MAKING THE CONNECTION: HOW MENTORS CHOOSE PROTÉGÉS IN

ACADEMIC MENTORING RELATIONSHIPS

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Among other things, mentoring research is concerned with how mentors go about the process of choosing who they should mentor. Even when mentoring relationships are assigned, mentors need to feel that the efforts they are putting forth are worth the time and energy. What protégé attributes best attract the attention of a mentor? What mentor attributes make some protégés more attractive to them than others? This study looks at 3 explanations for mentor-protégé attraction, shedding light on the mental processes that influence why some protégés find it easy to get mentors and why some have a much tougher time finding the right person to mentor them. Practical and theoretical implications of this study are included.

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To my family, friends, and those I've worked with here at UNT: "thank you" to you all, and Godspeed …

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CHAPTER 1

INTRODUCTION

The ancient and epic poem *The Odyssey*, attributed to the Greek author Homer, tells of the voyages of the Ithacan King Odysseus (sometimes spelled "Ulysses") who participated in the 10-year assault on Troy and wandered another 10 years on his way back home. Before sailing off to war, Odysseus put an old friend in charge of his infant son, Prince Telemachus, to help the prince become "better equipped to meet the challenges he faced throughout life" (Caravalho & Maus, 1996, p. 17). The old friend guarded, guided, and taught Telemachus during the 20 years required for Odysseus to return to Ithaca, proving himself to be true to the commitment he made to his king. Always encouraging the boy to grow in wisdom and courage, the old friend provided support and resources as necessary to help the prince develop into a fine and stalwart young man. That dedicated old friend's name was Mentor.

Modern use of the *mentor* title to mean "one who helps a *protégé*" began with a French book based upon the life of Telemachus, written at the end of the 17th century (Roberts, 1999). Today, adaptations of the mentor/protégé theme can be seen in popular stories, such as with Batman mentoring Robin or Luke Skywalker being mentored by Obi-wan Kenobi. Through these examples and others, the concept of a generally older, more experienced individual taking a younger, less experienced individual "under his or her wing" has become familiar to most people. However, there is no one agreed-upon and concise scientific definition of exactly what mentorship is or does. Johnson and Nelson (1999) noted underlying themes upon which "there is strong agreement that mentoring relationships include: access to information, sponsorship,

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exposure, promotion, protection, role-modeling, teaching, coaching, training, socialization, challenge, and values clarification" (p. 192), but they also called modern use of mentoring terms "highly variable" (p. 191) and professed that the details regarding mentoring relationships are incomplete and still widely debated. Building an agreed-upon scholarly description of the structure, processes, precursors, and outcomes of mentoring is the goal of mentoring research, and this study has been designed to contribute toward that goal.

Background

The traditional structure of mentoring involves a dyadic relationship in which an expert aids a novice, usually in a professional capacity (Hunt & Michael, 1983; O'Neill, Wagner, & Gomez, 1996). From Bennetts (1994, p. 4): "A mentor is that person who achieves a one to one developmental relationship with a learner; and one whom the learner identifies as having enabled personal growth to take place" (as cited in Buell, 2004, p. 56-57). Within the university environment, Sands, Parson, and Duane (1991) defined a mentor "as a person who serves as a guide or sponsor, that is, who looks after, advises, protects and takes a special interest in another's development" (p. 175). Other meaningful relationships that can involve mentoring-like activities have been evaluated by theorists, such as peers, family, religion, and even self-help books or personal contemplation (Kram & Isabella, 1985; Eby, 1997; Ensher, Thomas & Murphy, 2001). They have also looked at developmental relationships that are not individually comprehensive: for example, networks (Higgins & Kram, 2001), secondary mentors (Russell & Adams, 1997), or multiple mentors (Baugh & Scandura, 1999). Within this study, however, *mentoring* is referred to in its traditional, intensive, and dyadic form.

Jacobi (1991) gave 5 components underlying this form: 1) the primary focus of the relationship is to help the protégé achieve broad long-term goals; 2) the activities they engage in include a blend of emotional support, direct assistance, and role modeling; 3) there is a reciprocal element in which the mentor receives back from the protégé; 4) it is a personal, insider-view relationship for the participants; and 5) the mentor has greater experience and power (p. 513). Johnson (2003) was more concise, simply calling mentoring a career relationship that involves reciprocity and mutuality and accomplishes an identity transformation in the protégé (p. 129). The definition used to guide this particular investigation, given the study's participant-defined motivational factors and academic setting, has been the longer and more inclusive one coming from Johnson (2002):

> Mentoring is a personal relationship in which a more experienced (usually older) faculty member or professional acts as a guide, role model, teacher, and sponsor of a less experienced (usually younger) graduate student or junior professional. A mentor provides the protégé with knowledge, advice, challenge, counsel, and support in the protégé's pursuit of becoming a full member of a particular profession. Mentorship connotes a unique and distinctive personal relationship. Mentorship may incorporate a wide range of roles (e.g. teaching, advising, supervising, counseling, friendship), yet the whole is clearly more than the sum of these parts. (p. 88-89)

The mentor's roles alluded to above are generally divided into 3 major sets of functions: 1) *career* activities that include teaching, advising, counseling, or otherwise transferring direct and pertinent knowledge to the protégé; 2) *psycho-social* roles that provide emotional and social support to address the protégé's affective and networking needs; and 3) *role-modeling*, defined as performing in a visible manner and allowing the protégé to see first-hand how a professional acts, thinks, organizes, and responds (Kram, 1983; Scandura & Katerberg, 1988; Scandura, 1992). These 3 sets of mentoring

functions have held up well under review, although their precise definitions and components are still regularly questioned (Wanberg, Welsh & Hezlett, 2003).

The basic theories underlying how mentoring is perceived to work parallel Vygotsky's (1978) descriptions of an experienced person helping an inexperienced one learn more than the latter could have learned alone (defining his so-called "zone of proximal development"). Mentoring activities also can be related to "scaffolding," process structures that are intended to direct, clarify, guide, and give feedback to the learner (McKenzie, 2000; McLoughlin, 2002), and they can take active (planned, intentional) or passive (presence, modeled) forms (Johnson, Simpson, Williams, & Kotarba, 1993). It is not vital for the mentor to identify the relationship as a mentorship, so long as he or she plays the role (Johnson, Digiuseppe, & Ulven, 1999). What appears to be the most important component of mentorship, separating it from other relationships, is that the bond plays a key factor in a developmental transition that is valued by the protégé (Spencer, 2007). Becoming a mentor, therefore, could at times be more subtle of an act than an outright identifiable decision.

The first stage of a mentoring relationship, called *initiation* (Kram, 1983), involves the parties developing their personal (and often idealistic) expectations for the relationship and starting to learn more about one another (Mullen, 1994). The very beginning of this stage includes a *selection* event (Ragins & Cotton, 1991): that which occurs as the mentor decides who, from all available possibilities, will be his or her protégé (even if the selection is somewhat subconscious). Selection is an extremely important first-step to understand in the mentoring relationship, for its result will set the stage for all of the other structures and activities to follow.

In this study, the mechanics of selection are squarely examined: who mentors would pick as their protégés and why. The reasons some protégés are selected and some are not has been considered before: for instance, Olian, Carroll, and Ginnantonio, 1993; Allen, Poteet, and Russell, 2000; and Allen, 2004. However, these studies have generally suffered from instruments that carry multiple interpretations, lack of a within-subjects design, or failure to consider mentor traits that could influence their protégé choices. The current study contributes to the mentoring literature by addressing these issues. In fact, Allen et al. (2000) specifically stated that "future research using an experimental within-subjects design where mentors choose from among several potential protégés with varying characteristics may be helpful in further delineating who is more likely to attract the attention of a mentor. Research is also needed that links an individual's reasons or motives for mentoring with his or her protégé preferences." (p. 280). That statement concisely summarizes the primary goals of this study.

Research Contributions

Utilizing a fully-crossed within-subjects experimental design, 3 proposed explanations are addressed in this study that lie behind the mentor selection of protégés and the traits of mentors that could affect their choices. The 1st explanation relates to *need attraction*: the protégé's perceived type of need and what prompts a mentor to address that need. The 2nd explanation relates to *distance mentoring*. Some mentors may insist upon face-to-face mentoring relationships and avoid using communications technology for mentoring, so two factors that may enter into such an insistence have been considered in this study. The 3rd explanation relates to *similarity linking*: the role culture- and gender-matching have upon a mentor's choice and how the mentor's

orientation toward learning goals may impact his or her willingness to choose other-culture or other-gender protégés. Previously-published participant measurement scales, combined with a protégé-characteristics vignette experiment, were used to address these explanations.

Further, a qualitative component was included in the data collection process to understand the mentor's thought processes during protégé selection as suggested by Allen, Day, & Lentz (2005). A joint process of experimentation and interview generates both qualitative and quantitative data with the goals of triangulating upon the constructs of interest (Jick, 1979; McGrath, 1981) and delivering rich and valid accounts of the phenomena (Van Maanen, 1979; Lee, Mitchell, & Sablynski, 1999). This qualitative component was added to develop robust theory around the selection process by not just looking at empirical outcomes but by seeking to understand the reasons behind those outcomes as well.

The environmental context for this study centers upon a university graduate program, where the enhancement of career and development opportunities for both academically- (Busch, 1985; Petrie & Wohlgemuth, 1994) and professionally- (Ellis, 1992; O'Neil & Wrightsman, 2001) inclined graduate students through mentoring has been well documented. Lasley (1996) noted that mentoring is one of the most effective ways to help young people increase their self-esteem and reach their full potential. The American Psychological Association encourages graduate schools to mentor women and racial minorities to help them establish a critical career foundation through guidance, nurturing, and supportive power (Fouad, Brehm, Hall, Kite, Hyde, & Russo, 2000). Weil (2001) even went so far as to call the careful design of an effective

mentoring program for students a graduate department's moral responsibility. The high stakes behind academic mentoring outcomes appear to make this environment fertile ground for delving into how and why a mentor chooses a particular protégé. Further, the results of this study should generalize into any environment where traditional mentoring relationships have been shown to carry strong developmental potential for their participants (Green & Bauer, 1995).

In addition to expanding our understanding of the selection process in isolation, this study contributes to future research by setting the stage for exploring the various types of mentoring relationships that may follow. It is reasonable to postulate that a relationship's beginning will heavily influence that relationship's progression, similar to how a building's foundation determines the types of structures it can be expected to support. While it is too early to seek a full typology of mentoring foundational forms, this is the direction taken herein. The better scholars understand its beginning – the possible forms of mentorship and the reasons behind those forms – the better they can model the mentoring relationship's development.

Practice Contributions

Informally-initiated mentoring relationships generally perform better than those matched through a formal mentoring program (Ragins & Cotton, 1999; Mullen, 2007), so formal programs usually attempt to mimic that which occurs in an informal relationship (Burke & McKeen, 1989) especially with regards to the selection process (Ragins, Cotton, & Miller, 2000). However, some researchers have noted that many of these recommendations made for formal mentoring programs tend to be driven less by evidence than by speculation (Allen, Eby, & Lentz, 2006a). Therefore, one practice-

oriented goal of this study is to introduce empirical and insightful data into the design of formal mentoring programs and their participant-matching procedures.

Negative prior mentoring experiences could sour what might have otherwise become healthy future mentoring relationships (Allen, Poteet, Russell, & Dobbins, 1997), minimizing or eliminating a potential developmental opportunity. This is the major argument for all parties having realistic expectations about mentoring processes and outcomes and an understanding of their own tendencies and goals (Eby & Lockwood, 2005). Therefore, another practical goal of this study is to inform mentorship training programs with regards to adequately preparing their participants for mentorship and helping them enter these relationships with a clear and realistic assessment of their proclivities and needs.

Methodology Overview

Graduate faculty members were selected at a large U.S. research university with a focus on gaining adequate representation across 10 faculty-member categories. These categories were identified to incorporate the responses of a wide range of culture/gender combinations, and they lie at the intersection of 5 cultural profiles and both genders. The targeted cultural profiles were U.S. Caucasian, African-American, Hispanic-American, cultural Chinese, and cultural Indian, and a relatively even number of males and females from each cultural profile were selected. The inclusion of a broad representation of respondent types supports the delivery of results that can be generalized across culture and gender (Christensen, 2001), so the selection process used to choose participants incorporated this goal while randomly assigning the experimental conditions within each category (Campbell & Stanley, 1963).

Half of the experiment involved the use of a vignette design to test the protégé preferences of mentor participants. Ten protégé vignettes were designed to represent graduate students who might be chosen as protégés, with 3 manipulations imbedded within the vignettes. After reviewing the vignettes, participants were asked to rate each prospective protégé on a 1-to-7 scale and afterward to rank the vignettes in order from *most-preferable* to *least-preferable*. Further, participants were asked to explain what item or items in the vignettes they focused on during the rating and ranking processes. These methods provided quantitative rating data, non-parametric ranking data, and qualitative interview data to give insight into the information participants were using while making their vignette-related decisions.

