 2002). Conversely, Osterman (2000) found that a *lack* of belonging was associated with diminished motivation and involvement, behavioral problems, lower self-confidence, poorer academic performance and dropout. Because even temporary separation from those people who are important to us can threaten our perceived sense of belonging (Gardner, Pickett, & Knowles, 2005; Williams & Zadro, 2005), if students

leave their support groups during the transition to university, it becomes important for them to develop new avenues of support as they become integrated into their new campus environment. New students who are unable to create new relationships may be more likely to feel their need to belong has not been met and feel the concomitant stressors or exhibit need seeking behaviors.

Students who are members of non-majority or stigmatized groups on campus may be more sensitive to belonging information, and ruminating over one's belonging status can lead to negative academic consequences (Steele, 1997). Even though attitudes toward diversity tend to grow more positive when emerging adults go to college (Arnett, 2001; Pascarella et al., 1996), for minority group members, the *perceived* campus racial climate, toward both themselves as individuals and their group as a whole, can have an impact on feelings of belonging (Hurtado & Carter, 1997). Students may be unable to separate questions of group belonging status (Is my group accepted?) as they usually accompany questions of individual belonging status (Am I accepted?) (Cohen & Garcia, 2005). These and similar questions might make full integration into the campus environment more difficult than students who feel their groups already belong on campus.

In a series of studies investigating campus 'fit' or belonging of Black and White students, Walton and Cohen (2007) manipulated subjects' belonging status and sense of social support by having them generate either a short or long list of friends. Both White and Black subjects found it more difficult to create longer lists of friends than a shorter list. The inability to complete a longer list lead to uncertainty regarding subjects' fit on campus. While White students were not affected by the manipulation, this belonging

uncertainty was related to a drop in Black students' sense of fit and confidence toward their field of study. A transition to a new university has the potential to create belonging uncertainty for all students (not just minority students, although they are perhaps more adversely affected) as they question their own fit in their new environment. Those questioning whether they really fit on campus are more likely to disengage academically and socially, which in turn could lead to a negative experience or dropout.

For educators, facilitating ways for students to make these connections within the campus community is critical to student retention and satisfaction. Students who report a low level of commitment to their college or university are far less likely to persist after their first year, and social integration is also an important aspect of commitment (Thompson, Samiratedu, & Rafter, 1993). For new students on campus, even though opportunities to form new bonds may be numerous (e.g. residence halls/common areas; new student programs/orientation/"welcome week" activities; classes/first year seminars/learning communities), they may fail to help a portion of transitioning students or could potentially be avoided by certain students all together.

### **The need to belong and the transition to college**

Research from psychology, sociology and health sciences allow for researchers to make predictions regarding the relationship of transitions to college and the need to belong. Different disciplines, however, often define separate constructs that apply to related phenomena. Connections between different measures of social belonging are generally rare and therefore may not be interchangeable.

Social belonging needs may not be a challenge for every new student transitioning to college campuses. Some students will find it easy to meet new people, while others



will maintain previous friendships or relationships. Still others may find it difficult at first, but eventually find a friendship or niche that allows them to feel as if they belong. There is even evidence (though mixed) suggesting that bonds with non-peer individuals on campus (professors, campus staff, etc.) can potentially satisfy students' need to belong if students are unable to form connections with their peers (Freeman et al., 2007; Tao, Dong, Pratt, Hunsberger, & Prancer, 2000; Terenzini, Pascarella, & Blimling, 1996) . Because socially integrated students are more likely to remain on campus and continue working toward a degree, ensuring students have opportunities to meet their need to belong should be critical to both their satisfaction with their campus and their mental health. Several research questions emerge regarding individuals' transition to the campus environment and whether stable, lasting social bonds can affect collegiate experiences (particularly if new relationships must replace former ones).

First, is the need to belong related to satisfaction with and social adjustment to campus after a transition? There is some evidence to suggest that higher belonging needs should be related to increased satisfaction and successful adjustment. Freeman et al. (2007) reported that feelings of belonging at school were related to higher levels of satisfaction and academic functioning. In contrast, Walter and Cohen (2007) demonstrated that individuals struggling to meet their belonging needs may doubt their fit on campus, leading to negative evaluations. It follows that variations in the need to belong, as well as actual reported belonging, should influence subjective evaluations of the campus.

A second question of interest focuses on individuals' social networks, in particular, how they evolve or change as students transition to campus. Specifically, are

belonging needs related to the extent to which individuals rely on social support from their former (or new) social network, and how do those social networks change as students integrate into the campus environment?

Maner et al. (2007) demonstrated that belonging threats are frequently associated with efforts to establish new relationships. If a new student is able to meet his/her required level of belonging, they are more likely to gain support from their social relationships which could act as a buffer from negative experiences and life stressors (Cohen & Syme, 1985). In addition, because the need to belong directs behavior, students with unmet belonging needs should be most eager to make new connections (Rudich & Vallacher, 1999) and should feel it most acutely if they are unable or if bonds are severed at some point during their transition. It is also possible that the need to belong could predict how quickly students will strive to make their new acquaintances, or, for those who remain close to former friends and family, how dramatically their ties are challenged.

The need to belong, therefore, could be related to changes in social networks in that those reporting higher need to belong should be more motivated to shift their social network to an on-campus location. That is, those students would report that they have more close, important relationships on-campus than off. At the same time, belonging needs may also be related to how much individuals depend on social support from their previous network. Unfortunately, identifying students who are unable to meet their belonging need may be difficult because not all efforts to meet belonging needs are overt or even conscious actions (Gardner et al., 2005). Students struggling to create new friendships may engage in relationships that could result in potentially negative

associations or they may look outside the campus community to fulfill their need to belong. While external relationships are not necessarily harmful, over-reliance on external relationships, like parents or friends from home, would likely decrease commitment to the college or university and interfere with the process of meeting new friends (Ishler, 2004). This was true for a sample of students who had pre-college intimate relationships and attempted to maintain them during their transition to college. The attempts to hold on to the relationship were related to lower levels of psychological well-being (Paul, Poole, & Jakubowyc, 1998). Students from minority groups, however, may find support from their home communities critical to maintaining their cultural heritage in a predominantly Euro-centric environment and therefore need to draw more from off-campus relationships (Guiffrida, 2006).

In addition to satisfaction and changes in social networks, a third question of interest should consider whether belonging needs are related to identification with the new environment. Hegerty et al. (1996) argue that the environment must be valued by the individual in order to meet their belonging needs, and that they must in turn be integrated into that environment. Osterman (2000) also argued that feelings of belonging should include feeling like part of a community. Identification with a group has the potential to both bolster individual identity as well as self esteem (Hogg, 2006). Therefore, the extent to which new students incorporate the campus into their identity is an important measure of adjustment.

Previous work on exclusion and ostracism suggest that higher reported need to belong should be related to increased identification. Research has demonstrated that individuals will adopt features of the ingroup even to the individual's deficit in order to

be accepted (De Cremer & Leonardelli, 2003; Marques et al., 2003). Gardner and colleagues' (Gardner et al., 2005) work on mimicking and other acceptance-related behaviors also suggests that students concerned with belonging would be more likely to adopt norms and aspects of the culture.

A further question of interest examines whether belonging needs during the transition to college are related to academic commitment and persistence in the new environment. Cognitive consequences associated with the need to belong have the potential to impact new students' adjustment experience. There is evidence to suggest that students who have met their need to belong would be more successful academically and would be more likely to continue through graduation. In particular, to a new student who may already be struggling with new academic demands and increased workloads, the added stress of feeling alone and accompanying decreases in functioning could exacerbate their troubles and hurt their academic performance. Further, Baumeister et al. (2002) showed that not belonging was related to decreased cognitive functioning and reduced effort.

Finally, the need to belong is most frequently examined in laboratory settings and little is known about how belonging need levels and reported belonging vary over time and what, if any, ramifications exist when individuals are unable to meet their need in the new environment. In the case of the transition to college, dramatic consequences can be expected when individuals perceive few or no social bonds or support for an extended period of time. Little is known about how the need to belong changes over time, particularly in cases when the need is chronically unmet. One likely consequence would be an exacerbation of the negative effects associated with not belonging. In their study of

380 community college students, Hagerty, Williams, Coyne and Early (1996) found that lower scores on their Sense of Belonging Instrument were related to loneliness, depression and suicide attempts. Belonging was also inversely related to loneliness, adding to evidence that loneliness may be a consequence of belonging deprivation (Hagerty, Lynch-Sauer, Patusky, Bouwsema & Collier, 1992).

If the need to belong is related to loneliness, extended periods of not belonging would also likely be related to even higher rates of feelings of loneliness. Loneliness is associated with less sleep and poorer functioning as the result of the lack of sleep, higher stress, and lessened sensitivity to uplifting social interactions (Cacioppo, Hawkely, Benson et al. 2002). In a study of students transitioning to college, loneliness was also related to anxiety and depression (Mounts, Valentiner, Anderson & Boswell, 2006). Mounts et al. (2006) found that both low levels of sociability and parental support were associated with higher reported loneliness, suggesting that absence of social support and loneliness are correlated.

A second consequence of extended periods of an unmet belonging need may be a change in the person's need level. At least two explanations seem possible. First, individuals' need to belong may increase resulting in more motivated and need-directed behaviors. However, the opposite effect may also be possible. Rather than an increased need, a natural defense of the negative feelings that accompany exclusion or not belonging may be to dis-identify from social relationships in general and recalibrate the belonging need in such a way that very minimal levels of social interaction can serve to meet the need. To my knowledge, there are no studies that address this question directly. Most extant research on need deprivation (including the need to belong) would support

heightened awareness and increased effort to meet the need, which should accompany higher levels of the need to belong (Gardner et al. 2000). However, there are findings from theoretical and experimental research that may support a decrease in belonging needs.

A decrease in belonging needs could be the result of several factors. First, individuals with unmet needs may be quick to assume their college identity in an effort to adapt campus norms and demonstrate commitment to the group. If, however, those students found after a period of time that they did not meet people or were unhappy, they might de-identify in order to reconcile the dissonant information. Steele (1997) suggests that in order to make sense of competing messages, people may dis-identify with a part of their identity, effectively convincing themselves that a particular aspect of their identity is not important to them anymore. A second explanation relies on callousness as a reaction to repeated social rejection. DeWall et al. 2008 found that exclusion was immediately followed by a numbing of both physical and emotional pain. It could be the case that repeated experiences may serve to continue to dull the pain of non-acceptance and those individuals may become more de-sensitized. Or, instead of dulling the senses toward social information, these individuals may distort information to help them feel as though they belong. Carvallo and Pelham (2006) suggest that students may try to reduce feelings of isolation by biasing their perception of social information to feel liked and accepted as well as ignoring information that does not support that belief. However others indicate that students remain aware of their belonging status (Walton & Cohen, 2007).

Although prior work in varied disciplinary perspectives has examined parts of these questions, stronger theories are needed to explain the relationship between college

students and the need to belong during the transition to college. Specifically, individual differences in the need to belong are likely to play an important role in whether the transition to college is seen as stressful and ultimately whether it is evaluated as a positive experience. Young adults able to meet their need in the new context are likely to rate their social experience as positive, and that facet of their transition may spill over into ratings of other aspects (e.g. identification with campus and academic success and persistence). Secondly, the changes in social relationships that result from transitions should also affect belonging needs and be related to the formation of new bonds on campus. Most students should experience at least some threat to their belonging status and therefore should enter campus with an elevated need. It is likely that different individuals will adopt different strategies to address belonging threats. In particular, the need to belong may predict whether students make greater effort to create new relationships on campus or hold on to prior relationships (or both). In addition, extended periods of unmet needs during the transition to college should have more marked effects on the individual than temporary unmet needs. The following research questions focus on the unique transition outcomes that are related to adjustment and persistence.

### **Summary and Statement of the Problem**

The literature reviewed provides a foundation and direction for the present study. Evidence suggests that individual variations in the need to belong may have important implications for student success when transitioning to a new social environment. Specifically, previous studies show that those with unmet belonging needs experience greater stress and anxiety, lower levels of self-esteem and cognitive functioning, along with an increase in norm behavior and in certain cases aggression or social withdrawal.

Those able to meet their needs are more apt to have reduced levels of anxiety and stress along with more positive affect, higher self-esteem, as well as better physical health and psychological well-being. Such outcomes would likely influence the way new students perceive their transition to the new college campus.

Ample experimental research on belonging needs points to the many negative ramifications associated with belonging deprivation or exclusion, but these findings do not necessarily extend to naturalistic settings. The transition to college represent a period where belonging deprivation is highly likely and abrupt separation from social support networks should be difficult for all students, but particularly so for those who report high belonging needs. Additionally, whether or not individual belonging needs can be met in the new campus should influence whether students experience a successful social transition. Finally, current research is limited in regards to how (or if) belonging needs change over time during a transition. It is unclear whether prolonged unmet belonging needs would lead to even greater demonstrated effort to meet the need or to an internal adjustment to belonging levels that would make the individual more compatible with his or her current belonging status.

To investigate these lines of inquiry, this study sought to advance both need to belong and social transition and adjustment literature by examining several questions. First, are individual differences in the need to belong related to satisfaction with and successful social adjustment to a new social environment after a transition to a new social environment? Second, are individual differences in the need to belong related to the extent to which individuals draw support from their social networks and shift those networks to the new environment? Third, are belonging needs related to identification



with the new environment? Fourth, are belonging needs related to commitment to and persistence in the new environment? Finally, how do belonging need levels and reported belonging vary over the course of the transition and what, if any, ramifications exist when individuals are unable to meet their need in the new environment?

Previous literature and studies focused on the need to belong lead to the following hypotheses: (1) Individuals able to meet their belonging needs on campus will be more satisfied with their campus environment and rate it more favorably than those who cannot. (2) Belonging needs will be positively related to desire for social support from members of individuals' former and new social networks. Higher needs will also be associated with the creation of a more extensive network in the new context. It is expected that those with more on-campus social relationships will report a lower need to belong. (3) Belonging needs will be positively related to campus identification. Those with higher reported need to belong will be more likely to adopt aspects of institutional identification. (4) Belonging needs will be related to academic success and persistence through the first year of college. In particular, not belonging will be associated with lower grade point average, intentions to transfer, a higher likelihood of dropout and greater concern with social experience. Need to belong will also be related to the prioritization of non-academic activities. (5) Belonging needs will decrease over time as students acclimate to their new environment. Reported belonging needs, however, will reflect changes in students' social networks. Students who have formed new relationships on campus or maintained previous relationships will report lower (and more stable) need to belong levels. Students who have severed old ties but not yet formed new relationships will report the highest level of belonging needs and show greater fluctuation

in reported need level.

## Chapter 3: Method

### Participants

First- year students enrolled in their first semester at a mid-sized, Midwestern university were asked to participate in this study. Data was collected in two waves; at the mid-point and end of the first year. The total valid sample size for wave one was  $n = 213$  (Female = 155, Male = 52, 6 missing). The sample size for wave two was  $n = 88$ , of which 77 could be matched to their previous responses. The 11 unmatched cases were excluded from all analyses with the exception of the multilevel models. The majority (61%) were 18 years old with 19 year olds representing 27.1% of the sample. Other reported ages include 20 (1.3%), 21 (2.2%) and 22 (.8%). Most respondents (82.1%) were white, with other ethnicities representing smaller proportions of the sample (African American = 5.8%, Hispanic = 1.3%, American Indian = .4%, Asian = .4%, Unreported = 9.9%). The sample was moderately reflective of the broader institutional population, though females were overrepresented – overall, the campus is composed of predominantly white students (74.3%), with smaller populations of black (11.2%), Hispanic (2.1%), Asian-American (1.5%) and American Indian (1%) students. Finally, most respondents identified as heterosexual (72.2%) with smaller numbers identifying as homosexual (2.7%) or bisexual (3.6%). Twenty-one percent did not report their sexual orientation. Over ninety percent (91.5%) of respondents lived in the residence halls compared to 1.3% living in an off-campus apartment. No respondents reported living at home and 7.2% were unreported.

Only students who were enrolled in their first semester were eligible for participation in the study. Transfer students enrolled in their first semester at the site of the research were eligible for participation. Like first-year students, transfer students may also be experiencing a social transition despite having attended a different college or university in the past and thus are included as potential respondents.

### **Procedures**

Subjects were recruited through key research personnel at the research site. An email inviting first-year students to participate was sent to eligible students through the First Year Experience (FYE) office which possesses a database of first-year students.

Subjects completed surveys at two separate times during their first year at the university. The first collection occurred at the end of the first semester. The second collection occurred at the end of the second semester. Each survey contained questions pertaining to belonging status, institutional identification, and acclimation to their new environment. Students were also asked to create a list of their seven closest social relationships and indicate the location of each person in relation to campus (e.g. on or off-campus). Finally, subjects completed outcome measures related to campus integration, student satisfaction and adaptation, and lastly academic success, commitment, and persistence.

Subjects completed the same survey at each time point except in cases where the phrasing of items needed to be changed from an expectation to a concrete response (see Appendix A). For example, subjects were asked to predict their first semester GPA during the first data collection at the end of the first semester, but asked to report their actual obtained GPA during the second data collection at the end of the second semester.

Participants were asked to spend approximately 10-15 minutes filling out the questionnaires during each data collection – roughly 30 minutes in total for the entire study.

Participants received an email from the director of the first year experience program inviting them to participate in the study. The email (see appendix B) stated that the researcher was conducting a study examining new-student attitudes toward their campus environment. Potential participants were informed that their participation in this study was strictly voluntary and that, if they should decide to participate, each survey would take approximately 15 minutes and they would be eligible to win a raffle prize. The recruitment email contained two links. The first link was to a Survey Monkey website that contained consent information for the study and asked for an email address that allowed the researcher to contact participants for future data collections. Participants were asked to provide contact information solely for the purpose of future data collections. The second link in the recruitment email was to a Survey Monkey website that contained the survey as well as relevant instructions and consent information. Upon agreeing to participate, each subject was assigned a six digit unique identifier upon agreement to participate in the study. To generate their unique identifier, subjects provided the number of their birth day (01 – 31), the last two letters of their surname and the last two digits of their student id number.

Consent information informed participants that their continued participation throughout the study was voluntary and that they may choose to discontinue at any point in time without consequence. See appendix C for the consent form participants encountered on the computer screen. Participants were also informed of the risks and

benefits associated with their participation in the study. No information regarding their participation was shared with administrators or staff at the research site. Participants were also informed that their responses would be kept confidential and would be accessible only by the researcher and other researchers associated with the project. Because of the online nature of the data collection, participants were informed that online communications are never 100% secure, but that the data would be protected to the extent technologically possible. At no point was the researcher able to match identifying information with completed surveys. Once participants completed the survey, the data were automatically transferred in an encrypted form using Secure Sockets Layer (SSL) encryption to a password protected file. Completed surveys were aggregated by the survey service and data and results were accessible only to the investigator. All data were stored by unique identifier after completion of the materials. Subsequently completed surveys were matched by the use of a unique identifier.

