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Attachment's Role in Social Support and Mentoring: An Investigation among Collegiate Women

A Dissertation Presented

by

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Abstract of the Dissertation
Attachment's Role in Social Support and Mentoring:
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Recent years have seen a concerted effort to increase the number of women pursuing Science, Technology, Engineering and Mathematics (STEM) fields. Although one approach to retention of undergraduates in STEM fields has been formal mentoring programs, other channels, such as naturally occurring mentor relationships, have served to retain students in science and other disciplines as well. The current project investigated the interplay between attachment representations of close relationships, social support and mentor relationships. The first aim was to examine the relationship between attachment and general facets of social support. The second aim was to assess benefits of mentor relationships on social support and intrapersonal domains. Lastly, the third aim investigated the role of attachment in mentor relationships. One hundred and twelve undergraduate women, in STEM and non-STEM fields, participated in the study. Attachment representations were assessed using the Attachment Script Assessment, a recently developed narrative assessment measuring knowledge of and access to a secure base script, with correlates to the Adult Attachment Interview. I did not identify a relationship between

attachment and general social support measures. The social support measures, however, appeared to capture global aspects of support-provisions, and not relationship-specific perceptions of support. I found that mentored individuals reported a larger social support network than their non-mentored peers. Other differences were found along inter and intrapersonal domains. Notably, I found a positive relationship between secure base script knowledge and mentor-provided support. Support-provisions included personal and emotional guidance, advice and advocacy, among other domains. However, such patterns only emerged among Non-STEM protégés, a group that rated their mentor relationship as more important than STEM protégés. Taken together, these results suggest that secure base knowledge increases the extent to which protégés are able to use their mentor as a secure base from which to explore, but only in the context of a genuine close relationship. This project raises some issues and points to the continued use of attachment theory in understanding, forming, and evaluating mentor relationships. Recommendations for formal mentor initiatives, as well as future research directions, are discussed.

For my mother, Maria Dolores Alcazar, who instilled in me at an early age the sense of security needed to grow, explore, and gain mastery of the environment.

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True teachers are those who use themselves as bridges over which they invite their students to cross; then, having facilitated their crossing, joyfully collapse, encouraging them to create their own. -Nikos Kazantzakis, poet and novelist (1883-1957)

Introduction

Recent decades have seen a concerted effort to increase the number of students, particularly women, pursuing Science, Technology, Engineering, and Mathematics (STEM) fields. Although one approach to retention of undergraduates in STEM fields has been formal mentoring programs, other channels, such as naturally occurring mentor relationships, have served to retain students in science and other disciplines as well (Wilson, Iyengar, Pang, Warner, & Luces, 2012). The purpose of this study is to investigate the extent to which early experiences in relationships— that is, attachment representations— have influenced undergraduates' perceptions of social support in general and mentor-provided support in particular. Further, this study will investigate the role that mentors play on various self-esteem domains, perceived availability of social support, and size of social support network.

Developmental research has shown that the ways in which individuals cognitively represent intimate, close relationships and relate to people can vary systematically from one person to another. A relevant insight from attachment theory is the prototype hypothesis – the notion that early relationship experiences form a working model, or mental representation, of all future close relationships (Owens et al., 1995). Most of this work has focused on close relationships such as that between mother and child, and adult partners (Mikulincer & Shaver, 2007). For example, researchers have demonstrated that individuals familiar with attachment representations more readily use their romantic partners as a secure base from which to explore, than individuals with no such mental representations (Crowell et al., 2002; Owens et al., 1995).

More recently, a burgeoning literature has explored the ways in which attachment representations, which are developed early on and largely built from experience, correspond to another common close bond: mentor relationships (Larose, Bernier, & Soucy, 2005; Zevallos, Shephard, & Waters, 2007).

Attachment representations are assessed using a variety of instruments, ranging from the Adult Attachment Interview (AAI, (George, Kaplan, & Main, 1985; Main & Goldwyn, 1994)), which is considered the 'gold standard' of attachment research, to short descriptions of attachment styles in which participants are asked to identify which vignette best describes how they feel in regard to close relationships (Hazan & Shaver, 1987). The AAI, amongst other things, involves a series of open-ended questions about an individual's early experiences and relationship with parents. It can take over 90 minutes to administer, and requires transcription of interviews before it can be assessed by a trained scorer. Another method, recently developed, is a narrative assessment of attachment script representations and has been linked to adult security as assessed by the AAI. It has proven to be a good indicator of infant attachment security if the mother has high attachment script scores (H. S. Waters & Waters, 2006). Through word prompts that elicit stories organized around attachment-related scenarios, the narrative script assessment can determine how individuals represent their close relationships, and whether their experiences are organized around a secure base script (secure individuals). This approach has the advantage of both providing a more formal, cognitive based assessment than more open-ended type interviews and of being easily adapted to different ages and different types of relationships (Chen et al., 2013; Zevallos et al., 2007).

In recognizing a mentor relationship as akin to a secure base relationship, the current project will further expand attachment research in this domain. By acknowledging that much of

what mentors do is engage in caregiving behavior and provide various forms of support, the current project is additionally informed by the social support literature. By assessing the cognitive representations of close relationships of undergraduates in STEM and other fields, insights into their disposition toward seeking out, and general perceptions of, social support will be gained. I will also explore benefits of mentoring, as well as correlates of attachment with various facets of one's mentor relationship.

Attachment Theory

Attachment theory traces its roots to Bowlby's (1958) recognition of Freud's insights into the nature and significance of early relationships, and a reconceptualization of the infant's tie to its mother as a secure base relationship. Bowlby (1958) preserved Freud's key insight regarding the importance of early relationship experience on later development, but discarded the view of infants as needy, dependent, and motivated by drive reductions. As Bowlby's theoretical contemporaries, such as Jean Piaget, were demonstrating, children were anything but incompetent. In fact, Piaget viewed children as both mentally and physically active, and recognized this activity as directly contributing to their development (Piaget, 1936). Far from incompetency, direct observation confirmed infants to be skillful, curious, and interested in mastering their environment (Piaget, 1936). From such insights, the nature of the infants tie to its mother was no longer viewed as a source of drive-reductions, but rather as a relationship in which the infant uses their primary caregiver as a secure base from which to explore (E. Waters & Cummings, 2000). Additionally, the caregiver could serve as a haven of safety and a source of comfort for the infant when necessary.

Secure Base Concept & Maternal Sensitivity

The secure base concept serves as the bedrock of attachment theory and situates it as an

organizational construct (Sroufe & Waters, 1977). Thus, *to be attached* suggests the ability to preferentially use someone as a secure base from which to explore. Further, *secure attachment* indicates competent secure base use over time and across contexts, as well as confidence in the caregiver's availability and responsiveness (E. Waters & Cummings, 2000). The infant's confidence in the mother's availability allows him to undertake novel exploration of environments, so long as they can maintain communication and access to the secure base, whom is viewed as 'stronger and wiser,' available and responsive if called upon, competent enough to resolve problems that may arise, and provide safety when needed. Thus, the secure base phenomenon is thought to have two components: the ordinary component, where the secure base serves as a base and resource from which to explore; and the emergency function, in which the secure base responds to threat, injury, or overstimulation, and serves as a haven of safety (E. Waters & Cummings, 2000).

Bowlby's conceptualization of secure base use in attachment theory was initially based on informal observations of infants (Bowlby, 1958). However, his collaborator Mary Ainsworth made giant leaps for the theory by providing empirical support of his ideas, and formulating relevant concepts, namely maternal sensitivity. Ainsworth (1963, 1967) carried out observations of infant-mother interactions in Uganda that confirmed the secure base characterization of infant-mother relations. Ainsworth refined her method of longitudinal, naturalistic observations in Baltimore, where she systematically observed infant-mother interactions during the first year that provided additional empirical support for the theory(Ainsworth, 1969; Ainsworth & Bell, 1970).

Another key departure from psychoanalytic theory was that Bowlby and Ainsworth thought of infant's cognitions, emotions, and behaviors as arising from actual experience. The psychoanalytic view held that such processes arose from biological maturation, and were intra-

psychically generated in the infant (Klein, 1932). Contrastingly, Bowlby and Ainsworth viewed them as arising from real experience. One of Ainsworth's major contributions was to schematize the kinds of interactions best suited for the development of secure base cognitions and emotions. Ainsworth's observational studies identified four aspects of maternal sensitivity necessary for secure base development: sensitivity to signals, cooperation with ongoing behavior, physical and psychological availability, and acceptance of the baby's needs (Ainsworth, 1969).

The first aspect of early care described is sensitivity (vs. insensitivity) to the baby's signals (Ainsworth, 1969). This not only entails perceiving the baby's communications, but also interpreting them accurately, responding to them appropriately, and responding promptly. Sensitivity to signals presupposes the mother's availability, such that necessary signals can be communicated. In addition to awareness of the child's signals, a sensitive parent would interpret the signals accurately and free of bias, and is subsequently able to communicate empathy in her response. The need to respond promptly allows the child to link his signals to the mother's response.

The second aspect, described as cooperation (vs. interference) with the baby's ongoing behavior, focuses on the mother's ability to integrate the baby's wishes, moods, and ongoing activity with her own (Ainsworth, 1969). Thus, their interactions and shifts of activity seem more co-determined, rather than impositions of the mother's will on the child. A cooperative mother is able to capitalize on spontaneity such that resulting conflicts of interests may begin to work in concert with one another.

Another aspect of maternal care used to organize early secure base behavior is the mother's physical and psychological availability (vs. ignoring and neglecting) (Ainsworth, 1969). This aspect focuses on the mother's accessibility to the child, as well as her responsiveness. A highly

accessible mother will keep her child within her perceptual awareness, maintain awareness in spite of her individual duties and responsibilities, and never be too preoccupied to have him in the background of her awareness. The focus here is not on the accurateness of the mother's interpretation of the child's signals, but rather on her ability to continue to be available and responsive.

The last aspect of maternal care outlined by Ainsworth (1969) is acceptance (vs. rejection) of the baby's needs. It is acknowledged that any mother-infant relationship will contain both positive and negative elements. Of concern here, however, is the mother's ability to balance them, and integrate or resolve any conflicting feelings. An accepting mother senses and respects the child's growing autonomy and mastery, does not view conflicts of interest as power struggles, and feels almost wholly positive toward the child.

Attachment theory beyond infancy

As noted earlier, a Freudian insight that was preserved in attachment theory was the notion that early relationship experience shapes later development. And although the early empirical work on attachment theory focused on infant-mother relationships, Bowlby described attachment behavior as characterizing 'human beings from the cradle to the grave' (Bowlby, 1979). The application of attachment theory beyond infancy into childhood, adolescence, and adulthood has proven to be a major strength of the theory, as well as a source of continuing research in the field (Crowell, Treboux, Gao, Fyffe, Pan, & Waters, 2002; Mikulincer, Gillath, & Shaver (2002); Mikulincer & Shaver, 2003; Crowell, Fraley & Shaver, 2008). Ainsworth's (1969) pioneering work in identifying the particular features of early experience that shape secure base behavior (sensitivity, cooperation, availability, and acceptance) has subsequently paved the way for researchers to apply the theory to close relationships across the lifespan. The features that have

been identified point to the kinds of cognitions and emotions that are central to relationships, and create conceptual parallels to the interactions that are observed between infant-mother and adult-adult relationships.

From the secure base concept, to the real life experiences that shape them, attachment as a secure base relationship suggests expectations of availability and responsiveness, a sense of comfort and safety, working closely with another figure in a dyadic relationship, commitment across time, and establishing mutual expectations for the dyad. These insights sound reminiscent of the descriptions that often arise in the mentor literature. However, the mentor literature has yet to weave together many of the separate findings on the nature of the mentor-protégé relationship into a theoretical framework that could provide the conceptual tools to understand and improve mentoring.

Viewing mentoring through an attachment lens, and as a secure base relationship, offers a rich framework for conceptualizing and studying the nature of successful and troubled relationships. If mentoring is viewed as a secure base relationship, we would expect both ordinary and emergency functions. For example, the mentor would not only serve as a haven of safety in emergencies, but we would also expect the mentor to provide support for exploration, growth, and independence. In line with attachment theory, we would expect the mentor to help the protégé achieve mastery of the world, and live a bigger life than one could without the figure (Waters, 2008). Attachment theory could also provide an outline of the kinds of experiences that make for a solid relationship, such as sensitivity to signals, cooperation, and availability.

Mentoring: Conceptual Components and Distinctions

Guided by a goal

The close relationship that develops between a mentor and protégé can typically be

characterized as having a series of common threads. One of the more prominent characteristics of this kind of relationship is that it is almost always guided by a general, or more specific, goal. The emphasis of mentoring is to serve as a support system for the less experienced individual to grow emotionally, cognitively, and spiritually, in preparation for the challenges that come with living independently in the real world. Classic literature often describes the preparation of an individual for a big fight, or a metaphoric challenge in life. For example, in The Odyssey, Mentor prepares the developing Telemachus to take on his mother's suitors, and reclaim their home. In this epic poem, we see the transformation of the young and inexperienced Telemachus into a mature, confident and able being. Similarly, in *The Once and Future King*, the wizard Merlin is responsible for the development of King Arthur, and among other lessons, prepares him to take on his illegitimate son.