The 1st of the 3 manipulations relate the culture and gender of the prospective protégé to the culture and gender of the mentor participant (as *different* or *same*). Like the categories used for participant selection, the protégés in the vignettes represented 5 different cultural profiles: 2 each were U.S. Caucasian, African-American, Hispanic-American, cultural Chinese, and cultural Indian, with 1 male and 1 female protégé for each culture, resulting in 10 culture/gender combinations. This manipulation was designed to test the similarity-linking set of hypotheses, generally predicting respondents would react more favorably toward protégés of the same cultural profile and of the same gender than they would toward those of a different culture or gender. The pictures, protégé names, and previous schools shown in the vignettes signaled each protégé's cultural group and gender to the study's participants.

The 2nd of the 3 vignette manipulations presented the prospective protégé as either *low*, *medium*, or *high* on a *current-productivity* scale (*low* means the protégé

needs a great deal of help from the mentor to become productive, *high* means the protégé needs little help and is currently very productive). This manipulation was designed to test the need-attraction set of hypotheses, generally predicting respondents would react more favorably toward protégés who are currently more productive than they would toward those who are less productive, require more mentor assistance, and may be struggling. The list of prior accomplishments and the comments imbedded in the vignette regarding his or her need for help signaled each protégé's current-productivity category.

The 3rd of the 3 vignette manipulations presented the prospective protégé as either *low*, *medium*, or *high* on a *technology-required* scale (*low* means the protégé can meet regularly with the mentor face-to-face, *high* means the mentor must work with the protégé almost exclusively through cell-phone or the internet). This manipulation was designed to test the distance-mentoring set of hypotheses, generally predicting respondents would react more favorably toward protégés lower in technology requirements than they would toward those who required technology-mediated mentoring. The home-city location shown for the protégé and the comments imbedded in the vignette regarding his or her meeting-methods availability signaled the protégé's technology-required category.

The other half of the experiment involved the administration of 5 instruments to the participant, measuring 5 personality-related mentor traits predicted to interact with the imbedded vignette manipulations. Therefore, each experiment consisted of 1) a test of mentor reasons or motives for mentoring coupled with 2) a test of preferred protégé characteristics (see Figure 1) as called for by Allen et al. (2000).

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Mentor Traits/ Motives

Protégé Characteristics

Interaction

1) Instrumentality

2) Expressiveness

3) Preference for Personal Contact

4) Technological Self-Efficacy

5) Learning Goal Orientation

Technology Required

Current Productivity	Low	Medium	High
Low	Also	either	Same
Medium	or	Different (x2)	in
High	Culture	and	Gender

Figure 1. The coupling of mentor traits/motives with protégé characteristics.

The 1st and 2nd mentor-trait instruments measured the participants' levels of *instrumentality* and *expressiveness* (Bem, 1974; Spence & Helmreich, 1980; Spence, 1993), with no predictions made regarding their correlations to overall protégé ratings and rankings but predicted to interact with the manipulated current productivity categories of protégé vignettes (see Figure 2). Participant instrumentality was predicted to correlate with vignette ratings and rankings such that increasing levels of instrumentality should relate to more favorable responses toward higher-productivity protégés and less favorable responses toward lower-productivity protégés. Participant expressiveness was predicted to correlate with vignette ratings and rankings such that increasing levels of expressiveness should relate to more favorable responses toward lower-productivity protégés and less favorable responses toward higher-productivity

Figure 2. Need attraction: Predicted interactions of participant instrumentality and expressiveness with protégé current productivity.

protégés. Further, the interaction of mentor instrumentality and expressiveness would be reviewed post hoc with no preliminary prediction regarding the results except that the effect of one was expected to partially or fully counteract the effect of the other.

The 3rd and 4th instruments measured the participants' levels of *preference for personal contact* (Cowles & Crosby, 1990; Dabholkar & Bagozzi, 2002) and *technological self-efficacy* (Davis, Bagozzi, & Warshaw, 1989; Kolesar & Galbraith, 2000), with no predictions made regarding their correlations to overall protégé ratings and rankings but predicted to interact with the manipulated technology required categories of protégé vignettes (see Figure 3). Participant preference for personal contact was predicted to correlate with vignette ratings and rankings such that increasing levels of this preference should relate to more favorable responses toward lower-technology protégés and less favorable responses toward higher-technology

protégés. Participant technological self-efficacy was predicted to correlate with vignette ratings and rankings such that increasing levels of self-efficacy should relate to more favorable responses toward higher-technology protégés and less favorable responses toward lower-technology protégés. Further, the interaction of mentor preference for personal contact and technological self-efficacy would be reviewed post hoc with no preliminary prediction regarding the results except that the effect of one was expected to partially or fully counteract the effect of the other.

Protégé Categories of Technology Required

Low   Medium   High

More "Technological Self-Efficacy" Participants

Central Tendency

Vignette Ratings & Rankings

More "Preference for Personal Contact" Participants

Figure 3. Distance mentoring: Predicted interactions of participant preference for personal contact and technological self-efficacy with protégé technology required.
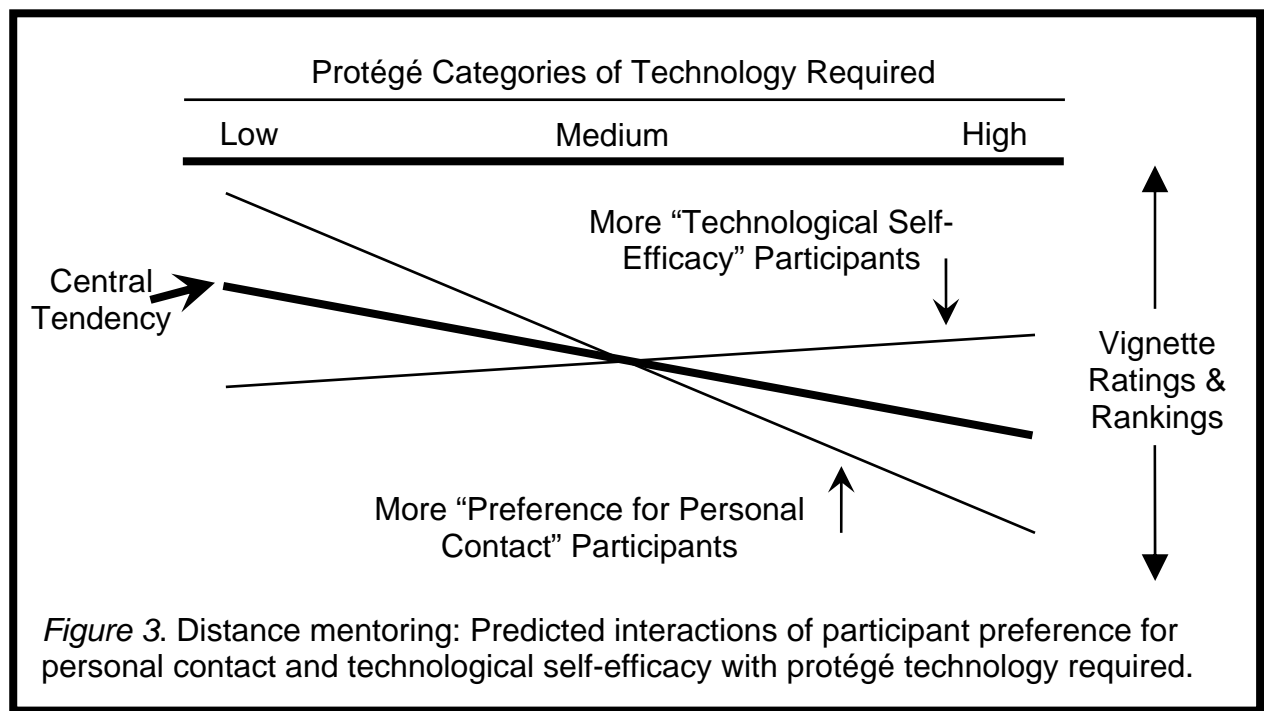
The 5th instrument measured the participants' *learning goal orientation* (Dweck, 1986; Button, Mathieu, & Zajac, 1996) levels, predicted to relate positively to overall protégé ratings but further predicted to interact with the manipulated culture- and gender-similarity categories of protégé vignettes (see Figure 4). Participant learning goal orientation was predicted to correlate with vignette ratings and rankings such that increasing levels of learning goal orientation should relate to more favorable responses

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Protégé Categories of Culture- and Gender-Similarity

Different   Same

More "Learning Goal Oriented"
Participants

Central
Tendency

Vignette
Ratings &
Rankings

Figure 4. Similarity linking: Predicted interactions of participant learning goal orientation with protégé culture- and gender-similarity.
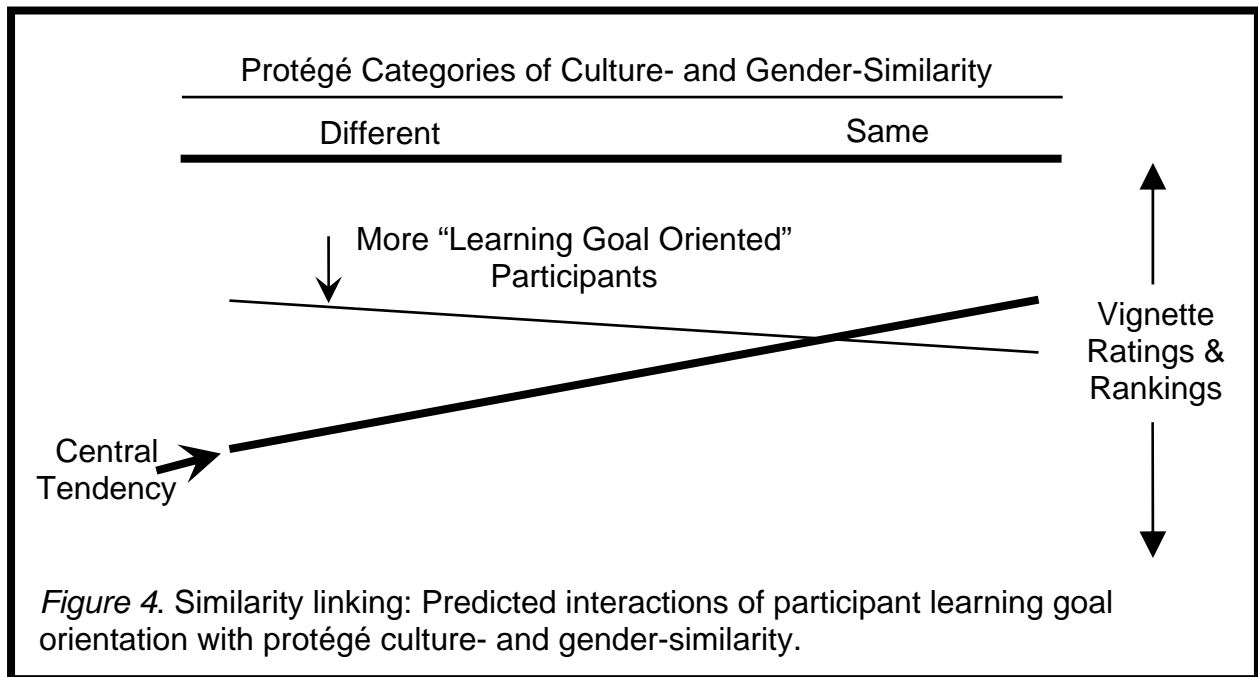
toward dissimilar protégés and less favorable responses toward similar protégés. These expectations would be analyzed using culture and gender separately (two levels: *different* & *same*) and also with the two combined (three levels: *different on both*, *same on one only*, & *same on both*).

Key Assumptions

Two primary assumptions relate to the environment in which this study took place and the force of reality imposed upon its participants. With regards to the 1st: as already noted, the academic environment has been shown to be a fruitful locale for expecting excellent outcomes from meaningful mentoring relationships. Therefore, this study begins with the assumption that the setting chosen and the participants selected there are representative of the population of potential mentors who would be choosing potential protégés. With regards to the 2nd: an experiment's participants need to be

sufficiently involved in the outcomes and the choices they make to better simulate the mental state of those who are not operating under experimental conditions. Conversely, it is important for participants in this study to not become too personally immersed in the process, for mentoring relationships are known for their depth and complexity and can have poor results as well as good ones. Therefore, this study also begins with the assumption that a balanced level of participant involvement could be found with regularity to maintain its outcome validity.

Outline of This Report

Chapter 1, Introduction, has offered an overview of the topic of mentoring and has supported the direction and importance of this investigation. Chapter 2, Literature Review and Informing Theories, delves into the current state of mentoring research by looking at 7 common themes and explains how this study draws upon them. Further, that chapter explains 3 underlying theories that contribute to the experimental hypotheses. Chapter 3, Hypotheses and Methodology, explains the results that were expected, how the experiment was designed, the development and testing of materials, and the analysis techniques used to deliver conclusions. Chapters 4 and 5, written after the experiments were completed, explain the Analysis of Data and this study's Conclusions and Implications. Chapter 4 includes a description of the study's participants and proofs of the experiment's balance and validity along with formal tests of the study's hypotheses. Chapter 5 includes a discussion of the results and limitations of this study along with proposals for future research, and it includes explanations given by participants while engaged in their decision-making activities to help enlighten the study's outcomes.