The email addresses provided by the participants were used to inform them of additional data collections. Each follow-up email contained a link to subsequent forms of the survey as well as instructions for those who no longer wish to participate in the study (see Appendix B). After participation, participants were provided with a debriefing of the aims of the research and any preliminary findings available (see Appendix D).

Raffle prizes were drawn after the completion of the study. The winners were drawn from a list of email addresses of those participating in the study.

## **Measures**

All measures in this study were obtained through the completion of online survey questionnaires.

**Global Belonging.** To measure energy and desire for involvement as a precursor to belonging, I used seven items on a five-point Likert-type (1 = Strongly Disagree, 5 = Strongly Agree) adapted from the antecedent subscale of the Sense of Belonging Instrument (Hagerty, Lynch-Sauer, Patusky, Bouwsema, & Collier, 1992). The items (see Appendix E) include statements regarding the importance of involvement and fit to the individual, e.g. “It is important to me that I fit somewhere in this world,” “I just don’t feel like getting involved with people.” In the sample of college students, the scale showed moderate internal consistency and test-retest reliability ( $\alpha = .72$  and  $.66$ , respectively; Hagerty & Patusky, 1995).

**First Month on Campus Belonging.** To measure retrospective feelings of belonging during the participants’ first month on campus, I adapted eight scale items from the Need to Belong Scale (Leary, Kelly, Cottrell, & Schreindorfer, 2005). The items were reworded to represent past feelings. Likert scale items (1 = strongly disagree ... 5 = strongly agree). See appendix E for a list of the items. Items were reverse coded as needed and an average belonging need was calculated using the responses to each item.

**Current Need to Belong.** To measure belonging needs, I used the Need to Belong Scale (Leary, Kelly, Cottrell, & Schreindorfer, 2005) which consists of ten five-point Likert scale items (1 = strongly disagree ... 5 = strongly agree). See appendix E for a list of the items. Items were reverse coded as needed and an average belonging need was calculated using the responses to each item. Previous research has shown this scale to have adequate reliability across all ten items: De Cremer & Leonardelli, 2003, Cronbach’s  $\alpha = .82$ ; Pickett et al., 2004,  $\alpha = .83$ .

**Have belonging needs been met.** To measure whether participants felt their belonging needs have been met (or were met previously), subjects were asked “Did you feel that you belonged during your first month at Central Michigan?” (Time 1) and “Do you feel you belong on campus?” (Time 2). Both questions are Likert scale items (1 = strongly disagree ... 5 = strongly agree). In addition, subjects responded to six Likert scale items (1 = strongly disagree ... 5 = strongly agree) with general and campus specific belonging items (See appendix E).

**Campus Satisfaction.** To measure the extent to which participants were satisfied with their transition to Central Michigan and their acclimation to campus, the survey contained twelve five-point items (1 = very unsatisfied ... 5 = very satisfied) adapted from the social adjustment subscale of the Student Adaptation to College Questionnaire (Baker & Siryk, 1989). Previous research has examined the reliability and predictive validity of the SACQ instrument and social adjustment subscale (Beyers and Goossens, 2002). In a sample of European students, the authors found the social adjustment scale to be both reliable ( $\alpha = .84$ ) and highly correlated with institutional attachment and total adjustment (Pearson's  $r = .85$  and  $.81$ , respectively). In addition to the items from the SACQ measures, subjects responded to three five-point Likert scale items regarding expectations, satisfaction and retrospective commitment. For expectations, the subjects were asked “So far, has your experience at CMU met your expectations?” (1 = Much worse than I expected ... 5 = Much better than I expected). For satisfaction, subjects will respond to “Rate your overall satisfaction with your experience thus far” (1 = Not satisfied at all ... 5 = Very satisfied). Finally, for retrospective commitment, subjects were asked “If you had it to do over again, would you enroll here? (1 = Definitely not ...



5 = Definitely yes). Subjects were also asked if they intend to transfer to a different institution.

**Social network support.** To measure whether students were drawing from social resources subjects were also be asked “How frequently do you receive social support from friends or family back home?” In addition, subjects were asked how many close relationships they have on campus and “How frequently do you receive social support from friends, staff or faculty on campus?” Finally, subjects were asked to report how many people they knew on campus when they first arrived.

**Social network location.** To measure whether students were drawing from social resources on campus, subjects were asked to create a list of up to seven individuals with whom they have frequent and meaningful contact, as well as whether each individual is on- or off-campus. Subjects were also asked where they currently live and will be given a list of on- and off- campus residences (see Appendix E). In addition, subjects were asked to estimate the distance Central Michigan University is from their home and how frequently they return home.

**Campus identification measures.** To measure the strength of student identification to campus, I adapted five items from Mael and Ashforth’s (1992) organizational identification scale to apply specifically to Central Michigan University students to gauge levels of identification with their institution. Participants responded to five-point Likert scale statements (1 = strongly disagree ... 5 = strongly agree) pertaining to CMU (e.g. When someone criticizes CMU, it feels like a personal insult). See appendix E for the complete list of items. The original measure was designed to measure alumni attitudes regarding their former institutions and showed adequate reliability ( $\alpha =$

.81) among the six items in a sample of 700 former college students (Mael & Ashforth, 1992).

**Academic success.** To measure academic success, participants were asked to report their expected or earned GPA at the time of data collection. Subjects were also asked if they expected to complete their degree at Central Michigan and if they planned on enrolling enroll in classes next semester at Central Michigan.

**Academic Commitment.** Subjects were also asked to respond to three Likert scale statements (1 = strongly disagree ... 5 = strongly agree) regarding academic commitment, for example, “I feel pressure to hang out or participate in other social activities instead of studying or attending class” (see appendix E for all items). Subjects were asked, “If you had to do it all over again, would you enroll here?”

### **Demographic information**

Subjects were asked to report their gender, age, sexual orientation, ethnicity, current course load (full- versus part-time), and whether they transferred from a different institution.

### **Design**

A within-subjects, correlational design was used to identify relationships between the need to belong and adjustment and acclimation variables. Linear regression (backwards stepwise) and multi-level modeling were used as the correlational methods. All participants were asked to complete each question on both surveys. The independent variables measured were the need to belong assessed as the average of ten scale items, actual reported belonging using one scale item (have belonging needs been met), and antecedents to belonging (global belonging), assessed as nine scale items. There were six

dependent variables: (1) **campus satisfaction**, assessed through fourteen scale items ; (2) **social network support**, assessed through three scale items and one self-report item; (3) **social network location**, assessed through three scale items and one open response item; (4) **campus identification**, assessed through five scale items (5) **academic success**, assessed through three self-report items; (6) **academic commitment**, assessed through seven scale items and one self-report item. In addition, to measure changes in the need to belong and reported belonging over time, both the need to belong and reported belonging were used as criterion variables. In these analyses, time, demographic variables, global belonging needs and changes in social network location were each used as predictor variables.

### **Power Analyses**

To determine the number of participants for this study, I conducted an *a priori* power analysis based on a power level of  $\beta = .8$ , at  $\alpha = .05$ . The minimal effect size I would want to be able to detect based on previous need to belong research was .2. To my knowledge, no synthesis of belonging effect sizes exists, however meta-analyses of related phenomena reporting the average effect sizes of the relationship between social contact and loneliness ( $r = -.19$ , Piquart & Sörensen, 2001), satisfaction with social support and self-report of physical symptoms ( $r = -.25$ , Schwarzer & Leppin, 1991), and social support or negative interactions with psychological distress ( $r = -.17$  and  $r = .26$ , respectively, Finch, Okun, Pool & Ruehlman, 1999) suggests the ability to detect a small to medium effect size in my population of interest is necessary (Cohen, 1988). If the true correlation between belonging needs and social adjustment and satisfaction is 0.2, I needed to study 200 pairs of observations to reject the null hypothesis that the correlation

equals zero with probability 0.81 (Cohen, 1988). The Type 1 error probability associated with this test of this null hypothesis is 0.05 (two-tailed).

### **Protection of Human Subjects**

All measures were given to subjects in an online format through the Survey Monkey website. Participants were allowed to take the survey online at a time and place of their choosing as a way to maximize privacy. Because the primary risks associated with this study were privacy and confidentiality, the following steps were implemented in order to protect subjects' privacy to the greatest extent possible. Each subject read a consent form to indicate their willingness to participate in the study. The longitudinal nature of the study required the use of identifiers in order to match responses at different data collection points, however the following procedures were implemented to protect the identity of participants. Each subject was assigned a six digit unique identifier upon agreement to participate in the study. To generate their unique identifier, subjects were asked to provide the number of their birth day (01 – 31), the last two letters of their surname and the last two digits of their student id number.

Once participants had taken the survey, the data were automatically transferred in an encrypted form using Secure Sockets Layer (SSL) encryption to a password protected file. All data were stored by unique identifier after completion of the materials. These identifiers could not be matched with the subjects' contact email and were only used when contacting participants for future collections. The PI contacted subjects for subsequent rounds with the email addresses provided after the first data collection. Potential participants were sent one reminder email for the first data collection and two reminder emails for the second data collection. All completed materials were stored on

the Survey Monkey website and were accessible only by the PI and key research personnel. From there, materials were transferred to a computer in an office at the residence of the investigator where they will be stored until analyses have been completed. Upon completion of the data collection, all data stored on the Survey Monkey server were deleted. At the end of the subject's participation, all identifying contact information was discarded. No identifiers exist to link students with their participation in the study. Raffle prizes were drawn after the completion of the study. The winners were drawn from a list of email addresses. Participants were notified of their prize via email and were able to claim their prize at the office of First Year Experience in 100, Lazerlere Hall. Collecting a prize was a breach of confidentiality regarding who participated in the study, however this presented minimal risk to the participants.

### **Data Analysis**

I first conducted descriptive analyses to screen for outliers and demographics of the data. No outliers were identified. Next, comparisons between the mid-year only and the mid-year and end of year samples were used to test for any differences between the samples. Finally, I used reliability and exploratory factor analyses to determine the validity of the measurement scales.

To address hypotheses 1-4, I conducted a series of regression analyses using need to belong during the first month, at mid-year and at year-end, reported feeling like you belong on campus at the first month, mid-year and year end, and global need to belong (measured at mid-year) as the explanatory variables. Need to belong at each time point was measured using the mean of the 10 need to belong scale items. Reported feelings of

belonging at each time point was the level of agreement with the statement “I feel like I belong at Central Michigan.” Finally, global belonging was the mean of 7 sense of belonging antecedent scale items. These predictors represent belonging from multiple dimensions; global belonging was thought to be fixed and not change over the course of the year. Need to belong, if indeed a motivated state, would be variable depending on the context and the individual. Finally, reported belonging addressed the question of whether or not belonging needs had been met.

Outcome variables for questions 1-4 included campus satisfaction, social network support, social network location, campus identification and academic success, persistence and commitment measures as the outcome variables. Where appropriate, I included additional control or predictor variables.

Lastly, to address hypothesis 5, a series of multilevel models were used to investigate change in both the need to belong and reported belonging at different time points. To model changes in the need to belong, time was added as a predictor variable along with global belonging, whether participants had transferred, the number of people known at matriculation, the distance campus was from home, gender, ethnicity, age, sexual orientation, age and social network change as fixed effects. Here, social network change represented the proportion of close relationships participants reported were on campus from mid-year to year end. Similar models were used to examine reported belonging, with need to belong added as a fixed effect.

## Chapter 4: Results

### Data cleaning

Negatively worded items contained in the need to belong and global belonging (belonging antecedents) scales were reversed coded so that higher numbers represented belonging or wanting to belong. To address instances of missing data in completed surveys, unanswered need to belong, global belonging, campus satisfaction and campus identity items were substituted with the value of that item's mean across all participants at that time point. No individual scale had more than two responses missing. Demographic and remaining missing items were treated as such and were excluded pairwise from analyses.

### Preliminary Analyses

**Longitudinal sample.** Due to the large proportion of respondents who did not complete the second wave, analyses were conducted to test whether significant differences existed between wave 1 only (henceforth control) sample ( $n = 213$ ) and the wave 1 and 2 (henceforth longitudinal) sample ( $n = 77$ ). No differences in belonging needs were found between the control and longitudinal samples. This includes belonging needs during the first month on campus, belonging needs at mid-year and global belonging needs. Further, no differences in CMU identity, social network, social network support and network location variables were found. Finally, no demographic differences existed between the two groups.

Campus satisfaction was significantly different such that longitudinal participants ( $M = 4.12$ ,  $SD = .47$ ) reported higher satisfaction with campus than control participants ( $M = 3.93$ ,  $SD = .55$ ),  $F(1, 207) = 6.449$ ,  $p < .05$ . Control participants also indicated they

would be more likely to transfer ( $F(1, 206) = 4.26, p < .05$ ) and less likely to reenroll at CMU ( $F(1, 13.58) = 10.97, p < .001$ ). No other significant differences were found between the two samples. Due to the similarity between samples, unless otherwise noted, analyses will not distinguish between the two groups.

Incorporating the 11 sets of responses that could not be matched to their previous responses did not change the differences between the control sample and the longitudinal sample. Therefore, for the multilevel analyses, all available data was used from both data collections. Within-subject analyses focused on changes, however, were limited to the longitudinal sample size of  $n = 77$ .

**Reliability Analyses.** I conducted reliability analyses to determine the precision of each of the measurement scales: Need to belong, global belonging, campus satisfaction and campus identification. Cronbach's alpha was computed each time subjects responded to the scale items. All three need to belong measurements showed high reliability (NTB during the first month  $\alpha=.88$ ; NTB mid-year  $\alpha=.83$ ; NTB year-end  $\alpha=.73$ ). Further analyses indicated that deleting any scale items from NTB during the first month would lower the alpha level. Dropping "being apart from my friends for a long time did not bother me" raised the alpha level of the Need to Belong scale at mid-year to  $\alpha=.84$ . Finally, dropping "I do not like being alone," "being apart from friends for a long time did not bother me" and "I need to feel there are people I can turn to in times of need" raised alpha levels of NTB year-end to  $\alpha=.73$ ,  $\alpha=.75$ , and  $\alpha=.75$ , respectively. Due to the relatively small increases in alpha, all items were kept.

Global belonging had the lowest reliability of the scales measured ( $\alpha = .54$ ). Deleting "In the past, I have felt valued and important to others raised the alpha level to



( $\alpha = .59$ ), however, considering the small number of items in the scale, as well as the possibility that the scale was in fact measuring multiple dimensions (see factor analysis below), all items were retained.

Campus identity items at both mid-year and year end showed very high reliability ( $\alpha=.91$  and  $\alpha=.85$ , respectively). Further analysis revealed that deleting any items would lower the alpha level, hence, all items were retained. Similarly, campus satisfaction items showed high reliability at both mid-year and year-end ( $\alpha=.85$  and  $\alpha=.84$ , respectively). Dropping “there is a strong commitment to diversity at CMU” led to a negligible increase in alpha (from  $\alpha=.840$  to  $\alpha=.843$ ) so each item was retained in the scale.

**Factor Analysis.** The comparatively low alpha for the global belonging scale from previous studies suggests that the items may have been addressing multiple latent variables. To address this concern, I conducted a principal component analysis on the seven global belonging items with orthogonal (varimax) rotation. The Kaiser-Meyer-Olkin (KMO) measure verified sampling adequacy for the analysis,  $KMO = .65$ , and all KMO values for individual items were  $>0.5$ . Bartlett’s test of sphericity,  $X^2(21) = 250.15$ ,  $p < .001$ , indicated that correlations between items were sufficiently large for PCA. In addition, the determinant of the R-matrix was  $.30$  which was significantly different from zero  $X^2(21) = 75.08$ ,  $p < .01$  indicating no multicollinearity. Two components had eigenvalues greater than 1 and combined explained 54.47% of the variance. The rotated component matrix with factor loadings can be found in Table 1. The items clustering together on component 1 (“finding fit and belonging”) suggests a measure of desire for fit and belonging consistent with the original intention of the scale.

Component 2 (“relationships and involvement with others”), however, suggests a concern for relationships and involvement with other people.

Having reached a suitable, rotated solution, I requested factor scores for subsequent use in regression analyses. These factors were extracted using the Andersen-Rubin method to ensure that the factors would be uncorrelated. Review of the component score covariance matrix confirmed it was an identity matrix indicating no correlation between factors. The component score coefficient matrix can be found in Table 2.

### **Satisfaction and Adjustment**

I hypothesized that the need to belong would play an important role in satisfaction after transitioning to a new social environment such that those reporting higher levels of the NTB upon arriving would be more motivated to integrate into campus which would lead to greater satisfaction with their experience. Higher levels of NTB later in the transition, however, would be associated with decreased satisfaction. Further, those who did not feel like they belonged at the time (reported belonging) would report lower levels of satisfaction. Additionally, belonging needs were thought to be related to social network formation in that those with higher belonging needs would be more motivated to create and maintain important relationships in the new environment and would seek more social support from individuals both on- and off-campus. Therefore, those with higher belonging needs should report more on-campus relationships than those with lower needs.

**Satisfaction.** At mid-year, respondents reported being generally satisfied with their experience and adjustment to campus ( $M = 4.00$ ,  $SD = .53$ ). Paired-samples tests

using the longitudinal data indicated that satisfaction with campus did not change from mid-year to the end of the year ( $M = 4.08$ ,  $SD = .53$ ),  $t(73) = 1.18$ ,  $p = ns$ . To further explore correlates with satisfaction, I used linear regression to test whether belonging needs and feelings of belonging could predict satisfaction at mid-year. The average of the 12 satisfaction and adjustment items at each time period were used as the criterion variable.

Using stepwise backward method, predictors included need to belong during the first month and at mid-year, finding fit/belonging (global belonging factor 1) and relationships/involvement with others (global belonging factor 2), reported belonging during the 1<sup>st</sup> month and at mid-year and general feelings of belonging (see Table 3, Step 1). At each step, the least significant predictor variable was removed from subsequent steps until all remaining variables were significant at 0.10. Tests of multicollinearity revealed that no two predictors were highly correlated ( $> .80$ ). In addition, diagnostics after each step indicated that no predictor variance proportions loaded highly on the same dimension.

The small non-significant contribution of general feelings of belonging caused it to be dropped from step 2 with only a slight reduction in  $R^2$  ( $\Delta R^2 = -.002$ ). Steps 3 and 4 eliminated relationships/involvement with others and finding fit/belonging, respectively ( $\Delta R^2 = -.01$  and  $\Delta R^2 = -.01$ , respectively). Finally, step 5 dropped need to belong at mid-year ( $\Delta R^2 = -.01$ ). The relatively small reductions in  $R^2$  suggest the excluded variables did not account for significant variation in reported satisfaction. The final model was significant  $F(3, 204) = 33.53$ ,  $p < .001$ , with need to belong during the first month ( $\beta_1 = .12$ ,  $t(204) = 2.04$ ,  $p < .05$ ), reported belonging in the 1<sup>st</sup> month ( $\beta_2 = .23$ ,  $t(204) = 3.13$ ,  $p$

< .01) and reported belonging at mid-year ( $\beta_3 = .39$ ,  $t(204) = 5.38$ ,  $p < .01$ ) each significantly predicting satisfaction and adjustment at mid-year. Further interpretation of the standardized regression coefficients indicates that actual feelings of belonging are weighted more heavily than the need to belong and that those who feel they belonged on campus during the first month and at mid-year reported higher levels of satisfaction. Higher need to belong was also related to increased satisfaction, but was not as strong of a predictor.