Older/younger dyad

Across examples from literature, as well as in educational, business, and professional settings, this relationship is characterized with an older individual serving as the mentor for the developing protégé in a given context. As with the relationship between Mentor and Telemachus, a similar discrepancy in age is seen in a teacher-student relationship, as well as in workplace and professional mentor relationships. It is likely that the additional years of life provide the mentor with a plethora of experiences that have accumulated to expertise in the given field. Although the mentor need not always be older than the protégé, domain-specific expertise is likely what is necessary. These experiences and expertise allow the mentor to respond to novel situations in a manner that the less experienced protégé would not yet arrive at on their own. The goal, however, is to provide the protégé with enough experiences to learn to respond in the manner of an expert.

Dyadic nature and trust

A key component that cannot be overlooked is the inherent dyadic nature of mentor relationships. This feature highlights the reciprocal nature of the relationship, which is conditioned by a history of past interactions. Unlike an apprenticeship where the flow of information is unidirectional, the close nature of mentor relationships provides each individual with the kinds of experiences that could not be afforded in a larger classroom setting. This history of interactions serves as the bedrock for the formation of mutual trust, another marker of a healthy relationship. The lack of expertise on the part of the protégé necessitates mutual trust in order for him to reveal his weaknesses to a mentor so as to grow one's sense of self from the experiences. Trust provides the mentor with confidence in the protégé's success, as well as provides the protégé with the confidence that the mentor will be available, and respond appropr- iately, in light of failures.

A relationship extended in time

Given the significance of a history of interactions in the formation of a dyadic and close relationship, it should come as no surprise that mentoring is typically extended in time. The goals involved in mentoring, such as burgeoning expertise and maturity into a new role, regularly require an extended period of time to be accomplished. Further, this extended nature provides the mentor with the opportunity to monitor the developing protégé and evaluate his progress along the way. For example, Mentor was able to gauge Telemachus' physical strength and sword-readiness in order to take on his mother's suitors. Moreover, the extended nature allows for the necessary character development to take place, which is not directly linked to a specific skill, but rather ties in to the overall aims. In The Odyssey, as in real life, the true test comes when the protégé finally takes on the challenges he had been preparing for head-on, when the attendant

risks and potential costs are at stake. The experiences that have accumulated over time up to that point serve as a resource on which the protégé can draw from.

Related terms

Although protégé is often used synonymously with other terms, such as apprentice, there are fundamental differences between these terms that set them apart. For example, in an apprenticeship, the explicit goal is likely to learn a set of skills or particular knowledge that can be used and applied in a later context. Contrastingly, the protégé's goal is often less explicit, and involves acquiring skills and knowledge that fit into a larger goal. Whereas skill acquisition is an end in and of itself in an apprenticeship, it is more closely a means to a larger end in mentoring. Also, the multi-faceted nature of mentoring allows the protégé to learn about himself and the world around him, and at the same time acquire new patterns of learning, as well as new ways of thinking which facilitate efficient problem-solving strategies.

A feature we can do without

Classic examples from literature characteristically involve mentoring an individual with royal standing, or someone that has been given a future task by the gods or fate. Further, a mentor has typically been someone with a distinctive characteristic that can be passed on. For example, Mentor passed on his strong character and connection to the earth with Telemachus. Other examples include Merlin sharing magic with King Arthur, and Socrates sharing wisdom with Plato. Modern examples are more often a matter of mentoring someone who shows precocious talent.

It is not clear that a distinctive power is necessary on the part of the mentor in contemporary usage; however, some sense of pedigree appears evident. There is no parallel to this in attachment theory. The defining features of a secure base figure are assigning high priority

to caring for the child (or partner), being always available, and always acting in their (not one's own) interest. Indeed, the standards for providing "good enough" care to establish a solid and trusting relationship are viewed as well within the capacity of virtually all normal adults. This parallels evidence that ordinary maturity, generosity, dedication, and perhaps some domain-specific expertise are all that is required for successful mentoring. Indeed, a frequently run radio advertisement emphasizes that one need not be perfect to be a good mentor or adoptive parent. So, perhaps the emphasis on the specialness of mentors is a characteristic we can do without.

Summary

As we can see, a mentor relationship is a multi-faceted one, with a set of common characteristics found across examples. This relationship is regularly guided by a goal, is inherently dyadic in nature, grounded in trust, and extended in time. Additionally, the mentor is typically older and wiser, with domain-specific expertise, and imparts on the protégé the skills and knowledge necessary to live a larger life.

Methodological Issues

Perhaps the single most common critique of the mentor literature is mentoring's chameleonic nature (Johnson, Rose, & Schlosser, 2007). Similar to the way in which protégé may be used interchangeably with apprentice or intern, mentor is all too often used synonymously with advisor, role model, or sponsor—at times, even switched within the same study (Turban, Dougherty, & Lee, 2002). This lack of a consistent operational definition inevitably leads to ambiguities in interpreting results. Although a consensus on defining a mentor evades researchers, an increasingly common operational definition stems from Rhodes' work (DuBois & Karcher, 2005; 2002). Rhodes (2002) highlights the age discrepancy between an unrelated, more experienced mentor, and a younger protégé. Further, the relationship is described

as one “in which the mentor provides ongoing guidance, instruction, and encouragement aimed at developing the competence and character of the protégé” (Rhodes, 2002).

Whereas some studies have avoided the use of an operational definition of a mentor and allowed for idiosyncratic interpretation (Cochran, Paukert, Scales, & Neumayer, 2004), past work has demonstrated that students readily distinguish between mentor and role model (Paludi, Waite, oberson, & Jones, 1988). Namely, students acknowledge the extended duration, as well as the career advancement components that typically characterize a mentor relationship (Paludi et al., 1988). Although mentoring is at times used as a catch-all category to describe any kind of psychosocial support, research shows that students describe ideal mentors in consistent ways (Rose, 2003). Specifically, the work of Rose (2003) suggests what students value in a mentor is captured by three dimensions: Integrity, describing a mentor that exhibits virtue and should be emulated; Guidance, suggesting the cognitive scaffolding a mentor can provide in accomplishing tasks; and Relationship, which stresses the close and personal relationship that develops. Despite this, other research indicates individuals interpret mentoring idiosyncratically (Clark, Harden, & Johnson, 2000), and points to the prudence of using an operational definition when studying mentor relationships.

To date, there has been very little standardization of the questionnaires used to study mentor relationships (Johnson et al., 2007). Researchers have regularly devised questionnaires for their particular purposes, with little concern for the psychometric properties of their measures, or for the reproducibility of their results. This is in part a product of the specific concerns of the researcher (e.g. focusing on an institutionally sponsored formal mentoring program), as well as a lack of a coherent and consistent underlying theory guiding their work. Further, the mentor literature has focused heavily on the protégé perspective, often only

interested in retrospective reports, and less work has been done on the mentor perspective (Johnson et al., 2007). Mentoring research has also relied heavily on protégé descriptions of mentors, and less so on reports of mentor behavior (Murrell, Crosby, & Ely, 1999).

Other issues that pervades the literature are problems with sampling, self-selection bias, and the possibility of social desirability in student responses (Johnson et al., 2007). Although early work focused on successful protégés from single departments (Cronan-Hillix, Gensheimer, Cronan-Hillix, & Davidson, 1986), more recent work has thoughtfully considered the experiences of students across departments and programs (Tenenbaum, Crosby, & Gliner, 2001). Even so, some of the largest studies to date have focused only on graduates (Clark et al., 2000), thus limiting non-graduate representation. The self-selection issue rests on the legitimate concern that respondents to mentor research are those with positive experiences to report. It is possible individuals that recognize the value of mentoring are more likely to seek out mentors as well (Baker, Hocevar, & Johnson, 2003). Lastly, social desirability may be elicited when asked to consider one's 'mentor', and exacerbated by question items largely focused on positive functions that a mentor serves, without considering negative aspects of the relationship.

Benefits of Mentor Relationships

The advantageous aspects of mentoring are clearly reflected in the prevalence of formal programs with institutional backing, and empirical work consistently supports this notion. Students regularly characterize their naturally occurring mentor relationships as positive and satisfying (Lentz & Allen, 2007). When students, at both the undergraduate and graduate level, reported on the functions received from mentors, the most common included direct training and instruction, acceptance, support and encouragement, and role modeling (Baker et al., 2003; Clark et al., 2000). Among undergraduates that identified a mentor, the most common function was

encouragement to pursue additional academic work (Erkut & Mokros, 1984). Some research suggests that because mentor relationships require time to develop, career or instrumental functions are more prominent early on in the relationship and psychosocial functions strengthen over time (Erdem & Aytemur, 2008; Johnson et al., 2007). Both instrumental and psychosocial support, however, contribute to positive protégé outcomes. The instrumental support received is connected to protégé's productivity, and the psychosocial support received increases their overall satisfaction with their mentor, as well as the supporting institution (Clark et al., 2000; Tenenbaum et al., 2001).

Mentors can also provide the socialization necessary to develop the attitudes and skills for a given profession (Johnson, 2007). In occupying a more experienced position, mentors can 'show the ropes' to their younger and less experienced protégés, by providing insider information, role modeling and advising. Mentors are also attributed with facilitating the development of professional skills and behaviors (Schlosser, Knox, Moskovitz, & Hill, 2003). Mentored students also report feeling more connected with colleagues, both locally and in the profession at large (Clark et al., 2000).

Protégé's psychological well-being also appears to benefit from mentoring. Liang and colleagues (2002) found that women in a mentor relationship with prominent relational qualities had higher levels of self-esteem and lower levels of loneliness. Their findings that frequency of contact with mentor was less associated with these outcomes highlights the significance of relational components to mentoring. Both undergraduate and graduate students with mentors have also reported an increase in professional confidence and identity development (Clark et al., 2000; Erkut & Mokros, 1984; Lentz & Allen, 2007). Taken together, these findings outline some

of the beneficial byproducts of mentoring, and open avenues for further exploration into these relationships.

Social Support

Bowlby's ethological approach to attachment has roots in Darwin's contribution to our recognition that social embeddedness is essential for survival. This insight subsequently paved the way for interdisciplinary work on the role and value of social relationships. Cassel (1976) and Cobb's (1976) pioneering work on the help and support social ties provide has opened up a floodgate of research since their publications. Their initial work examined the extent to which individuals with limited social ties appeared to become ill more frequently than those with rich interpersonal relationships. Further, both speculated that social deficiencies contribute to stress, and provisions of support (or lack thereof) had consequences on one's self-concept, attitudes, and behaviors.

Benefits of Supportive Social Relationships

Following Cassel (1976) and Cobb's (1976) initial work, later studies demonstrated that social support was related to lower levels of psychological distress, and measures of perceived support availability have consistently shown a 'buffering effect'—meaning that the impact of life stressors on negative outcomes is lowered by the perception of available support (Cohen & Wills, 1985; Wills & Shinar, 2000). Social support has also been linked to recovery from life-threatening illness, as well as stress buffering effects health risks (Berkman, Leo-Summers, & Horowitz, 1992; Rosengren, Orth-Gomer, Wedel, & Wilhelmsen, 1993). Research has further indicated that social isolation, or a lack of social support, can result in increased health risks, lower immune function and higher neuroendocrine and cardiovascular activity, while opposite effects are seen among individuals with socially supportive environments (Orth-Gomer,

Rosengren, & Wilhelmsen, 1993; Seeman, 1996). Researchers have also found social support to reduce the incidence of stressful life events and the number of physical and psychological troubles reported among students in their first six months of graduate school (Goplerud, 1980). Social support has also been linked to men's ability to cope with unemployment (Gore, 1978), and individual's psychological adjustment following a divorce (Wilcox, 1981). It is with such findings in mind that perceived social support is considered to be of sizeable significance for physical health and psychological well-being.

Conceptual Clarifications & Methodological Concerns

Fundamentally, social support refers to the resources that are provided by other persons (Cohen & Syme, 1985). There are, however, various functions of social support provided through relationships, and it is believed that these functions are differentially useful depending on the problem or stressor (Cohen, Mermelstein, Kamarck, & Hoberman, 1985; Cohen & Wills, 1985; Wills & Shinar, 2000). The need for a function (e.g. monetary loan) to correspond with a stressor (e.g. unpaid bills) in order for support to serve as a buffer is referred to as the matching hypothesis (Cohen & Wills, 1985; Cutrona, 1990). Several functions have been delineated, and the most prevalent forms of social support include emotional support (e.g. having someone to discuss feelings or concerns), instrumental support (e.g. practical help such as transportation or providing aid such as lending tools or money), informational support (e.g. providing information that is useful for addressing problems), companionship support (e.g. availability of individuals for socialization and recreational/cultural activities), and validation (e.g. information of an individual's relative status in a population) (Wills & Shinar, 2000).

The functions described largely capture what is meant by social support, but it is important to note that each is represented in the literature with similar terms (Wills & Shinar,

2000). For example, emotional support can also appear as having a confidant, instrumental support is used interchangeably with tangible support, informational support is also referred to as appraisal support or more pragmatically as advice or guidance, companionship support simultaneously appears in the literature as belonging or socialization, and validation can take the form of positive social comparisons. Although the literature on the association between social support with various physical and psychological outcomes has ballooned to tens of thousands of articles in the past several decades, a consensus on the definition of social support, as well as its measurement, have yet to be reached (Heitzmann & Kaplan, 1988; Sarason & Sarason, 2009b). As Cohen et al. (1985) noted years ago, "there are almost as many measures of social support as there are studies." Furthermore, the available measures of social support cannot be used interchangeably, as they are often not indexing the same thing (i.e. social support structure/network vs. social support functions; perceived vs. received social support). Sarason and Sarason (2009b) have attributed the lack of agreement, at least in part, to the construct's multidimensional nature, and suggest that its various functions relate to outcomes differently. This has resulted in researcher's often idiosyncratic approach to its measurement, without concern for their instrument's psychometric properties. Understandably, these issues pose an obstacle in interpreting results across studies.