CHAPTER 2

LITERATURE REVIEW AND INFORMING THEORIES

Before Kathy Kram's groundbreaking treatises on mentoring in a work environment (Kram, 1983, 1985), mentoring as studied by scholars was less about a dyadic relationship than it was about a period of one's life. Theorists who advanced stage- or phase-theories of human development often referred to an early-adult period of learning and searching for role models, particularly (but not exclusively) with regards to one's career, along with a corresponding late-adult period of generativity and legacy-building expressed through mentoring younger cohorts (Jung, 1933; Erickson, 1963; Gould, 1972; Bray, Campbell, & Grant, 1974; Levinson, Darrow, Klein, Levinson, & McKee, 1978). Before Kram, scholarly investigations referring to mentoring (often using the term "role model") generally did so with the relationship in a peripheral or explanatory position rather than as its central focus (Almquist & Angrist, 1971; Fox, 1974; Douvan, 1976) even though business practitioners were already advocating mentorship as necessary for high performance (Rowe, 1978; Clawson, 1980; Missirian, 1982). By the early 1980s, researchers were beginning to look at the mentoring relationship as a study in its own right and searching for the antecedents, outcomes, and processes that marked successful mentors and protégés (Hunt & Michael, 1983; Erkut & Mokros, 1984).

So although she was not the first to look at mentoring directly, Dr. Kram's work popularized, formalized, and organized prior research and set a new direction in the study of mentorship: a relationship that's often referred to as central to professional development (O'Neil, 1981; Hardy, 1994). In 1983, Kram reported on her intense study

of 18 developmental relationships as they occurred to understand what was happening within them and argued that mentoring relationships went through 4 distinct phases: an initiation phase (filled with heightened expectations), a cultivation phase (filled with productivity), a separation phase (filled with anxiety and possibly disappointment), and a redefinition phase (in which the prior relationship of disproportionate power is replaced with one of more equal power). In 1985, Kram's seminal book *Mentoring at Work* outlined, among other things, the key interpersonal processes defining a mentoring relationship, the needs and outcomes of participants, organizational settings and policies that support mentoring activities, and various types of mentoring functions: most of which still hold up under scrutiny today. Thus began a flurry of interest and productivity as a new generation of researchers (such as Tammy D. Allen, Lillian T. Eby, W. Brad Johnson, Raymond A. Noe, Belle Rose Ragins, Terri Scandura, and more recently David L. DuBois, Veronica M. Godshalk, D. Kevin O'Neill, and John J. Sosik) turned their collective attention to mentoring and its stakeholders, seeking to peer into that particular black box.

Since then, mentoring research has split into four primary literature streams (see Tables 1 & 2), each with its own foci and concerns (Buell, 2004; Eby, Allen, Evans, Ng, & DuBois, 2008). Business or organizational research tends to consider the benefits and antecedents of mentoring relationships with an eye toward developing effective formal mentoring programs, improving corporate outcomes, and building or maintaining a learning organization. Academic or educational research focuses on the individuals involved in the process more than at the surrounding organization, with long-term learning goals, professional career (as opposed to particular-job) results, and recruiting

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Table 1

Business and Academic Mentoring Research – Examples

Business or Organizational Research		
Lewis, 1991	-	The National Mentor Network project
Ramsey, 1991	-	Mentoring to help minority firms reach potential
Poore, 1994	-	Use of mentoring by the IABC in Phoenix, AZ
Heery, 1994	-	Equal opportunity & diversity in management
Buzzannel, 1995	-	Strategy to help women break glass ceiling
Kaye & Jacobson, 1995	-	Group mentoring forms
Eby, 1997	-	Lateral vs. hierarchical form, job vs. career focus
Ferguson, 1997	-	Social networking hot-spots
Lindenberger & Zachary, 1999	-	Program-building guide for employers
Farrey, 2001	-	What to look for in a professional mentor
Barton, 2002	-	Requesting managers to mentor staff
Copeland, 2002	-	Benefits to information technology personnel
Underhill, 2006	-	Analysis on the professed effects of mentoring
Academic or Educational Research		
Hansen & Kennedy, 1995	-	Success strategies for female graduate students
Brooks, 1996	-	Relates graduate mentoring to apprenticeship
Bennett, 1997	-	Tele-mentoring for students
Mead, 1997	-	Mentoring skills of strong faculty members
Looper, 1999	-	Assisting student teachers with mentors
Boreen & Niday, 2000	-	Mentoring beginning teachers with veterans
Clement, 2000	-	For the induction of new teachers
Feiman-Nemser, 2001	-	Improving teacher development
Brotherton, 2001	-	Student mentoring through the internet
Grimes, 2001	-	Encourages professors to mentor
Bennetts, 2002	-	Outlines a Traditional Mentor Relationship
Austin, 2002	-	Doctorate socialization through mentoring
Dorsey & Baker, 2004	-	Conceptual framework for student success
Sambunjak et al., 2006	-	Mentoring in the medical field
Smith & Ingersoll, 2004	-	Effects on teacher retention
Johnson, 2007a	-	Review of researched academic outcomes
Marable & Raimondi, 2007	-	Identification of supportive teacher systems

and retaining teaching professionals as the outcomes of interest. Youth mentoring, the most isolated of the four research streams, looks specifically at volunteer adult relationships with younger at-risk protégés in an effort to control truancy, drug use, and gang violence. Finally, those in the communications field look at the nuts-and-bolts of mentoring processes and interactions, including such matters as the physical distance between relationship partners and their frequency of contact. While these literature streams have a great deal in common, the differences in the life-stage of the participants and the stakeholders' outcomes of concern have kept them separate; so much so that they rarely seem to interact (Eby, Allen, et al., p. 255).

Table 2

Youth and Communication Mentoring Research – Examples

Youth Research		
Ainsworth, 1989	-	Development of affectional bonds post-infancy
Philip & Hendry, 1996	-	Typology of youth mentoring forms
Rhodes, 2002	-	Risks & rewards of youth mentoring
DuBois et al., 2002	-	Analysis of researched outcomes
DuBois & Karcher, 2005	-	Handbook on youth mentoring
Communications Research		
Hill, Bahniuk, & Dobos, 1989	-	Information adequacy, apprehension, & gender
Kalbfleisch & Davies, 1993	-	Interpersonal model forecasting involvement
Kalbfleisch & Keyton, 1995	-	Intimacy & informality variables by gender
Kalbfleisch, 1997	-	Communication strategies in conflict situations
Eisenman & Thornton, 1999	-	Developing a long-range tele-mentoring plan
Bokeno & Gantt, 2000	-	Mentoring as a dialogic practice for learning
Locke & Williams, 2000	-	Gender-based communication styles
Parra et al., 2002	-	Year-long process-oriented model investigation
Ensher et al., 2003	-	Mentoring through specialized online websites

The primary goal of this study is to shed light on how mentors choose their protégés and thereby guide organizations a) with formal mentoring programs seeking to mimic informal matching processes and b) with mentor/protégé training programs that would help participants understand their proclivities and expectations. Toward this end, all four literature streams were drawn upon to inform its design. However, given this study's focus on the matching and training processes of organizational mentoring programs that are aimed at young adults, most of the literature used herein came from the business and academic lines.

Before covering the general theories used to guide this study's development, this chapter begins with a review of 7 primary themes or issues prevalent in the mentoring literature to set the stage for what will be addressed in later chapters. These 7 themes are 1) the difference between formal and informal mentoring relationships, 2) the effects of race and gender on mentoring outcomes and processes, 3) the functions inherent in the mentoring process, 4) the expected benefits of mentoring for protégés, 5) the expected benefits of mentoring for mentors, 6) the difficulties and dysfunctions that can adversely impact a mentoring relationship, and 7) the actual practice of mentoring in academia and industry.

Seven Themes Regarding Mentorship Theory and Practice

Together, these 7 themes provide a backdrop against which mentor choice, including what the mentor is looking for and hopes to accomplish, can be seen as a central concern for anyone interested in documenting the mentoring relationship. This section will be concluded with a summary of these themes and how they directly impacted the design of the current study.

Theme 1: The difference between formal and informal mentoring relationships.

An informal mentoring relationship is one that forms spontaneously and without an organization priming or prodding its formation, operation, continuation, or dissolution. Much of the benefits associated with mentoring have been drawn, either intentionally or by default, from an analysis of informal mentoring relationships with their higher (as compared to formal relationships) levels of participant commitment and emotional intensity (Wanberg et al., 2003). Formal mentoring relationships, formed and operated within the context of an organizational program, have been generally found to be less advantageous to participants than informal ones: but a formal, less-intense mentoring relationship generally benefits the participants more than no relationship at all (Chao, Walz, & Gardner, 1992; Allen, Eby, & Lentz, 2006b).

A variety of differences between formal and informal programs have been noted by researchers, including those that pertain to the structure of the created mentoring relationships, their precursors, their results, and the outcomes of interest (see Table 3). Given that the purpose of a formal program is often the improvement of employee knowledge and skills and, therefore, may focus exclusively on goals that are short-term and applicable only to the protégé's current position (Geiger-DuMond & Boyle, 1995), researchers generally recommend that formal and informal programs should not be viewed as similar and should instead be studied separately (Noe, Greenberger, & Wang, 2002).

Despite advantages formally-initiated relationships can have over informal ones, such as meeting-frequency guidelines, designed matching methods, and mentor motivation in the form of formal corporate recognition (Ragins et al., 2000), there

appears to be a general assumption that formal programs should purposefully and forcefully mimic the processes found in informal relationships wherever possible (Burke & McKeen, 1989). This is not necessarily desirable: even when instituted with beneficial intent, topside prescriptions regarding best-practices can backfire. For example, Eby, Lockwood, & Butts (2006) found that managerial support for the organization's mentoring program was positively related to participants' attitudes, activities, and outcomes, but consistent with self-determination theory (Ryan & Deci, 2000) the mentors' feelings of increased accountability was linked to a reduced desire to become a mentor. This is why education and training is the ultimate goal of this study, not the recommendation of any method of forced matching.

Ragins et al. (2000) summed up the research on program formality by noting that it's not the program or its policies primarily driving mentorship outcomes, but rather "a

Table 3

Comparisons of Formal and Informal Mentoring Programs – Examples

Zey, 1985	-	Length & focus of a formal relationship differs from an informal one
Kizilos, 1990	-	Forced participation causing resentment, lack of developmental focus in some organizations
Murray, 1991	-	Contractual obligations with regards to goals, timelines, & training cause work overload
Ragins et al., 2000	-	Reasons for participation, relationship structure, & organizational support & involvement
Scandura & Williams, 2001	-	Initiation method & level of participant involvement
Eby et al., 2004	-	Likelihood of the relationship encountering problems
Eby & Lockwood, 2005	-	Interpersonal intimacy & motivations for mentoring behaviors

formal program is only as good as the mentor it produces" (p. 1192). This fits the Allen et al. (2005) assertion that interpersonal comfort drives the mentoring relationship more directly than any structural specific. Although the intent of this and many other studies is to help organizations gain informal-mentoring benefits from formal-mentoring programs, practitioners are advised to use such prescriptions carefully and note that formal and informal mentoring relationships are, indeed, very different.

Theme 2: The effects of race and gender on mentoring outcomes and processes.

As much as has been written about the differences between formal and informal mentoring programs, even more theoretical and empirical attention has been paid to the impact of gender and race on a mentoring dyad. Researchers have long called for a heightened awareness regarding how gender affects mentoring processes and outcomes, both in terms of the factual genders of the participants and whether the pairing is a same-gendered or cross-gendered relationship (Noe, 1988a; Ragins, 1989; Tsui & O'Reilly, 1989). Later, but similarly, the implications of race (both as fact and relationship) have been added to the list of important items to consider in mentoring research (Thomas, 1990). Usually lumped into the class of "minority" and compared against the white-male "majority," issues pertaining to female and non-white mentoring participants are often viewed from the amount of class power each member brings into the relationship (Ragins, 1997) or the networking positions they occupy based upon their gender/racial historical trajectories (Brass, 1985; Ibarra, 1995). While studies that group respondents into such broad categories are less informative than finer-grained ones, the use of a variety of theoretical models holds promise for deeper mentorship understanding (Noe et al., 2002).

If it is true that women (and by extension, non-whites) have less power and prestige in many organizations (Wolf & Fligstein, 1979; Ragins & Sundstrom, 1989), then the increased barriers they endure (or at least perceive to endure) could affect the purposes, activities, and resources they bring to a mentoring relationship (Ragins & Cotton, 1993; Ragins & Scandura, 1994). The minority status of relationship members has been looked into as a moderator of other relationship constructs (Allen & Eby, 2008), and its direct effects on processes and outcomes has also been considered (Allen, Russell, & Maetzke, 1997). Results have been mixed: likely a combination of the changing fortunes of minorities in the workforce, the variability of power structures across different industries (particularly along gender lines), and the difficulty of matching male and female career paths or racial/cultural social norms (Powell & Mainiero, 1992; Dreher & Cox, 1996; Ragins & Scandura, 1997; Sullivan, 1999; Chen, Brockner, & Chen, 2002). In short, the direct effects of a participant's gender or racial identification have had little success in answering questions about the variability found in mentoring models.