Need to belong during the first month, mid-year, or year-end were unable to account for differences in satisfaction at the end of the year, however. This was also true for reported belonging during the 1<sup>st</sup> month and at mid-year, as well as finding fit/belonging. Only feeling like you belonged at the end of the year significantly predicted satisfaction at year end ( $\beta_2 = .41$ ,  $t(76) = 3.90$ ,  $p < .001$ ) such that higher reported belonging was related to more satisfaction (see Table 4).

Relationships/involvement with others, was a marginally significant indicator ( $\beta_1 = .20$ ,  $t(76) = 1.95$ ,  $p = .06$ ). Higher scores on this dimension were related to higher satisfaction.

**Social network support and location.** The need to belong was also hypothesized to be related to the size and location of students' close personal network as well as influence how frequently and from where students draw social support. Those with higher NTB were hypothesized to be more motivated to develop on-campus relationships and thus would report that more of their close relationships would be on-campus compared to off-campus. Additionally, those reporting higher need to belong

were believed to think social support from friends and family is important to academic success and would be more likely to seek out social support on campus.

The number of important relationships on campus appeared to be related to belonging concerns, including the need to belong. All respondents were able to list at least one person with whom they have frequent and meaningful interaction, with the average respondent reporting over six individuals ( $M = 6.22$ ,  $SD = 1.17$ ). Of those important contacts reported, the average proportion that were on campus was slightly over two-thirds ( $M = .67$ ,  $SD = .24$ ) at mid-year. The proportions were independent of the number of people students knew on campus when they matriculated ( $\beta = .08$ ,  $F(1, 175) = 1.164$ ,  $p = .28$ ). Though both the number of relationships reported and the proportion on campus fell slightly by year end ( $M = 6.15$ ,  $SD = 1.01$  and  $M = .66$ ,  $SD = .22$ , respectively), these differences were not significant ( $t(75) = -.19$ ,  $p = ns$  and  $t(59) = -1.21$ ,  $p = ns$ , respectively). I used regression to see if belonging needs and reported belonging could predict the proportion of participants' on-campus relationships. The proportion of close relationships that participants reported were on-campus was used as the dependent variable with need to belong during the first month and at mid-year, finding fit/belonging (global factor 1) relationships/involvement with people (global factor 2), reported belonging during the 1<sup>st</sup> month and at mid-year as predictors and number of people known when students matriculated as a control. The model was significant,  $F(7, 175) = 2.62$ ,  $p < .05$  (see Table 5). Finding fit/belonging at mid-year significantly predicted the proportion of on-campus relationships ( $\beta_1 = .28$ ,  $t(175) = 2.95$ ,  $p < .01$ ). Further, need to belong at mid-year was marginally significant,  $\beta_2 = -.24$ ,  $t(175) = -1.90$ ,  $p = .06$ . The negative coefficient indicates that as proportion of on-campus

friends rose, belonging needs dropped. A second analysis with the dependent variable on-campus proportion at year-end and the addition of NTB at year end and reported belonging at year-end as predictors was not significant  $F(9, 64) = 1.06, p = ns$ .

I next tested if belonging needs were related to the importance participants felt social support from friends and family was to their academic success. Regression analyses using “Social support from friends or family members has been important to my success as a student” as the outcome variable and need to belong during the first month and at mid-year, finding fit/belonging (global factor 1) and relationships/involvement with others (global factor 2), reported belonging during the 1<sup>st</sup> month and at mid-year and number of people known when they arrived as predictors revealed that belonging was significantly related to reported importance of social support ( $F(7, 199) = 5.74, p < .001$ ) (see Table 6). Specifically, need to belong during the first month significantly predicted the importance of social support to academic success ( $\beta_1 = .39, t(199) = 3.38, p < .001$ ) in that those reported higher NTB were more likely to say having social support was important. Both finding fit/belonging and relationships/involvement with others were also significant predictors ( $\beta_2 = -.17, t(199) = -2.08, p < .05$  and  $\beta_3 = .15, t(199) = 1.94, p < .05$ , respectively). The negative beta coefficient indicates, surprisingly, that those more concerned with finding fit in their environment were less likely to say social support from friends and family was important. Those more concerned about relationship development, however, indicated the opposite.

A second analysis focused on the importance of social support from friends and family to students’ academic success at the end of the first year. Need to belong at year end and reported belonging at year end were added as predictors in addition to the

predictors used at mid-year. This model, however, was not significant,  $F(0, 74) = 1.48, p = ns$ . The non-significant finding at the end of the year may be a reflection of shifting locations of social support during the transition from friends and family at home to support from individuals on campus.

In light of the non-significant finding above, I was interested to see whether participants received more support from on- versus off-campus relationships. I compared responses to social two social support network items – frequency of social support on-campus and frequency of social support off-campus. Overall, respondents reported receiving fairly frequent support from people both on- and off-campus, though the location of support changed as students transitioned to the new environment. At mid-year, students reported receiving social support both from home and on-campus fairly frequently, between once and multiple times per week ( $M = 3.84, SD = 1.16$  and  $M = 3.84, SD = 1.18$ , respectively). The level of reported on-campus support did not differ by year end ( $M = 3.96, SD = 1.07, t(74) = 1.38, p = ns$ ), though the level of off-campus support dropped significantly ( $M = 3.57, SD = 1.21, t(74) = -1.82, p < .05$  (one-tailed)). Unlike mid-year where students reported equal amounts of support from home and on-campus,  $t(209) = .000, p = ns$ , by year end students were receiving significantly more on-campus support ( $t(85) = -.40, p = .01$ ).

Given that participants reported changes in the location of their social support from mid-year to the end of the year, it was also of interest to determine whether belonging needs could explain some variation in whether students would draw more support from on-campus relationships. Regression analyses using levels of on-campus social support as the outcome variable and need to belong during the first month and at

mid-year, finding fit/belonging (global factor 1) and relationships/involvement with others (global factor 2), reported belonging during the 1<sup>st</sup> month and at mid-year and number of people known when they arrived as predictors revealed that feeling like you belong was related to reported on-campus social support,  $F(7, 199) = 4.99, p < .001$ . Specifically, reported belonging at mid-year was a significant predictor ( $\beta_1 = .18, t(199) = 1.97, p < .05$ ), while reported belonging during the first month was marginally significant ( $\beta_2 = .15, t(199) = 1.77, p = .08$ ) (see Table 7). A similar regression including need to belong and reported belonging at year end was used to determine if belonging could predict year-end social support on-campus. Neither belonging needs nor reported belonging predicted the extent to which participants drew on on-campus support at the end of the year,  $F(9, 74) = 1.21, p = ns$ .

These analyses look at the relationship between belonging and social support from multiple perspectives. My prediction that need to belong would be related to the development of close on-campus relationships was partially supported. Although NTB was a marginally significant predictor, concerns with finding fit/belonging was a significant predictor of reporting close relationships on campus. As predicted, the need to belong was related to the importance participants placed on social support from family and friends to their success, though this was not true for the end of the year. The need to belong was not predictive of the extent to which participants drew support from on-campus relationships compared to off-campus relationships, although actual reported belonging at both mid-year and during the 1<sup>st</sup> month was able to explain some of the variance. Importantly, none of the above models were able to explain more than 15% of the variance in the social support outcome measures. This suggests that, while the need



to belong may be a potential concern, other factors contribute much more to students' social support structure and social network location.

### **Campus Identification**

Belonging needs were also proposed to be related to campus identification such that those with higher need to belong would be more motivated to incorporate the institution into their identity. Further, those who actually felt like they belonged would more likely to report higher identification with the campus.

Overall, identification with CMU was not significantly different at mid-year ( $M = 3.63$ ,  $SD = .99$ ) compared to the end of the year ( $M = 3.69$ ,  $SD = .88$ ),  $t(77) = 0.64$ ,  $p = ns$ . Similar to satisfaction outcomes, I used stepwise (backward) regression to determine if belonging needs were related to student identification with CMU. The average of five identification items were regressed on need to belong during the first month and at mid-year, finding fit/belonging (global factor 1) and relationships/involvement with others (global factor 2), reported belonging during the 1<sup>st</sup> month and at mid-year and general feelings of belonging (see Table 8, Step 1). Again I conducted tests of multicollinearity to ensure that no two predictors were highly correlated ( $> .80$ ). In addition, diagnostics after each step indicated that no predictor variance proportions loaded highly on the same dimension. At steps two, three and four, reported belonging during the first month and reported belonging at mid-year loaded highly on the same dimension. Given that they did not load highly on the same dimension after step 5, however, and in light of 1<sup>st</sup> month belonging's marginal significance, it was retained in the analysis. A second regression excluding 1<sup>st</sup> month belonging produced comparable results (see Table 9).

The small non-significant contribution of general feelings of belonging caused it to be dropped from step 2 which resulted in a slight increase in  $R^2$  ( $\Delta R^2 = .002$ ). Steps 3 eliminated Global belonging factor 2, ( $\Delta R^2 = .003$ ), while step 4 dropped Need to Belong at Mid-Year ( $\Delta R^2 = .003$ ). Finally, step 5 dropped finding fit/belonging ( $\Delta R^2 = .002$ ). The final model was significant  $F(3, 207) = 43.28, p < .001$ , with need to belong during the first month ( $\beta_1 = .20, t(207) = 2.83, p < 0.01$ ) and belonging at mid-year ( $\beta_2 = .46, t(207) = 7.27, p < .001$ ) each significantly predicting campus identification at mid-year. Belonging in the 1<sup>st</sup> month ( $\beta_3 = .11, t(207) = 1.90, p = .06$ ) was marginally significant. Similar to satisfaction and adjustment outcomes, actual feelings of belonging contributed over to twice as much to the prediction of campus identification compared to belonging needs. Need to belong in the first month, however, was again an important predictor. To determine whether the need to belong was related to campus identification at the end of the year, I regressed the same five items measured at the end of the year on need to belong during the first month, at mid-year and year-end, finding fit/belonging (global factor 1) and relationships/involvement with others (global factor 2), and reported belonging during the 1<sup>st</sup> month, mid-year and year-end. Similar checks of multicollinearity raised no concerns. The same stepwise procedure yielded relatively inconclusive results. Despite overall model significance at each step, the first step (the equivalent of “forced” regression) did not produce any significant predictors (see Table 10). In fact, a significant predictor did not emerge until step 6. The final model was significant  $F(2, 74) = 3.82, p < .01$ , with reported belonging at mid-year as the only significant predictor ( $\beta_1 = .43, t(74) = 3.52, p < 0.01$ ). The relatively small  $R^2$  value (.15) for the final model indicates that belonging accounted for less than 20% of the variance

in identification by the end of the year. This value is less than half of the proportion of variance in identification scores explained by belonging needs and reported belonging at the mid-year data collection.

Consistent with my hypothesis, the need to belong was related to reported campus identification, though this was again only true for mid-year. As with satisfaction outcomes, actual reported belonging was a better predictor of identification at both mid-year and year-end. Those who felt like they belonged on campus identified more closely, on average, than those who did not.

### **Academic Success and Commitment**

Belonging was also predicted to be related to academic success and ultimately persistence toward a degree. Those able to meet their belonging needs were thought to be more likely to enjoy academic success and be more likely to persist toward their degrees. Further, belonging should also be related to commitment to the university in that students who feel they belong would be less likely to transfer and would be more likely to endorse reenrolling if given the opportunity. Finally, the need to belong and reported belonging may also be related to the academic effort students put toward their degree. That is, students who have not found fit in their environment may spend more resources trying to develop relationships at the expense of their education.

**Academic success and persistence.** To examine the relationship between belonging and academic success, I asked respondents to report their current or estimated grade point average (GPA). In addition, I asked if they intended to complete their degree at CMU. To address the former, I regressed estimated grade point average at mid-year on need to belong during the first month and at mid-year, finding fit/belonging (global factor

1) and relationships/involvement with others (global factor 2), and reported belonging during the 1<sup>st</sup> month and at mid-year. The model was significant  $F(6, 205) = 2.23, p < .05$ , with both need to belong during the first month ( $\beta_1 = .24, t(205) = 2.04, p < .05$ ) and reported belonging during the first month ( $\beta_2 = .24, t(205) = 2.74, p < .01$ ) significantly predicting grade point average (see Table 11). In both cases, higher values were related to higher GPA. Finally, need to belong at mid-year was marginally significant ( $\beta_3 = -.21, t(205) = -1.82, p = .07$ ). The negative coefficient suggests that those who had high belonging needs at mid-year were not performing as well academically as their peers with lower needs. Despite the model significance, the  $R^2$  value of 0.06 indicated belonging and belonging needs account for only 6% of the variance in GPA, therefore little can be said regarding the relationship between belonging and GPA. This was also the case for GPA at the end of the year. A regression of GPA on need to belong during the first month, at mid-year and year-end, finding fit/belonging (global factor 1) and relationships/involvement with others (global factor 2), and reported belonging during the 1<sup>st</sup> month, mid-year and year-end was not significant,  $F(8, 76) = 1.02, p = ns$ .

While the need to belong and feeling like you belong were not strong predictors of GPA, it is possible that those who feel like they belong may be more committed to completing their degree at the institution. To test this hypothesis, I used regression with “Do you plan to complete your degree at CMU?” as the outcome variables at both mid-year and the end of the year. As with analyses focused on GPA, predictors included need to belong during the first month and at mid-year, finding fit/belonging (global factor 1) and relationships/involvement with others (global factor 2), reported belonging during the 1<sup>st</sup> month and at mid-year and general feelings of belonging for the mid-year data. A

second regression included need to belong during the first month, at mid-year and year-end, finding fit/belonging (global factor 1) and relationships/involvement with others (global factor 2), and reported belonging during the 1<sup>st</sup> month, mid-year and year-end for the end of year data. In addition, I controlled for current or estimated GPA in each analysis. Both models for the mid-year data and year-end data were significant,  $F(7, 205) = 14.15, p < .001$  and  $F(9, 76) = 3.41, p < .01$ , respectively. Interestingly, in both cases, the sole significant predictor for each time point was reported feelings of belonging *at the time* (see Tables 12 and 13; Beta values were  $\beta_1 = .55, t(205) = 7.08, p < .001$  and  $\beta_1 = .39, t(77) = 3.03, p < .01$ , respectively). This suggests that, even as first year students, those who feel as though they belong on campus are more likely to say they will complete their degree at the institution. Prior reports of belonging, however, seem to have little influence.

Finally, I asked respondents whether, if they had the option, they would re-enroll at CMU. Because responses regarding whether they intended to complete their degree may have been influenced by their year investment (i.e. “sunk costs”), this item was thought to be independent of time and effort they had expended to date and may offer a more insightful picture of the role belonging and belonging needs play in during the college experience. Whether they would reenroll if given the option was regressed on need to belong during the first month and at mid-year, finding fit/belonging (global factor 1) and relationships/involvement with others (global factor 2), reported belonging during the 1st month and at mid-year, while also controlling for GPA. The model was significant,  $F(7, 204) = 35.01, p < .001$  (see table 14), with reported belonging during the first month ( $\beta_1 = 0.24, t(204) = 3.90, p < .001$ ) and at mid-year ( $\beta_2 = 0.62, t(204) = 9.31,$

$p < .001$ ), as well as relationships/involvement with others ( $\beta_3 = -.11$ ,  $t(204) = -2.03$ ,  $p < 0.05$ ) all significant predictors. Similar to plans to complete their degree, actual reported belonging at the time was related to retrospective feelings of whether they would re-enroll. This was also true for feelings of belonging in the first month. Surprisingly, listing more concerns with developing relationships and being involved with others was negatively related to desire to re-enroll. The  $R^2$  value of 0.55 indicates that whether or not you feel like you belong on campus accounts for a large proportion of variation in intention to reenroll.

To explore the relationship between belonging and the decision to reenroll at the end of the year, I included need to belong during the first month, at mid-year and year-end, finding fit/belonging (global factor 1) and relationships/involvement with others (global factor 2), and reported belonging during the 1<sup>st</sup> month, mid-year and year-end as predictors. In addition, I controlled for current or estimated GPA. This model was also significant  $F(9, 73) = 15.10$ ,  $p < .001$  (see table 15). Only reported belonging at year-end significantly predicted desire to reenroll ( $\beta_1 = .80$ ,  $t(73) = 8.80$ ,  $p < .001$ ), although need to belong at mid-year was marginally significant ( $\beta_2 = .23$ ,  $t(73) = 1.82$ ,  $p = .07$ ). Reported belonging once again was an important predictor of commitment to the university. Almost 70% of the variance ( $R^2 = 0.68$ ) in re-enrollment intention was explained by the model.

Considering both the mid-year and year-end data, it appears that whether a student feels they belong on campus is an important component of their general commitment to the university. Students who felt like they belonged on campus were more likely to indicate they would complete their degree and that they would reenroll if

given the choice. The need to belong was less predictive and was not a significant predictor of either intentions to complete a degree or decisions to reenroll. While both reported belonging during the first month and the need to belong during the first were significant predictors of grade point average, the proportion of variance they explained was too small to suggest that belonging and need to belong are important to academic success.

**Academic versus Social Experience.** To address the hypothesis that belonging needs may draw attention to more social pursuits in lieu of academic concerns, I identified two outcome variables that rate the importance of social experience relative to academic success. The first asked if respondents felt pressure to participate in social activities instead of studying or attending class, while the second addressed whether having a satisfying social experience was as important as having a successful academic experience. The Pearson correlation between the two items at midyear was  $r = .08$  and  $r = .24$  at year end suggesting no multicollinearity. These two items were combined and averaged to create an importance of social experience variable.

The importance of social experience variable at mid-year was regressed on need to belong during the first month and at mid-year, finding fit/belonging (global factor 1) and relationships/involvement with others (global factor 2), reported belonging during the 1<sup>st</sup> month and at mid-year. I also controlled for GPA in the event that higher achieving students were less likely to be drawn away from their academic responsibilities. The model was significant  $F(7, 205) = 4.51, p < .001$  (see table 16). Finding fit and belonging was a significant predictor ( $\beta_1 = .19, t(205) = 2.25, p < .05$ ) and need to belong during the first month was marginally significant ( $\beta_2 = .22, t(205) = 1.92, p = .056$ ). This

suggests that belonging needs at the beginning of the transition to college may detract from the academic responsibilities that are at the same time increasing in demand.