Although the usefulness of social support as a predictor is buttressed by thousands of studies, the mechanisms by which it leads to outcomes remain unclear (Sarason & Sarason, 2009a, 2009b). Sarason and Sarason (2009b) have recently stressed the need for social support research to go beyond the correlates with physical and psychological outcomes to an understanding and of the underlying mechanisms that may be driving the associations. To this end, the researchers highlight the contributions of multidisciplinary, multilevel approaches to

social support (Sarason & Sarason, 2009a, 2009b). Social, developmental, and cognitive approaches can enrich our understanding of social support by providing insights into the origins of social ties, subsequent perceptions of support, and possible moderating role on outcomes.

The Current Study

With the recent advances of attachment research in mentor relationships (Larose et al., 2005; Soucy & Larose, 2000; Zevallos et al., 2007), the current project sets out to assess the correlates of attachment with dispositional attitudes toward seeking social support, the perceived availability of social support, and size of social networks. Additionally, benefits of mentor relationships will be explored. Lastly, among participants reporting current mentor relationships, attachment correlates with relational-experiential dimensions of mentoring experiences will be investigated.

The current project is also informed by the social support literature and seeks to address the lack of research exploring its underlying mechanisms. In recognizing that social support can be received from multiple sources, including intimate relationships, more distant social contacts, as well as organizations (Sarason & Sarason, 2009b), the approach presented utilizes the most coherent and relevant multi-level measures of support available. For example, separate well known and valid measures are used to capture the structure of one's social support network, another to measure the perceived availability of various social support functions, and a measure to tap into one's general disposition toward utilizing their social support network. The current project will expand the literature which views mentoring through an attachment framework, explores the causes of social support outcomes, and will have implications for the retention of undergraduate women in STEM and other fields.

Specific Aims

Aim 1: The first aim of the project is to investigate the role that attachment plays in general facets of social support. More specifically, secure base knowledge will be investigated as a possible underlying mechanism of general social support tendencies. It is hypothesized that individuals with greater secure base knowledge will report a more positive disposition toward seeking out social support, as well as a larger social support network and greater overall perceived social support.

Aim 2: The second aim of the project is to empirically demonstrate additional benefits of mentoring in a collegiate setting. It is hypothesized that individuals reporting a current mentor relationship (vs. those without a current mentor) will report larger social support networks, greater satisfaction with their network, and greater perceived availability of support.

Past work has demonstrated psychological benefits of mentoring, and it is believed that such relationships benefit protégés on an intrapersonal level. To that end, it is hypothesized that individuals reporting a current mentor relationship (vs. those without a current mentor) will report higher levels on multiple self-esteem domains (e.g. personal power, global self-esteem, identity integration). Protégés' relationship to the university will also be explored.

Aim 3: The third aim of the current project will focus exclusively on individuals reporting a mentor relationship (i.e. protégés), and investigate the role that secure base knowledge plays in the relationship. It is hypothesized that protégés with greater secure base knowledge will be associated with greater perceived availability of mentor-provided social support functions, as well as greater satisfaction with support received. Furthermore, it is hypothesized that greater secure base knowledge will be associated with more positive perceptions of the relationship.

Method

Participants and Recruitment

A total of 112 female undergraduates in their junior (51.79%) or senior (48.21%) year, with a mean age of 21 (SD = 1.25) years old, participated in the study. Of those participants, 52.3% were recruited from the Psychology Department Subject Pool, and received course credit (Non-STEM sample). The remaining 47.7% were recruited via campus advertisements specifically targeted at STEM juniors and seniors, and paid $25 (STEM sample). Across all participants, the largest ethnic group was Caucasian (40.2%), followed by Asian (33.9%), Hispanic or Latino (11.6%), Black or African-American (8%), and Other or Mixed (6.3%) (refer to Table 1 for demographics by STEM-status). Four participants that identified their parent as a mentor, and two participants that exhibited severe English language difficulties, were removed from all analyses. Forty-four participants (39.29%) identified a mentor in their lives. Overall, mentors had an average age of 38.91 (*SD* = 14.48) years old and were well educated (82% had at least a college degree).

Procedures

Participants took part in one laboratory visit in which they completed initial demographic questionnaires, an attachment measure (a narrative assessment of attachment script representations), social support measures (e.g. dispositional, perceived availability, and size of network), and self-esteem measures (e.g. global self-esteem, likeability, competence). All participants also completed measures screening for depression, which could be a confounding variable. Lastly, participants reporting a current mentor relationship completed measures on relational-experiential dimensions of the relationship, as well as questionnaires exploring the social support functions provided by their mentor and their subjective satisfaction. Informed

consent was obtained in person, the narrative assessment was audio recorded, and all questionnaires were completed online in our lab, and stored on a secure network (Qualtrics). Each visit took approximately 60-90 minutes to complete.

Measures

Attachment Script Assessment (ASA). The ASA is a narrative assessment that measures general knowledge of, and access to, the secure base script (H. S. Waters & Waters, 2006). Individuals are provided with three prompt word sets, each consisting of 12 words in three columns, that suggest a story line (beginning, middle, end) and enough content to result in orally produced stories of reasonable length that range from little secure base knowledge, to a great deal of secure base knowledge. Prompt word sets imply secure base interactions (e.g. mother-infant interactions, mother-child interactions), and those with greater knowledge of and access to a secure base script organize their narratives around this concept. Participants are shown how to use the prompt words to form an outline of a story and are then asked to create the best story they can, filling in the details. This method provides enough structure such that participants with attachment representations that include the secure base concept will produce narratives reflecting such content, whereas those without this concept in mind will produce stories of equal length but lack secure base structure and content. In order for the attachment script assessment to be scored, the orally produced narratives were audio recorded, later transcribed and scored for secure base content by two independent coders using a 7-point scale (H. S. Waters & Rodrigues-Doolabh, 2004). Narrative scores were averaged to create a composite score ranging from those with extensive secure base content (5-7), to moderate sure base content (4-5), to event-focused stories (3), to scores reflecting incoherent, unusual or atypical content (1-2). The prompt-word outlines used are included in Appendix A.

Background Questionnaire (BQ). The BQ (Appendix B) is a general demographics questionnaire developed by the researcher for the purposes of this study and contains questions relevant to the current study. In addition to general demographics, the questionnaire asks participants if they can identify a current mentor in their lives, using a common mentor definition used in the literature. Specifically, participants are asked if they can identify someone in their lives that is 'an older, more experienced individual (other than your parents) [that] provides ongoing guidance, instruction, and encouragement aimed at developing [your] competence and character' (see (Rhodes, 2002)).

Interpersonal Support Evaluation List (ISEL). The ISEL (Appendix C) is a 48-item, 4-point Likert scale that measures perceptions of available support (Cohen & Hoberman, 1983). It contains four subscales of social support functions: Tangible Support, Belonging Support, Appraisal Support, and Self-esteem Support. Tangible support refers to the provision of instrumental aid (e.g. "I know someone who would loan me $100 to help pay my tuition"), belonging support refers to the availability of individuals to engage in activities with (e.g. "I hang out in a friend's room or apartment quite a lot"), appraisal support refers to the availability of someone to talk to about one's problems (e.g. "There isn't anyone at school or in town with whom I would feel perfectly comfortable talking about my feelings of loneliness and depression (reverse scored)"), and self-esteem support refers to the availability of positive social comparisons (e.g. "Most of my friends think that I'm smart"). The ISEL measures perceived availability of support, which is more sensitive (vs. received support) to the buffering effect, as it is primarily cognitively mediated (Cohen et al., 1985; Cohen & Wills, 1985). About half of all items are reverse-scored for desirability, and composite scores are created for each subscale.

Social Support Questionnaire-6 (SSQ-6). The SSQ-6 (Appendix D) (Sarason, Sarason, Shearin, & Pierce, 1987) is an abbreviated version (6-item) of the original SSQ (Sarason, Levine, Basham, & Sarason, 1983). The SSQ-6 measures social support structure, or the size of one's social support network, as well as one's satisfaction with their network. Each item has a two-part response. In the first part, participants list all of the people (up to nine individuals) who he or she believes would be available to provide support in the area to which the item refers (e.g. "Whom can you really count on to help you feel more relaxed when you are under pressure or tense?"). In the second part, participants rate his or her satisfaction with the social support received on a 6-point Likert scale ranging from "very dissatisfied" to "very satisfied". If individuals have no support for a question, they are asked to select 'No one' and still rate their level of satisfaction. To compute the SSQ Number Score (SSQN), the total number of people listed (Max is 54) is summed, then divided by six for per item number average. The SSQ Satisfaction Score (SSQS) is computed by summing the total satisfaction scores for all items (Max is 36), and divided by six for per item satisfaction score.

Network Orientation Questionnaire (NOS). The NOS (Appendix E) (Vaux, Burda, & Stewart, 1986) is a 20-item self-report measure which assesses an individual's general tendency to utilize his or her social support resources. Participants answer both positive (e.g. "Sometimes it is necessary to talk to someone about your problems") and negative (e.g. "You can never trust people to keep a secret") worded statements on a 4-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree". A single composite score is computed by reverse scoring the negatively worded statements and summing items for a total score. High scores reflect an individual's belief that it is advisable, efficacious, and safe to draw on social support resources.

Relational Health Index (RHI). The RHI (Appendix F) (Liang et al., 2002) is a measure of women's relationships, and the two scales used assess subjective growth-fostering connections with mentors (RHI-M; 11-items), and communities (RHI-C; 14-items). Each scale contains three subscales: Empowerment (e.g. "I feel uplifted and energized by interactions with my mentor."), Engagement (e.g. "My mentor's commitment to and involvement in our relationship exceeds that required by his/her social/professional role"), and Authenticity (e.g. "There are parts of myself I feel I must hide from this community" (reverse scored)). The RHI-C will be adapted to ask specifically about Stony Brook University (RHI-SB). Additionally, only participants that report a mentor relationship (see BQ) will complete the RHI-M. All items are answered on a 5-point Likert scale ranging from "Never" to "Always". Several items are reverse scored before computing composite and subscale scores for each measure.

Mentoring Functions Questionnaire (MFQ). The MFQ (Appendix G) (Fowler & O'Gorman, 2005) is an instrument developed to capture the distinct functions of mentoring, as identified by mentors and protégés in contemporary organizational life The MFQ contains 39-items that identify eight unique functions: personal and emotional guidance (e.g. "Someone who encourages you to discuss personal issues, insecurities and aspirations"), coaching (e.g. "Someone who provides performance feedback on work tasks or projects"), advocacy (e.g. "Someone who promotes, recommends and advocates for you to 'people that count'"), career development facilitation (e.g. "Someone who advises and guides the mentee generally with regard to your career"), role modeling (e.g. "Someone who is an effective role model"), strategies and systems advice (e.g. "Someone who shares 'inside knowledge' or passes information down from higher levels"), learning facilitation (e.g. "Someone who shares the wealth of their experience to enhance the mentee's understanding or learning"), and friendship

(e.g. “Someone with whom you have a friendship”). Composite and subscale scores are computed by summing the relevant items, and dividing by the number of items in each subscale.

Multidimensional Self Esteem Inventory (MSEI). The MSEI (Appendix H) is a widely used measure of global self-esteem and its eight dimensions (O'Brien & Epstein, 1988). However, only the six most relevant scales (i.e. Global Self-Esteem, Lovable, Likeability, Competence, Personal Power, and Identity Integration) have been included, and the less relevant dimensions (e.g. Moral Self-Approval, Body Appearance, Body Functioning) have been excluded for the purposes of this project. Sample items include “All in all, I would evaluate myself as a relatively successful person at this stage of my life” (Global Self-Esteem), “There have been times when I have felt rejected by my family” (Lovable—reverse scored), “How often do you feel certain that people you meet will like you?” (Likeability), “I am usually able to learn new things very quickly” (Competence), “I have no problem asserting myself” (Personal Power), and “In general, I know who I am and where I am headed in my life” (Identity Integration). Each subscale contains about 10 items and all have good internal reliability. About half of all items are reverse scored before composite scores are created for each subscale.

Relationship Qualities Questionnaire (RQQ). The RQQ (Appendix I) is an instrument developed by the researchers for the purposes of this study and contains relationship specific questions regarding one’s mentor (i.e. social support provided by mentor, length of relationship, depth of relationship, conflict in relationship, etc.). The purpose of this questionnaire is to capture relevant information not asked elsewhere about one’s mentor relationship. Its development is informed by Pierce and colleagues’ (Pierce, Sarason, & Sarason, 1991) Qualities of Relationships Inventory, which focuses on aspects of an individual’s relationship with a

specific person. Due to the specificity of the questions (nine total), responses will be examined individually.

Beck Depression Inventory (BDI). The BDI (Appendix J) (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) is a 20-item self-report instrument commonly used to measure general depression. Questions ask about changes in negative affect (e.g. sadness, guilt, self-criticalness) and behavior (e.g. change in sleep patterns, appetite, interest). One question (on suicidal ideation) has been removed for lack of pertinence to the current study. Participants are instructed to select the statement that best describes how they have been feeling. Each statement corresponds to a score of 0-3, and a composite score is created by summing all items (Max is 60).