A more promising avenue has been to look at cross-gender or cross-racial relationships as compared to pairs that are same-gender and/or same-race (Turban & Jones, 1988; Thomas, 1990; Ensher & Murphy, 1997). If it's true that mutual attraction and identification are characteristic of informal pairings (Ragins & Cotton, 1999), that identification and interpersonal similarity can increase the ease of communication in relationships (Lincoln & Miller, 1979), and that high-quality relationships are marked by relatedness, reciprocity, interdependency, and mutuality (Huston & Burgess, 1979), then it follows that perceived similarity (Blake-Beard, 2001) could be a defining

characteristic for signaling the potential for a high-quality relationship. As a testament to this assertion, protégés in same-gender mentoring relationships have indeed reported more mentoring activity than those in cross-gender relationships (Gaskill, 1991; Koberg, Boss, & Goodman, 1998; Scandura & Williams, 2001).

As previously mentioned, Allen et al. (2005) found interpersonal comfort to mediate the relationship between gender (and probably, by extension, racial) similarity and positive protégé perceptions of the relationship, likely reflecting a higher level of perceived trust and communication openness (Eby, Durley, Evans, & Ragins, 2008). Further, issues such as co-worker perceptions of sexual indiscretion (Hurley, 1996) or claims of tokenism toward minority participants (Chandler, 1996) could add reasons for discomfort and trouble in relationships that would otherwise have been beneficial and sound. Therefore, while factual gender and race remain concerns of interest, the dynamics formed from participant gender/racial difference or similarity seems more likely to generate relevant and actionable findings. These pairing dynamics are the primary gender/racial focus in this study.

An interesting angle regarding gender has been the feminist concern that our modern mentoring concepts are over-stressing the masculine principles of autonomy and separateness as key indicators of maturity and failing to honor the inherent feminine traits of caring and relational interdependency characteristic of strong mentoring relationships (Gersick & Kram, 2002; Koocher, 2002). These researchers argue that mentoring studies, based primarily upon the use of male subjects, are generating results now seen as "standard" and are making the path of the feminine appear to be "deviant." Further, they argue that marriage, family, and a balanced

work/home life are undervalued as concerns for long-term growth that could be enhanced through quality mentoring (Erkut & Mokros, 1984; Bateson, 1990). Especially in terms of defining mentoring, these theorists advocate a model that is interpersonal, reciprocal, and gives full credit to the affective commitments and investments made by each of the parties (Kalbfleisch & Keyton, 1995; Benishek, Bieschke, Park, & Slattery, 2004). This feminist view was expressed to participants of this study by encouraging the assumption that both mentor and protégé could expect an intense personal involvement to underlie their mentoring relationship. Mentor participants were actively prompted to make their experimental choices as indicative of their interest in a one-to-one, heavily invested, personal, and ongoing commitment.

Theme 3: The functions inherent in mentoring.

Looking directly at the mentoring relationship and its operations, the so-called *mentoring functions* (describing specific activities or benefits provided by the mentor to the protégé) have been intensely explored. Going beyond the general descriptions of career, psycho-social, and role-model mentoring accepted early-on (Kram, 1985; Scandura, 1992), theoretical models and empirical measures alike have sought to fully define the dimensions and components of the construct space. In a summarizing review of three mentoring function scales (the Mentoring Role Instrument of Ragins & McFarlin, 1990; the Mentoring Functions Scale of Noe, 1988b; and the Mentoring Functions Questionnaire of Scandura, 1992 and Scandura & Ragins, 1993), Wanberg et al. (2003) identified 4 consistent career-related mentoring functions (sponsoring, protecting, promoting, and giving challenging assignments) and 2 consistent psycho-social functions (friendship and counseling). Further, coaching was identified as a function,

although some considered it to be career-related and others psycho-social in nature. Additionally, role-modeling was identified as a function that some consider to be part of the psycho-social set and others identify as a third set separate from career-related or psycho-social mentoring. Finally, socializing and parenting are functions of the psycho-social sphere proposed by Ragins & McFarlin (1990), but these have not as yet been generally acknowledged.

Mentoring functions are not only important from the standpoint of understanding the operations of the dyadic mentoring relationship, but also because some researchers identify mentoring not by the dyad but rather by these functions. For example, Allen & Finkelstein (2003) looked at how mentoring benefits could come from alternative sources (including self-instruction or religion), Allen, Russell, et al. (1997) elaborated on mentoring functions that can be served by peers, and Burlew (1991) considered how mentoring can be defined as a set of relationships (rather than one primary relationship) that together fulfill the protégé's mentoring needs. These views (as lamented by Benishek et al. 2004, among others) appear to assume mentoring is less about a meaningful relationship and more about a set of activities and requirements. Such divergence in the basic view of just what mentoring is could be the source of the confusion noted in researchers' descriptions of mentoring to their participants (Noe et al., 2002). This study was built upon the traditional approach to mentoring as a one-on-one relationship in which the mentor attempts to meet all of his or her protégé's mentoring needs.

Research has also compared mentoring to other important relationships on the basis of functions, using models derived from various literature streams to shed light on

how mentoring is both similar and different. Godshalk & Sosik (2000) noted parallels between conceptions of mentoring and transformational leadership models (Bass, 1995), as did Johnson (2007b). Leader-Member Exchange (LMX) models (Graen & Cashman, 1975) have been utilized as well (Thibodeaux & Lowe, 1996; McManus & Russell, 1997). Counseling theories have also been used to shed light on mentoring activities and ethics (Johnson & Nelson, 1999), given the comparability between many counseling activities and psycho-social mentoring functions. Theories related to supervision, such as those outlined by Watkins (1997), have been compared to mentoring (Johnson, 2007b): this is particularly interesting given the often difficult territory supervisory mentors must navigate between the supportive/non-judgmental roles of the mentor and the critical/gate-keeping roles of the supervisor (Vacha-Haase, Davenport, & Kerewsky, 2004). Despite the number of similarities found between mentoring functions and those found in other relationship models, mentoring has maintained its distinctive and unique place with researchers as "the most intense and powerful one-on-one developmental relationship, entailing the most influence, identification, and emotional involvement" (Wanberg et al., 2003, p. 41). While these alternative approaches lend new and interesting perspectives, in this study no attempt was made to prompt leader, counselor, or supervisor expectations from participants beyond those that would be normally expected in a graduate-school setting.

Theme 4: The expected benefits of mentoring for protégés.

There are few who question that a mentoring relationship can be extremely valuable to a protégé, but exactly how beneficial, along what lines, and under what circumstances are issues that are often studied. The meta-analysis performed by Allen,

Eby, Poteet, Lentz, and Lima (2004) concluded there were two main sets of protégé outcomes: those that are objective in nature (external outcomes that are measurable and tangible: for an example, see Dreher & Ash, 1990) and those that are subjective in nature (intrinsic outcomes that are felt and intangible: for an example, see Koberg et al., 1998). A more recent meta-analysis supported splitting protégé outcomes into six categories (Behavioral, Attitudinal, Health-related, Relational, Motivational, & Career) to better account for variations in antecedents and results (Eby, Allen, et al., 2008), showing that the outcome potential for protégés is both deep and broad.

Table 4

Benefits Found from Academic Mentoring for Protégés – Examples

Tinto, 1975	- Reduction in rate of dropout
Reskin, 1979	- Personal productivity & professionalism
House, 1981	- Buffering against stress
Cameron & Blackburn, 1981	- More grant funding
Ekrut & Mokros, 1984	- Life balance & more academic opportunities
Torrance, 1984	- Greater creativity
LeCluyse et al., 1985	- Higher involvement in the profession
Busch, 1985	- Future experience of becoming a mentor
Sanders & Wong, 1985	- Improved initial career placement
Cronan-Hillix et al., 1986	- Research involvement & output
Wright & Wright, 1987	- More networking & personal identity
Swerdlick & Bardon, 1988	- Greater friendship & advising
Beck, 1989	- Improved career development
Wilde & Schau, 1991	- Improved professional development
Newby & Heide, 1992	- Increased confidence & self-efficacy
Ellis, 1992	- A high-trust environment for learning
Mellott, Arden, & Cho, 1997	- Improved professional training
Baker et al., 2003	- More satisfaction with the academic experience

Among the various mentoring arenas, the beneficial outcomes of mentoring have been strongest in academic relationships (Eby, Allen, et al., 2008). This is likely due to the heavier effects non-mentoring influences can exert on business and youth-aged protégés. Researchers regularly find positive and powerful influences from mentoring on the professional and personal development of graduate students, both in terms of their objective successes and their subjective satisfaction (see Table 4). Jacobi (1991) noted that mentoring involvement could be the one of the most important predictors of student satisfaction, and others have stressed that mentoring is critical for a student's identity transformation from novice to professional (O'Neil & Wrightsman, 2001; Johnson & Huwe, 2003; Friedman & Phillips, 2004). While students appear to need psychosocial functions more than career functions (Allen, Russell, et al., 1997), mentors also exert an enduring and important effect on a student's cognitive beliefs and future practices (Evertson & Smithey, 2000): so much so that Russell & Adams (1997) called finding a mentor "a major developmental task of the early career" (p. 3) due to the centrality mentoring can play in the beginning stages of a professional's work-life.

Business research has displayed the second-strongest effects from mentoring (likely due to its general focus on the opening years of a protégé's career – see Eby, Allen, et al., 2008), also delivering both objective and subjective outcomes (see Table 5). Eby & Lockwood's (2005) qualitative review of broadly-defined mentoring benefits in the work environment included learning, coaching, career planning, sponsorship, visibility, networking opportunities, role clarification, job enhancement, and pride for being selected as a protégé. These benefits are viewed as so important for a young professional that early career management advisors generally encourage those who are

Table 5

Benefits Found from Business Mentoring for Protégés – Examples

Roche, 1979	-	Greater earnings & career satisfaction
Burke, 1984	-	Career success & satisfaction
Fagenson, 1988	-	More organizational power & influence
Fagenson, 1989	-	Higher mobility, recognition, & promotion rates
Bahniuk, Dobos, & Hill, 1990	-	Career communications improvement
Colarelli & Bishop, 1990	-	Commitment to one's career
Dreher & Ash, 1990	-	More promotions & higher earnings
Viator & Scandura, 1991	-	Reduced turnover intentions
Whitely et al., 1991	-	Higher promotion rate & total compensation
Scandura, 1992	-	Career mobility, salary, & promotions
Whitely & Coetsier, 1993	-	Early career promotion & satisfaction
Mobley et at., 1994	-	Job satisfaction
Turban & Dougherty, 1994	-	Career attainment & perceived success
Chao, 1997	-	Socialization & income over 5-year period
Tyler, 1998	-	Organizational mobility & self-development

just starting their careers to quickly seek the guidance and support of a mentor (Greenhaus, Callanan, & Godshalk, 2000).

All of these benefits attributed to mentoring have not been universally accepted without criticism, however. For instance, Green & Bauer (1995) could not discern mentoring to have contributed toward student successes beyond the factors attributed to the students' pre-mentoring abilities and academic commitments. Other theorists blame personal abilities and skills as mostly responsible for a professional's career success (Larwood & Wood, 1995). Even where mentoring is acknowledged to benefit a protégé, some question whether the benefits are indirect and relate more to increased confidence, improved discipline, and greater comfort at taking risks (Boyle & Boice,

1998): skills that can also be explained or enhanced by means other than mentoring, such as personal maturation, formal training, or changes in the environment.

But for most scholars and practitioners, whether argued from a structural perspective (looking at improved resource access) or a person-centered perspective (looking at increased protégé abilities and perceptions), mentoring delivers to the protégé benefits that probably cannot be replicated through other means: at least, not as thoroughly, inclusively, or meaningfully. To assist participants in this experiment with viewing their choices as impactful upon a protégé's success, the materials developed for this study explained that the mentor would be primarily responsible for the benefits sought by the protégé and that the protégé believes his or her assistance to be valuable and necessary.

Theme 5: The expected benefits of mentoring for mentors.

Because they generally come from a late-adult period in which they can relax and enjoy the fruits of their labors, the obvious question regarding mentors is: "Exactly what would prompt such near-altruistic behavior as taking on a protégé?" Research shows that mentors can benefit from their mentoring relationships through practicing new skills, gaining access to information and other organizational resources, and an increase in personal satisfaction and motivation (see Table 6). McKeen & Burke (1989) noted that mentors tend to learn in new ways, and Clinard & Ariav (1998) argued that mentoring was beneficial to mentors both personally and professionally. Kram (1980) early-on believed that mentoring would raise the esteem of mentors in an organization, helping them gain visibility and recognition and enhancing their reputations. This assertion has been backed more recently by others (Hunt & Michael, 1983; Ragins &

Scandura, 1999). Some see the power of these effects come to fruition through the mentor's psychological mind-set and sense of renewal, while others have focused on more outward, measurable, and tangible mechanisms.