I conducted a similar analysis with the year-end data. The importance of social experience variable was regressed on year-end feelings of belonging and needs (need to belong during the first month, at mid-year and year-end, finding fit/belonging (global factor 1) and relationships/involvement with others (global factor 2), reported belonging during the 1<sup>st</sup> month, mid-year and year-end and GPA). The model was significant  $F(7, 205) = 4.51, p < .001$  (see table 17), with finding fit and belonging (global factor 1) ( $\beta_1 = .28, t(74) = 2.03, p < .05$ ) and reported belonging at year-end ( $\beta_2 = .45, t(73) = 3.46, p < .001$ ) both significantly predicting the importance of social experience. Need to belong at year-end was marginally significant,  $\beta_3 = .27, t(73) = 1.75, p = .09$ .

In summary, belonging needs emerged as an important facet of students' academic and social experience. These findings suggest that, while the need to belong and other belonging needs may not be particularly predictive of academic indicators (i.e. GPA), concerns about belonging may detract from students' academic experience.

### **Belonging Need Changes**

A final set of analyses sought to determine whether need to belong levels varied throughout the first-year transition. Need to belong was thought to decrease over time as students adapted to campus. Similarly, reported belonging may also vary over time, however, this variation would reflect changes in students' social networks such that having more on-campus relationships would be related to feeling like you belonged.

Overall, reported need to belong was highest during the first month on campus ( $M = 3.39, SD = 0.79$ ), compared to mid-year ( $M = 3.20, SD = 0.65; t(210) = 5.88, p < .001$ )



and end of year ( $M = 3.23$ ,  $SD = 0.54$ ;  $t(77) = 5.88$ ,  $p < .001$ ) levels. Mid-year and end of year levels did not differ,  $t(76) = 1.06$ ,  $p = .29$ .

In contrast, when asked if they felt they belonged on campus, respondents reported lower levels during their first month on campus ( $M = 3.80$ ,  $SD = 1.18$ ) compared to mid-year ( $M = 4.04$ ,  $SD = 1.08$ ;  $t(211) = -3.38$ ,  $p < .001$ ). Although reported end of the year belonging levels were higher ( $M = 4.17$ ,  $SD = 0.92$ ), the difference from the first month did not reach significance,  $t(77) = 5.48$ ,  $p = .11$ ). End of year levels also did not differ from mid-year levels,  $t(77) = 0.55$ ,  $p = ns$ .

While sample need to belong and reported campus belonging sample means describe general between-subject trends as the first year progressed, they do not account for within-person variance that could violate assumptions of independence between observations. To account for dependency in the repeated measures data, I used multilevel models to test changes in belonging needs and actual feelings of belonging over time. Models were fit using maximum likelihood estimation. Time was scaled such that 0 corresponds to the first month on campus so that the intercept in the models represented feelings of belonging/NTB at the beginning of the school year. During the model development and for the final model, I specified a first-order autoregressive covariance structure with heterogeneous variance to account for looser associations between more distance time points.

**Predicting changes in need to belong.** I fit a series of models to the data to determine whether and how belonging needs changed from the beginning of the year to the end. Estimates of all fixed effects are reported in Table 18 and the estimated variances and covariances of the random effects for the final model in Table 19. I first fit

the unconditional means model (one-way random effect ANOVA) to the data and found significant variance between individuals' need to belong,  $F(1, 220.74) = 5652.39, p < .001$ . The inter-class correlation coefficient (ICC) equals .72 indicating relatively large proportion of total variance in scores between individuals and a strong correlation between scores within individuals.

Models 1 and 2 tested my hypothesis that belonging needs would decrease over time. As hypothesized, time was a significant predictor of changes in NTB,  $F(1, 306.11) = 37.83, p < .001$ . The negative coefficient ( $\beta_{1j} = -.14$ , 95% confidence interval (CI) [- .19, -.10]) indicated that, overall, NTB decreased as time went on. Further, I found significant differences between individuals' NTB during their first month on campus (Model 1: Likelihood Ratio (LR) = 27.13,  $p < .001$ ) and variability in how their NTB changed over time (Model 2: LR = 41.48,  $p < .001$ ). The relationship between time and NTB showed significant variance in intercepts across individuals,  $V(u_{0j}) = 0.26, X^2(1) = 35.13, p < .001$ . In addition, the slopes varied across participants,  $V(u_{1j}) = .03, X^2(2) = 33.48, p < .001$  and the slopes negatively and significantly covaried,  $cov(u_{0j}, u_{1j}) = -0.76, X^2(2) = 33.48, p < .001$ . That is, students reported significant differences between individuals' need to belong during their first month on campus and variability in how need to belong changed over time.

Model 3 tested whether the relationship between time and changes in NTB were linear or could better be described as a second-order polynomial. Including a quadratic trend improved the fit of the model LR = 7.63,  $p < .01$ . The positive coefficient ( $\beta_{2j} = .08$ , 95% CI [.02, .14]) suggests that the need to belong may have been salient during the first month on campus, but was less of a concern as the year progressed.

In model 4, I added global belonging need, number of people students knew when they matriculated, the distance of CMU from their home, age, sexual orientation, ethnicity, gender and whether they had transferred to CMU as fixed effects to control for differences between individuals. Each predictor was measured once and is assumed to be stable from the first month on campus to the end of the year. While the model represented a significantly better fit ( $LR = 237.85, p < .001$ ), only time,  $time^2$  and global belonging predicted significant differences. Global belonging need was significantly related to NTB ( $\beta_{3j} = .63, 95\% CI [.45, .81]$ ) such that higher global belonging need was related to higher NTB. In Model 5, I tested a more parsimonious model including only the significant effects from the earlier sequence of analyses. This model proved to be a significantly better fit than Model 3 ( $LR = 71.34, p < .001$ ).

Model 6 incorporated components of the global belonging measure identified with factor analysis (finding fit/belonging (global factor 1) and relationships/involvement with others (global factor 2). Both factors were treated as fixed predictors. The model showed improved fit ( $LR = 29.19, p < .001$ ) and time and  $time^2$  remained significant predictors ( $\beta_{1j} = -.27, 95\% CI [-.38, -.16]$  and  $\beta_{3j} = .07, 95\% CI [.01, .13]$ , respectively). Finding fit/belonging was also a significant predictor ( $\beta_{3j} = .35, 95\% CI [.28, .42]$ ), however relationships/involvement with others was not,  $\beta_{4j} = .02, 95\% CI [-.05, -.08]$ .

A final model addressed how changes in social networks were related to reported levels of need to belong. I predicted that changes in social networks would be reflected in changes in need to belong. The measure for network change was created by subtracting the proportion of individuals with whom subjects listed as having frequent and meaningful contact that were on-campus at the mid-point of the year from the

proportion of on-campus relationships at the end of the year. Positive values indicate a greater proportion of meaningful on-campus relationships at the end of the year compared to the mid-point of the year, while negative values indicate the opposite. The mean value was -.03. While including a social network change led to a significantly better fitting model (LR = 475.71  $p < .001$ ), network change itself was not a significant predictor of NTB ( $\beta_{4j} = .35$ , 95% CI [-.17, .87]). Interestingly, when controlling for social network change, the slope for the second order time polynomial dropped to non-significance ( $\beta_{2j} = .07$ , 95% CI [-.03, .16]).

The final model suggests that the need to belong will decrease as individuals acclimate to their new environment. Contrary to my hypothesis, changes in social network did not significantly predict need to belong. Finding fit/belonging, however, was a significant predictor. That is, those who reported greater interest in fitting in and being a part of things going on around them also reported higher need to belong.

**Predicting changes in reported belonging.** I fit a second series of models to the data to determine whether and how actual feelings of belonging on campus changed from the beginning of the year to the end. Estimates of all fixed effects are reported in Table 20 and the estimated variances and covariances of the random effects for the final model in Table 21. I first fit the unconditional means model (one-way random effect ANOVA) to the data and found significant variance between individuals' reported belonging,  $F(1, 216.14) = 3595.66$ ,  $p < .001$ . The inter-class correlation coefficient (ICC) equals .57 indicating moderate proportion of total variance in scores between individuals and a moderate correlation between scores within individuals.

Models 1 and 2 tested my hypothesis that reported belonging at CMU would increase over time. As before, both models included time as a predictor with Model 1 allowing intercepts to vary (random intercept) and Model 2 allowing both intercepts and slopes to vary (random coefficients). As hypothesized, time was a significant predictor of changes in reported belonging,  $F(1, 178.33) = 11.49, p < .001$ . The positive coefficient ( $\beta_{1j} = .17, 95\% \text{ CI } [.07, .27]$ ) indicated that, overall, reported belonging increased as time went on. The relationship between time and reported belonging showed significant variance in intercepts across individuals,  $V(u_{0j}) = 0.98, X^2(1) = 11.22, p < .01$ . In addition, the slopes varied across participants,  $V(u_{1j}) = .12, X^2(2) = 10.30, p < .01$  and the slopes negatively and significantly covaried,  $\text{cov}(u_{0j}, u_{1j}) = -0.60, X^2(2) = 10.30, p < .01$ . That is, students reported significant differences between individuals' reported belonging during their first month on campus and variability in how their reported belonging changed over time.

Model 3 tested whether the relationship between time and changes in reported belonging is linear or could better be described as a second-order polynomial. Including a quadratic trend did not improve the fit of the model  $X^2(1) = 2.17, p = ns$ . Given that the coefficient was not significant, ( $\beta_{2j} = -.10, 95\% \text{ CI } [-.23, .03]$ ), the quadratic term was deleted from future models.

Model 4 incorporated global belonging and need to belong as fixed-effect predictors. Including these variables significantly increased the fit of the model ( $X^2(1) = 60.42, p < .001$ ) and coefficients for time ( $\beta_{1j} = .14, 95\% \text{ CI } [.03, .24]$ ) and both global belonging and NTB were significant ( $\beta_{2j} = .81, 95\% \text{ CI } [.54, 1.08]$  and ( $\beta_{3j} = -.22, 95\% \text{ CI } [-.38, -.05]$ , respectively). The following model (Model 5) included the level two

predictors number of people students knew at matriculation, the distance of CMU from their home, age, sexual orientation, ethnicity, gender and whether they had transferred to CMU as fixed effects to control for differences between individuals. Time, global belonging and need to belong remained significant predictors of reported belonging ( $\beta_{1j} = .13$ , 95% CI [.01, .24],  $\beta_{2j} = .71$ , 95% CI [.41, 1.01] and ( $\beta_{3j} = -.19$ , 95% CI [-.37, -.02], respectively). In addition, age emerged as a significant predictor ( $\beta_{4j} = .21$ , 95% CI [.01, .42]. All other variables were not significant and were dropped from subsequent models. The increased fit of model 5 was highly significant ( $X^2(7) = 317.24$ ,  $p < .001$ ), however, a more parsimonious Model 6 which included age as a fixed effect also showed acceptable improvement in fit from model 4 ( $X^2(1) = 46.67$ ,  $p < .001$ ).

Similar to the analyses focused on NTB, Model 7 incorporated components of the global belonging measure, finding fit/belonging (global factor 1) and relationships/involvement with others (global factor 2). Both factors were treated as fixed predictors. The model showed improved fit ( $X^2(1) = 11.75$ ,  $p < .001$ ) and time and age remained significant predictors ( $\beta_{1j} = .15$ , 95% confidence interval [.05, .26] and  $\beta_{5j} = .21$ , 95% CI [.05, .36], respectively). Interestingly, both factors emerged as significant predictors (finding fit:  $\beta_{3j} = .18$ , 95% CI [.04, .31] and relationships/involvement with others  $\beta_{4j} = .39$ , 95% CI [.27, .50]. This suggests that reported belonging needs are not only related to finding fit, but also to relationships and involvement with others. When these predictors were included in the model, NTB dropped to non-significance ( $\beta_{2j} = -.13$ , 95% CI [-.30, .03]) and was excluded from future models.

Finally, Model 8 introduced change in social network as a predictor. This

variable was calculated as before and lead to significant increase in fit for the overall model (LR = 850.85,  $p < .001$ ) and was a significant predictor  $\beta_{5j} = .98$ , 95% CI [.16, 1.80]. Importantly, controlling for changes in social network reduced the effect of time to marginal significance  $F(1, 60) = 2.918$ ,  $p < .10$  ( $\beta_{1j} = .13$ , 95% CI [-.02, .29]). Of the remaining predictors, only age dropped to non-significance as a result of change in network being included in the model ( $\beta_{4j} = .07$ , 95% CI [-.22, .35]). A final more parsimonious model that did not include age as a predictor but retained time fit the data equally well (LR = .23,  $p = n.s.$ ) and so is used in lieu of model 8. Taken together, the emergence of relationship/involvement with others (with a beta coefficient over twice as large as finding fit/belonging) and social network change suggests that feeling like you belong on campus is most related to the formation of meaningful relationships, rather than concerns about belonging.

## Chapter 5: General Discussion

This study provides evidence for the importance of the need to belong and feeling like you belong in a new environment during a period of social transition. Feeling like you belong was the most consistent predictor of positive transition outcomes and was itself related to increasing one's social network in the new environment. The need to belong was shown to motivate certain concerns at the beginning of a transition, but was potentially debilitating later in the transition if needs had not been met. In addition, this study contributes to the body of need to belong literature by both confirming and extending previous experimental results in a naturalistic setting. The results provide ecological validity to experimental manipulations of belonging needs, particularly the increase in need to belong levels in response to threatening social environments (Leary et al., 1998; Pickett et al., 2004). Contrary to need to belong theory, however, some evidence suggests that the need to belong may function as more of a stable characteristic rather than a motivated state.

The results partially support my predictions regarding the need to belong. As predicted, higher levels of need to belong at the beginning of the year were associated with positive adjustment and other transition indicators (higher satisfaction, higher identification and GPA). A second component of my prediction was that when the need to belong had not been met over time, it would lead to negative consequences. There was some evidence to support this claim; in general, however, the results were inconclusive. The need to belong measures at different time points showed two different trends. While need to belong during the first month was positively related to most outcome measures, need to belong at mid-year consistently had a negative coefficient suggesting that higher



need to belong at mid-year would be associated with lower levels of the outcome variables. In other words, if belonging needs are still salient at later stages of the transition, there may be negative ramifications. Unfortunately, need to belong at mid-year was never a significant predictor and was only a marginally significant predictor for three outcomes, therefore little can be said about individuals whose need to belong remained salient four months into the transition. A possible reason that unmet need to belong may have been largely non-predictive is the choice of outcome variables. This study did not include certain outcome variables that previous research suggests may accompany persistently unmet need to belong, including indices of loneliness and depression (Carvallo & Gabriel, 2006; Hagerty et al., 1992; Moody, 2001). It may be the case that belonging concerns at later time points in the transition would have been predictive of negative outcomes such as loneliness or withdrawal. Future work that tracks individuals with consistently 'high' reported need to belong may be able to determine if the inability to meet one's need is related to negative affect and behaviors.

In addition to the need to belong, both factors of the global belonging scale, finding fit/belonging and relationships/involvement with others, emerged as significant predictors. The global belonging scale was proposed to represent individuals' energy and desire for involvement as a precursor to belonging (Hagerty, et al., 1996). Finding fit/belonging, or the extent to which students want to be integrated into their environment, was related to the importance placed on social support from family and friends and the importance of social experience, and was also the sole significant predictor of whether students listed more of their primary or important relationships on-campus (as compared to off-campus) at the end of the year. Because theories of college

student persistence stress the importance of shifting students' social networks to on-campus relationships (Tinto, 1998), the results suggest that those students who are not interested in finding fit in the new environment may be at risk. Additional work may be necessary to identify what (if any) strategies are effective in generating interest in fitting with one's environment.

Because the global belonging scale was hypothesized to be an antecedent to both the need to belong and reported belonging, I did not predict that global belonging would be related to any transition outcome variables; rather, I believed the global belonging scale would be a predictor of students' need to belong or reported feelings of belonging. It was therefore assumed that those reporting higher values on the scale would be more apt to have higher need to belong and would be more motivated to belong in the new environment. It appears, however, that both desire for integration in the environment and energy for relationships are related to a wider range of transition indicators (not just belonging needs). Both desire for integration in the environment and energy for relationships were significant predictors of importance students placed on the social support from family and friends. This is coupled with the relationships between the desire for social integration and where students' important relationships were located, as well as the importance students placed on their social experience. Taken together, the two global belonging factors were related to every social outcome variable measured.

This is perhaps unsurprising since those with a predilection to find fit or devote energy to relationships would likely value social support from friends and family and would be more interested in maintaining relationships on-campus. It was surprising, however, to see energy for relationships with others emerge as a predictor for satisfaction

at year end and willingness to reenroll, outcomes that are not necessarily social in nature. Because feeling like you belong was also a significant predictor of both satisfaction and willingness to re-enroll, this may be an indication of a more nuanced relationship between global belonging and feeling like you belong. That is, feeling like you belong may actually mediate the relationships between desire for integration in the environment and energy for relationships and the transition outcomes measured (Figure 1). A similar relationship may exist between desire for integration in the environment and energy for relationships and the need to belong. Future work should seek to test those relationships. Further work may also examine whether global belonging is relatively stable over time. It could be the case that energy for involvement also varies over time, though this was not tested in the present study.

**Implications for Need to Belong Research.** Previous research has treated the need to belong as a psychological state dependent on perceptions of having positive, stable interpersonal relationships. The ability to manipulate reported needs through different experimental manipulations is well-documented (Chernyak & Zayas , 2010; Gardner et al. 2005). Typically, experimenters induce higher need to belong by introducing belonging threats to participants. The present research adds to the body of work focused on the need to belong by incorporating an ecological experiment. Research in student affairs indicates that new students are typically concerned with finding fit within their environment and worried about making new friends (Paul & White, 1990). In addition, the potential loss of close relationships due to the transition would also be weighing on the minds of these students. Each factor, the loss of old relationships and the concern of developing new ones could be considered threats to one's belonging status

and therefore should be related to the need to belong. In this regard, the transition to college provided a setting that could replicate what would be expected from previous experimental work conducted in laboratory settings. Consistent with experimental research and my hypothesis, transitioning students facing the threat of a new social environment reported higher belonging needs at the beginning of the year. Further, as students acclimated to their new environment, reported need to belong decreased, though levels did not change from mid-year to year end. This was contrary to my hypothesis that need to belong levels would continue to decrease throughout the year.

That belonging needs were not different from mid-year to year end raises the question of whether a base-level need may be present in individuals. That is, independent of a belonging threat, people may have a homeostasis from which their need fluctuates given their environment. A state-dependent need would be more likely to fluctuate at different time points and no trend would be present. That participants reported no differences from mid-year to year-end in belonging needs suggests that need to belong may be relatively stable barring a threat to belonging status. Interestingly, the leveling off of the need to belong in participants occurred as early as mid-year. The drop in need to belong also coincided with an increase in feeling like you belong on campus. This suggests that belonging, as it pertains to social transitions, may have a critical period at the beginning when belonging threats are presumably most salient.