Results

Aim 1. The role of attachment in general facets of social support.

Preliminary Analyses and Reliability of Measures. To compute participant's secure base script knowledge scores (ASA), each participant produced three narratives (average of over 200 words each) that were scored by two independent raters (1-7 point scale) and were averaged to yield a single composite score. The correlations between each narrative ranged from $r = .44$ to $r = .49$ (see Table 2), and the Cronbach's alpha for all three narratives was reliable ($\alpha = .72$).

Social Support Measures and Intercorrelations. The correlations between each ISEL subscale ranged from $r = .30$ to $r = .55$ (see Table 3), and the Cronbach's alpha for all four subscales used to create a composite ISEL-Overall variable was reliable ($\alpha = .76$). Correlations between overall support (ISEL-Overall), size of social support network (SSQ-Number), satisfaction with support network (SSQ-Satisfaction) and orientation toward support (NOS) ranged from $r = .24$ to $r = .53$ (see Table 4).

Secure Base Script Knowledge and Social Support. In order to examine the role that secure base knowledge plays as a possible underlying mechanism of social support, a series of Pearson's correlations were conducted to investigate this relationship. There was no relationship between script knowledge and any of the social support measures of interest (*r*'s ranged from -.13 to .07, $p > .10$). However, each of the social support measures used was negatively correlated with depression (*r*'s ranged from -.32 to -.55, $p < .01$), and positively correlated with self-esteem (*r*'s ranged from .27 to .58, $p < .01$) (see Table 5). This relationship between social support, depression and self-esteem was moderate for the overall support variable ($r = -.55$, $p < .01$; $r = .58$, $p < .01$), and small for the size of social support network ($r = -.32$, $p < .01$; $r = .27$, $p < .01$).

Aim 2. The benefits of a mentor relationship on social support and intrapersonal domains.

In order to investigate the hypothesized boosts individuals in mentor relationships receive on various social support aspects when compared with those without a mentor, separate one-tailed *t*-tests were conducted. First, differences on the size and satisfaction of one's social support network were examined (SSQ). There was a significant difference in size of one's social support network between mentored (M = 4.51, SD = 1.74), and non-mentored individuals (M = 3.82, SD = 1.53), $t(104) = -2.15$, $p < .05$. Further, there was a marginally significant difference in the level of satisfaction with one's social support network between mentored (M = 5.32, SD = .77), and non-mentored individuals (M = 5.07, SD = 1.05), $t(104) = -1.33$, $p < .10$. These results demonstrate that mentored individuals have a larger social support network and that there is a trend for mentored individuals to be more satisfied with their support network. Further analyses examined differences on orientation toward utilizing support (NOS) and perceived availability of support (ISEL), and no differences by mentor-status emerged (see Table 6). In sum, this

indicates that mentored individuals are no more predisposed to utilize their support network when necessary, but that having a mentor increases the average size of one's support network.

To examine the hypothesized boost in self-esteem mentored individuals receive from such relationships, as opposed to those without a mentor, one-tailed *t*-tests were conducted. As predicted, mentored individuals exhibited higher levels on some self-esteem domains, but not all. Specifically, mentored individuals (M = 54.52, SD = 7.20) reported a greater sense of personal power than non-mentored individuals (M = 50.75, SD = 12.46), $t(99) = 1.80$, $p < .05$. Further, mentored individuals reported marginally significant greater levels of identity integration and global self-esteem (see Table 7). There were no differences on other self-esteem domains measured (i.e. lovable, likeability, competence).

Lastly, aspects of student's relationship to the campus community were examined using the RHI-University measure. There were no differences on sense of empowerment, engagement, and authenticity by Mentor-status (see Table 8). However, when comparisons were made on the basis of mentor-affiliation (i.e. whether or not they were affiliated with the university), there was a significant difference on sense of university engagement (see Table 9). Protégés with university-affiliated mentors reported a greater sense of university engagement (M = 15.62, SD = 3.92) than those with university-unaffiliated mentors (M = 12.96, SD = 4.55), $t(42) = 2.07$, $p < .05$. That is, compared to off-campus mentors, having an on-campus mentor results in a greater sense of belonging to the university community, a greater sense of being understood by the community, and greater availability of emotional support within the community.

Aim 3. The role of attachment in mentor relationships.

Mentor Relationships and STEM-status. The percentage of participants that reported a mentor relationship did not differ by STEM-status χ^2 (1, $N = 106$) = 2.28, $p > .10$. However,

among participants reporting a mentor relationship, STEM status was related to mentor-affiliation χ^2 (1, N = 44) = 6.15, $p < .05$ (see Table 10). That is, STEM participants were more likely to identify primary mentors that were university-affiliated (e.g. university staff, graduate student, professor), whereas Non-STEM participants were more likely to identify primary mentors that were university-unaffiliated (e.g. family friend, supervisor, counselor).

Additionally, STEM status was related to mentor's highest level of education, χ^2 (4, N = 44) = 11.33, $p < .05$ (see Table 11). STEM mentors were more likely to hold an advanced degree (e.g. Ph.D.) than Non-STEM mentors. Furthermore, when protégés rated the significance of their mentor relationship, on a scale ranging from 1 (least significant relationship) to 100 (most significant relationship), there was a significant difference by STEM-status, t (42) = 2.30, $p < .05$. Non-STEM protégés (M = 77.84, SD = 17.22) rated their mentor relationship as more significant than STEM protégés (M = 62.84, SD = 24.10). These results indicate that not only are STEM students more likely to identify a primary mentor with a university-affiliation, but that these relationships are not rated as significant in one's life as the mentor relationships of non-STEM students. The nature of these mentor differences by STEM-status should be kept in mind as the following results are elaborated.

Secure Base Script Knowledge and Mentor Functions. Attachment theory posits that secure base phenomena will appear in close relationships as a function of secure base knowledge. Crucial to this understanding is the centrality of the relationship. Due to differences in the nature of mentor relationships by STEM-status described earlier, the following results are separated by STEM-status. To examine the relationship between secure base knowledge and various functions provided by one's mentor, a series of Pearson's correlations were conducted.

Among Non-STEM protégés, the predicted positive relationship between secure base script knowledge and mentor-provided functions was present. Specifically, there was a positive relationship between script knowledge and the personal and emotional guidance received by protégés, $r(19) = .48$, $p < .05$. There was also a positive relationship between script knowledge and the amount of strategies and systems advice (e.g. sharing 'insider knowledge') received, $r(19) = .53$, $p < .01$. Furthermore, there were positive relationships between script knowledge and mentor-provided coaching, career development, and advocacy (r's ranged from .41 to .43, $p < .05$; see Table 12). Additionally, the relationships between script knowledge and learning facilitation ($r(19) = .38$), as well as effective role modeling($r(19) = .37$), were marginally significant ($p < .10$). These relationships, however, were not significant among STEM protégés (see Table 13), nor were they significant when examined across all protégés (Table 14).

Similarly, to examine the health of the mentor relationship, Pearson's correlations were conducted between script knowledge and RHI-Mentor. Among Non-STEM protégés, there was a positive relationship between script knowledge and a sense of mutual engagement in the relationship, $r(19) = .57$, $p < .01$ (see Table 15). As before, however, this relationship was not significant among STEM protégés $r(25) = .08$, $p > .10$ (see Table 16), and was only marginally significant when examined across all protégés, $r(44) = .08$, $p < .10$ (see Table 17).

To further illustrate the discrepant relationship between script knowledge and mentor support by STEM-status, multiple regression analyses were used (Aiken & West, 1991). STEM and Non-STEM protégés were dummy coded as 1 and 0, respectively; and standardized script knowledge scores were used to predict mentor provided advice (MFQ Advice). The effects of STEM-status and script knowledge were first entered into the equation model, followed by the interaction. There was no main effect of STEM-status, t (40) = -1.32, $p > .10$. There was a

marginal main effect of script knowledge, such that individuals with higher script scores received more advice from their mentor, t (40) = 1.70, $p < .10$. However, the main effect of script knowledge was qualified by a significant interaction, as indicated by the product term having a significant unique effect t (40) = -2.04, $p < .05$, effect size (partial r) = -.31 (see Table 18). Recommended procedures by Aiken and West (1991) were used to illustrate the significant interaction. Figure 1 illustrates the regression lines (based on the overall regression equation) for STEM-status predicting mentor-provided advice at levels of script knowledge +/- 1 standard deviation from the mean. As illustrated in the figure, Non-STEM protégés with higher levels of script knowledge receive more mentor-provided advice than do their counterparts with lower levels of script knowledge, as well as STEM protégés.

Correspondingly, multiple regression analyses were used to predict protégés' sense of mutual engagement (RHI-Engagemet) in the mentor relationship using STEM-status (dummy-coded) and script knowledge (standardized) as predictors. As before, the effects of STEM-status and script knowledge were first entered into the equation model, followed by the interaction. There was a main effect of STEM-status, indicating that Non-STEM protégés felt a greater sense of engagement in the mentor relationship than STEM-protégés, t (40) = -2.04, $p < .05$. There was also a main effect of script knowledge, where increased script knowledge was associated with greater sense of engagement in the relationship, t (40) = 2.25, $p < .05$ (see Table 19). Using established procedures (Aiken & West, 1991), Figure 2 illustrates the regression lines (based on the overall regression equation) for STEM-status predicting mutual engagement at levels of script knowledge +/- 1 standard deviation from the mean. The figure illustrates that Non-STEM protégés report a greater sense of engagement, and that script knowledge is also associated with this outcome as well. In line with attachment theory's tenets of sensitivity and cooperation, this

finding demonstrates that as secure base knowledge increases, so too does the sense of mutual involvement, commitment, and attunement to the relationship.

Discussion

Aim 1. The role of attachment in general facets of social support.

The intent of Aim 1 was to examine the role that attachment plays in different aspects of social support. Specifically, knowledge of and access to the secure base script (a tenet of attachment theory) was measured using the Attachment Script Assessment and scores were correlated with prominent measures of perceived availability of social support, size of and satisfaction with one's social support network, and general disposition toward utilization of social support. There were, however, no relationships found between secure base script knowledge and social support. Nonetheless, it is important to note that all of the measures used were significantly and positively correlated with global self-esteem, and negatively correlated with depression. Stated differently, although it appears that script knowledge is not related to social support, it does appear that the social support measures utilized share a sizable amount of their variance with depression and self-esteem. Thus, identifying the shared and unique mechanisms underlying various constructs of social support will be critical to furthering social support research, as well as unpacking attachment's role in general and specific social support domains. Future work might benefit from utilizing social support measures that do not rely as heavily on self-report methodologies.

Attachment theory posits that early relationships form working models of the self and others that play a role in future close relationships (Bowlby, 1982; H. S. Waters & Waters, 2006). These working models, based on one's experiences, additionally shape outcome expectations in relationships. As such, there remains a theoretical connection between

attachment and social support, as well as a vast literature demonstrating secure attachment's direct association with support-seeking and support-provisions (Feeney, 2004; Mikulincer & Shaver, 2007, 2009). However, the current measures did not appear to capture any such relationship. A tenable explanation for this discrepancy is a likely disconnect between the social support measures used and the support-provided by a mentor. In other words, the measures did not specifically ask about support-provisions from a particular person, but rather captured global aspects of social support. As Pierce and colleagues have suggested (1991), relationship-specific (e.g. mentor-protégé) perceptions of support are distinct from general perceptions of support. This lack of specificity was likely unable to tap into attachment working models that are elicited in the context of a close relationship. Regardless of how familiar one may be with the secure base script, it certainly will not manifest itself to the same extent across all relationships (i.e. acquaintance, close-friend, significant other). Future studies should investigate which social support constructs are best able to assess attachment representations, without biases in self-report.

Aim 2. The benefits of a mentor relationship on social support and intrapersonal domains.

After investigating attachment's relationship to general social support, the second aim was to consider differences across several domains between individuals reporting a current mentor relationship, and those without one. It was found that mentored individuals have a larger social support network and tend to be more satisfied with their network. This finding is perhaps indicative of the salience of a mentor in one's life. Among the many facets of a mentor relationship, a good mentor is one that extends their own network to their protégé, fosters exploration by building their social capital, and introduces them to important people (Chan,

2008). In addition to connecting a protégés with influential people, mentors can also directly widen protégés' networks by introducing them to peers and others of social value. Having this extended network may play into one's perceptions of satisfaction with their level of support. No differences were found between mentored and non-mentored individuals on perceived availability of support, nor on their general willingness to utilize their network. This suggests that individuals both mentored and not, are equally predisposed to seek out support from their network when necessary, but that having a mentor in one's life adds to the size of that network.

Due to the cross-sectional design used, it is difficult to completely assert that having a mentor directly results in a larger social support network. To make such a definitive claim, future work would have to assess the size of one's social support network longitudinally. There is likely a time point at which mentors enter into one's intimate social support network, and this undoubtedly does not occur immediately. Future research could also examine how protégés' networks expand after a mentor relationship is initiated. Considering that people are not only connected to other individuals, but also to organizations and places, utilizing social network analysis techniques could prove fruitful. By studying the system as a whole, as opposed to methodologies that focus on the individual, the role that a mentor plays in a protégé's network could be further understood. Such work could shed light on the importance of a mentor as a node within the network, the possibility of a hidden community structure, and its effects on weak ties, diffusion of information, and opportunities.