Many of the mentor's beneficial results apparently come to them through their ability to leverage their enhanced knowledge and experience through their protégés, with mentoring relationships providing vehicles for cashing-in on years of insight regarding the organization's policies, procedures, and power structures (Dalton, Thompson, & Price, 1977; Feldman, 1988). Even if mentors do not learn much job or career how-to information from protégés, there is still a great deal they can learn from them about what is actually happening in their surroundings: as a resource for hearing

Table 6

Benefits Found from Mentoring for Mentors – Examples

Klauss, 1981	-	Training for senior level roles & responsibilities
Hunt & Michael, 1983	-	Development of a support & power base
Barnett, 1984	-	Acceptance of a legacy-building life stage
Reich, 1986	-	Managerial experience & exposure for women
Baker, 1990	-	Trans-corporate ties & cooperative networks
Smith, 1990	-	Motivation & leadership skill enhancement
Newby & Heide, 1992	-	Increased confidence, competence, & pride
Collins, 1994	-	Development of leadership skills
Mullen, 1994	-	Increased reach through informal info gathering
Nykodym et al., 1995	-	Pride at passing expertise to the next generation
Ragins, 1997	-	Diversity, social, & relational skills
Mullen & Noe, 1999	-	Technical or how-to information & resources
Bozionelos, 2004	-	Objective & subjective career success
Eby & Lockwood, 2005	-	Personal gratification & self-reflection

the "inside scoop" or "corporate buzz," there's little a higher-ranking employee can develop that's better than a group of loyal lower-ranking informants (Adler & Kwon, 2002). In line with social capital theory (Brehm & Rahn, 1997; Nahapiet & Ghoshal, 1998), protégés can also act as resource nodules by helping the mentor secure otherwise-unavailable manpower, financial reserves, and opportunities.

Allen's (2000) separated mentoring motivators into other-focused, career-enhancement, and internal-gratification reasons. Zey (1984) listed four main motivators, splitting them into career-enhancement, intelligence-information, advising/learning (from the protégé), and psychic-rewards. The list of mentor benefits developed by Allen, Poteet, & Burroughs (1997) also included four categories, but they were slightly different: building a support network, self-satisfaction, job-related self-focused, and job-related other-focused. Ragins & Scandura (1999) developed a measuring instrument in which they found five main factors: a rewarding experience, improved job performance, loyal base of support, recognition by others, and generativity. From a variety of perspectives, there appears to be ample support for the assertion that mentoring should benefit the mentor as well as the protégé and along a wide variety of lines (Haworth, 1998; Allen & Eby, 2003).

Eby, Durley, Evans, & Ragins (2006) empirically linked a mentor's positive mentoring experiences to peer recognition, the development of a loyal base of support, job performance, and salary. Benefits such as these are viewed as so critical to the well-being of seasoned professionals that life-stage theorists view mentoring as a key component of late-career development (Hall, 1987). Dalton et al. (1977) placed becoming a mentor within the third stage of their professional-career model, a stage

marked by the broadening of interpersonal and managerial skills and the assumption of responsibility for others. It is therefore widely recognized that mentors should gain something valuable in exchange for the distribution of their late-career knowledge, connections, resources, and insights (Jacobi, 1991). However, 2 important perspectives are missing from the mentor-benefits/mentor-motivators picture.

The 1st is whether mentors recognize the benefits they might receive in advance of their decisions to take on a protégé. While some researchers have asked mentors to list positive reasons for being a mentor (Eby & Lockwood, 2005), there is no evidence to distinguish what the mentors knew before they first became mentors from what they learned through prior mentoring experiences. In fact, there has been research to show that the experience of being a mentor or a protégé does affect the decision to be in a mentoring relationship again, as well as participant reports on how much mentoring and communication took place in later relationships (Allen, Poteet, Russell, et al., 1997; Fagenson-Eland, Marks, & Amendola, 1997; Baker, Hocevar, & Johnson, 2003). This makes the point at which a mentor perceives his or her expected benefits unclear since prior mentoring relationships can alter one's opinions and perceptions about future mentoring. While not a subject addressed directly by this study, this issue does shed light on a pitfall to be avoided. To help alleviate the possibility the mentor participants in this study were not yet aware of the reasons they might want to be a mentor, each experiment began by inviting the participant to think about his or her motivations for becoming a mentor. This was to help the participants engage with the experiment by prompting them to actively consider their reasons for being a mentor while grading and ranking the study's protégé vignettes.

The 2nd important missing perspective is how a mentor's perception of benefits (reasons for mentoring) affects the protégé attributes that he or she would focus upon while choosing among a list of possible protégés. Again, work has begun to address some of these issues (Phillips-Jones, 1983; Ragins & Scandura, 1994; Aryee, Chay, & Chew, 1996; Allen, 2004), but they are generally correlative cross-sectional studies and do not attempt to match specific mentor motivators to specific protégé attributes via theoretical connection (Allen, Eby, O'Brien, & Lentz, 2008). In fact, studies addressing the reasons mentors choose the protégés they do, based upon the benefits mentors expect from the relationship, have been requested by researchers for at least a decade (Ensher & Murphy, 1997; Allen et al., 2005; Allen et al., 2006a; Bradbury & Koballa, 2008). This is one of the literature gaps specifically addressed by the current study.

Theme 6: The difficulties and dysfunctions that can harm a mentoring relationship.

While mentoring relationships are generally considered beneficial to their participants, this does not mean they are without risk. Some researchers have concentrated their efforts on the "dark side" of mentoring: relationships that are ineffective, counter-productive, and at times even destructive. This study does not deal directly with mentorship difficulties and dysfunctions, for the materials have been drafted with the anticipation of mentor and protégé willingness and ability to seek positive outcomes. However, in the interest of completeness and a balanced approach, some of the work done in the field will be mentioned here that looks at what can go wrong in mentoring, why, and how to avoid it.

Mentoring is a cognitively and emotionally demanding engagement (Bullough & Draper, 2004), and as is true of all intimate relationships it cannot be expected to

function trouble-free (Murrell, Crosby, & Ely, 1999; Duck, 2003). Even in the best of cases, mentoring can be a maze of innuendos, intentions, and meaning for the participating parties (Martin, 1997; Young, Bullough, Draper, Smith, & Erickson, 2005). The general definition of a negative relationship effect is one that runs counter to the needs of one or both parties (Scandura, 1998; Feldman, 1999), and this is distinct from being simply the opposite of a positive effect since the same relationship can carry both positive (needs met) and negative (needs not met) components (Eby, Butts, Lockwood, & Simon, 2004). Idealized images of what the relationship could have been may not materialize (Cole & Knowles, 1993) and roles expected to be played by the other party might not be fulfilled (Young & Perrewé, 2000), resulting in relationship tension that's caused, essentially, by a difference in understanding and a lack of communication between participants (Graham, 1997). Although the word "mentoring" is intrinsically charged as something positive (Johnson & Huwe, 2002), as a complex and emotionally intense relationship (Biaggio, Paget, & Chenoweth, 1997) ensconced within what may be a less-than-supportive environment (Johnson, 2002) there is a risk that actual outcomes may range from low-grade discomfort (Burke & McKeen, 1990) to marginal blandness (Ragins et al., 2000) to outright participant hostility (Halatin & Knotts, 1982).

The primary reason for difficulty comes from what Clawson & Kram (1984) astutely called "the developmental dilemma," a condition in which the very nature of a developmental relationship demands a high level of closeness while the need to avoid complication exerts an opposing pressure to pull the participants apart (p. 23). They noted this balancing tension can become unbalanced, resulting in the parties becoming unproductively close or unproductively distant and allowing the entry of one or more

Table 7		
Negative Results from Unproductive Closeness or Distance – Examples		
Blackburn et al., 1981	-	Mentor tendency to prefer protégé "clones"
Myers & Humphreys, 1985	-	Pre-selection, harassment, or use for busy work
Blevins-Knabe, 1992	-	Boundary-crossing in dual relationships
Franke & Dahlgren, 1996	-	Mimicking behavior creating non-independence
Hurley, 1996	-	Sexual intimacy between parties
Scandura, 1998	-	Overly-good or –bad intent toward the other
Feldman, 1999	-	Protégés managing their mentors' impressions
Ragins & Cotton, 1999	-	Misconstrue one another's comments or actions
O'Neill & Sankowsky, 2001	-	Protégé forced by mentor's greater power
Buell, 2004	-	Mentors overly demanding of protégés
Eby & McManus, 2004	-	Protégés treating their mentors with ingratiation
Sundli, 2007	-	Protégé failure to reflect, creating mimicry

forms of dysfunction (see Table 7). With unproductive closeness, the mentor generally dominates the protégé and prevents adequate growth and development, or the protégé becomes more of a burden on the mentor than necessary. With unproductive distance, either or both parties may disconnect from the relationship and fail to engage in sufficient openness and closeness with one another for insight and influence to build. The ineffective management of this developmental boundary, through inability or intent (O'Hair & Cody, 1994; Scandura, 1998), appears to underlie most mentorship problems (Eby, McManus, Simon, & Russell, 2000; Eby et al., 2004).

Other major difficulties in mentoring relationships come from an environment that does not adequately support the development of participants, such as a destructive climate or peers and events that interfere (see Table 8). Conflicts between mentoring roles and other roles played by the parties can also impede a relationship, particularly

when those roles require a balance between being supportive of one another and being critical of the other's work or behavior (Reiman & Thies-Sprinthall, 1998). Cited issues also include protégé or mentor performance problems, difficulties with schedules or distance, and poor personality fit.

Table 8		
Negative Results from Environment or Member Performance – Examples		
Fitt & Newton, 1981	-	Co-workers presuming sexual indiscretion in a cross-gender mentoring relationship
Kram & Hall, 1989	-	Stress & upheaval from changes in the organization competing for attention
Carruthers, 1993	-	Jealousy from non-participant peers who think they are viewed as less capable or valued
Allen, Poteet, & Burroughs, 1997	-	Facilitated by organizational support & a comfortable environment, inhibited by work demands & a competitive/political climate
Eby, McManus, Simon, & Russell, 2000	-	Mismatch between the personalities, schedules, or interests of the parties in the dyad & general inability of the mentor or protégé
Maynard, 2000	-	Difficult structure between mentoring & acting as the protégé's supervisor
Johnson, 2003	-	Mentor's lack of foundational virtues, operational abilities, or knowledge/skill competencies
Eby & McManus, 2004	-	Submissiveness, underperformance, or lack of willingness to learn by protégé

Accepting that negative experiences in relationships carry more weight when predicting behaviors and outcomes than positive ones (LaBianca & Brass, 2006), mentorship problems, even if rare, can de-motivate anyone who anticipates them. Ragins & Sundstrom (1989) noted that a mentor's simple belief his or her protégé might present a problem, whether or not this belief was correct, could lead him or her to

attribute more of the relationship's actual problems to the protégé than normal and could alter his or her mentoring behavior. Even just the worry that a protégé could become a bad reflection on the mentor can adversely affect the relationship's dynamics (Ragins & Scandura, 1997, 1999). The possibility of participants in this experiment having had bad prior mentoring experiences or environmental factors that could stifle their willingness to engage with a protégé was not addressed directly by this study. However, the materials used made the participants' choices appear to be important but not personal in an effort to increase participant connection with the seriousness of the experiment without enacting visceral hidden resistances.

Theme 7: The actual practice of mentoring in academia and industry.

This review of the history and research on mentoring concludes with a note regarding its actual practice. Many major U.S. companies have installed formal mentoring programs, seeking the benefits mentoring promises for their employees and organizations (Bragg, 1989; Douglas & McCauley, 1997), while developmental relationships in general continue to be actively encouraged by numerous other firms without resorting to the formality of a corporate mentoring program (Douglas & McCauley, 1999). Many universities have also implemented mentoring programs, particularly at the graduate level (Johnson, Koch, Fallow, & Huwe, 2000), and mentoring activities have been used by at least one school system as a part of its training program for supervisory teachers (Crasborn, Hennissen, Brouwer, Korthagen, & Bergen, 2008). Table 9 shows some of the benefits sought by organizations that institute mentoring programs, including both cultural (satisfaction, identification) and practical (citizenship behavior, retention) outcomes.

40

Table 9

Benefits Expected by Organizations that Institute Mentoring Programs – Examples

Collins, 1983	-	Empowerment of minority employees
Zey, 1984	-	Employees who feel connected to the firm
Fagenson, 1988	-	Employees who feel listened to by the firm
Fagenson, 1989	-	More satisfied & internally-mobile employees
Burke, McKenna, & McKeen, 1991	-	Committed employees & larger talent pool
Chao, 1997	-	Improved employee socialization
Donaldson, Ensher, & Grant-Vallone, 2000	-	Organizational commitment & citizenship behavior from employees

Some researchers argue that mentoring works by increasing the perception that the organization listens to its junior employees or graduate students, helping them feel more wanted and effective (Stengel, Dixon, & Allen, 2003). Others point to the humanizing of the overall environment, allowing the employees or students to develop a common and integrated culture that pulls them together into a cohesive unit (Hackman, 1992). While mentoring is not the answer to all problems and can even become dysfunctional if poorly executed, mentoring programs are viewed by and large as indicative of a caring, nurturing, and supportive organization and are valued by both prospective (Allen & O'Brien, 2006) and current (Dreher & Ash, 1990) employees. This appreciation of the organization extends to students at universities as well, particularly to those seeking graduate degrees (Baker et al., 2003).

Problems tend to arise, however, in the actual creation and governance of these mentoring programs. "Existing recommendations appear to be based more on speculation than on data-driven evidence," notes Allen et al. (2006a, pg. 126). Many

universities have implemented mentoring programs, but their development often speeds beyond the evidence (Jacobi, 1991). While schools and other organizations publicly tout the need for good mentors, mentoring skills and experience are rarely used as a part of hiring requirements (Johnson & Zlotnik, 2005), managers and faculty are rarely evaluated on the basis of their ability to mentor (Johnson, 2003), and ethical concerns are rarely addressed directly by mentoring program directors (Johnson & Nelson, 1999). It would seem that mentoring, as it has been popularized, tends to be driven more by anecdote than by documentation.