It is important to note that the stability of need to belong was qualified by global belonging. The level of energy and interest individuals had in meaningful involvement was related to reported need to belong. This was true for items associated with a desire for integration in the environment, but not the factor associated with a person's energy

for developing relationships. It would seem, then, that only certain antecedents of belonging (i.e. finding fit or integration in the environment as opposed to desire for relationships) were precursors to need to belong. Conversely, both desire for integration in the environment and for developing relationships were predictive of actually feeling like you belong. The lack of relationship between energy for relationships and the need to belong was quite surprising and, if true, would seemingly be in stark contrast to need to belong theory (which highlights the importance of stable, valued relationships). A possible explanation for the lack of relationship is incongruence between the energy an individual reports to meet an internal motivation and the actual strength of that motivation in terms of its effect on behavior. That is, a person may make efforts to meet their need without recognizing (or perhaps even denying) that effort or desire. There is some experimental evidence to suggest this is the case; for example, unconscious mimicking of others' behavior when belonging needs are threatened (Gardner et al., 2005).

An important question that was overlooked in my hypotheses was which variables can predict whether an individual reported that they belonged on campus. This study predominantly focused on the need to belong as a predictor of successful transition to a new social environment, a component of which was whether or not needs have been met on-campus. More than any other predictor, feeling like you belonged (needs were met) was positively related to most outcomes measured. This study does, however, provide some insight into what characteristics lead to feeling like you belong. As noted above, both global belonging factors were significantly related to feelings of belonging. As this scale was thought to measure potential for belonging, this is not surprising. The strongest

predictor, however, was changes in significant on-campus relationships such that those who shifted more of their social network to on-campus individuals reported feeling like they belonged more than those whose on-campus network did not change throughout the transition, or decreased.

Interestingly, no demographic variables were significant predictors of the need to belong or reported belonging, nor were any variables that were thought to influence belonging at the beginning of the transition (e.g. number of people students knew upon matriculating, distance campus was from home, whether they were a transfer student). That no demographic difference emerged was particularly surprising given earlier research on underrepresented groups and belonging (Cohen & Walton, 2007). Unfortunately, the relatively small proportions males, non-white individuals and sexual minorities may have limited the probability of detecting differences based on membership in those categories. Another explanation for why demographic differences did not emerge may be the decision to judge the transitions of non-white minority students with 'traditional' metrics of campus satisfaction and identification. Different cultural values may influence perceptions of support and acceptance on campus, which may in turn influence judgments and behavior. The outcome variables used, including satisfaction, identification and persistence measures, have been criticized as culturally exclusive (Guiffrida, 2006), and other measures may have painted a more accurate picture of non-majority transitions.

**Implications for social transitions.** Previous work has demonstrated that belonging needs are activated when individuals are faced with belonging uncertainty or the threat of social loss (Baumeister & Leary, 1995; Maner et al., 2007; Stevens et al.,

2006). This study provides evidence for the importance of both the need to belong and feeling like you belong when individuals transition to a new social environment. As predicted, need to belong levels were higher during the first month on campus as students began their transition before decreasing at later time points. The drop in need to belong levels from the first month to mid-year and the leveling out by year-end reflects the decreasing salience of the need as individuals adapt to their new environments. Conversely, reported belonging levels were lowest during the first month on campus before increasing at later time points, which may be reflective or indicative of social integration. During latter stages of the transition, relationships emerge as an important part of the individual's experience. This is likely a product of the time it takes to develop significant relationships and lends further credence to previous research suggesting that casual relationships are typically insufficient for meeting belonging needs (Cohen & Syme, 1985; Sternberg, 1986).

The different trajectories of the need to belong and feeling like you belong throughout the year suggest that both variables impact social transitions, though perhaps in different ways. More broadly, need to belong was related to predominantly social outcome measures (importance of friends/family; network location), while reported belonging was a better predictor of more global impressions (satisfaction; identification; desire to persist; willingness to reenroll). Interestingly, though the need to belong was also related to certain global impressions, again, actually feeling like you belong was a more consistent predictor. That is, whether or not a person indicated they felt they belonged on campus at certain time points explained more variation in more measured outcomes than reported need to belong. Feeling like you belong may therefore be an

indicator that belonging needs (in particular, the need to belong) have been met in the new environment.

Consistent with motivation theory, the need to belong was most predictive of outcomes that would enable the individual to meet their particular need (e.g., shifting important relationships to campus or the availability of social support from home both relate to maintaining valued social relationships). Need to belong was less predictive of outcomes that would not necessarily aid in meeting one's need (e.g., being satisfied with one's environment). Feeling like you belong, on the other hand, may represent the realization of one's need to belong which then enables full integration into the environment. Feeling like you belong, therefore, may be a necessary (though perhaps not sufficient) condition for an individual to be satisfied with their new social environment, identify with environment and choose to persist in that environment.

Taken together, the need to belong and feeling like you belong may be interrelated components of social transitions. The results indicate that inherent individual desires around fit and belonging and the need to belong are related to the transition outcomes measured. In addition, some individuals may be more primed to seek belonging and look for it with greater effort than others. Moreover, individual variation in these constructs may either facilitate or hinder a person's transition, depending on the stage of the transition. The need to belong drove certain behaviors and attitudes which culminated in feeling like you belong. Feeling like you belong was most predictive of outcome measures and therefore may be more important than determining if individuals have certain proclivities toward belonging. Recognizing the importance of feeling like you belong may lead to more successful social transitions, though future research should



not discount individuals' need to belong potential to influence whether individuals actually feel like they belong.

**Implications for the transition to college.** The findings of this study provide some direction for student affairs professionals and college administrators. In the particular case of transitions to college, this study provides evidence that colleges and universities should consider the belonging needs of their new students. Administrators and student affairs staff should expect first year students to enter campus with salient belonging needs and understand the ramifications when students do not feel as though they belong on campus. Three areas identified by previous research as being related to persistence were satisfaction, university identification and academic success (Christie & Dinham, 1991; Tinto, 1980). This study extends student adjustment literature by highlighting the importance of belonging needs and belonging to these and other areas related to student persistence.

Consistent with previous research (Freeman et al., 2007), the data support the relationship between belonging and reported satisfaction from the earliest periods of the year. Most participants reported being satisfied with their campus and belonging accounted for some of the variation in satisfaction ratings. More than any other predictors, participants who indicated they felt like they belonged at the time reported more satisfaction with campus. Of note, the satisfaction scale used in this study represented a broad range of adjustment items and it is interesting that feeling like one belongs would be related to such a varied range of outcomes, from opinions of the faculty to accessibility of campus organizations. An alternative interpretation is that feeling like you belong is just one component of satisfaction. The pattern of significant findings

offers some support of this theory. While feeling you belong during the first month and at mid-year predicted satisfaction at mid-year, neither variable was predictive of satisfaction at year-end. If being satisfied with the environment includes feelings of belonging, it may explain why only feelings of belonging at year-end were related to satisfaction at year end. Feeling like you belong, then, may be an indicator that a person has been integrated into the environment. Moreover, a feeling of belonging may encompass more than interpersonal relationships, but reflect broader opinions about campus as well.

Campus identification was also related to feeling like you belong and the need to belong. In particular, those who felt like they belonged reported higher identification. Similarly, need to belong was positively related to identification with the university. Previous literature has noted that transitions typically require changes in identity (Glass & Maddox, 1992). The need to belong may serve as a mechanism to motivate adopting a new identity. Once again, feeling like you belong seems to be related to more than social integration. Rather, feeling like you belong may be the product of both adjustment to a new context and ultimately identifying with that environment.

While need to belong and feeling like you belong were least predictive of grade point average, they were still related to GPA in some important ways. The results suggest that belonging is related to higher GPA and that higher need to belong later in the year may be negatively related to GPA. This was consistent with my prediction that unmet belonging needs would be associated with lower academic success. This was hypothesized to be the result of increased attention toward social pursuits in order to meet belonging needs. While not measured directly, this study does provide some support for

that hypothesis as the need to belong and feeling like you belong were both related to the importance placed on social experience, even at the expense of academics. Previous research has identified the relationship between lack of belonging and poorer academic performance (Osterman, 2000) and this study offers both support and a possible explanation for that relationship.

If different desire and energy to belong or need to belong levels exist between individuals, increased effort may need to be directed toward identifying students who may struggle with integrating into the community. Determining whether students feel as though they belong may be an indicator of their overall impression and experience. Importantly, more can be learned about why students did/did not feel like they belonged and what efforts can be made by faculty and staff on campus to aid students in feeling like they belong. Recent work (Walton & Cohen, 2011) has demonstrated the impact that belonging interventions can have on student success. Belonging need identification and, if necessary, interventions present a relatively low-cost strategy to improve student satisfaction with campus.

A particular challenge for campus staff and administrators are those students who express little interest in finding fit in the new environment. Previous literature indicates that such students may be at risk for leaving campus and the results of this study provide indirect support. Desire for fit was related to listing more of students' primary or important relationships on-campus, which was in turn related to feeling like you belong and subsequently greater satisfaction and identification.

The results also suggest that changes in belonging are most dynamic during the first four months on campus. While first year experience programming typically occurs

throughout the year, particular attention should be paid to students during their first semester. These findings are particularly pertinent given that persistence continues to be a concern for most campuses and first-year students are at greatest risk to drop-out (Bradburn & Carroll, 2002).

Finally, this study offers a potential new contribution to enrollment and persistence literature when considering the relationship between feeling like you belong and students' reported willingness to re-enroll. While much of the student affairs literature focuses on student experiences on campus and the impact those experiences have on persistence, I am not aware of any literature examining whether current student experiences (whether positive or negative) affect *future* student enrollment. In other words, can a current student's experience impact whether that student's younger friends, peers, or high school classmates decide to enroll or not enroll at the university? Older students may serve as a pipeline to their respective high school or social group and a satisfactory experience may go a long way in encouraging future students to apply for admission. Belonging needs, then, may affect enrollment numbers in multiple ways.

**Limitations.** Several critical limitations question the generalizability of the findings from this study. Of particular concern was that data were collected at only two time points. All measures collected from the "first month" were retrospectively reported and were therefore subject to bias or misremembering. While autobiographical reasoning has been used to recount experience that is embedded in both time and social context (Habermas & Bluck, 2000), measurement at the true beginning of the transition may have provided a more accurate picture of individuals' need to belong. Further, reflecting back to the first month may have been an unintentional manipulation of the

need to belong. Experimental studies have primed belonging needs with threats to belonging status (e.g. thinking about the possibility of dying alone) (Baumeister et al., 2002). Asking participants to reflect on a time-period when belonging may have been a concern might have led to an artificially high reporting of belonging during the first month or at mid-year as the effect of thinking about the beginning of the transition lingered.

In addition, it would likely have been more informative to collect data at more time points throughout the transition and beyond. While this study offers compelling evidence of the importance of belonging during a social transition, the results cannot predict when, on average, students begin to feel as though they belong or when need to belong levels begin to fall. Further, future time points may be of interest to determine whether need to belong levels continue to remain generally stable or if other fluctuations occur. Future data collections may also reveal changes in feeling like you belong or global belonging as students continue their education on campus. For example, second year transitions back to campus may result in a similar pattern of reported belonging and need to belong.

The lack of additional time-points also limits the extent to which it is possible to theorize about the direction of the effect of belonging. In this study, belonging needs and actual reports of whether or not participants felt like they belonged were used as predictors of the outcomes that were believed to be related to successful social transitions (satisfaction, identity, social network location and persistence measures). It is possible, however, that certain indicators drive feelings of belonging. In particular, the

relationship between feeling like you belong and social network support/location may warrant further investigation.

Finally, the considerable drop in participation through the second round of collection is a concern for the generalizability of these findings. Though the longitudinal sample that participated in round two did not show marked differences from the control sample, the power of the analyses likely suffered as a result of the small number of participants. In addition, a more representative sample of the campus population or potentially over-representing underrepresented groups may have revealed differences between demographic groups. In most cases, tests of demographic differences were not possible due to small samples.

### **Conclusion**

The purpose of this study was to determine if belonging and belonging needs in general, and the need to belong more specifically, are an important component of a social transition to a new social environment. I explored this question in the context of first-year students transitioning to a new campus environment where students were expected to face doubts about their belonging status. Feeling like you belong and the need to belong were related to campus satisfaction (hypothesis 1), as well as changes in social network location, the extent to which individuals valued social support from friends and family, and social support from people in the new environment (hypothesis 2). In addition, feeling like you belong and the need to belong were associated with identity indices (hypothesis 3) and persistence measures (hypothesis 4). Finally, this study explored the need to belong over time and provides some preliminary evidence for the need as a stable characteristic within individuals. Consistent with experimental research,

need to belong levels were activated during the first month of students' transitions on campus indicating belonging needs are sensitive to context. As students transitioned and situational belonging threats decreased, however, need to belong levels dropped and remained generally stable at subsequent time points (hypothesis 5). Conversely, reported belonging was lowest during the first month on campus and rose as students transitioned. These results provide evidence that belonging is an important component of a social transition.

## Appendix A

### Complete Survey (Time 1)

**Instructions:** For each of the statements below, indicate the degree to which you agree or disagree with the statement by writing a number in the space beside the question using the scale below:

- 1 = Strongly disagree
- 2 = Moderately disagree
- 3 = Neither agree nor disagree
- 4 = Moderately agree
- 5 = Strongly agree

- \_\_\_\_\_ 1. Relationships take too much energy for me.
- \_\_\_\_\_ 2. It is import to me that I fit somewhere in this world.
- \_\_\_\_\_ 3. I am working on fitting in better with those around me.
- \_\_\_\_\_ 4. I want to be part of things going on around me.
- \_\_\_\_\_ 5. All my life I have wanted to feel like I really belonged somewhere.
- \_\_\_\_\_ 6. I just don't feel like getting involved with people.
- \_\_\_\_\_ 7. In the past, I have felt valued and important to others.

**Instructions:** Please think back to **your first month on campus** at Central Michigan. For each of the statements below, indicate the degree to which you agree or disagree with the statement by writing a number in the space beside the question using the scale below:

- 1 = Strongly disagree
- 2 = Moderately disagree
- 3 = Neither agree nor disagree
- 4 = Moderately agree
- 5 = Strongly agree

- \_\_\_\_\_ 1. If other people didn't seem to accept me, it bothered me.
- \_\_\_\_\_ 2. I tried hard not to do things that would make other people avoid or reject me.
- \_\_\_\_\_ 3. I worried about whether other people cared about me.
- \_\_\_\_\_ 4. I needed to feel that there were people I could turn to in times of need.
- \_\_\_\_\_ 5. I wanted other people to accept me.
- \_\_\_\_\_ 6. I did not like being alone.
- \_\_\_\_\_ 7. Being apart from my friends for long periods of time bothered me.
- \_\_\_\_\_ 8. I had a strong need to belong.



\_\_\_\_\_ 9. Did you feel that you belonged during your first month at Central Michigan?

**Instructions:** Please now think about how you **currently feel**. For each of the statements below, indicate the degree to which you agree or disagree with the statement by writing a number in the space beside the question using the scale below:

- 1 = Strongly disagree
- 2 = Moderately disagree
- 3 = Neither agree nor disagree
- 4 = Moderately agree
- 5 = Strongly agree

- \_\_\_\_\_ 1. If other people don't seem to accept me, I don't let it bother me.
- \_\_\_\_\_ 2. I try hard not to do things that will make other people avoid or reject me.
- \_\_\_\_\_ 3. I seldom worry about whether other people care about me.
- \_\_\_\_\_ 4. I need to feel that there are people I can turn to in times of need.
- \_\_\_\_\_ 5. I want other people to accept me.
- \_\_\_\_\_ 6. I do not like being alone.
- \_\_\_\_\_ 7. Being apart from my friends for long periods of time does not bother me.
- \_\_\_\_\_ 8. I have a strong need to belong.
- \_\_\_\_\_ 9. It bothers me a great deal when I am not included in other people's plans.
- \_\_\_\_\_ 10. My feelings are easily hurt when I feel that others do not accept me.
- \_\_\_\_\_ 11. When someone criticizes Central Michigan University (CMU), it feels like a personal insult.
- \_\_\_\_\_ 12. When I talk about CMU, I usually say 'we' rather than 'they'.
- \_\_\_\_\_ 13. When someone praises CMU, it feels like a personal compliment.
- \_\_\_\_\_ 14. I feel a sense of pride about CMU.
- \_\_\_\_\_ 15. CMU's successes are my successes.
- \_\_\_\_\_ 16. I plan to complete my degree at CMU.
- \_\_\_\_\_ 17. Having a satisfying social experience at CMU (e.g. making friends, dating, and participating in campus organizations) is as important to me as having a successful academic experience.
- \_\_\_\_\_ 18. I feel pressure to hang out or participate in social activities instead of studying or attending class.
- \_\_\_\_\_ 19. Social support from friends or family members has been important to my success as a student.
- \_\_\_\_\_ 20. Do you feel you belong on campus?

**For each of the statements below, indicate the degree to which you are satisfied that CMU has met your expectation by writing a number in the space beside the question using the scale below:**

- 1 = Not satisfied at all
- 2 = Somewhat dissatisfied
- 3 = Neutral
- 4 = Somewhat satisfied
- 5 = Very satisfied

- \_\_\_ 1. CMU staff are caring and helpful.
- \_\_\_ 2. CMU is safe and secure for all students.
- \_\_\_ 3. Administrators are available to hear students' concerns.
- \_\_\_ 4. Most students feel a sense of belonging here.
- \_\_\_ 5. Faculty are fair and unbiased in their treatment of individual students.
- \_\_\_ 6. Students made me feel welcome here.
- \_\_\_ 7. I can easily get involved in campus organizations.
- \_\_\_ 8. The quality of instruction I received in most of my classes is excellent.
- \_\_\_ 9. There is a strong commitment to diversity at CMU.
- \_\_\_ 10. It is an enjoyable experience to be a student at CMU.
- \_\_\_ 11. Students are free to express their ideas at CMU.
- \_\_\_ 12. On the whole, CMU is well-maintained.

**Please create a list of your five to seven people with whom you have frequent and meaningful contact. Please list first name and last initial and avoid any identifying information. Please also list whether that individual is on or off campus. For example, Barry P. (on-campus).**

[[Open response box]]

**For the following items, please choose the one response that best applies to you.**

Approximately how frequently do you receive social support from friends or family from home?

- \_\_\_ Very rarely (once a month or less)
- \_\_\_ Rarely (a couple times per month)
- \_\_\_ Somewhat frequently (once a week)
- \_\_\_ Frequently (multiple times per week)
- \_\_\_ Very frequently (daily or most days)

Approximately how frequently do you receive social support from friends, staff or faculty on campus?

- \_\_\_ Very rarely (once a month or less)
- \_\_\_ Rarely (a couple times per month)
- \_\_\_ Somewhat frequently (once a week)

Frequently (multiple times per week)

Very frequently (daily or most days)

To what extent has your experience at CMU met your expectations?

Much worse than I expected

Worse than I expected

About what I expected

Better than I expected

Much better than I expected

Rate your overall satisfaction with your experience here thus far?

Not satisfied at all

Somewhat dissatisfied

Neither satisfied or dissatisfied

Somewhat satisfied

Very satisfied

If you had it to do over again, would you enroll here?

Definitely not

Maybe not

I don't know

Maybe yes

Definitely yes

How often do you participate in study groups or other social academic opportunities?