Additional analyses examined differences across multiple self-esteem domains by mentor-status. Informed by earlier work which had noted the psychosocial benefits of mentoring (Erdem & Aytemur, 2008; Johnson et al., 2007), it was believed that individuals with a mentor would report higher levels of various self-esteem domains. The current project found that

mentored individuals reported a greater sense of personal power, meaning they are more comfortable in leadership positions and asserting themselves as necessary. There was also a trend for mentored individuals to report greater levels of identity integration and global self-esteem. Social learning theory (1963) would suggest an effective way to transmit leadership skills and assertiveness would be to have a mentor that possesses such a repertoire. Similarly, a mentor that serves as a guide and counselor should be able to help the protégé identify their goals, set plans, and head in the that direction. It is possible that no other differences were found because of the measures broad perspective. For example, the items used to assess competence included such statements as 'How often do you approach new tasks with a lot of confidence in your ability?' Future measures of competence and other self-esteem constructs could be developed to capture domain-specific areas of growth from the relationship (e.g. specific lab techniques or data analyses, etc.). Similarly, measures of identity integration could be made more career specific (e.g. one's identity as a female and a woman).

There were no differences found on one's perceptions to the university community by mentor-status. Considering that students identified primary mentors both on and off-campus, this finding was not a complete surprise. When perceptions to the university community were examined among protégés and compared by mentors-affiliation, protégés with university-affiliated mentors reported greater engagement with the university community and a stronger sense of belonging than protégés with university-unaffiliated mentors. Given mentors provisions of support to their protégés, this finding suggests that such a relationship benefits student's perceptions of the university, but only when their mentor is affiliated with the university as well. This is in line with findings that mentor-provided psychosocial support increases undergraduate and graduate student's satisfaction with the institution (Clark et al., 2000; Larose et al., 2011;

Tenenbaum et al., 2001). In sum, these results demonstrate several benefits of mentor relationship, but also suggest that it is not, in and of itself, a panacea for intra and interpersonal well-being. Refined measures may also enhance our understanding of additional mentor benefits.

Aim 3. The role of attachment in mentor relationships.

The final aim of the project focused exclusively on participants reporting a mentor in their lives. The particular goal of this aim was to elucidate the role that attachment plays in various aspects of protégés' relationship with their mentor. There were some systematic differences in the nature of mentor relationships by STEM-status, which necessitated separate analyses. Specifically, STEM protégés were more likely to identify university-affiliated mentors than Non-STEM protégés. STEM mentors were more likely to hold an advanced degree, which likely reflected their affiliation with the university (e.g. professor). Notably, particularly for understanding secure base processes, Non-STEM protégés rated their mentor relationship as significantly more important in their lives than STEM protégés.

The predicted patterns between secure base script knowledge and mentor-provided support emerged among Non-STEM protégés. There was a positive association between script knowledge and personal and emotional guidance. One of the principle characteristics of a secure base is one who is sensitive to signals from the care-seeker, and is responsive in order to regulate affect (Feeney, 2004). As such, protégés with greater script knowledge reported their mentor was better able to 'understand [their] feelings and emotions', 'guide [their] personal development' and serve as a 'confidant to share personal values, beliefs, views and interests.' Positive relationships were also found between script knowledge and several other mentor support functions, including: advice, coaching, career development and advocacy. Further, there was a trend for a positive relationship between script knowledge and mentor's learning facilitation and

effective role modeling. Lastly, there was a positive relationship between script knowledge and a sense of mutual engagement in the relationship. Taken together, these results suggest that secure base knowledge increases the extent to which protégés are able to receive various forms of support from their mentor. In other words, they are able to use their mentor as a secure base from which to explore.

The mentor-provided support functions described are characteristic of the ways in which an effective mentor serves as a secure base and balances a protégé's desire for exploration and proximity-seeking. An attachment figure, such as a mentor, should be physically and psychologically available (proximity), provide support to overcome challenges and reduce negative affect (safe haven), and support exploration, goal-seeking, and autonomy (secure base) (Ainsworth, 1991; Bowlby, 1982). Such processes are visible among infants in the presence of caregivers (Ainsworth, Blehar, Waters, & Wall, 1978), and stable into adulthood (E. Waters, Merrick, Treboux, Crowell, & Albersheim, 2000). The associations between secure base script knowledge and mentor-support described above are parallels to attachment behavior seen in other close relationships.

These findings, however, appear to only hold for Non-STEM protégés. That is, although there were no differences in script knowledge by STEM-status, script knowledge only correlated with mentor provisions of support among the Non-STEM sample. Although the current project did not distinguish formal (e.g. institutionally or organizationally supported) and informal (e.g. naturally occurring or organically formed) mentor relationships, this distinction is a likely candidate for the discrepant findings. The finding that Non-STEM protégés rated their mentor relationship as more important than STEM protégés supports this notion. It is possible that STEM protégés have more likely identified a mentor relationship that was initiated through a

formal channel. Another possibility is that women in STEM fields are more career driven, and thus more likely to seek out mentors with a university-affiliation. Under either circumstance, a lack of emphasis on the relationship component is likely leading to less fulfilling mentor experiences. More clearly, attachment behaviors directed at attaining protection and support from a stronger and wiser other (e.g. mentor) may not arise without first nurturing and establishing a secure base relationship with a potential attachment figure.

The current project utilized one of the most prominent definitions of a mentor (Rhodes, 2002) and asked participants to self-identify if someone in their lives fit the description. However, there was no distinction between formal and informal relationships. Such a distinction, in future work, would certainly enhance our understanding of the findings described above. By allowing participants to self-identify a mentor in their lives, the project was able to make comparisons across intra and interpersonal domains based on mentor-status. However, the sample size of analyses involving protégés was only a subset of the total sample (41%). Further, the mentor literature continues to lack adequate measures of success in the relationship. There is certainly no shortage of relationship measures available, but they are very often idiosyncratic and not used consistently across studies, which makes comparisons challenging. Basing future measurement constructs on attachment theory and secure base behaviors should prove to be fertile soil for advances in the field.

Implications and Future Directions

The findings at hand provide insights not only for attachment researchers, but also for those directly embedded in the mentoring field. As the results above suggest, and as other researchers have noted (Johnson et al., 2007), there is a need to identify mentor as a distinct relational construct separate and unique from the several related terms that exist in the literature,

such as role model, and advisor. These terms can be thought of as existing on a relational continuum, with role models comprising a less relational connection and mentoring involving greater relational development, intensity, and depth (Johnson, 2007). From examples in literature, to structured programs in practice, we find mentoring is guided by a broad set of goals, is inherently reciprocal and dyadic, involves a deep level of connection, commitment and trust, and is extended in time. Mentoring involves a bonded and mutual relationship in which the mentor is deliberate about facilitating the professional and personal development of the protégé, as well as promoting growth and independence.

Both small and large-scale mentor programs, aimed at providing support to young women in STEM fields or across other disciplines, would benefit in making relationship development an explicit goal of their framework, in the sense of a genuine, mutual, and authentic relationship. Goal directedness does not preclude a genuine relationship from developing. If the appropriate measures are taken, humans in fact develop real bonds. For example, in parenting and couple relationships, some intentional and goal-directed maintenance is important and beneficial (Hoffman, Marvin, Cooper, & Powell, 2006; Marvin, Cooper, Hoffman, & Powell, 2002).

An attachment perspective may also be useful in preparing mentors and protégés for the relationship. Making the implicit knowledge of building the relationship explicit and implementing brief interventions where necessary, can enrich and benefit the working models of the relationship (Marvin, Cooper, Hoffman, & Powell, 2002). If mentors are prepared for relationships in general, and protégés' behavior in particular, their ability to monitor and serve as a secure base can be sharpened with an attachment lens. For example, knowing not only what to expect and how to react in particular interactions, but also being aware of one's reaction in

shaping the relationship's working model can be a useful strategy. Attachment theory postulates that secure base use and working models of relationships are stable across time, but also open to revision in light of attachment related experiences (Vaughn, Egeland, Sroufe, & Waters, 1979; E. Waters et al., 2000). Such insights are useful in addressing difficulties in establishing productive working models in formal mentor relationships.

This raises some issues and points to the continued use of attachment theory in understanding, forming, and evaluating mentor relationships. Although mentors are in demand, not all mentor relationships are a guaranteed success. In order to prevent failed relationships, organizations often seek to select mentors on the basis of characteristics believed to maximize the likelihood of success. Past research has approached the task of selecting mentors based on matching variables such as race and ethnicity (Thile & Matt, 1995), but there is little evidence to suggest that matching on such variables makes them more efficacious (Johnson, 2007). Approaching the issue of selecting good predictors of success in mentors from an attachment perspective would suggest a very different strategy and focus.

One approach could include formalizing a mentor relationship only after a basis for the relationship already exists. For example, students in the natural sciences often enter graduate school without a formal advisor (and potential mentor) and instead first rotate through several labs before deciding who they will work closely with. Similarly, undergraduates could approach faculty members to formally mentor them after they have taken a class or two with them, or served as a research assistant in their lab. Simply serving as a research assistant, or merely having had a positive experience with a professor as an instructor, does not amount to a mentor relationship. However, having already established contact and initiated a relationship, a formal relationship would facilitate the transition from an advisor or role-model to a full-fledged

mentor. Any match component to formal mentor programs should be less concerned on demographic criteria, and focus instead on a genuine desire of both parties to cultivate a genuine relationship.

Future research should pay particular attention to the ways in which Ainsworth's (1969) maternal sensitivity scales (i.e. sensitivity to signals, cooperation with ongoing behavior, physical and psychological availability, and acceptance of needs) manifest themselves in mentor relationships. The mentor literature continues to lack adequate measures of success, and doing so through an attachment framework would be fruitful. Recent work (Shepard, 2004) has expanded the narrative methodology of the Attachment Script Assessment to measure secure base script knowledge in hypothetical scenarios involving mentors. In contrast to protégés' perspectives, future work could examine correlates of mentors' script knowledge and caregiving behavior in the relationship.

In addition, the hallmark of Bowlby and Ainsworth's work of basing their ideas on observations suggests possible research endeavors in evaluating and supervising mentor relationships in course. Possible avenues of research could include assessing mentor and protégé's secure base script knowledge in tandem, as well as assessing their attachment classification using measures such as the Adult Attachment Interview (Crowell et al., 2002; Crowell et al., 1996). Other possibilities could involve standardized assessments of mentor-protégé interactions in a laboratory setting, and adapting the Secure Base Scoring System (Crowell et al., 2002) to measure protégés' secure base use and mentors' secure base support. Dyads could discuss protégé exploration (i.e. goal-strivings), and further, mentor motivations for providing support (i.e. self or other-oriented) could be explored (Feeney, 2004; Feeney, Collins, van Vleet, & Tomlinson, 2013). Lastly, longitudinal work could afford insights into real-world

mentor caregiving behavior and its correlates with earlier secure base assessments, such as those described above. By recognizing the extension of attachment theory to mentor relationships, and focusing on the secure base concept, future work should delineate best practices for establishing, maintaining, and evolving the relationship, as well as supporting independence.

Conclusion

Although the early empirical work on attachment theory focused on infant-mother relationships, Bowbly (1979) described attachment behavior as characterizing 'human beings from the cradle to the grave'. Building on that awareness, this project is a contribution to our understanding of attachment, exploration and caregiving in early adulthood, specifically in a mentor-protégé relationship. In recognizing the significance of secure base behavior across the lifespan, mentoring should be understood as a normal process in development, rather than as a compensation for less-capable individuals. Such stigmatized attributions obfuscate our understanding of the processes involved in mentoring, how we might teach it, and who can benefit from it. Further, not recognizing the beneficial aspects of mentoring in normal development may also limit the diversity of individuals seeking mentor opportunities. The role that mentors play in normal development, and the high prevalence of mentoring in graduate training (Clark et al., 2000; Johnson, Koch, Fallow, & Huwe, 2000), on top of findings presented above, certainly indicate that protégés benefit from the relationship. The extended nature of the relationship and the close bond that forms between the dyad points to the benefits of attachment theory in refining our conceptualization and understanding of the nature and processes of the relationship, and provides a lens in which to examine it systematically.