There are certainly treatises available written by authorities on the subject. W. Brad Johnson has repeatedly written excellent prescriptive recommendations based upon his research, including advice directly focused on the concerns of mentors (Johnson, 2002), protégés (Huwe & Johnson, 2003), and program administrators (Johnson, 2003). Many others have done so as well: for example, Allen & Poteet (1999) offers excellent advice for mentors gleaned directly from those with experience, and researchers looking into the structure of formal programs to define the characteristics that make them more effective provide valuable information for those who would design or operate such a program (Ragins et al., 2000; Allen et al., 2006b). Sadly, this research appears to be underused in actual practice. It is important for mentoring programs to be developed with a fact-based approach (Eby et al., 2005) for, as previously noted, a few bad experiences can tarnish the perspectives of potential mentors and protégés and keep them from entering into what otherwise might have been important and invigorating relationships. Therefore, 2 critical goals of mentoring research should be to remain relevant to practitioners and to encourage them to make use of it.

With the first of these 2 goals in mind, this study was created to offer critical information upon the most singular defining moment of a mentoring relationship: its initiation and the reasons a mentor would participate. Even if a mentor is coerced into participation by his or her employer, with the protégé already selected and thrust upon him or her, or even if the protégé initiates contact: no amount of coercion or heart-tugging pleas can force a mentor into expending the time, energy, and commitment into a mentoring relationship that's necessary for it to carry a reasonable level of meaning, quality, or intimacy (Finkel, Rusbult, Kumashiro, & Hannon, 2002; Allen & Eby, 2008). Whether a mentoring relationship is sponsored through a formal program or is informally initiated, it is the mentor who will hold the keys to the dyad's tempo and style (Ragins et al., 2000). This tempo and style influences everything, including how the parties construct their relationship (with the mentor holding the bulk of the construction power), how and when they communicate, the topics they address or avoid, the advice that will be given, and the types and amount of mentoring functions provided (Bradbury & Koballa, 2008).

Mentoring requires a personal and professional investment on the part of the mentor (Crosby, 1999), a feat that's only possible through voluntary effort as determined by those who've studied training motivation (Hicks & Klimoski, 1987; Mathieu, Tannenbaum, & Salas, 1992) and volunteerism (Stukas, Snyder, & Clary, 1999). Given that mentoring is a pro-social and voluntary behavior (Allen, 2003), it is the unforced nature of protégé choice that is this study's focus: with whom a mentor would decide to enter into a mentoring relationship, and why, regardless of the trappings through which the initial contact was made.

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Summary: The 7 themes regarding mentorship theory and practice.

The following recapitulates the 7 themes just identified, along with how those themes informed this experiment's structure. This chapter then continues by looking at the general theories that provide the foundation for this experiment's hypotheses.

Theme 1: The difference between formal and informal mentoring relationships. This study was written to inform formal programs and the training used in formal programs by looking at what happens in an unforced mentor/protégé match with the assumption that unforced matches lead to better mentoring outcomes than forced ones. The focus is information, not a prescription: the results have been oriented toward helping mentors and program directors make informed decisions, not make better forced connections. Further, this study begins with the assumption that interpersonal comfort between the parties, not any one structural element, empowers a good mentoring relationship.

Theme 2: The effects of race and gender on mentoring outcomes and processes. Actual gender and race are not this study's central focus but rather the match, or relationship, between genders and races. There is a general belief that equivalencies between the genders and/or races of the dyad's participants lend a greater chance they will find commonality. However, this is not a given: the mentor's needs may affect his or her reasons for the choices made. Also, as discussed in Chapter 3, race seems to be less important than cultural identity: cultural group is the defining construct used herein rather than racial group. Finally, a feminist approach to the need for investment in the relationship has been used by giving the participants reason expect a deep and personal relationship with the protégé, not one that is fleeting or superficial.

Theme 3: The functions inherent in mentoring. During the experiment, mentoring was not defined to participants as a set of functions but rather as a relationship. Therefore, participants were prompted to view their choices on the basis of an ongoing cooperative agreement between them and the protégés exhibited. Further, no other role (such as counselor, supervisor, advisor, or program leader) was implied other than those already inherent in acting as a committed mentor of graduate students.

Theme 4: The expected benefits of mentoring for protégés. An important component of this experiment is for participants to view their choices as critical to the protégés' progress. Each of the vignettes used in this experiment involved a protégé of the expected age and with an academic status typical of those who would best benefit from a mentoring relationship. The vignettes expressed an appropriate level of need and appreciation for being chosen, and they were written to imply that most or all of the protégés' needs for career, psycho-social, and role-modeling mentoring functions are expected to come from the mentors who select them.

Theme 5: The expected benefits of mentoring for mentors. Another important component of this experiment is for participants to have in mind their own personal motivations behind choosing a protégé. At the beginning of the experiment, participants were prompted to consider the potential benefits of being a mentor without overly orienting them toward a particular set of reasons. This priming was viewed as necessary to ensure participants have thought enough about their motivations to be influenced by them, since there is no other reason to contend that they have had enough mentoring experiences to know what benefits might exist or that prior experiences have had caused them to view mentoring positively.

Theme 6: The difficulties and dysfunctions that can harm a mentoring relationship. Since prior mentoring experiences may have been negative for a mentor participant, the experiment was designed to couch the choices he or she made as important without engaging what might be a personal and visceral adverse reaction to mentoring. This balance was sought to increase the validity of their decisions without increasing the potential for negativity. There is no attempt in this study to look directly at mentoring difficulties and dysfunctions, and its materials were written to directly suggest the expectation of a supportive and mutually-beneficial arrangement.

Theme 7: The actual practice of mentoring in academia and industry. This study is primarily intended to inform actual practice. While it certainly has theoretical and scholarly implications, the central goal of the author is to look at the decision-making processes that would be important to real-world mentors and program directors. Therefore, this study concludes with a set of explicit recommendations for matching and training efforts in formal programs, stopping short of any form of forced matching. These recommendations are expected help formal programs devise policies and procedures based upon empirical results instead upon of presumptions.

Three Underlying Theories that Informed This Study

There are 3 broad underlying theories that helped to inform the design and structure of this study. They are social exchange theory, social identity theory, and the technology acceptance model, and the following discusses each one.

Underlying Theory 1: Social exchange theory.

The first underlying theory is *social exchange theory* (SET), which in general posits that most human relationships utilize a subjective cost-benefit analysis to

influence their progression and outcomes. Popularized by Homans (1958), SET proposes that those in a relationship internally determine the expected benefits of that relationship and its costs, weigh these positives and negatives against one another, and make decisions and take actions in a manner that maximizes expected benefits and/or minimizes expected costs. To the extent the relationship is expected to be net-beneficial, the participant continues and expands the relationship; to the extent it's expected to be net-detrimental, he or she disinvests and even abandons it (see Figure 5). In this manner, much of any one participant's attitudes and behaviors with regards to a particular relationship can be tied to his or her perception of the relationship's net exchange potential.

		Expected Benefits Are	
		Low	High
Expected Costs Are	Low	Attempt to Increase Benefits	Continue to Invest in Relationship
	High	Disinvest or Abandon Relationship	Attempt to Decrease Costs

Figure 5. Social exchange theory: Relationship actions based on expected benefits and costs

Thibaut & Kelley (1959) proposed 3 primary benefits that a participant could seek from engaging in a relationship: 1) a direct benefit tied to a particular action, 2) a future reciprocal benefit from the other party, or 3) a gain in reputation and influence from others who are third-parties to the relationship. Costs related to engaging in a relationship could come from the time, energy, and resources invested in the

relationship, a loss of reputation and influence, or relationship-induced stress (Eby, Durley, et al., 2008). The impact of perceived net costs or benefits appears to be particularly relevant in the relationship's early stages (Knapp, 1978), and the SET model works better for professional intimate relationships than for personal ones (Rusbult, 1983).

Social exchange theory has been linked to prior mentoring experience and intentions to mentor (Ragins & Scandura, 1999), actual mentoring behaviors (Young & Perrewe, 2000), general mentoring functions (Ensher et al., 2001), and negative mentoring experiences (Eby et al., 2004). In this study, SET is viewed as the mechanism linking a participant's ratings and rankings of protégé vignettes to the benefits he or she expects to receive from the mentoring relationship. As will be discussed further in Chapter 3, the measured instrumentality and expressiveness levels of participants (McFarland & Kidwell, 2006) will be used to indicate whether the participant seeks near-term research and publication productivity or seeks the assistance of others and the building of camaraderie. These expected benefits should translate into higher receptivity toward currently-productive protégés or toward those who need more help and could become a set of appreciative junior scholars.

Underlying Theory 2: Social identity theory.

The second underlying theory is social identity theory (SIT), which in general posits that people tend to categorize themselves and others into groups, determine which are the "in-groups" and which are the "out-groups," and behave differently toward people according to these classifications. Popularized by Tajfel & Turner (1979), SIT proposes that those who are perceived to be similar will be preferred, better treated,

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and more easily forgiven while those who are perceived to be different will be shunned, treated poorly, and more easily vilified. To the extent one's own group is highly valued, the treatment of another can range from extreme favoritism to a neutral orientation to fervently aversive discrimination (Figure 6). Accordingly, much of a participant's attitudes and behavior toward relating closely with someone can be tied to the depth of his or

		One's Own Group is	
		Highly Valued	Not Valued
The Other's Group is	Same	Show Fervent Favoritism and Preference	A Neutral to Mildly-Accept Orientation
	Different	Show Fervent Discrimination and Avoidance	A Neutral to Mildly-Avoid Orientation

Figure 6. Social identity theory: Relationship actions based on in-group value and membership

her commitment to an in-group and the perception of the other person's inclusion or exclusion from that group.

Tajfel & Turner (1979) also proposed 3 criteria that affect a person's tendency to treat other people differently according to group membership: 1) the depth of the person's self-identification with his or her in-group, 2) the extent to which the situation allows the group membership of the other people to be distinctly the same or distinctly different from that group, and 3) the perception that the similarity or difference is relevant to the situation. Given the intimacy involved in a mentoring relationship and the cross-gender or cross-racial issues that can arise (covered earlier in this chapter), any manipulation that meets the second criteria should test the strength of the first one.

SIT has been used to link gender-matching with mentoring functions (Ragins & Cotton, 1999), workforce composition with turnover (Zatzick, Elvira, & Cohen, 2003), and power and trust issues with mentoring supervision (Willemyns, Gallois, & Callan, 2003). In this study, SIT is viewed as the mechanism linking a participant's ratings and rankings of protégé vignettes to the strength of the participant's commitment toward dealing exclusively with his or her gender and cultural group. As will be discussed further in Chapter 3, the learning goal orientation of participants (McFarland & Kidwell, 2006) will be used to indicate whether the participant strongly identifies with an in-group from which there will be much power but little learning (Ragins, 1997) or is more open to the learning influences that come from dealing intimately with differing groups (Lankau & Scandura, 2002). This goal orientation should point toward a higher receptivity toward similar protégés or a tendency toward those who are dissimilar and from whom more new information and perspectives can be gained.

Underlying Theory 3: The technology acceptance model.

The third underlying theory is the technology acceptance model (TAM), which in general posits that 2 primary factors lead to an individual's use of a particular system: the perception that the system is useful for the intended purpose and the perception that the individual has what is required to successfully utilize the system. Popularized by Davis (1989), TAM proposes that system's usefulness and usability are orthogonal concepts and that both must sufficiently meet minimally-acceptable levels before the system will actually be used. To the extent one or the other does not meet minimally-acceptable levels, the system will not be used but rather other actions will be taken instead (see Figure 7). In this manner, much of a participant's attitudes and behaviors

		Applicability for the Purpose is	
		Low	High
Ability to use is	Low	Avoid Using or Learning About the System	Learn More or Improve Use of the System
	High	Use Other Systems of Methods Instead	Use the System for the Given Purpose

Figure 7. Technology acceptance model: Reactions to systems based on usability and applicability

with regards to the actual use of a technology for a particular purpose can be tied to his or her perception of the technology's applicability and ease of use.

Attitude toward a system's usefulness or usability could be ill-informed, with attitudes affecting behavior even if the system had never been used by the individual for the purpose in question (Bagozzi, Davis, & Warshaw, 1992). Therefore, this is a model of perception and not of fact: it does not matter whether the technology is actually useful or usable, only how the potential user perceives it. If the perceptions generate a positive attitude toward the system, then the potential user will demonstrate a willingness to become an actual user (Dillon & Morris, 1996). The impact of perceived ease of use appears to be particularly relevant to actual system usage (Tornatzky & Klein, 1982).

The technology acceptance model has been linked with distance mentoring and the tutoring of students (Diamond & Dutra, 2007), the acceptance of web-based course management systems (Martins & Kellermanns, 2004), and how deeply one is imbedded within a supportive social network of system users (Sykes, Venkatesh, & Gosain, 2009). In this study, TAM is viewed as the mechanism linking a participant's ratings and

rankings of protégé vignettes to the perceived need to use cellular and internet technology as a central component of the mentoring relationship. As will be discussed further in Chapter 3, the measured preference for personal contact and technological self-efficacy levels of participants (Walker & Johnson, 2006) will be used to indicate whether the participant believes face-to-face meetings are more conducive toward serious business relationships and whether he or she feels comfortable using distance technology. These attitudes should translate into higher receptivity toward protégés who can see the mentor in his or her office regularly or toward those who prefer to be mentored through the use of distance technology.