Never

Rarely

Somewhat frequently

Frequently

Did you transfer to this college from another institution?

Yes       No

Do you plan to transfer to another institution?

Yes       No

How many people did you know on campus when you arrived? \_\_\_\_\_

**[[Note – this page at the end of instrument]]** Demographic Information [choose the option that best describes you]

**Gender**     Male       Female       Transgender

**Age** \_\_\_\_\_

**Sexual Orientation** \_\_\_\_\_

**Ethnicity**

African-American     American Indian or Alaskan Native     Asian or Pacific Islander

Caucasian/White     Hispanic     Other

**Current Class Load**

Full-time     Part-time

**What is your current or estimated GPA**

1.99 or below       2.0-2.49       2.5-2.99  
 3.0-3.49       3.5 or above

**Estimate the distance from your home to CMU**

< 5 miles     6-20 miles     21-50 miles     51-150 miles     > 150

**How frequently go home?**

More than once a week     About one a week     Every couple weeks     Once a month  
 Once every couple months     Only on university breaks

**Current Residence**

Residence hall  
 Fraternity / Sorority  
 Own house  
 Rent room or apartment off campus  
 Parents home  
 Other

**Thank you for your participation!**

## Complete Survey (Time 2)

**Instructions:** Please now think about how you **currently feel**. For each of the statements below, indicate the degree to which you agree or disagree with the statement by writing a number in the space beside the question using the scale below:

- 1 = Strongly disagree
- 2 = Moderately disagree
- 3 = Neither agree nor disagree
- 4 = Moderately agree
- 5 = Strongly agree

- \_\_\_\_\_ 1. If other people don't seem to accept me, I don't let it bother me.
- \_\_\_\_\_ 2. I try hard not to do things that will make other people avoid or reject me.
- \_\_\_\_\_ 3. I seldom worry about whether other people care about me.
- \_\_\_\_\_ 4. I need to feel that there are people I can turn to in times of need.
- \_\_\_\_\_ 5. I want other people to accept me.
- \_\_\_\_\_ 6. I do not like being alone.
- \_\_\_\_\_ 7. Being apart from my friends for long periods of time does not bother me.
- \_\_\_\_\_ 8. I have a strong need to belong.
- \_\_\_\_\_ 9. It bothers me a great deal when I am not included in other people's plans.
- \_\_\_\_\_ 10. My feelings are easily hurt when I feel that others do not accept me.
- \_\_\_\_\_ 11. When someone criticizes Central Michigan University (CMU), it feels like a personal insult.
- \_\_\_\_\_ 12. When I talk about CMU, I usually say 'we' rather than 'they'.
- \_\_\_\_\_ 13. When someone praises CMU, it feels like a personal compliment.
- \_\_\_\_\_ 14. I feel a sense of pride about CMU.
- \_\_\_\_\_ 15. CMU's successes are my successes.
- \_\_\_\_\_ 16. I plan to complete my degree at CMU.
- \_\_\_\_\_ 17. Having a satisfying social experience at CMU (e.g. making friends, dating, and participating in campus organizations) is as important to me as having a successful academic experience.
- \_\_\_\_\_ 18. I feel pressure to hang out or participate in social activities instead of studying or attending class.
- \_\_\_\_\_ 19. Social support from friends or family members has been important to my success as a student.
- \_\_\_\_\_ 20. Do you feel you belong on campus?

**For each of the statements below, indicate the degree to which you are satisfied that CMU has met your expectation by writing a number in the space beside the question using the scale below:**

- 1 = Not satisfied at all  
 2 = Somewhat dissatisfied  
 3 = Neutral  
 4 = Somewhat satisfied  
 5 = Very satisfied

- \_\_\_ 1. CMU staff are caring and helpful.
- \_\_\_ 2. CMU is safe and secure for all students.
- \_\_\_ 3. Administrators are available to hear students' concerns.
- \_\_\_ 4. Most students feel a sense of belonging here.
- \_\_\_ 5. Faculty are fair and unbiased in their treatment of individual students.
- \_\_\_ 6. Students made me feel welcome here.
- \_\_\_ 7. I can easily get involved in campus organizations.
- \_\_\_ 8. The quality of instruction I received in most of my classes is excellent.
- \_\_\_ 9. There is a strong commitment to diversity at CMU.
- \_\_\_ 10. It is an enjoyable experience to be a student at CMU.
- \_\_\_ 11. Students are free to express their ideas at CMU.
- \_\_\_ 12. On the whole, CMU is well-maintained.

**Please create a list of your five to seven people with whom you have frequent and meaningful contact. Please list first name and last initial and avoid any identifying information. Please also list whether that individual is on or off campus. For example, Barry P. (on-campus).**

[[Open response box]]

**For the following items, please choose the one response that best applies to you.**

Approximately how frequently do you receive social support from friends or family from home?

- \_\_\_ Very rarely (once a month or less)  
 \_\_\_ Rarely (a couple times per month)  
 \_\_\_ Somewhat frequently (once a week)  
 \_\_\_ Frequently (multiple times per week)  
 \_\_\_ Very frequently (daily or most days)

Approximately how frequently do you receive social support from friends, staff or faculty on campus?

- \_\_\_ Very rarely (once a month or less)  
 \_\_\_ Rarely (a couple times per month)  
 \_\_\_ Somewhat frequently (once a week)  
 \_\_\_ Frequently (multiple times per week)  
 \_\_\_ Very frequently (daily or most days)

To what extent has your experience at CMU met your expectations?

- Much worse than I expected
- Worse than I expected
- About what I expected
- Better than I expected
- Much better than I expected

Rate your overall satisfaction with your experience here thus far?

- Not satisfied at all
- Somewhat dissatisfied
- Neither satisfied or dissatisfied
- Somewhat satisfied
- Very satisfied

If you had it to do over again, would you enroll here?

- Definitely not
- Maybe not
- I don't know
- Maybe yes
- Definitely yes

How often do you participate in study groups or other social academic opportunities?

- Never
- Rarely
- Somewhat frequently
- Frequently

Did you transfer to this college from another institution?

- Yes
- No

Do you plan to transfer to another institution?

- Yes
- No

What is your current class load?

- Full-time
- Part-time

**Thank you for your participation!**

## Appendix B

### Email Communications

Dear Student,

My name is Justin Heinze and I am currently pursuing a doctoral degree in Educational Psychology at the University of Illinois-Chicago. I am particularly interested in how new college students adapt to their environments.

As part of my doctoral program I have to conduct a research project related to my interests in education. My project is on how student belonging needs can affect the way students experience their environment during the transition to college (**UIC IRB#: 2010-1025**).

Participation in the project involves filling out three surveys over the course of the next six months. Each survey will be completed online and should take 10-15 minutes. The survey contains information regarding how you view your social environment and whether those views change over the course of your first two semesters. In particular, I am interested in how students respond to changing social networks as they meet new people on campus. Participation in the project is completely voluntary. Additionally, if you do participate, your answers will be completely confidential and anonymous. You will not be asked to put your name anywhere on the questionnaire. You will only be identified by a participant number. Information regarding your specific responses will not be shared with any other students, faculty or staff at Central Michigan, nor printed in any written materials.

You must be a first year student enrolled in courses at Central Michigan University to participate in this research. If you are not a first year student enrolled in courses at Central Michigan University, please disregard this email. If you are willing to participate, please click on the first web link in this email and read the consent information carefully. The second web link will take you to the survey. If at any time you choose to stop, you may do so without penalty. As a thank you for your participation, after each survey collection I will raffle off four \$25 gift certificates. These prizes can be collected at the First Year Experience office in Lazerlere Hall, Room 100.

**Link One (Consent Information):** **[[Survey Monkey Link to Appear Here]]**

**Link Two (Survey):** **[[Survey Link to Appear Here]]**

Thank you in advance for your time and consideration.

Sincerely,

Justin Heinze  
Doctoral Candidate  
Department of Educational Psychology  
University of Illinois-Chicago



## Data Collection 2

Dear Student,

Thank you for your continued participation in this research project (**UIC IRB#: 2010-1025**). This survey will be completed online and should take 10-15 minutes. The survey contains information regarding how you view your social environment and whether those views change over the course of your first two semesters. In particular, I am interested in how students respond to changing social networks as they meet new people on campus. Participation in the project is completely voluntary and your answers will be completely confidential and anonymous. Information regarding your specific responses will not be shared with any other students, faculty or staff at Central Michigan, nor printed in any written materials.

Please click on the first web link in this email to access the survey. If at any time you choose to stop, you may do so without penalty.

If you no longer wish to participate, please reply to this email with the subject line: "DO NOT WISH TO PARTICIPATE" and you will not be contacted for further data collections. **If you are no longer enrolled in courses at Central Michigan University, you may not participate in this study – please disregard this email.**

**Link One (Consent Information):** [\[\[Survey Monkey Link to Appear Here\]\]](#)

**Link Two (Survey):** [\[\[Survey Link to Appear Here\]\]](#)

Thank you in advance for your time and consideration.

Sincerely,

Justin Heinze  
Doctoral Candidate  
Department of Educational Psychology  
University of Illinois-Chicago

## Appendix C

### Consent Information

**University of Illinois at Chicago**  
**Research Information and Consent for Participation in Social Behavioral Research**  
**Student Belonging and Transitions Study**

You are being asked to participate in a research study. This study is being conducted by investigators at UIC. Researchers are required to provide a consent form such as this one to tell you about the research, to explain that taking part is voluntary, to describe the risks and benefits of participation, and to help you to make an informed decision. You should feel free to ask the researchers any questions you may have.

Principal Investigator Name and Title: Justin Heinze  
Department and Institution: Educational Psychology, University of Illinois-Chicago  
Address and Contact Information:  
Educational Psychology  
College of Education  
1040 W. Harrison St.  
Chicago, Illinois 60607

#### **Why am I being asked?**

You are being asked to be a subject in a research study about student belonging and satisfaction. You will be asked questions about your experience at Central Michigan University (CMU). The research seeks to investigate whether feelings of belonging can color a person's perceptions of his or her social environment.

You have been asked to participate in the research because you are a CMU student currently in your first year and are eligible to take part.

Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future dealings with the Central Michigan University. If you decide to participate, you are free to withdraw at any time without affecting that relationship. If you choose not to participate, declining participation will not affect your current or future dealings with UIC, as well as Central Michigan University.

**Approximately 250 subjects may be involved in this research at CMU.**

#### **What is the purpose of this research?**

Researchers are trying to learn more about whether certain motivation and social experiences affect attitudes and feelings toward the campus in general.

### **What procedures are involved?**

This research will be performed through three online surveys. You will need access to a computer to participate in the study. Filling out the materials will take about 10-15 minutes.

The study procedures are responding to a questionnaire.

### **What are the potential risks and discomforts?**

You may become uncomfortable responding to questions about your campus experience. However, to the best of our knowledge, the things you will be doing have no more risk of harm than you would experience in everyday life.

### **Are there benefits to taking part in the research?**

You will not directly benefit from participation in the research. This study is not designed to benefit you directly. This study is designed to learn more about student satisfaction. Taking part in this research study may not benefit you personally, but we [researchers] may learn new things that will help others.

### **What other options are there?**

You have the option to not participate in this study.

### **What about privacy and confidentiality?**

The people who will know that you are a research subject are members of the research team. Data once collected will be stored in a secure office. All efforts will be made to eliminate any identifiers within study materials and no written record of your participation will be kept. Your contact information will be kept solely for future data collection and for the purposes of the raffle prize. At no point will your responses be matched with your contact information. Please note that electronic communications and data collection can never be guaranteed to be 100% secure, but subject confidentiality will be protected to the extent technologically possible. If at any point you decide not to participate, or after all data collection is complete and final raffle prizes have been distributed, all contact information will be deleted.

With this research, certain risks of a breach of privacy (others may find out the subject is participating in research) and/or confidentiality (others may find out information about the subject disclosed or collected during the research) exist. All efforts will be made to maintain your privacy and confidentiality.

**Will I be reimbursed for any of my expenses or paid for my participation in this research?**

You will not be offered payment for being in this study, however, all participants will be eligible to win one of two raffle prizes (\$25) after each data collection.

**Can I withdraw or be removed from the study?**

If you decide to participate, you are free to withdraw your consent and discontinue participation at any time. At any time if you feel uncomfortable or otherwise wish to stop participating, please close the website and send an email to the researcher indicating your decision to discontinue. There are no consequences for withdrawing at any time.

**Who should I contact if I have questions?**

Contact the researchers Justin Heinze at [jheinze2@uic.edu](mailto:jheinze2@uic.edu) or Stacey Horn (**doctoral advisor of the lead investigator**) at [sshorn@uic.edu](mailto:sshorn@uic.edu).

**What are my rights as a research subject?**

If you feel you have not been treated according to the descriptions in this form, or if you have any questions about your rights as a research subject, including questions, concerns, complaints, or to offer input, you may call the Office for the Protection of Research Subjects (OPRS) at 312-996-1711 or 1-866-789-6215 (toll-free) or e-mail OPRS at [uicirb@uic.edu](mailto:uicirb@uic.edu).

**Remember:**

Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University. If you decide to participate, you are free to withdraw at any time without affecting that relationship. **Declining to participate will not affect potential subject's current or future dealings with UIC, as well as Central Michigan University.**

## **Appendix D**

### Debriefing Form

# **Debriefing Form**

Thank you for participating in this study.

The purpose of this research is to examine whether feelings of belonging moderate successful acclimation and adjustment to a new social context (in this case, the transition to a new college environment). Prior research (Baumeister & Leary, 1995) suggests that people have an innate motivation to belong – that is, to form and maintain relationships with others. This study seeks to extend belonging literature and determine whether reported levels of belonging are related to identification with the institution, academic commitment, involvement on campus, and academic success and persistence.

## Appendix E Measures

Key: T1 = Data collection time 1.

### Global Need to Belong (T1 only)

- \_\_\_\_\_ 1. Relationships take too much energy for me.
- \_\_\_\_\_ 2. It is import to me that I fit somewhere in this world.
- \_\_\_\_\_ 3. I am working on fitting in better with those around me.
- \_\_\_\_\_ 4. I want to be part of things going on around me.
- \_\_\_\_\_ 5. All my life I have wanted to feel like I really belonged somewhere.
- \_\_\_\_\_ 6. I just don't feel like getting involved with people.
- \_\_\_\_\_ 7. In the past, I have felt valued and important to others.

### First Month on Campus Belonging Needs (T1 only)

[[Note: The following instructions appear before the measures]] For the following questions, please try to remember your first month on campus when responding.

- \_\_\_\_\_ 1. If other people didn't seem to accept me, it bothered me.
- \_\_\_\_\_ 2. I tried hard not to do things that would make other people avoid or reject me.
- \_\_\_\_\_ 3. I worried about whether other people cared about me.
- \_\_\_\_\_ 4. I needed to feel that there were people I could turn to in times of need.
- \_\_\_\_\_ 5. I wanted other people to accept me.
- \_\_\_\_\_ 6. I did not like being alone.
- \_\_\_\_\_ 7. Being apart from my friends for long periods of time bothered me.
- \_\_\_\_\_ 8. I had a strong need to belong.

### Current Belonging Needs (T1 & T2)

- \_\_\_\_\_ 1. If other people don't seem to accept me, I don't let it bother me.
- \_\_\_\_\_ 2. I try hard not to do things that will make other people avoid or reject me.
- \_\_\_\_\_ 3. I seldom worry about whether other people care about me.
- \_\_\_\_\_ 4. I need to feel that there are people I can turn to in times of need.

- \_\_\_\_\_ 5. I want other people to accept me.
- \_\_\_\_\_ 6. I do not like being alone.
- \_\_\_\_\_ 7. Being apart from my friends for long periods of time does not bother me.
- \_\_\_\_\_ 8. I have a strong need to belong.
- \_\_\_\_\_ 9. It bothers me a great deal when I am not included in other people's plans.
- \_\_\_\_\_ 10. My feelings are easily hurt when I feel that others do not accept me.

### **Have Belonging Needs Been Met**

- \_\_\_\_\_ 1. Did you feel that you belonged during your first month at Central Michigan? (T1)
- \_\_\_\_\_ 1. Do you feel you belong on campus? (T2 & T3)

### **Campus Satisfaction (T1 & T2)**

- \_\_\_\_\_ 1. CMU staff are caring and helpful.
- \_\_\_\_\_ 2. CMU is safe and secure for all students.
- \_\_\_\_\_ 3. Administrators are available to hear students' concerns.
- \_\_\_\_\_ 4. Most students feel a sense of belonging here.
- \_\_\_\_\_ 5. Faculty are fair and unbiased in their treatment of individual students.
- \_\_\_\_\_ 6. Students made me feel welcome here.
- \_\_\_\_\_ 7. I can easily get involved in campus organizations.
- \_\_\_\_\_ 8. The quality of instruction I received in most of my classes is excellent.
- \_\_\_\_\_ 9. There is a strong commitment to diversity at CMU.
- \_\_\_\_\_ 10. It is an enjoyable experience to be a student at CMU.
- \_\_\_\_\_ 11. Students are free to express their ideas at CMU.
- \_\_\_\_\_ 12. On the whole, CMU is well-maintained.

To what extent has your experience at CMU met your expectations?

- \_\_\_\_\_ Much worse than I expected
- \_\_\_\_\_ Worse than I expected
- \_\_\_\_\_ About what I expected
- \_\_\_\_\_ Better than I expected
- \_\_\_\_\_ Much better than I expected

Rate your overall satisfaction with your experience here thus far?

- \_\_\_\_\_ Not satisfied at all
- \_\_\_\_\_ Somewhat dissatisfied

- Neither satisfied or dissatisfied  
 Somewhat satisfied  
 Very satisfied

### **Social Network Support (T1 & T2)**

\_\_\_\_\_ 1. Social support from friends or family members has been important to my success as a student.

Approximately how frequently do you receive social support from friends or family from home?

- Very rarely (once a month or less)  
 Rarely (a couple times per month)  
 Somewhat frequently (once a week)  
 Frequently (multiple times per week)  
 Very frequently (daily or most days)

Approximately how frequently do you receive social support from friends, staff or faculty on campus?

- Very rarely (once a month or less)  
 Rarely (a couple times per month)  
 Somewhat frequently (once a week)  
 Frequently (multiple times per week)  
 Very frequently (daily or most days)

How many people did you know on campus when you arrived? \_\_\_\_\_ (T1 only)

### **Social Network Location (T1 & T2)**

Estimate the distance from your home to CMU

< 5 miles     6-20 miles     21-50 miles     51-150 miles     > 150

Current Residence

- Residence hall  
 Fraternity / Sorority  
 Own house  
 Rent room or apartment off campus  
 Parents home  
 Other

How frequently go home?