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Tables

Table 2. Participant Demographics by STEM-status

Variable	Non-STEM (n = 59)	STEM (n = 53)
Mean Age (SD)	20.95 (1.33)	21.19 (1.14)
Ethnicity (%)		
Black or African-American	11.9	3.8
Hispanic or Latino	18.6	3.8
Caucasian	33.9	47.2
Asian	30.5	37.7
Other or Mixed	5.1	7.5

Table 3. Correlations of Attachment Script Assessment Narratives

Narrative	1.	2.	3.
1. Baby's Morning	--		
2. Doctor's Office	.44**	--	
3. The Party	.46**	.49**	--

** Pearson's Correlation is significant at the .01 level (2-tailed)

Table 4. Correlations of Interpersonal Support Evaluation List Subscales

ISEL Subscale	1.	2.	3.	4.
1. Tangible	--			
2. Belonging	.55**	--		
3. Appraisal	.46**	.55**	--	
4. Self-Esteem	.30**	.35**	.45**	--

** Pearson's Correlation is significant at the .01 level (2-tailed)

Table 5. Correlations of Social Support Measures

Measure	1.	2.	3.	4.
1. ISEL-Overall	--			
2. SSQ-Number	.46**	--		
3. SSQ-Satisfaction	.54**	.43**	--	
4. NOS	.46**	.24**	.40**	--

** Pearson's Correlation is significant at the .01 level (2-tailed)

Table 6. Correlations of Script Knowledge, Depression, Self-Esteem with Social Support

	Script Knowledge	Depression	Self-Esteem
ISEL-Overall	.07	-.55**	.58**
SSQ-Number	-.13	-.32**	.27**
SSQ-Satisfaction	-.08	-.34**	.37**
NOS	-.02	-.37**	.38**

**Pearson's Correlation is significant at the .01 level (2-tailed)

Table 7. Results of t-tests and Descriptive Statistics for Social Support by Mentor-Status

	Mentor-Status						95% CI for Mean		
	Yes			No					
Measure	M	SD	n	M	SD	n	Difference	*t*	df
SSQ-Number	4.51	1.74	44	3.82	1.53	62	-1.32, -.05	2.15*	104
SSQ-Satisfaction	5.32	.77	44	5.07	1.05	62	-.62, .12	1.33†	104
NOS	57.02	6.41	44	56.20	6.17	61	-3.29, 1.64	.67	103
ISEL-Overall	146.95	16.59	44	142.47	19.43	62	-11.65, 2.67	1.24	104

*$p < .05$
† $p < .10$

Table 8. Results of t-tests and Descriptive Statistics for Self-Esteem by Mentor-Status

	Mentor-Status						95% CI for Mean		
	Yes			No					
Measure	M	SD	n	M	SD	n	Difference	*t*	df
Personal Power	54.52	7.20	44	50.75	12.46	61	-.06, 7.60	1.95*	99
Global Self-Esteem	46.73	14.71	44	42.48	14.14	61	-1.34, 9.89	1.50†	103
Identity Integration	48.39	8.55	44	45.56	9.62	61	-.78, 6.43	1.56†	103
Lovable	55.84	12.34	44	54.10	13.27	61	-3.31, 6.80	.68	103
Likeability	53.75	10.96	44	52.25	12.89	61	-3.25, 6.26	.63	103
Competence	49.84	8.80	44	47.72	11.20	61	-1.91, 6.15	1.04	103

*$p < .05$
† $p < .10$

Table 9. Results of t-tests and Descriptive Statistics for University Relational Health by Mentor-Status

	Mentor-Status						95% CI for Mean		
	Yes			No					
Measure	M	SD	n	M	SD	n	Difference	*t*	df
Empowerment	15.16	4.77	44	14.91	5.11	58	-1.73, 2.22	.25	100
Engagement	14.23	4.42	44	14.46	4.73	61	-2.04, 1.57	-.25	103
Authenticity	12.19	2.78	43	12.15	3.37	61	-1.20, 1.28	.06	102

Table 10. Results of t-tests and Descriptive Statistics for University Relational Health by Mentor-Affiliation

	Mentor-Affiliation						95% CI for Mean		
	University-Affiliated			University-Unaffiliated					
Measure	M	SD	n	M	SD	n	Difference	*t*	df
Empowerment	16.14	4.19	21	14.26	5.17	23	-.10, 4.76	1.32	42
Engagement	15.62	3.92	21	12.96	4.55	23	.07, 5.26	2.07*	42
Authenticity	12.05	2.01	21	12.32	3.40	22	-2.00, 1.46	-.32	41

*$p < .05$

Table 11. Frequencies and Percentages of Mentor Affiliation by STEM-status

Mentor's Affiliation	Non-STEM % of Total and *n*	STEM % of Total and *n*
University-Affiliated	26.32% (*n* = 5)	64.00% (*n* = 16)
University-Unaffiliated	73.68% (*n* = 14)	36.00% (*n* = 9)

Table 12. Frequencies and Percentages of Mentor Education by STEM-status

Mentor's Education	Non-STEM % of Total and *n*	STEM % of Total and *n*
High School Degree	5.26% (*n* = 1)	4% (*n* = 1)
Some College	21.05% (*n* = 4)	0% (*n* = 0)
College Degree	15.79% (*n* = 3)	32% (*n* = 8)
Master's Degree	52.63% (*n* = 10)	32% (*n* = 8)
Advanced Degree (Ph.D., M.D.	5.26% (*n* = 1)	32% (*n* = 8)

Table 13. Correlations of Script Knowledge and Mentor-Provided Functions among Non-STEM Protégés

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Script Knowledge	--								
2. Guidance	.48*	--							
3. Advice	.53**	.67**	--						
4. Coaching	.43*	.67**	.88**	--					
5. Career Development	.43*	.54**	.75**	.87**	--				
6. Advocacy	.41*	.84**	.79**	.73**	.62**	--			
7. Learning	.38†	.69**	.91**	.95**	.80**	.72**	--		
8. Role Model	.37†	.48*	.61**	.81**	.83**	.48*	.69**	--	
9. Friendship	-.02	.30	-.20	-.21	-.03	.09	-.23	-.13	--

*Pearson's Correlation is significant at the .05 level (1-tailed)

**Pearson's Correlation is significant at the .01 level (1-tailed)

† $p < .10$

Table 14. Correlations of Script Knowledge and Mentor-Provided Functions among STEM Protégés

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Script Knowledge	--								
2. Guidance	.04	--							
3. Advice	-.20	.31†	--						
4. Coaching	-.11	.05	.63**	--					
5. Career Development	-.05	-.01	.72**	.78**	--				
6. Advocacy	-.17	.13	.58**	.68**	.76**	--			
7. Learning	.00	.30†	.73**	.80**	.76**	.78**	--		
8. Role Model	-.06	.15	.58**	.64**	.68**	.62**	.65**	--	
9. Friendship	.16	.63**	.13	-.04	-.15	-.22	-.01	-.08	--

*Pearson's Correlation is significant at the .05 level (1-tailed)

**Pearson's Correlation is significant at the .01 level (1-tailed)

† $p < .10$

Table 15. Correlations of Script Knowledge and Mentor-Provided Functions among All Protégés

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Script Knowledge	--								
2. Guidance	.13	--							
3. Advice	.02	.44**	--						
4. Coaching	.07	.28*	.71**	--					
5. Career Development	.13	.17	.72**	.80**	--				
6. Advocacy	.05	.40**	.65**	.70**	.71**	--			
7. Learning	.16	.44**	.77**	.84**	.77**	.76**	--		
8. Role Model	.10	.30*	.59**	.70**	.73**	.58**	.67**	--	
9. Friendship	.08	.53**	.07	-.06	-.10	-.10	-.08	-.08	--

*Pearson's Correlation is significant at the .05 level (1-tailed)

**Pearson's Correlation is significant at the .01 level (1-tailed)

† $p < .10$

Table 16. Correlations of Script Knowledge and Relational Health among Non-STEM Protégés

	1.	2.	3.	4.
1. Script Knowledge	--			
2. Mutual Engagement	.57**	--		
3. Sense of Empowerment	.18	.77**	--	
4. Sense of Authenticity	.27	.77**	.72**	--

**Pearson's Correlation is significant at the .01 level (2-tailed)

Table 17. Correlations of Script Knowledge and Relational Health among STEM Protégés

	1.	2.	3.	4.
1. Script Knowledge	--			
2. Mutual Engagement	.08	--		
3. Sense of Empowerment	-.13	.61**	--	
4. Sense of Authenticity	.00	.75**	.66**	--

**Pearson's Correlation is significant at the .01 level (2-tailed)

Table 18. Correlations of Script Knowledge and Relational Health among All Protégés

	1.	2.	3.	4.
1. Script Knowledge	--			
2. Mutual Engagement	.24†	--		
3. Sense of Empowerment	-.03	.69**	--	
4. Sense of Authenticity	.09	.76**	.69**	--

**Pearson's Correlation is significant at the .01 level (2-tailed)

† $p < .10$

Table 19. Multiple Regression Analysis for Variables Predicting Mentor Advice

Variable	B	SE	β
Model 1			
STEM-Status	-2.29	1.69	-.21
Script Knowledge	.22	.81	.04
Model 2			
STEM-Status	-2.14	1.63	-.20
Script Knowledge	1.98	1.17	.38†
STEM-Status x Script Knowledge	-3.20	1.57	-.45*

*p < .05

Table 20. Multiple Regression Analysis for Variables Predicting Mentor Relationship Engagement

Variable	B	SE	β
Model 1			
STEM-Status	-1.35	.65	-.30
Script Knowledge	.57	.31	.27
Model 2			
STEM-Status	-1.31	.64	-.29*
Script Knowledge	1.04	.46	.48*
STEM-Status x Script Knowledge	-.85	.62	-.29

*p < .05

Figures

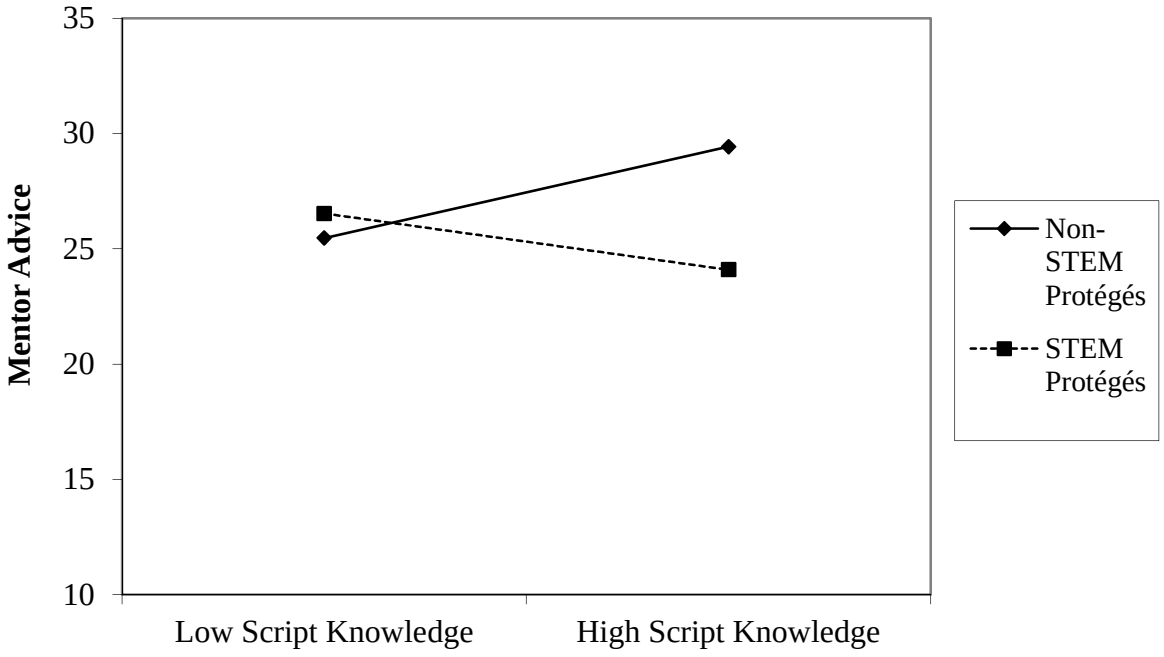

Figure 1. Predicted Mentor-provided Advice of Protégés with High (1 SD above mean) and Low (1 SD below mean) Levels of Script Knowledge by STEM-Status

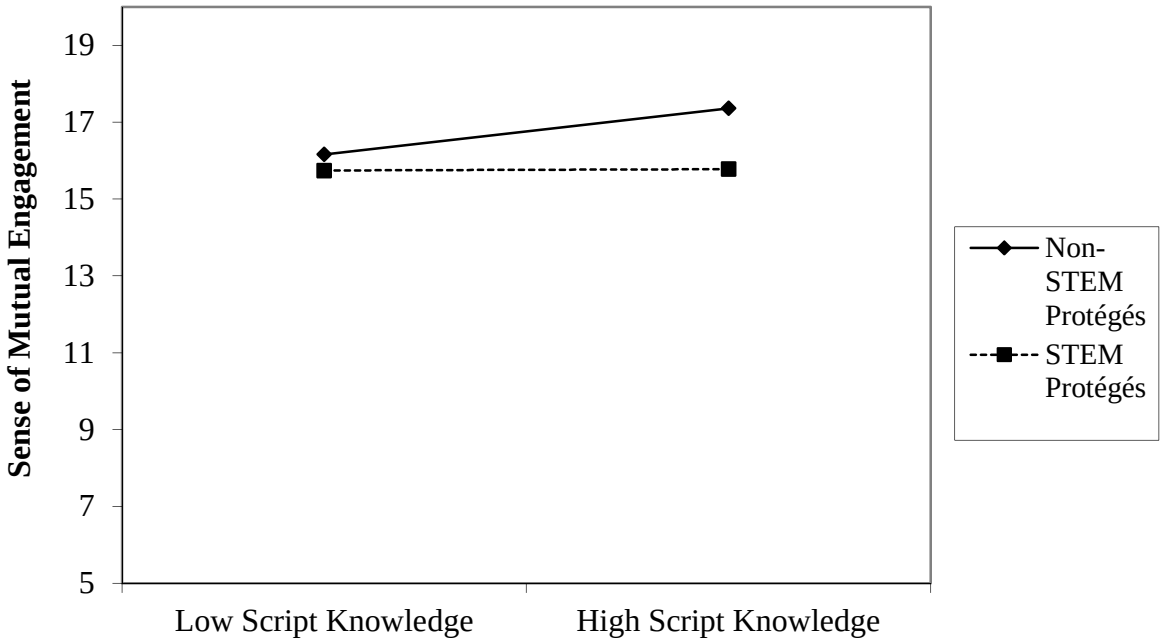

Figure 2. Predicted Mutual Engagement in Mentor Relationship of Protégés with High (1 SD above mean) and Low (1 SD below mean) Levels of Script Knowledge by STEM-Status

Appendix

Appendix A – Attachment Script Assessment (ASA)

Narrative Prompt Word Outlines – Attachment Script Assessment

<u>Practice Story</u>

Trip to Park

Susie	swings	tired
bike	sandbox	bench
park	game	comics
friend	run	coke

- -

<u>Attachment Narratives</u>

Baby's Morning

mother	hug	teddy bear
baby	smile	lost
play	story	found
blanket	pretend	nap

- -

Doctor's Office

Tommy	hurry	mother
bike	doctor	toy
hurt	cry	stop
mother	shot	hold

- -

The Party

Friday night	sulk	TV
party	couch	movie
Ann uninvited	Mom	popcorn
miserable	talk	smile

- -

Appendix B – Background Questionnaire (BQ)

Which of the following best describes your race/ethnicity?