Conclusion and Chapter Summary

This chapter has looked at 7 themes from the mentoring literature that dominate its research history and how these themes have been considered in this study. This chapter has also given a brief summary of 3 underlying theories that informed this study's design, including a preview of the 3 explanations for mentor choice that are tested herein. The next chapter will detail the methodology used, including the layout and development of the experiment, the data methods that should uncover its findings, and the specific hypotheses to be tested. The actual results of the experiment will be covered in Chapter 4 and further elaborated upon in Chapter 5.

CHAPTER 3

HYPOTHESES AND METHODOLOGY

This experiment was designed to measure 5 traits of respondents who are graduate faculty (and therefore potential graduate-school mentors), ask them to both rate and rank 10 protégé graduate student vignettes that had 3 manipulations built into them, and gather real-time interview data from the respondents while they made their protégé-preference decisions. The analysis of the collected data shows how the measured respondent traits relate to the manipulations imbedded within the protégé vignettes, with the interview data shedding light on the empirical results. Three primary explanations underlying a mentor's protégé choice were tested:

1)   Need-attraction: Matches 2 indicators of what the mentor may need from the relationship, instrumentality and expressiveness, with the current-productivity categories of the protégés

2)   Distance-mentoring: Matches 2 indicators of how well the mentor connects with others through technology, preference for personal contact and technological self-efficacy, with the technology-required categories of the protégés

3)   Similarity-linking: Matches 1 indicator of the mentor's view toward experiences gained from difficult situations, learning goal orientation, with the gender and culture similarity categories of the protégés

This chapter begins with a justification of the methodology used for this experiment, continues by developing the specific hypotheses tested, and finally concludes with a detailed explanation of the experiment's design, development, operation, and methods of analysis.

Justification of the Methodology

Allen (2004) performed an experiment using a similar vignette design as the one used in this examination. In that study, Allen tested mentor preferences for protégés along 3 (2x2x2) dimensions: 1) gender (male and female); 2) ability (weak and strong); and 3) willingness to learn (low and high). Allen found significant effects on the second and third dimension: mentors showed a marked preference for protégés who were strong in ability and high in willingness to learn. As valuable as that experiment has been toward our understanding of the protégé selection process, there are several shortcomings in Allen (2004) that will be addressed in this experiment:

➢ Allen (2004) used predominantly female (68%) and Caucasian (67%) participants, all of whom were undergraduate students (the youngest was 18 years old). A balanced participant design was used in this study: it includes a roughly even number of participants from each gender and across five cultural profiles. Further, graduate faculty in a realistic position and age range for mentoring were tested, most of whom have actually been a mentor.

➢ Allen (2004) told participants that the purpose of the experiment was to inform a mentoring program between university personnel and high school students, moving close to the realm of youth-mentoring. Youth mentoring outcomes have not been as powerful as those found in academic mentoring, likely because youth-aged protégés endure many other non-mentoring influences on their development (Eby, Allen, et al., 2008). This study was conducted in a graduate-school academic environment, where the beneficial effects of mentoring have been well documented, to reduce the implications of competing developmental forces.

➤ Already assuming that protégé willingness to learn has a positive influence on mentor choice, as documented by Allen (2004), willingness to learn was held steady across protégé vignettes in this study. All vignettes expressed that the protégé is willing and eager to learn from the mentor.

➤ Allen (2004) did not look at mentor traits that could influence whether protégé ability was seen as more or less desirable by the mentor, documenting only the main effect of protégé ability. In this study, the current-productivity categories of protégés were manipulated along 3 levels instead of 2, and the interaction effects of two mentor traits (instrumentality and expressiveness) that could influence how valuable a protégé's current productivity is to the mentor participant were considered.

➤ Allen (2004) looked at the effects of cross-gender matches, but she did not look at cross-cultural matches nor did she look at mentor traits that could influence a mentor's decision to engage with a dissimilar protégé. This study includes both cross-gender and cross-cultural matches and whether a mentor's learning goal orientation affects his or her inclination toward diversity pairings.

➤ Allen (2004) did not consider distance mentoring situations, nor did she ask participants for a qualitative discussion regarding the issues they actually focused upon while making their decisions. Both of these elements were brought into this study.

Olian et al. (1993) used a fictional vignette design to test mentor preferences as well, comparing protégé performance, gender, and marital status against the gender of the participant mentor. Vignette designs such as these are valuable for mentor-choice

studies for 2 main reasons: 1) they recognize that the mentor is the one with the power in the relationship and has a choice with regards to whether or not mentoring will actually be provided (Monaghan & Lunt, 1992; Wang, 2001), and 2) they honor the time, energy, and attention the mentor is being asked to commit to the relationship by giving the mentor room for determining what he or she wants to receive back in recompense (Stewart & Manz, 1995; Finkel et al, 2002; Allen & Eby, 2008). In this study, mentor participants were asked to balance competing categories of benefits they could receive and difficulties they could endure from working with potential protégés based upon the abilities and needs the participants brought into the mentoring relationship.

An experimental design allows for the manipulation of factors not otherwise easily controlled (Campbell & Stanley, 1963), so this experiment represents an excellent opportunity to test the validity of its 3 sets of hypotheses regarding why mentors choose the protégés they do (Allen et al., 2008, p. 349). The 1st set relates to whether mentors are looking for a highly productive protégé or one who needs help, and the 2nd set relates to whether mentors can accept distance protégés. Protégé current-productivity and technology-required categories were each manipulated in this study across 3 levels (*low*, *medium*, & *high*) in a fully-crossed within-subjects design. The 3rd set looks at the gender and culture matching of the participants. The matches between mentor and protégé culture and gender profiles were manipulated in this study across 3 levels as well (*different on both*, *same on one only*, & *same on both*), also using a fully-crossed within-subjects design. Finally, a wide range of participant genders, cultures, and traits were included to broaden the representativeness of the sample across the population of all graduate-school mentors (Trochim, 1986).

Development of Hypotheses

The 3 theoretical explanations for a mentor's protégé choice each build to a set of testable hypotheses, developed as follows.

Explanation 1: The need-attraction hypotheses.

The first series of hypotheses are concerned with the measured participant traits of instrumentality and expressiveness, the manipulated protégé vignette levels of current productivity, and their interactions.

Prior studies have shown that mentors are likely to gravitate toward high-performing protégés (Olian et al., 1993; Green & Bauer, 1995; Allen, 2004). Reasons for this include expectations of higher-quality work products, the assumption they will generate more work output or exhibit more emotional stability, the concern that a low-performing protégé could reflect poorly on the mentor, or the mentor's need to manage limited time and energy resources (see Table 10). However, assuming they carry a high

Table 10

Reasons for Mentors to Choose High-Performing Protégés – Examples

Halatin & Knotts, 1982	- Potential embarrassment from a bad protégé
Noe, 1988b	- Value protégés involved in their job & career
Feren, Carroll, & Olian, 1988	- Similarity in attitudes toward high performance
Kalbfleisch & Davies, 1993	- Protégé competence & self-esteem
Turban & Dougherty, 1994	- High self-monitoring & internal locus of control
Schaufeli et al., 1996	- Protégé will respond with compensatory efforts
Allen, Poteet, & Burroughs, '97	- Motivation, competency, & similarity of protégé
Ragins, 1997	- Performance, visibility, & shared identity
Young & Perrewé, 2000	- Open to advice & coaching, putting forth effort
Halbesleben & Bowler, 2007	- Use resources in a way to reduce exhaustion

VALENCE The value to the mentor of what he or she would receive from the act of mentoring a protégé	INSTRUMENTALITY The belief that mentoring performance will actually lead to the desired results	EXPECTANCY The belief that mentoring methods can be effectively utilized in the given situation

Figure 8. Need attraction explanations investigated regarding mentor choice in light of Vroom's (1964) expectancy theory model.

enough willingness to learn (Allen, 2004), low-performing or struggling protégés may be more interesting to mentor and more intrinsically rewarding to work with (Allen et al., 2000). Social exchange theory (see Chapter 2) connects with mentoring research through determining what the mentor values from the relationship in return for the effort, time, energy, and concern he or she distributes on behalf of the protégé.

Prior research on mentor outcome expectations has almost exclusively focused near Vroom's expectancy/instrumentality linkage: a mentor's perception of the chance valued outcomes will be realized given the methods available (Vroom, 1964). They either look at mechanisms the mentor would use (a hard-working, no fuss, and obedient protégé) or the chance that the desired outcomes would arise from the work invested (protégé reciprocity or a supportive mentoring environment). Almost no one has asked: what does the mentor want from the relationship? Thus the mentor's actual desired outcomes (valence, per Vroom) have been largely ignored (see Figure 8).

Although it was proposed some years ago that the motives of the mentor should be related to who will be selected as a protégé (Allen, Poteet, & Burroughs, 1997), most studies have failed to make this relationship explicit. In their experimental study of banking managers, the Olian et al. (1993) experiments found that even a small drop in a subordinate's past performance adversely affected a manager's decision to accept the subordinate as a protégé, but the researchers did not query regarding the outcome expectations of those managers. The Allen et al. (2000) study used self-report measures to match the participant mentors' advancement aspirations with their selection of a protégé on the basis of the latter's potential/ability or need for help. They found a non-significant relationship between a mentor's high aspiration and his or her choice of a protégé on the basis of perceived protégé potential/ability along with a significant relationship between high aspiration and choosing one on the basis of perceived protégé need for help. However, the imbedding of this study in a much larger one (only 282 respondents used out of 1,500 polled), the over-representation of whites (90%), and its cross-sectional, recollective, and self-report design make interpretation arduous. The Allen (2004) study asked 249 experienced mentors about their reasons for being a mentor (self-enhancement versus intrinsic satisfaction) and their reasons for having picked their protégés (ability and desire to learn), finding that self-enhancement reasons related to selection based upon protégé ability and intrinsic satisfaction reasons related to selection based upon protégé desire to learn. However, this was another study that relied heavily on white respondents (229 out of 249) and used a cross-sectional, recollective, and self-report design. Although these studies have been helpful in matching some mentor desired outcomes to some protégé characteristics, their

designs have made specific assertions difficult: and they are the only 3 studies found to have attempted such a match at all.

Participant needs are considered in this study by measuring their instrumentality and expressiveness traits as indicators of what the mentors want to receive from their relationships. Sandra Bem and Janet Spence are known for their work with psychological masculinity and femininity: gender classifications that relate to more how a person acts than to his or her biological sex. They argued that a person may identify with one classification more than the other, with both well and equally (androgynous), or with neither (undifferentiated), and that an identification with each classification carries its own strengths and issues (Bem, 1974; Spence, 1993). Psychological masculinity (also known as instrumentality, per Spence & Helmreich, 1980) is equated with traits that are typically male-oriented such as dominance, aggressiveness, competitiveness, decisiveness, and objectivity (Goolsby, Lagace, & Boorom, 1992). Psychological femininity (also known as expressiveness, per Spence & Helmreich) is equated with traits that are typically female-oriented such as submissiveness, agreeableness, cooperativeness, generativity, and subjectivity (Goolsby et al.). One set of traits is not preferable to the other: although one set may work better than the other in a given situation, each has its time and place. They are also distinct from the singular physical sex of the participant as considered by Allen et al. (2000). While there are some individuals who can access both sets of traits as needed (an androgynous person), most people tend to identify with one set more than the other (Gilligan, 1982).

Given that instrumental traits are consistent with self-assertive, action-oriented, and straight-line thinking while expressiveness traits are consistent with nurturing,

connection-oriented, and circular thinking, these trait-sets should relate to the mentor's overall inclination toward performance or relationship goals. In an academic setting, performance goals should refer to conducting research, publication productivity, and the reception of awards. Relationship goals should refer to assisting students in need, building camaraderie, and the forging of a scholarship legacy exhibited through highly-appreciative junior scholars. The vignettes devised for this study manipulated these performance-vs.-relationship outcomes through the current productivity level of the protégé, which itself was manipulated through the vignette's list of prior protégé accomplishments (publications and awards) and comments from the protégé regarding his or her goals and level of need.

Protégés *low* in current productivity were shown to be struggling, not yet well accomplished, looking for assistance, and highly appreciative of someone who would help them to rise into higher levels of functioning. In other words, they represented "a project" and were ripe for relationship-oriented outcomes. Protégés *high* in current productivity were shown to already have a strong research history and one or more awards. They exhibited a desire to help the mentor increase publication output in return for their own increased experience and name recognition, with a readiness to enhance joint performance. All vignettes developed for this experiment presented the protégés in a positive light (given the assumption that a true problem-protégé would be construed as negative and likely would not be well rated by anyone). Therefore, low-productivity protégés were presented as strong graduate students who are simply unproven, need help to develop their potential, and exhibit the personal appreciation and plea for assistance that should trigger any help-arousal instincts of the participant.