More than once a week     About one a week     Every couple weeks     Once a month  
 Once every couple months     Only on university breaks     Rarely or never go home

Please create a list of your five to seven people with whom you have frequent and meaningful contact. Please list first name and last initial and avoid any identifying information. Please also list whether that individual is on or off campus. For example, Barry P. (on-campus). [[Open response box]]

### **Campus Identification Items (T1 & T2)**

- \_\_\_\_\_ 1. When someone criticizes Central Michigan University (CMU), it feels like a personal insult.  
 \_\_\_\_\_ 2. When I talk about CMU, I usually say 'we' rather than 'they'.  
 \_\_\_\_\_ 3. When someone praises CMU, it feels like a personal compliment.  
 \_\_\_\_\_ 4. I feel a sense of pride about CMU.



5. CMU's successes are my successes.

### **Academic Success (T1 & T2)**

What is your current or estimated GPA?

1.99 or below       2.0-2.49       2.5-2.99

3.0-3.49       3.5 or above

Do you plan to transfer to another institution?

Yes       No

Are/Will you enrolled/enroll in classes at Central Michigan next semester?

Yes       No

### **Academic Commitment (T1 & T2)**

1. I feel pressure to hang out or participate in social activities instead of studying or attending class.

2. Having a satisfying social experience at CMU (e.g. making friends, dating, and participating in campus organizations) is as important to me as having a successful academic experience.

3. I plan to complete my degree at CMU.

I feel pressure to hang out or participate in other social activities instead of studying or attending class?

Definitely not

Maybe not

I don't know

Maybe yes

Definitely yes

How often do you participate in study groups or other social academic opportunities?

Never

Rarely

Somewhat frequently

Frequently

How often do you visit office hours or ask for help from faculty outside of class?

Never

Rarely

Somewhat frequently

Frequently

If you had it to do over again, would you enroll here?

Definitely not

Maybe not

I don't know

Maybe yes

Definitely yes

Did you transfer to this college from another institution?

Yes       No

**Demographic Information (T1 unless otherwise indicated)**

**Gender**    Male     Female     Transgender

**Age** \_\_\_\_\_

**Sexual Orientation** \_\_\_\_\_

**Ethnicity**

African-American     American Indian or Alaskan Native     Asian or Pacific Islander

Caucasian/White     Hispanic     Other

**Current Class Load (T1, & T2)**

Full-time     Part-time

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Table 1

*Summary of exploratory factor analysis for Global Belonging (N = 213)*

Item	Rotated Factor Loadings	
	Finding fit and belonging	Relationships and involvement with others
Relationships take too much energy for me. (reverse coded)	-.026	<b>.694</b>
It is important to me that I fit somewhere in this world.	<b>.736</b>	-.005
I am working on fitting in better with those around me.	<b>.789</b>	-.010
I want to be a part of things going on around me.	<b>.593</b>	.408
All my life I have wanted to feel like I really belonged somewhere.	<b>.763</b>	-.212
I just don't feel like getting involved with people. (reverse coded)	.186	<b>.835</b>
In the past, I have felt valued and important to others.	-.264	<b>.467</b>
Eigenvalues	2.22	1.60
% of variance	31.49	22.98
$\alpha$	.71	.48

Table 2

*Global Belonging Component Score Coefficient Matrix*

Item	Component	
	Finding fit and belonging	Relationships and involvement with others
Relationships take too much energy for me.	-.028	.433
It is important to me that I fit somewhere in this world.	.335	-.020
I am working on fitting in better with those around me.	.359	-.025
I want to be a part of things going on around me.	.260	.240
All my life I have wanted to feel like I really belonged somewhere.	.352	-.150
I just don't feel like getting involved with people.	.065	.516
In the past, I have felt valued and important to others.	-.131	.297

*Note.* Extraction method Principal Components Analysis with varimax rotation.

Table 3

*Summary of Stepwise Regression Analysis for Variables Predicting Satisfaction and Adjustment at Mid-Year*

Variable	B	SE B	$\beta$	$\Delta R^2$
Step 1				$R^2 = .352$
Need to Belong 1 <sup>st</sup> Month	0.13	.067	.189	
Need to Belong Mid-Year	-0.13	.079	-.159	
Finding fit/belonging	0.06	.037	.111	
Relationships/Involvement with others	0.04	.035	.074	
Reported Belonging 1 <sup>st</sup> Month	0.09	.034	.203**	
Reported Belong Mid-Year	0.16	.045	.316**	
General Feelings of Belonging	0.04	.050	.069	
Step 2				$\Delta R^2 = -.002$
Need to Belong 1 <sup>st</sup> Month	.130	.067	.192	
Need to Belong Mid-Year	-.135	.078	-.167	
Finding fit/belonging	.056	.037	.107	
Relationships/Involvement with others	.045	.034	.084	
Reported Belonging 1 <sup>st</sup> Month	.098	.033	.218**	
Reported Belong Mid-Year	.174	.037	.356**	
Step 3				$\Delta R^2 = -.01$
Need to Belong 1 <sup>st</sup> Month	.139	.066	.206*	
Need to Belong Mid-Year	-.141	.078	-.174	
Finding fit/belonging	.051	.037	.098	
Reported Belonging 1 <sup>st</sup> Month	.103	.033	.228**	
Reported Belong Mid-Year	.189	.036	.386**	
Step 4				$\Delta R^2 = -.01$
Need to Belong 1 <sup>st</sup> Month	.159	.065	.236*	
Need to Belong Mid-Year	-.117	.077	-.145	
Reported Belonging 1 <sup>st</sup> Month	.104	.033	.231**	
Reported Belong Mid-Year	.193	.035	.394**	
Step 5				$\Delta R^2 = -.01$
Need to Belong 1 <sup>st</sup> Month	.081	.040	.120*	
Reported Belonging 1 <sup>st</sup> Month	.103	.033	.227**	
Reported Belong Mid-Year	.192	.036	.392**	

Note. \* $p < .05$ . \*\* $p < .01$

Table 4

*Summary of Stepwise Regression Analysis for Variables Predicting Satisfaction and Adjustment at Year-end*

Variable	B	SE B	$\beta$	$\Delta R^2$
Step 1				$R^2 = .28$
Need to Belong 1 <sup>st</sup> Month	0.43	0.12	0.06	
Need to Belong Mid-Year	-0.09	0.14	0.21	
Need to Belong Year-End	0.19	0.14	0.21	
Finding fit/belonging	-0.04	0.06	-0.08	
Relationships/Involvement with others	0.12	0.06	0.23*	
Reported Belonging 1 <sup>st</sup> Month	-0.26	0.05	-0.06	
Reported Belong Mid-Year	-0.03	0.08	-0.06	
Reported Belonging Year End	0.23	0.07	0.43**	
Step 2				$\Delta R^2 = -.001$
Need to Belong Mid-Year	-0.06	0.12	-0.08	
Need to Belong Year-End	0.19	0.13	0.22	
Finding fit/belonging	-0.03	0.06	-0.07	
Relationships/Involvement with others	0.12	0.06	0.24*	
Reported Belonging 1 <sup>st</sup> Month	-0.03	0.05	-0.07	
Reported Belong Mid-Year	-0.03	0.08	-0.06	
Reported Belong Year-End	0.23	0.08	-0.06**	
Step 3				$\Delta R^2 = -.002$
Need to Belong Mid-Year	-0.07	0.12	-0.09	
Need to Belong Year-End	0.20	0.13	0.23	
Finding fit/belonging	-0.04	0.06	-0.08	
Relationships/Involvement with others	0.11	0.05	0.23*	
Reported Belonging 1 <sup>st</sup> Month	-0.03	0.05	-0.08	
Reported Belong Year-End	0.22	0.06	0.40**	
Step 4				$\Delta R^2 = -.003$
Need to Belong Year-End	0.16	0.11	0.18	
Finding fit/belonging	-0.05	0.06	-0.10	
Relationships/Involvement with others	0.11	0.05	.22*	
Reported Belonging 1 <sup>st</sup> Month	-0.03	0.05	-0.06	

(continued)

Table 4 (continued)

*Summary of Stepwise Regression Analysis for Variables Predicting Satisfaction and Adjustment at Year-end*

Variable	<i>B</i>	SE <i>B</i>	$\beta$	$\Delta R^2$
Step 5				$\Delta R^2 = -.003$
Need to Belong Year-End	0.17	0.11	0.20	
Finding fit/belonging	-0.05	0.06	-0.11	
Relationships/Involvement with others	0.10	0.05	0.20*	
Reported Belong Year-End	0.21	0.06	0.39**	
Step 6				$\Delta R^2 = -.008$
Need to Belong Year-End	0.12	0.09	0.14	
Relationships/Involvement with others	0.10	0.05	0.21*	
Reported Belong Year-End	0.21	0.06	0.39**	
Step 7				$\Delta R^2 = -.019$
Relationships/Involvement with others	0.10	0.05	0.20	
Reported Belong Year-End	0.22	0.06	0.41**	

*Note.* \* $p < .05$ . \*\* $p < .01$

Table 5

*Summary of Regression Analysis for Variables Proportion of On-campus relationships*

Variable	<i>B</i>	SE <i>B</i>	$\beta$	$R^2$
Need to Belong 1 <sup>st</sup> Month	-.03	.04	-.08	.10
Need to Belong Mid-Year	-.09	.05	-.24+	
Finding fit/belonging	.07	.02	.28*	
Relationships/Involvement with others	.03	.02	.12	
Reported Belonging 1 <sup>st</sup> Month	.01	.02	.05	
Reported Belong Mid-Year	.00	.02	.00	
Number of people known on-campus at matriculation	.01	.02	.06	

*Note.* \* $p < .05$ . \*\* $p < .01$ . +  $p =$



Table 6

*Summary of Regression Analysis for Variables Predicting Importance of Social Support to Success in Academics at mid-year*

Variable	<i>B</i>	SE <i>B</i>	$\beta$	$R^2$
Need to Belong 1 <sup>st</sup> Month	.47	.14	.39**	.14
Need to Belong Mid-Year	-.07	.16	-.05	
Finding fit/belonging	-.16	.08	-.17*	
Relationships/Involvement with others	.14	.07	.15*	
Reported Belonging 1 <sup>st</sup> Month	.09	.07	.11	
Reported Belong Mid-Year	.08	.08	.09	
Number of people known on-campus at matriculation	.04	.07	.05	

*Note.* \* $p < .05$ . \*\* $p < .01$

Table 7

*Summary of Regression Analysis for Variables Predicting On-Campus Support*

Variable	<i>B</i>	SE <i>B</i>	$\beta$	$R^2$
Need to Belong 1 <sup>st</sup> Month	.19	.17	.12	.15
Need to Belong Mid-Year	-.26	.20	-.14	
Finding fit/belonging	-.01	.10	-.01	
Relationships/Involvement with others	.14	.09	.12	
Reported Belonging 1 <sup>st</sup> Month	.15	.09	.15+	
Reported Belong Mid-Year	.20	.10	.18*	
Number of people known on-campus at matriculation	.10	.08	.09	

*Note.* \* $p < .05$ . \*\* $p < .01$ . +  $p =$

Table 8

*Summary of Stepwise Regression Analysis for Variables Predicting University Identification at Mid-Year*

Variable	<i>B</i>	SE <i>B</i>	$\beta$	$\Delta R^2$
Step 1				
Need to Belong 1 <sup>st</sup> Month	0.20	0.12	.15	$R^2 = .39$
Need to Belong Mid-Year	-0.06	0.14	-0.04	
Finding fit/belonging	0.07	0.07	0.08	
Relationships/Involvement with others	-0.03	0.06	-0.03	
Reported Belonging 1 <sup>st</sup> Month	0.11	0.06	0.13	
Reported Belong Mid-Year	0.45	0.09	0.02**	
General Feelings of Belonging	0.02	0.09	0.02	
Step 2				
				$\Delta R^2 = .000$
Need to Belong 1 <sup>st</sup> Month	0.20	0.12	0.15	
Need to Belong Mid-Year	-0.07	0.14	-0.05	
Finding fit/belonging	0.07	0.07	0.07	
Relationships/Involvement with others	-0.03	0.06	-0.03	
Reported Belonging 1 <sup>st</sup> Month	0.11	0.06	0.13	
Reported Belong Mid-Year	0.47	0.07	0.51**	
Step 3				
				$\Delta R^2 = -.001$
Need to Belong 1 <sup>st</sup> Month	0.19	0.12	0.15	
Need to Belong Mid-Year	-0.06	0.14	0.15	
Finding fit/belonging	0.08	0.07	0.08	
Reported Belonging 1 <sup>st</sup> Month	0.11	0.06	0.13	
Reported Belong Mid-Year	0.46	0.06	0.50**	
Step 4				
				$\Delta R^2 = .000$
Need to Belong 1 <sup>st</sup> Month	0.15	0.08	0.12	
Finding fit/belonging	0.07	0.07	0.07	
Reported Belonging 1 <sup>st</sup> Month	0.11	0.06	0.13	
Reported Belong Mid-Year	0.46	0.06	0.50**	
Step 5				
				$\Delta R^2 = -.004$
Need to Belong 1 <sup>st</sup> Month	0.20	0.07	0.16**	
Reported Belonging 1 <sup>st</sup> Month	0.11	0.06	0.13	
Reported Belong Mid-Year	0.46	0.6	0.50**	

Note. \* $p < .05$ . \*\* $p < .01$

Table 9

*Final Step Summary of Alternate (no first-month belonging needs) Stepwise Regression Analysis for Variables Predicting University Identification at Mid-Year*

Variable	<i>B</i>	SE <i>B</i>	$\beta$	$R^2$
Step 5				.38
Need to Belong 1 <sup>st</sup> Month	0.17	0.07	0.14*	
Reported Belong Mid-Year	0.54	0.05	0.58**	

*Note.* \* $p < .05$ . \*\* $p < .01$

Table 10

*Summary of Stepwise Regression Analysis for Variables Predicting University Identification at Year-End*

Variable	<i>B</i>	SE <i>B</i>	$\beta$	$\Delta R^2$
Step 1				$R^2 = .20$
Need to Belong 1 <sup>st</sup> Month	0.16	0.22	0.14	
Need to Belong Mid-Year	-0.07	0.26	-0.05	
Need to Belong Year-End	0.08	0.25	0.05	
Finding fit/belonging	0.04	0.12	0.05	
Relationships/Involvement with others	0.01	0.11	0.02	
Reported Belonging 1 <sup>st</sup> Month	-0.15	0.10	-0.20	
Reported Belong Mid-Year	0.24	0.15	0.26	
Reported Belong Year-End	0.20	0.13	0.21	
Step 2				$\Delta R^2 = .000$
Need to Belong 1 <sup>st</sup> Month	0.16	0.22	0.14	
Need to Belong Mid-Year	-0.07	0.26	-0.05	
Need to Belong Year-End	0.08	0.25	0.05	
Finding fit/belonging	0.04	0.12	0.05	
Reported Belonging 1 <sup>st</sup> Month	-0.15	0.10	-0.20	
Reported Belong Mid-Year	0.25	0.13	0.27	
Reported Belong Year-End	0.20	0.13	0.21	
Step 3				$\Delta R^2 = .000$
Need to Belong 1 <sup>st</sup> Month	0.13	0.18	0.11	
Need to Belong Year End	0.05	0.23	0.04	
Finding fit/belonging	0.04	0.11	0.05	
Reported Belonging 1 <sup>st</sup> Month	-0.14	0.09	-0.20	
Reported Belong Mid-Year	0.25	0.13	0.27	
Reported Belong Year-End	0.19	0.13	0.21	
Step 4				$\Delta R^2 = .000$
Need to Belong 1 <sup>st</sup> Month	0.15	0.16	0.13	
Finding fit/belonging	0.04	0.11	0.05	
Reported Belonging 1 <sup>st</sup> Month	-0.15	0.09	-0.20	
Reported Belong Mid-Year	0.24	0.13	0.27	
Reported Belong Year-End	0.20	0.12	0.21	

(continued)

Table 10

*Summary of Stepwise Regression Analysis for Variables Predicting University Identification at Year-End*

Variable	<i>B</i>	SE <i>B</i>	$\beta$	$\Delta R^2$
Step 5				$\Delta R^2 = -.01$
Need to Belong 1 <sup>st</sup> Month	0.19	0.13	0.16	
Reported Belonging 1 <sup>st</sup> Month	-0.15	0.09	-0.20	
Reported Belong Mid-Year	0.25	0.13	0.27	
Reported Belong Year-End	0.20	0.12	0.22	
Step 6				$\Delta R^2 = -.02$
Reported Belonging 1 <sup>st</sup> Month	-0.18	0.09	-0.25*	
Reported Belong Mid-Year	0.30	0.13	0.32*	
Reported Belong Year-End	0.18	0.12	0.19	
Step 7				$\Delta R^2 = -.02$
Reported Belonging 1 <sup>st</sup> Month	-0.17	0.09	-0.23	
Reported Belong Mid-Year	0.39	0.11	0.43**	

*Note.* \* $p < .05$ . \*\* $p < .01$

Table 11

*Summary of Regression Analysis for Variables Predicting GPA at Mid-Year*

Variable	<i>B</i>	SE <i>B</i>	$\beta$	$R^2$
Step 1				.06
Need to Belong 1 <sup>st</sup> Month	0.40	0.18	0.24*	
Need to Belong Mid-Year	-0.39	0.22	-0.21	
Finding fit/belonging	0.04	0.10	0.03	
Relationships/Involvement with others	-0.05	0.09	-0.04	
Reported Belonging 1 <sup>st</sup> Month	0.25	0.09	0.24**	
Reported Belong Mid-Year	-0.03	0.10	-0.03	

*Note.* \* $p < .05$ . \*\* $p < .01$

Table 12

*Summary of Regression Analysis for Variables Predicting Intentions to Complete Degree at Mid-Year*

Variable	<i>B</i>	SE <i>B</i>	$\beta$	$R^2$
Step 1				.33
Need to Belong 1 <sup>st</sup> Month	0.12	0.15	0.08	
Need to Belong Mid-Year	0.11	0.17	0.06	
Finding fit/belonging	-0.14	0.08	-0.13	
Relationships/Involvement with others	-0.11	0.07	-0.09	
Reported Belonging 1 <sup>st</sup> Month	0.06	0.07	0.06	
Reported Belong Mid-Year	0.57	0.08	0.55**	
Grade Point Average	0.11	0.06	0.11	

*Note.* \* $p < .05$ . \*\* $p < .01$



Table 13

*Summary of Regression Analysis for Variables Predicting Completing Degree at Year-End*

Variable	<i>B</i>	SE <i>B</i>	$\beta$	$\Delta R^2$
Need to Belong 1 <sup>st</sup> Month	0.16	0.23	0.12	.31
Need to Belong Mid-Year	0.00	0.27	0.00	
Need to Belong Year-End	0.01	0.26	0.00	
Finding fit/belonging	-0.12	0.13	-0.13	
Relationships/Involvement with others	-0.13	0.12	-0.14	
Reported Belonging 1 <sup>st</sup> Month	0.11	0.10	0.13	
Reported Belong Mid-Year	0.14	0.16	0.14	
Reported Belonging Year-End	0.41	0.14	0.39**	
Grade Point Average	0.18	0.10	0.20	

*Note.* \* $p < .05$ . \*\* $p < .01$

Table 14

*Summary of Regression Analysis for Variables Predicting Re-Enrollment at Mid-Year*