_____ Black or African-American

_____ Hispanic or Latino

_____ White

_____ East Asian

_____ South East Asian

_____ American Indian or Alaska Native

_____Other or Mixed (Please Specify): _____

What is your age? _____

What is your gender? _____ Female

_____ Male

What was your mother's highest level of education?

_____ less than high school degree

_____ high school degree

_____ some college

_____ college degree

_____ master's degree

_____ advanced degree (Ph.D., M.D.)

What was your father's highest level of education?

_____ less than high school degree

_____ high school degree

_____ some college

_____ college degree

_____ master's degree

_____ advanced degree (Ph.D., M.D.)

What is your academic standing:

_____ Freshman

_____ Sophomore

_____ Junior

_____ Senior

_____ Other: (please specify) _____

What is your academic major: _____

What kind of academic degree are you studying toward?

_____ Bachelor of Arts (B.A.)

_____ Bachelor of Science (B.S.)

_____ Bachelor of Engineering (B.E.)

_____ Other: (please specify) _____

Are you a member of the Women in Science & Engineering (WISE) Program at Stony Brook University?

_____ Yes

_____ No

Mentoring is a relationship between an older, more experienced individual (other than your parents) and an unrelated, younger protégé—a relationship in which the mentor provides ongoing guidance, instruction, and encouragement aimed at developing the competence and character of the protégé.

Is there someone in your life whom you can call a mentor <u>currently</u>?

_____ Yes

_____ No

Appendix C – Interpersonal Support Evaluation List (ISEL)

Instructions
This scale is made up of a list of statements each of which may or may not be true about you. For each statement check "definitely true" if you are sure it is true about you and "probably true" if you think it is true but are not absolutely certain. Similarly, you should check "definitely false" if you are sure the statement is false and "probably false" if you think it is false but are not absolutely certain.

Although some questions may be difficult to answer, it is important that you choose one alternative or the other. Remember that this is not a test and there are no right or wrong answers.

Tangible Scale

1. I know someone who would loan me $50 so I can go away for a weekend.

2. I know someone who would give me some old dishes if I moved into my own apartment.

3. I know someone who would loan me $100 to help pay my tuition.

4. If I needed it, my family would provide me with an allowance and spending money.

5. If I needed a date for a party next weekend, I know someone at school or in town who would fix me up.

6. I know someone at school or in town who would bring me meals if I were sick.

7. I don't know someone who would loan me several hundred dollars to help pay a doctor or dental bill.

8. I don't know anyone who would give me some old furniture if I moved into my own apartment.

9. Even if I needed it my family would (or could) not give me money for tuition and books.

10. I don't know anyone at school or in town who would help me study by spending several hours reading me questions.

11. I don't know anyone at school or in town who would loan me their car for several hours.

12. I don't know anyone at school or in town who would get me my assignments from my teachers if I were sick.

Belonging Scale

1. There are people at school or in town who I regularly run with, exercise with, or play sports with.

2. I hang out in a friend's room or apartment quite a lot.

3. I can get a date who I enjoy spending time with anytime I want.

4. If I decided at dinner to take a study break and go to a movie, I can easily find someone to go with me.

5. People hang out in my room or in my apartment during the day or in the evening.

6. I belong to a group at school or in town that meets regularly or does things together regularly.

7. I am not a member of any social groups (such as church groups, clubs, teams, etc.).

8. Lately, I often feel lonely, like I don't have anybody to reach out to.

9. I don't have friends at school or in town who would comfort me by showing physical affection.

10. I don't often get invited to do things with other people.

11. I don't talk to a member of my family at least once a week.

12. I don't usually spend two evenings on the weekend doing something with others.

Appraisal Scale

1. I know someone who I see or talk to often with whom I would feel perfectly comfortable talking about problems I might have budgeting my time between school and my social life.

2. I know someone who I see or talk to often with whom I would feel perfectly comfortable talking about any problems I have adjusting to college life.

3. I know someone who I see or talk to often with whom I would feel perfectly comfortable talking about sexually transmitted diseases.

4. I know someone who I see or talk to often with whom I would feel perfectly comfortable talking about any problems I have meeting new people.

5. I know someone who I see or talk to often with whom I would feel perfectly comfortable discussing any sexual problems I have.

6. I know someone who I see or talk to often with whom I would feel perfectly comfortable talking about any problems with drugs I might have.

7. There isn't anyone at school or in town with whom I would feel perfectly comfortable talking about any problems I might have making friends.

8. There isn't anyone at school or in town with whom I would feel perfectly comfortable talking about any problems I might have getting along with my parents.

9. There isn't anyone at school or in town with whom I would feel perfectly comfortable talking about difficulties with my social life.

10. There isn't anyone at school or in town with whom I would feel perfectly comfortable talking about my feelings of loneliness and depression.

11. I don't know anyone at school or in town who makes my problems clearer and easier to understand.

12. Lately, when I've been troubled, I keep things to myself.

Self-Esteem Scale

1. Most people who know me well think highly of me.

2. Most of my friends think that I'm smart.

3. Most of my friends don't do as well as I do in school.

4. I will have a better future than most other people will.

5. Most of my friends have not adjusted as easily to college as I have.

6. Most people think that I have a good sense of humor.

7. I don't feel friendly with any teaching assistants, professors, campus or student officials.

8. Most of my friends are more satisfied or happier with themselves than I am.

9. Most of my friends are more popular than I am.

10. Most of my friends are more interesting than I am.

11. Most of my friends have more control over what happens to them than I.

12. Most people are more attractive than I am.

Appendix D – Social Support Questionnaire-6 (SSQ-6)

Instructions:

The following questions ask about people in your life who provide you with help or support. Each question has two parts. For the first part, list all the people you know, excluding yourself, whom you can count on for help or support in the manner described. Give the person's initials and their relationship to you (see example). Do not list more than one person next to each of the numbers beneath the question.

For the second part, circle how satisfied you are with the overall support you have.

If you have no support for a question, check the words "No one," but still rate your level of satisfaction. Do not list more than nine persons per question.

Please answer all questions as best you can. All your answers will be kept confidential.

Example:

Who do you know whom you can trust with information that could get you in trouble?

No one	1) T.N. (brother)	4) T.N. (father)	7)
	2) L.M. (friend)	5) L.M. (employer)	8)
	3) R.S. (friend)	6)	9)

How Satisfied?

6 – very satisfied	5 – fairly satisfied	4 – a little Satisfied	3 – a little dissatisfied	2 – fairly dissatisfied	1 – very dissatisfied

1. Whom can you really count on to be dependable when you need help?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How Satisfied?

6 – very satisfied	5 – fairly satisfied	4 – a little satisfied	3 – a little Dissatisfied	2 – fairly dissatisfied	1 – very dissatisfied

2. Whom can you really count on to help you feel more relaxed when you are under pressure or tense?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How Satisfied?

6 – very satisfied	5 – fairly satisfied	4 – a little satisfied	3 – a little Dissatisfied	2 – fairly dissatisfied	1 – very dissatisfied

3. Who accepts you totally, including both your worst and your best points?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How Satisfied?

6 – very satisfied	5 – fairly satisfied	4 – a little satisfied	3 – a little Dissatisfied	2 – fairly dissatisfied	1 – very dissatisfied

4. Whom can you really count on to care about you, regardless of what is happening to you?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How Satisfied?

6 – very satisfied	5 – fairly satisfied	4 – a little satisfied	3 – a little Dissatisfied	2 – fairly dissatisfied	1 – very dissatisfied

5. Whom can you really count on to help you feel better when you are feeling generally down-in-the- dumps?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How Satisfied?

6 – very satisfied	5 – fairly satisfied	4 – a little satisfied	3 – a little Dissatisfied	2 – fairly dissatisfied	1 – very dissatisfied

6. Whom can you count on to console you when you are very upset?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How Satisfied?

6 – very satisfied	5 – fairly satisfied	4 – a little satisfied	3 – a little Dissatisfied	2 – fairly dissatisfied	1 – very dissatisfied

Appendix E – Network Orientation Questionnaire (NOS)

Instructions: For each statement, participants select either: Circle the most accurate description of your opinion.

1. Sometimes it is necessary to talk to someone about your problems.
2. Friends often have good advice to give.
3. You have to be careful who you tell personal things to. (-)
4. I often get useful information from other people.
5. People should keep their problems to themselves. (-)
6. It's easy for me to talk about personal and private matters.
7. In the past, friends have really helped me out when I've had a problem.
8. You can never trust people to keep a secret. (-)
9. When a person gets upset they should talk it over with a friend.
10. Other people never understand my problems. (-)
11. Almost everyone knows someone they can trust with a personal secret.
12. If you can't figure out your problems, nobody can. (-)
13. In the past, I have rarely found other people's opinions helpful when I have a problem. (-)
14. It really helps when you are angry to tell a friend what happened.
15. Some things are too personal to talk to anyone about. (-)
16. It's fairly easy to tell who you can trust, and who you can't. (-)
17. In the past, I have been hurt by people I confided in. (-)
18. If you confide in other people, they will take advantage of you. (-)
19. It's okay to ask favors of people.
20. Even if I need something, I would hesitate to borrow it from someone. (-)

Appendix F – Relational Health Index (RHI)

Next to each statement below, please indicate the number that best applies to your relationship with a close friend.

1=Never; 2=Seldom; 3=Sometimes; 4=Often; 5=Always

RHI-M

Next to each statement below, please indicate the number that best applies to your relationship with your most important mentor.

1=Never; 2=Seldom; 3=Sometimes; 4=Often; 5=Always

1. I can be genuinely myself with my mentor.
2. I believe my mentor values me as a whole person (e.g., professionally/academically and personally).
3. My mentor's commitment to and involvement in our relationship exceeds that required by his/her social/ professional role.
4. My mentor shares stories about his/her own experiences with me in a way that enhances my life.
5. I feel as though I know myself better because of my mentor.
6. My mentor gives me emotional support and encouragement.
7. I try to emulate the values of my mentor (such as social, academic, religious, physical/athletic).
8. I feel uplifted and energized by interactions with my mentor.

9. My mentor tries hard to understand my feelings and goals (academic, personal, or whatever is relevant).

10. My relationship with my mentor inspires me to seek other relationships like this one.

11. I feel comfortable expressing my deepest concerns to my mentor.

RHI-SB

Next to each statement below, please indicate the number that best applies to your relationship with or involvement in the Stony Brook University (SBU) community.

1=Never; 2=Seldom; 3=Sometimes; 4=Often; 5=Always

1. I feel a sense of belonging to this community.

2. I feel better about myself after my interactions with this community.

3. If members of this community know something is bothering me, they ask me about it.

4. Members of this community are not free to just be themselves. (R)

5. I feel understood by members of this community.

6. I feel mobilized to personal action after meetings within this community.

7. There are parts of myself I feel I must hide from this community. (R)

8. It seems as if people in this community really like me as a person.

9. There is a lot of backbiting and gossiping in this community. (R)

10. Members of this community are very competitive with each other. (R)

11. I have a greater sense of self-worth through my connection with this community.

12. My connections with this community are so inspiring that they motivate me to pursue relationships with other people outside this community.

13. This community has shaped my identity in many ways.

14. This community provides me with emotional support.

Appendix G – Mentoring Functions Questionnaire (MFQ)

In this part of the questionnaire we ask you to consider a range of possible **functions** provided by mentors in a mentoring relationship. We ask you to rate **the extent** to which these functions are provided by your mentor. Please remember to keep in mind the **particular mentoring relationship** you have identified for the purpose of this questionnaire.

To what extent do you see your mentor as...

	Not at all			Moder-ately			Very much
1. Someone who is an effective role model	1	2	3	4	5	6	7
2. Someone whose approaches, attitudes and values the mentee admires and would like to develop	1	2	3	4	5	6	7
3. Someone who displays skills and behaviours that the mentee would like to learn	1	2	3	4	5	6	7
4. Someone the mentee wants to emulate – in terms of what they know and who they are	1	2	3	4	5	6	7
5. Someone who introduces the mentee to networks of people who can assist with her/his career	1	2	3	4	5	6	7
6. Someone who provides the mentee with developmental opportunities to participate in new and/or different tasks	1	2	3	4	5	6	7
7. Someone who makes the mentee aware of, and encourages the mentee to take advantage of, opportunities or promotions that are available	1	2	3	4	5	6	7
8. Someone with whom the mentee gets together socially outside the work setting	1	2	3	4	5	6	7
9. Someone who is a mutual confidant for the mentee to share personal values and beliefs, views and interests	1	2	3	4	5	6	7
10. Someone with whom the mentee has a friendship	1	2	3	4	5	6	7
11. Someone who offers or appoints the mentee to a job	1	2	3	4	5	6	7
12. Someone who promotes, recommends and advocates the mentee to "people that count"	1	2	3	4	5	6	7
13. Someone who "goes into bat" for the mentee and/or uses their power or influence on the mentee's behalf	1	2	3	4	5	6	7
14. Someone whose reputation reflects positively on the mentee	1	2	3	4	5	6	7
15. Someone who supports and helps guide the mentee's personal development	1	2	3	4	5	6	7
16. Someone who supports and helps guide the mentee's professional development	1	2	3	4	5	6	7
17. Someone who encourages the mentee to discuss personal issues, insecurities and aspirations	1	2	3	4	5	6	7
18. Someone who discusses and helps with decisions re balancing professional and personal issues and commitments	1	2	3	4	5	6	7
19. Someone who shows understanding of the mentee's feelings and	1	2	3	4	5	6	7

emotions

20. Someone who actively listens to, and acts as a sounding board for the mentee	1	2	3	4	5	6	7
21. Someone who advises and guides the mentee generally with regard to his/her career	1	2	3	4	5	6	7
22. Someone who provides specific practical assistance to advance the mentee's career (e.g. give feedback on CV's, discussion of selection processes)	1	2	3	4	5	6	7
23. Someone who discusses and/or provides advice on how to handle internal politics	1	2	3	4	5	6	7
24. Someone who provides knowledge about the system or strategies for working within the system	1	2	3	4	5	6	7
25. Someone who shares "inside knowledge" or passes information down from higher levels	1	2	3	4	5	6	7
26. Someone who provides strategic advice for handling certain situations and/or people	1	2	3	4	5	6	7
27. Someone who provides feedback and/or alternative perspectives on the mentee's ideas	1	2	3	4	5	6	7
28. Someone who shares the wealth of their experience to enhance the mentee's understanding or learning	1	2	3	4	5	6	7
29. Someone who shares information and knowledge	1	2	3	4	5	6	7
30. Someone who makes the mentee feel important and/or a priority	1	2	3	4	5	6	7
31. Someone who provides affirmation of the mentee's behaviour and/or self	1	2	3	4	5	6	7
32. Someone who provides emotional support and encouragement	1	2	3	4	5	6	7
33. Someone who facilitates the mentee in thinking things through for him/herself	1	2	3	4	5	6	7
34. Someone who provides support, assistance or guidance for undertaking tasks or projects	1	2	3	4	5	6	7
35. Someone with whom the mentee reflects on a particular work situation or incident and provides feedback on it for future improvement	1	2	3	4	5	6	7
36. Someone who shares an experience to help illustrate a particular point for learning	1	2	3	4	5	6	7
37. Someone who provides professional or technical advice	1	2	3	4	5	6	7
38. Someone who provides assistance in developing job related skills and knowledge	1	2	3	4	5	6	7
39. Someone who provides performance feedback on work tasks or projects	1	2	3	4	5	6	7

Appendix H – Multidimensional Self Esteem Inventory (MSEI)

On a scale from 1-8, where 1 is 'Never' and 8 is 'Always', please answer the following questions.

GLOBAL SELF ESTEEM

21. I occasionally have doubts about whether I will succeed in life.(-)
43. I sometimes have a poor opinion of myself.(-)
12. I put myself down too much.(-)
4. All in all, I would evaluate myself as a relatively successful person at this stage of my life.
27. I nearly always have a highly positive opinion of myself.
24. How often do you feel disatisfied with yourself?(-)
2. How often do you feel that you are a very important and significant person?
30. How often do you feel good about yourself?
40. How often do you feel highly satisfied with the future you see for yourself?
46. How often do you feel lacking in self-confidence?(-)

LOVABLE

54. I have trouble letting others know how much I care for and love them.(-)
58. There are times when I have doubts about my capacity for maintaining a close love relationship.(-)

34. In times of uncertainty and self doubt, I have always been able to turn to my family for encouragement and support.

60. There have been times when I have felt rejected by my family.(-)

8. I occasionally feel that no one really loves me and accepts me for the person I am. (-)

23. How often do you feel confident that you have (or someday will have) a lasting love relationship?

15. How often do members of your family have difficulty expressing their love for you?(-)

16. How often do you feel able to openly express warm and loving feelings toward others?

42. Have you ever felt alone and unloved?(-)

35. How often do people whom you love go out of their way to let you know how much they care for you?

LIKEABILITY

39. I am very well-liked and popular.

13. I sometimes feel disappointed or rejected because my friends haven't included me in their plans.(-)

9. My friends almost always make sure to include me in their plans.

22. On occasion I have avoided dating situations because I feared rejection.(-)

31. People nearly always enjoy spending time with me.

5. When you are meeting a person for the first time, do you ever think that

the person might not like you?(-)

33. How often do you feel certain that people you meet will like you?

19. Does it ever seem to you that some people dislike you intensely, that they can't stand you.(-)

11. When you go out with someone for the first time, how often do you feel that you are well liked?

28. How often do you feel that you are one of the most popular and likable members of your social group?

COMPETENCE

56. I am usually able to demonstrate my competence when I am being evaluated.

45. Most people who know me consider me to be a highly talented and competent person.

7. There are no areas in which I have truly oustanding ability.(-)

44. I am usually able to learn new things very quickly.

29. How often do you expect to perform well in situations that require a lot of ability?

17. How often do you have trouble learning difficult new tasks?(-)

53. How often do you feel that you can do well at almost anything you try?

55. Have you ever felt that you lack the intelligence needed to succeed in certain types of interesting work?(-)

1. How often do you feel uneasy when you are not as intelligent as you would like to be?(-)

41. How often do you approach new tasks with a lot of confidence in your ability?

PERSONAL POWER

20. I am not easily intimidated by others.

50. I am usually a lot more comfortable being a follower than a leader.(-)

26. I have no problem asserting myself.

51. I feel that I have a lot of potential as a leader.

48. How often do you lose when you get into arguments or disagreements with others?(-)

25. When you are involved in group discussions, how often do you feel that your ideas have a strong influence on others?

36. How often are you able to be assertive and forceful in situations where others are trying to take advantage of you?

37. Do you enjoy it when you are in a position of leadership?

38. How often do you feel uneasy when you are in a position of leadership?(-)

57. How often do you have a strong influence on the attitudes and opinions of others?

IDENTITY INTEGRATION

47. It is often hard for me to make up my mind about things because I don't really know what I want.(-)

6. In general, I know who I am and where I am headed in my life.

10. Once I have considered an important decision thoroughly, I have little difficulty making a final decision.

32. I seldom experience much conflict between the different sides of my personality.

18. I don't have much of an idea about what my life will be like in 5 years.(-)

59. I often feel that I lack direction in my life -i.e., that I have no long-range goals or plans.(-)

3. Sometimes it's hard for me to believe that the different aspects of my personality can be part of the same person.(-)

14. I often feel torn in different directions and unable to decide which way to go.(-)

49. How often do you feel very certain what you want out of life?

52. How often do you feel conflicted or uncertain about your career plans?

Appendix I – Relationship Qualities Questionnaire (RQQ)

The following questions explore different aspects about your relationship with your mentor. All of the questions should be answered in regards to the specific mentor you identified previously. If you have more than one mentor, please only consider your primary mentor.

In order to help you keep this person in mind, please indicate his or her initials: _____

Social Support

1. In the broadest sense (e.g. social, emotional, tangible, etc.), how satisfied are you with the level of support your primary mentor provides (1 = Not at all Satisfied and 8 = Very Satisfied)?

_____

Humor

2. Humor can play a useful role in mentoring relationships. To what extent does humor play a useful role in your relationship (1= None at all; 8 = A great deal)? _____

Conflict

Conflict can be a normal part of relationships, and can strengthen them. Conflict can also be detrimental to a relationship.

3. To what extent do you experience *constructive* conflict with your mentor (1= None at all; 8 = A great deal)? _____

4. To what extent to you experience *detrimental* conflict with your mentor (1= None at all; 8 = A great deal)? _____

Depth

5. Some relationships are more significant than others. On a scale of 1-100, where 1 = Least Significant Relationship, and 100 = Most Significant Relationship, how significant in your life is the relationship with your mentor? _____

Feeling Thermometer

6. We would like to get your feelings toward your mentor using a 'feeling thermometer'. On a scale from 1-100, where 1 = Very Cold, 50 = Neither Warm or Cold, and 100 = Very Warm, how do you feel toward your mentor? _____

Duration

7. How long have you known the person who is now your primary mentor (in months, e.g. 1 year = 12 months)?

_____ < 1 month

_____ 1- 6 months

_____ 6-12 months

_____ 12-18 months

_____ More than 18 months (Please Specify, in months): _____

8. How long have you been in a mentoring relationship with the person who is now your primary mentor (in months, e.g. 1 year = 12 months)?

_____ < 1 month

_____ 1- 6 months

_____ 6-12 months

_____ 12-18 months

_____ More than 18 months (Please Specify, in months): _____

9. In a typical two week period, how many times do you work with or are in communication with your primary mentor (i.e. this includes all forms of communication, including face-to-face, e-mail, etc.)?

_____ < 1 time

_____ 2 times

_____ 3 times

_____ 4 times

_____ 5 times

_____ More than 5 times (Please Specify): _____

Appendix J – Beck Depression Inventory (BDI)

Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the one statement in each group that best describes the way you have been feeling during the past two weeks, including today. Circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group, including Item 16 (Changes in Sleeping Pattern) or Item 18 (Changes in Appetite).

1. Sadness

0 I do not feel sad.

1 I feel sad much of the time.

2 I am sad all the time.

3 I am so sad and unhappy that I can't stand it.

2. Pessimism

0 I am not discouraged about my future.

1 I feel more discouraged about my future than I used to be.

2 I do not expect things to work out for me.

3 I feel my future is hopeless and will only get worse.

3. Past Failure

0 I do not feel like a failure.

1 I feel I have failed more than I should have.

2 As I look back, I see a lot of failures.

3 I feel I am a total failure as a person.

4. Loss of Pleasure

0 I get as much pleasure as I ever did from the things I enjoy.

1 I don't enjoy things as much as I used to.

2 I get very little pleasure from the things I used to enjoy.

3 I can’t get any pleasure from the things I used to enjoy.

5. Guilty Feelings

0 I don't feel particularly guilty

1 I feel guilty over many things I have done or should have done.

2 I feel quite guilty most of the time.

3 I feel guilty all of the time.

6. Punishment Feelings

0 I don't feel I am being punished.

1 I feel I may be punished.

2 I expect to be punished.

3 I feel I am being punished.

7. Self-Dislike

0 I feel the same about myself as ever.

1 I have lost confidence in myself.

2 I am disappointed in myself.

3 I dislike myself.

8. Self-Criticalness

0 I don't criticize or blame myself more than usual.

1 I am more critical of myself than I used to be.

2 I criticize myself for all of my faults.

3 I dislike myself.

9. Crying

0 I don't cry any more than I used to.

1 I cry more than I used to.

2 I cry over every little thing.

3 I feel like crying, but I can’t.

10. Agitation

0 I am no more restless or wound up than usual.

1 I feel more restless or wound up than usual.

2 I am so restless or agitated that I have to keep moving or doing something.

3 It’s hard to get interested in anything.

11. Loss of Interest

0 I have not lost interest in other people or activities.

1 I am less interested in other people or things than before.

2 I have lost most of my interest in other people or things.

3 It’s hard to get interested in anything.

12. Indecisiveness

0 I make decisions about as well as I ever could.

1 I find it more difficult to make decisions than usual.

2 I have much greater difficulty in making decisions than I used to.

3 I have trouble making any decisions.

13. Worthlessness

0 I do not feel I am worthless.

1 I don’t consider myself as worthwhile and useful as I used to.

2 I feel more worthless as compared to other people.

3 I feel utterly worthless.

14. Loss of Energy

0 I have as much energy as ever.

1 I have less energy than I used to have.

2 I don't have enough energy to do very much.

3 I don't have enough energy to do anything.

15. Changes in Sleeping Pattern

0 I have not experienced any change in my sleeping pattern.

1a I sleep somewhat more than usual.

1a I sleep somewhat less than usual.

2a I sleep a lot more than usual.

2b I sleep a lot less than usual.

3a I sleep most of the day.

3b I wake up 1-2 hours early and can't get back to sleep.

16. Irritability

0 I am no more irritable than usual.

1 I am more irritable than usual.

2 I am much more irritable than usual.

3 I am irritable all the time.

17. Changes in Appetite

0 I have not experienced any change in my appetite.

1a My appetite is somewhat less than usual.

1b My appetite is somewhat greater than usual.

2a My appetite is much less than before.

2b My appetite is much greater than usual.

3a I have no appetite at all.

3a I crave for food all the time.

18. Concentration Difficulty

0 I can concentrate as well as ever.

1 I can't concentrate as well as usual.

2 It's hard to keep my mind on anything for very long.

3 I find I can't concentrate on anything.

19. Tiredness or Fatigue

0 I am no more tired or fatigued than usual.

1 I get more tired or fatigued more easily than usual.

2 I am too tired or fatigued to do a lot of the things I used to do.

3 I am too tired or fatigued to do most of the things I used to do.

20. Loss of Interest in Sex

0 I have not noticed any recent change in my interest in sex.

1 I am less interested in sex than I used to be.

2 I am much less interested in sex now.

3 I have lost interest in sex completely