	<i>B</i>	SE <i>B</i>	$\beta$	$R^2$
Need to Belong 1 <sup>st</sup> Month	0.17	0.12	0.12	.55
Need to Belong Mid-Year	0.08	0.14	0.05	
Finding fit/belonging	-0.10	0.07	-0.01	
Relationships/Involvement with others	-0.12	0.06	-0.11*	
Reported Belonging 1 <sup>st</sup> Month	0.24	0.06	0.24**	
Reported Belong Mid-Year	0.62	0.07	0.59**	
Grade Point Average	0.04	0.05	0.04	

*Note.* \* $p < .05$ . \*\* $p < .01$

Table 15

*Summary of Regression Analysis for Variables Predicting Re-Enrollment at Year-End*

Variable	<i>B</i>	SE <i>B</i>	$\beta$	$R^2$
Need to Belong 1 <sup>st</sup> Month	-0.04	0.15	-0.03	.68
Need to Belong Mid-Year	0.32	0.18	0.23+	
Need to Belong Year-End	-0.21	0.17	-0.13	
Finding fit/belonging	-0.06	0.08	-0.06	
Relationships/Involvement with others	-0.07	0.08	-0.08	
Reported Belonging 1 <sup>st</sup> Month	-0.02	0.07	-0.03	
Reported Belong Mid-Year	0.11	0.10	0.12	
Reported Belong Year End	0.79	0.09	0.80**	
Grade Point Average	-0.06	0.06	-0.07	

*Note.* \* $p < .05$ . \*\* $p < .01$ . + $p = .07$

Table 16

*Summary of Regression Analysis for Variables Predicting Social Experience Import at Mid-Year*

Variable	<i>B</i>	SE <i>B</i>	$\beta$	$R^2$
Need to Belong 1 <sup>st</sup> Month	0.22	0.11	0.22+	.14
Need to Belong Mid-Year	-0.08	0.13	-0.07	
Finding fit/belonging	0.14	0.06	0.19*	
Relationships/Involvement with others	0.04	0.06	0.05	
Reported Belonging 1 <sup>st</sup> Month	0.07	0.06	0.11	
Reported Belong Mid-Year	0.06	0.06	0.08	
Grade Point Average	-0.05	0.04	-0.09	

*Note.* \* $p < .05$ . \*\* $p < .01$ . + $p = .056$

Table 17

*Summary of Regression Analysis for Variables Predicting Social Experience Import at Year-End*

Variable	<i>B</i>	SE <i>B</i>	$\beta$	$R^2$
Need to Belong 1 <sup>st</sup> Month	-0.03	0.18	-0.03	.33
Need to Belong Mid-Year	-0.33	0.21	-0.29	
Need to Belong Year-End	0.36	0.20	0.27+	
Finding fit/belonging	0.20	0.10	0.28*	
Relationships/Involvement with others	0.10	0.09	0.13	
Reported Belonging 1 <sup>st</sup> Month	0.08	0.08	0.12	
Reported Belong Mid-Year	-0.16	0.12	-0.20	
Reported Belong Year End	0.37	0.11	0.45**	
Grade Point Average	-0.07	0.08	-0.10	

*Note.* \* $p < .05$ . \*\* $p < .01$ . + $p = .09$

Table 18

*Changes in Need to Belong*

Effect	Unconditional Means Model			Model 1			Model 2			Model 3			Model 4			Model 5			Model 6			Model 7		
	$\beta$	<i>s.e.</i>	95% CI	$\beta$	<i>s.e.</i>	95% CI	$\beta$	<i>s.e.</i>	95% CI	$\beta$	<i>s.e.</i>	95% CI	$\beta$	<i>s.e.</i>	95% CI	$\beta$	<i>s.e.</i>	95% CI	$\beta$	<i>s.e.</i>	95% CI	$\beta$	<i>s.e.</i>	95% CI
Intercept	<b>3.28</b>	.04	3.20, 3.37	<b>3.39</b>	.05	3.29, 3.48	<b>3.39</b>	.05	3.28, 3.49	<b>3.40</b>	.05	3.30, 3.51	<b>3.11</b>	.65	1.82, 4.39	<b>3.39</b>	.05	3.30, 3.49	<b>3.39</b>	.05	3.31, 3.48	<b>3.43</b>	.08	3.28, 3.59
Time				<b>-.14</b>	.02	-.19, -0.10	<b>-.14</b>	.02	-.19, -0.09	<b>-.28</b>	.06	-.39, -0.17	<b>-.28</b>	.06	-.41, -0.15	<b>-.27</b>	.06	-.39, -0.16	<b>-.27</b>	.06	-.38, -0.16	<b>-.27</b>	.10	-.47, -0.07
Time <sup>2</sup>									<b>.08</b>	.03	.02, .14	<b>.07</b>	.03	.00, .14	<b>.08</b>	.03	.02, .14	<b>.07</b>	.03	.01, .13	<b>.07</b>	.05	-.03, .16	
Global Need													<b>.63</b>	.09	.45, .81	<b>.61</b>	.08	.46, .76						
Global Factor 1																			<b>.35</b>	.03	.28, .42	<b>.37</b>	.05	.27, .47
Global Factor 2																			<b>.02</b>	.03	-.05, .08			
Network Change																					<b>.35</b>	.26	-.17, .87	
People known													<b>-.05</b>	.22	-.64, .23									
Home Distance													<b>.05</b>	.05	-.05, .16									
Transfer													<b>-.20</b>	.22	-.64, .23									
Age													<b>-.08</b>	.07	-.21, .05									
Sexual Orientation													<b>.11</b>	.06	-.06, .27									
Ethnicity													<b>.09</b>	.06	-.02, .20									
Gender													<b>.15</b>	.10	-.04, .33									
Fit Indices																								
AIC	871.61			830.48			809.0			803.37			581.52			734.03			706.84			231.13		
-2Ln (Likelihood)	865.61			838.48			797.0			789.37			551.52			718.03			688.84			213.13		
Model Df	3			4			6			7			15			8			9			9		

Table 19

*Estimated Variances and Covariances of the Random Effects for the final NTB Model*

	Residual	Intercept	Time
Residual	.09 (.02)		
Intercept		.26 (.06)	
Time Slope		-.07	.03 (.02)
ARH1 rho	-.76 (.11)		

*Note.* Standard error in partheneses.

Table 20

*Have Belonging Needs Been Met*

	Unconditional Means Model			Model 1			Model 2			Model 3			Model 4			Model 5			Model 6			Model 7		
	$\beta$	s.e.	95% CI	$\beta$	s.e.	95% CI	$\beta$	s.e.	95% CI	$\beta$	s.e.	95% CI	$\beta$	s.e.	95% CI	$\beta$	s.e.	95% CI	$\beta$	s.e.	95% CI	$\beta$	s.e.	95% CI
Intercept	<b>3.95</b>	.07	3.81, 4.08	<b>3.83</b>	.07	3.68, 3.98	<b>3.83</b>	.08	3.67, 3.99	<b>3.81</b>	.08	3.65, 3.97	<b>3.85</b>	.08	3.69, 4.00	<b>3.50</b>	1.02	1.49, 5.51	<b>3.53</b>	.14	3.25, 3.81	<b>3.55</b>	.14	3.28, 3.82
Time				<b>.16</b>	.05	.07, .25	<b>.17</b>	.05	.07, .27	<b>.33</b>	.12	.09, .57	<b>.14</b>	.05	.03, .24	<b>.13</b>	.06	.01, .24	<b>.14</b>	.05	.03, .24	<b>.15</b>	.05	.05, .26
Time <sup>2</sup>										<b>-.10</b>	.07	-.23, .03												
Global Belong													<b>.81</b>	.14	.54, 1.08	<b>.71</b>	.15	.41, 1.01	<b>.82</b>	.14	.55, 1.08			
NTB													<b>-.22</b>	.08	-.38, -.05	<b>-.19</b>	.09	-.37, -.02	<b>-.21</b>	.08	-.37, -.05	<b>-.13</b>	.08	-.30, .03
Global Fac 1																						<b>.18</b>	.07	.04, .31
Global Fac 2																						<b>.39</b>	.06	.27, .50
Transfer															<b>.03</b>	.34	-.65, .70							
People known															<b>.09</b>	.07	-.04, .22							
Home Distance															<b>-.08</b>	.08	-.24, .09							
Gender															<b>.03</b>	.15	-.26, .33							
Age															<b>.21</b>	.10	.01, .42	<b>.22</b>	.08	.06, .39	<b>.21</b>	.08	.05, .36	
Sexual Orient															<b>.08</b>	.13	-.18, .34							
Ethnicity															<b>.00</b>	.09	-.18, .17							
Network Change																								
Model Fit																								
AIC			1445.65			1436.43			1430.10			1429.93			1373.68			1070.44			1329.01			1319.26
-2LL			1439.65			1428.43			1418.10			1415.93			1357.68			1040.44			1311.01			1299.26
Df			3			4			6			7			8			15			9			10



Table 20 (continued)

*Have Belonging Needs Been Met*

	Model 8			Model 9		
	$\beta$	s.e.	95% CI	$\beta$	s.e.	95% CI
Intercept	<b>3.92</b>	.24	3.45, 4.39	<b>4.02</b>	.12	3.78, 4.25
Time	<b>.13</b>	.08	-.02, .29	<b>.13</b>	.08	-.02, .29
Time <sup>2</sup>						
Global Belong NTB						
Global Fac 1	<b>.19</b>	.08	.03, .35	<b>.18</b>	.08	.02, .34
Global Fac 2	<b>.40</b>	.09	.22, .58	<b>.42</b>	.09	.24, .59
Transfer People know Home Distance Gender						
Age	<b>.07</b>	.14	-.22, .35			
Sexual Orient Ethnicity						
Network Change	<b>.98</b>	.41	.16, 1.80	<b>.99</b>	.41	.17, 1.81
Model Fit						
AIC		468.41			466.63	
-2LL		448.41			448.63	
Df		10			9	

Table 21

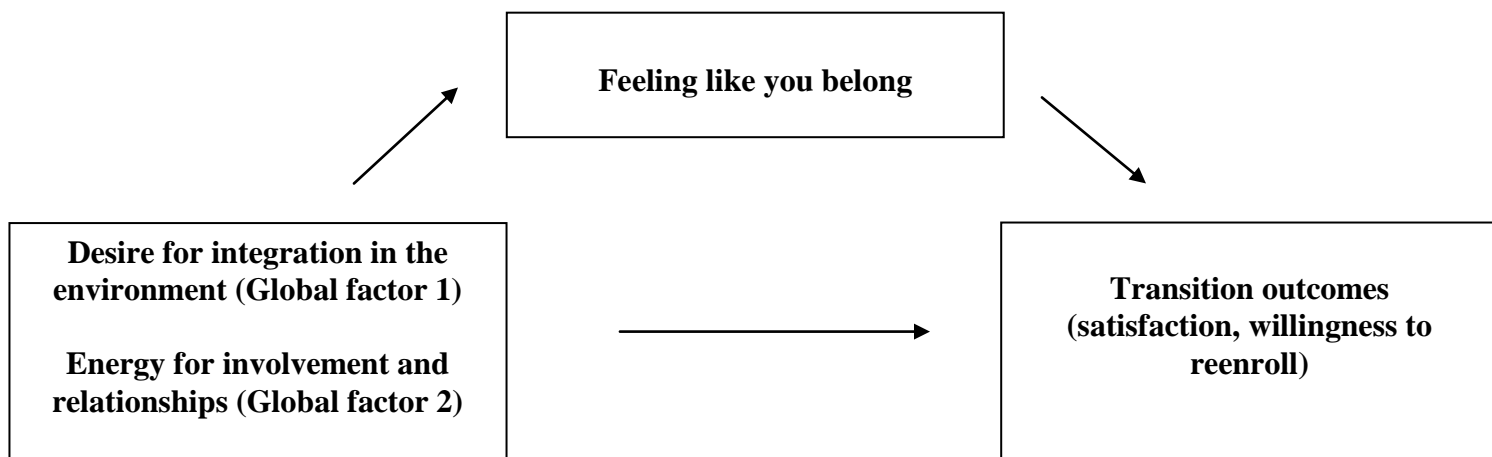
*Estimated Variances and Covariances of the Random Effects for the final NTB Model*

	Residual	Intercept	Time
Residual	.40 (.07)		
Intercept		.49 (.17)	
Time Slope		-.19	.17 (.08)
ARH1 rho	-.67 (.13)		

*Note.* Standard error in partheneses.

Figure 1

*Global belonging, feeling like you belong and transition outcomes.*



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### Education

Postdoctoral Research Associate (2011–present)  
 Center for Research on Learning and Teaching  
 University of Michigan

Ph.D., Educational Psychology (2006–2011)  
 University of Illinois, Chicago

Dissertation title: *Belonging, the Need to Belong and Social Transitions*

Advisor: Stacey Horn

Defense Date: August 19, 2011. Graduation: December, 2011

Pre-doctoral Fellowship (2009–2011)

Ford Motor Company Center for Global Citizenship, Kellogg School of Management  
 Northwestern University. Advisor: Daniel Diermeier

M.A., Higher Education Administration (2003–2004)  
 University of Michigan

B.A., Psychology, with honors (1999–2003)  
 University of Michigan

Thesis title: *The Effect of Winning or Losing a Contest on Power Motivation in Women.*

Advisor: Oliver Schultheiss

### Grants and Fellowships

SHARP Small Grant (\$15,000), Sports, Health and Activity Research and Policy Center for Women and Girls. “Who will pay for girls to play? Assessing the influence of individual and community-level factors on support for girls’ sports.

Pre-doctoral Research Fellow (\$24,000), Ford Motor Company Center for Global Citizenship, Northwestern University, Evanston, IL, May 2009 to August 2010. Advisor: Daniel Diermeier

### Peer Reviewed Publications

Horn, S.S. & Heinze, J.E. (2011). She can’t help it she’s born that way: Adolescents beliefs about the origins of homosexuality and sexual prejudice. *Annals of Psychology*, 27, 688-697.

Heinze, J.E. & Horn, S.S. (2009). Intergroup contact and beliefs about homosexuality in adolescents. *Journal of Youth and Adolescence*, 38, 937-951.

### **Book Chapters**

Horn, S. S., Drill, K., Heinze, J.E., Hochberg, M., & Frank, T. (2010). Development in grades six through eight. In T. Good (Ed.), *21st Century Education: A reference handbook*. Thousand Oaks, CA: Sage.

### **Manuscripts under Review and in Preparation**

Heinze, J.E., Uhlmann, E.L., & Diermeier, D.A. (2011). Private politics and public image. *Manuscript Under Review*.

Uhlmann, E.L., Tannenbaum, D., Heinze, J.E., Srinivasan, M., & Diermeier, D.A. (2011). The role of misanthropic social judgments in reputational crises. *Manuscript Under Review*.

Heinze, J.E. (2011). Social comparison and the need to belong: The moderating effect of belonging comparisons on environment satisfaction. Manuscript in preparation.

Heinze, K.L., Heinze, J.E. & Gulati, R. (2011). "Charting" to their full potential? Exploring physicians' adoption of electronic health records. Manuscript in preparation.

Niemer, R.K. & Heinze, J.E. (2011). CRLT Occasional Paper on Clinical Teaching Manuscript in Preparation.

### **Invited Talks and Conference Presentations**

Heinze, J.E. & Horn, S.S. (March 2010). She can't help it, she was born that way: Adolescents' beliefs about the origins of homosexuality and sexual prejudice. In P. Poteat & S.S. Horn (Chairs), *Correlates and Implications of Sexual Prejudice During Adolescence*. Symposium conducted at the Society for Research in Adolescence, Philadelphia, PA.

Heinze, J.E., Horn, S.S. & Hochberg, M.J. (April 2009). Proximal Contact With Out Lesbian and Gay Peers and Beliefs About Homosexuality in High School Students. In S.T. Russell (Chair), *Out in High School: Implications for Peer Groups and Adjustment*. Symposium conducted at the Society for Research in Child Development, Denver, CO.

Heinze, J.E., Hochberg, M.J. & Horn, S.S. (March 2008). *Intergroup contact and beliefs about homosexuality in college students*. Poster presentation at Society for Research in Adolescence conference, Chicago, IL.

## Teaching Case Development

### Published

Diermeier, D. & Heinze, J.E. (2007, May). Southwest Airlines. Kellogg School of Management, Case 5-107-001 (A, B, C).

Diermeier, D. Hermitage, J., Thaker, S. & Heinze, J.E. (2006, October). Reintroduce Thalidomide? Kellogg School of Management, Case 5-104-003 (A, B).

### In Progress

Diermeier, D., Heinze, J.E., & Fitzpatrick, M. (2011, April). Thomas the Tank Engine. Kellogg School of Management.

Diermeier, D., & Heinze, J.E. (2011, August). Huntingdon Life Sciences (A), (B) & (C). Kellogg School of Management.

## Teaching Experience

### \*Spring 2012

### University of Illinois-Chicago

Instructor: EPSY 512 Hierarchical Linear Models. Online graduate course in multi-level and growth curve modeling. \*Slated to teach in spring of 2012.\*

### August 2010 – December 2010 Chicago

### University of Illinois-

Instructor: EPSY 446 / PSCH 423 Characteristics of Early Adolescence. EPSY 446 / PSCH 423 in a four-credit hour undergraduate/graduate course providing an overview of the physiological, social, emotional, and cognitive development that occurs in early adolescence.

### June 2010 – July 2010 Chicago

### University of Illinois-

Instructor: ED 503 Essentials of Quantitative Inquiry in Education. ED 503 is a four-credit hour graduate course introducing parametric statistics. The course covers both descriptive and inferential statistical techniques to solve applied research problems.

### January 2010 – May 2010 September 2009 – December 2009 June 2009 – July 2009 January 2008 – May 2008

### University of Illinois-Chicago

Instructor: ED 210 The Educative Process. ED 210 is a three-credit hour undergraduate introductory course in educational psychology. The course introduces participants to the foundations of child and adolescent development and other psychological processes that are germane to teaching.

ED 210 Fall 2009 summary course evaluation (mean) results (N = 32; 1 = Exceptionally low, 3 = Average, 5 = Exceptionally high): Overall course rating: M = 4.5; Overall instructor effectiveness: M = 4.7.

ED 210 Spring 2008 summary course evaluation (mean) results (N = 23; 1 = Low, 5 = High): Overall course rating: M = 4.3; Overall instructor effectiveness: M = 4.7.

**September 2005 – January 2006**

**Northwestern University**

Instructor: Undergraduate Leadership Program. The undergraduate leadership program is a certificate program designed to promote student involvement on campus and educate campus student leaders. Responsibilities include guiding students and TAs through leadership curriculum. Observing and evaluating student development, grade weekly assignments and end of term project, and facilitate discussion labs. Supervise student TAs and assist them with lab development and prepare them to lead discussions for latter half of term.

### **Service**

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Developmental Psychology

Journal of Adolescence

Journal of Youth and Adolescence

## References

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