Consistent with prior research, the need-attraction hypotheses predict that protégé vignettes with high current-productivity levels will be more highly rated and ranked than those with low current-productivity levels. However, mentor instrumentality and expressiveness traits should influence these ratings and rankings. The greater a participant's instrumentality, the more pronounced the curve should be: the difference between high-productivity and low-productivity vignettes is expected to be steeper than normal. Instrumental-oriented mentors should expect high-quality output from their protégés in response to the mentor's efforts and should respond more enthusiastically to prospective protégés who could immediately heighten his or her own productivity (Huwe & Johnson, 2003). Meanwhile, the greater a participant's expressiveness, the less pronounced the curve should be: high-productivity vignettes should not be as heavily valued and low-productivity vignettes may even become more valued than high-productivity vignettes. Expressiveness-oriented mentors should search for expressions of approval, respect, affection, and esteem from a protégé and should respond more enthusiastically to prospective protégés who are in need of extra assistance (Allen et al., 2000). The following 14 need-attraction hypotheses (NA01 through NA14) and 2 research questions (NAQ1 & NAQ2) are derived from this explanation:

Hypothesis NA01: Protégé vignettes in the high current-productivity category will be rated significantly higher than those in the low current-productivity category.

Hypothesis NA02: Protégé vignettes in the high current-productivity category will be ranked significantly higher than those in the low current-productivity category.

The first 2 hypotheses relate to the expected main effects in which higher-productivity protégés will be preferred over lower-productivity protégés. The next 4

hypotheses test the expected correlation between participants' instrumentality and expressiveness measures and the ratings they gave to protégés in the high-productivity category and to those in the low-productivity category.

> *Hypothesis NA03*: Participant instrumentality measures will significantly and positively impact their ratings of high currently-productive protégé vignettes.
>
> *Hypothesis NA04*: Participant instrumentality measures will significantly and negatively impact their ratings of low currently-productive protégé vignettes.
>
> *Hypothesis NA05*: Participant expressiveness measures will significantly and positively impact their ratings of low currently-productive protégé vignettes.
>
> *Hypothesis NA06*: Participant expressiveness measures will significantly and negatively impact their ratings of high currently-productive protégé vignettes.

Given there is an expected difference between the ratings a mentor would give to high-productivity protégés and those he or she would give to low-productivity protégés, there should be a relationship between a mentor's instrumentality and expressiveness measures and the slope of a line of best fit drawn through the vignette ratings defining that high/low productivity ratings difference. The y-axis of that line is defined by the relative high/low current-productivity categories of the vignettes (found from the vignette pretesting covered in Appendix A).

> *Hypothesis NA07*: Participant instrumentality measures will significantly and positively impact the slopes of the lines of best fit drawn through each participant's protégé ratings against the relative high/low current-productivity categories of the rated vignettes.
>
> *Hypothesis NA08*: Participant expressiveness measures will significantly and negatively impact the slopes of the lines of best fit drawn through each participant's protégé ratings against the relative high/low current-productivity categories of the rated vignettes.

Looking at just the high-productivity protégé vignettes, their rankings should relate to the mentor's instrumentality and expressiveness measures, and similarly when looking at just the low-productivity protégé vignettes. These relationships must be tested using techniques that depend only on the use of rank-order data and do not require scalar data, and since a *most-preferred* ranking is "1" the directions are reversed.

> *Hypothesis NA09*: Participant instrumentality measures will significantly and negatively impact their rankings of high currently-productive protégé vignettes.

> *Hypothesis NA10*: Participant instrumentality measures will significantly and positively impact their rankings of low currently-productive protégé vignettes.

> *Hypothesis NA11*: Participant expressiveness measures will significantly and negatively impact their rankings of low currently-productive protégé vignettes.

> *Hypothesis NA12*: Participant expressiveness measures will significantly and positively impact their rankings of high currently-productive protégé vignettes.

Given there is an expected difference between the rankings a mentor would give to high-productivity protégés and those he or she would give to low-productivity protégés, there should be a relationship between a mentor's instrumentality and expressiveness measures and this difference. These relationships also must be tested using techniques that depend only on the use of rank-order data and do not require scalar data, and again the directions are reversed due to "1" meaning *most-preferred*.

> *Hypothesis NA13*: Participant instrumentality measures will significantly and negatively impact the difference between the average rankings given to the 3 high-productivity protégé vignettes minus those given to the 3 low-productivity vignettes.

> *Hypothesis NA14*: Participant expressiveness measures will significantly and positively impact the difference between the average rankings given to the 3 high-productivity protégé vignettes minus those given to the 3 low-productivity vignettes.

As already noted, mentor instrumentality and expressiveness are orthogonal concepts: it is possible for a participant to be high on both measures or low on both measures. The effects of one are expected to counteract the effects of the other with regards to the ratings and rankings given to protégé vignettes on the basis of productivity level, but there is no reason to predict which will generate the stronger effect. Therefore, the following two research questions ask whether instrumentality and expressiveness will counteract one another and, if so, by how much.

> *Research Question NAQ1*: Participant instrumentality and expressiveness measures are expected to independently and in opposition affect the ratings mentors give to protégé vignettes based upon the protégé's productivity level. Will this occur, and if so which has the stronger effect?

> *Research Question NAQ2*: Participant instrumentality and expressiveness measures are expected to independently and in opposition affect the rankings mentors give to protégé vignettes based upon the protégé's productivity level. Will this occur, and if so which has the stronger effect?

Explanation 2: The distance-mentoring hypotheses.

The second series of hypotheses are concerned with the measured participant traits of preference for personal contact and technological self-efficacy, the manipulated protégé vignette levels of technology required, and their interactions.

The nature of employment has changed in recent decades, from the long-term organizational career to one that is flexible and adaptive (Hall, 1996). The rise of the internet offers workers the opportunity to utilize a vast array of online tools – chat-rooms, newsgroups, E-mailing lists, discussion boards, interactive websites, and virtual environments for instance – to interact with other workers and even form personal relationships without having to be at the same location at the same time (Parks &

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Roberts, 1998). Such computer-mediated communication (CMC) has prompted greater job and career mobility, a focus on small-team and project-oriented efforts, and businesses no longer housed within traditional corporate walls (Sullivan, 1999). CMC impacts academia as well through the rise of distance and asynchronous courses: full programs and degrees are even being offered online (Pena, 2001). These changes have prompted the need for mentoring relationships and networks that transcend organizational boundaries, time, and space, allowing participants to benefit from mentoring and build social capital beyond the traditional corporate or academic environment (Higgins & Kram, 2001; O'Neill, 2004).

It has been noted that regular high-quality interactions are important for the development of close relationships (Hinde, 1997): so "how to do that?" in a CMC setting has become a major concern for distance mentoring. Bonk & Sugar (1998) studied mentoring functions delivered through electronic media and found that some traditional

Table 11

Relationship-building and Intimate Interactions Studied through CMC – Examples

Scardamalia et al., 1989	- Computerized intentional learning environment
Riel & Harasim, 1994	- Network learning & interaction in education
O'Neill et al., 1996	- Online mentors in grade school science class
Levin & Waugh, 1998	- Tele-apprenticeships in teacher education
Tsikalas & McMillan-Culp, 2000	- Tele-mentoring roles & functions on projects
Hamilton & Scandura, 2003	- E-mentoring & organizational learning
Kasprisin et al., 2003	- E-training to improve E-mentoring skills
O'Neill, 2004	- Tele-mentoring to build social capital
Angulo & de la Rosa, 2006	- Online university faculty development
Neils, 2010	- Professionals tele-mentoring grade-schoolers

functions were underused, while Harris & Jones (1999) looked at electronic mentoring in a school environment and spotted interaction sequences that appear to be unique to CMC. Whether identified as E-mentoring (electronic), T-mentoring (technology), V-mentoring (virtual), or D-mentoring (distance), the study of the relationship-building and intimate personal interaction activities found in mentoring relationships through a CMC environment has developed into a truly interdisciplinary topic (see Table 11).

Price & Chen (2003) defined telementoring "as a mentoring relationship or program in which the primary form of contact between mentor and mentee is made through the use of telecommunication media or computer-mediated communications, such as Email, discussion boards, and list-servers" (pg. 107). One of the common denominators of these media is the dependency on non-face-to-face contact. If a mentoring relationship is to be transacted primarily using distance media, then the techniques, methods, and skills involved would likely differ from a traditional relationship where non-verbal cues (personal distance, eye contact, vocal tone, body language – Lowndes, 1996) readily come into play.

General themes in communication research show that interpersonal relationships are forged through a process of building honesty, trust, and loyalty into the union (Bell & Golombisky, 2000) through conversation (Gold, Devins, & Johnson, 2003) and joint activities (Parra, DuBois, Neville, Pugh-Lilly, & Povinelli, 2002). With CMC technology, interpersonal relationships must navigate these conversations and activities primarily through the written word (Dobbs, 2000), while telecommunications technology likely requires a similar attentiveness toward the spoken word. Until video-conferencing technology becomes more available and life-like (Ensher, Heun, & Blanchard, 2003), we

are saddled with a system that carries particular challenges with regards to fostering

distance communication and cooperative contact: the likelihood of misunderstanding

due to fewer visual cues (King, Engi, & Poulos, 1998), a relationship that develops more

slowly due to conversations being shorter and spread out over time (Walther, 1996),

computer and internet malfunctions (Kiser, 1999), and preserved conversations that

could fall into the hands of unintended people (Sampson, Kolodinsky, & Greeno, 1997).

Much of this translates into the need for a reasonable level of competency in oral and

written communications and computer applications on the part of participants, and some

people have such a negative self-efficacy with regards to the operation of these

systems that they are inhibited from even trying to make use of them (Agarwal &

Karahanna, 2000; Meuter, Ostrom, Bitner, & Roundtree, 2003). This is one way that the

technology acceptance model (see Chapter 2) connects with distance mentoring

research: users of the technology must perceive it to be easy to use.

To understand how an online caring relationship might progress, the research

literature on online coaching and counseling provides some insight. There is evidence

that online coaching delivers positive outcomes to those coached, mostly oriented

toward benefits that are explicitly career-based or life-balancing in nature (Judge &

Cowell, 1997; Olivero, Bane, & Kopelman, 1997; Zunitch, 2001). Similar to mentoring,

online coaching and counseling begins with a joint discovery of purpose (Douglas &

McCauley, 1999), requires the development of trust (Nielson, Pate, & Eisenbach, 1999),

includes mutuality and feedback (Bell, 1996; Hodes, 1996), and can deliver beneficial

outcomes to the coach or counselor in addition to the recipient (Hall, Otazo, &

Hollenbeck, 1999). Interestingly, some respondents report that the anonymity of an

online coaching environment actually encourages a more honest and objective relationship to form than one transacted face-to-face (Harrington, 1998). Online coaching and counseling relationships tend to be shorter in duration and more topic-specific than a corresponding face-to-face relationship (Whitaker, 2001), but the research indicates that, given enough time, even an online relationship can become quite deep and strong (Walther, 1996; Chidambaram, 1997).

Communications researchers also provide insight through their development of online community-building techniques: ways and means for online associates to connect, build trust, and share with one another toward a common purpose (Gunawardena, 2004). According to Garrison, Anderson, & Archer (2003), these techniques are comprised of 3 overlapping elements: the building of social presence, the building of cognitive presence, and the building of teaching presence. Together, these three sets of techniques act as tools to help members of an online community connect as people and not just digital objects. The ultimate success of an online relationship depends on how well these techniques are used to build a satisfying experience for its members (Sweeny, 2001).

But for some people, the use of anonymity, time/space delays, or a given set of specified techniques could be viewed as insidious toward the building of a deep and trusting relationship: personal contact with the other party may be seen as critical for the relationship's development (Zeithaml & Gilly, 1987; Dabholkar, 1992; Walker, Craig-Lees, Hecker, & Francis, 2002). For them, relationship building comes not from technique but from the mutuality, interaction, and humanity that go beyond words and discussions and from avoiding activities that create interpersonal anxiety or risk. In other

words: simply being able to write or speak or use the equipment, even well, is not enough. Distance relationships require unique balance and timing, the projection of personality through digital media, and the willingness to work with and learn from others through technology, and some cannot accept such relationships as conducive toward intimacy qua human. This is another way the technology acceptance model (see Chapter 2) connects with distance mentoring research: users of the technology must perceive it to be useful for the intended purpose.

Thus, similar to a traditional mentoring relationship's need for interpersonal competence on the mentor's part (Olian, Carroll, Giannantonio, and Feren, 1988), a mentor's technological competence fits into the picture of a successful online mentoring relationship. This competence is reflected as a positive attitude toward its usage, derived from its perceived utility for the intended purpose and its perceived ease of use (Martins & Kellermanns, 2004). Related to the comfort levels required for a participant's

This part of the study assumes there's motive	The distance mentoring part of this study looks at these elements RE: technology	
VALENCE The value to the mentor of what he or she would receive from distance mentoring a protégé	**INSTRUMENTALITY** The belief that an attempt to use CMC technology will actually lead to the desired results	**EXPECTANCY** The belief that CMC mentoring methods can be effectively utilized in the given situation

Figure 9. Distance mentoring explanations investigated regarding mentor choice in light of Vroom's (1964) expectancy theory model.

receptiveness to web-based distance learning (Webster & Hackley, 1997; Christensen, Anakwe, & Kessler, 2001; Thompson & Lynch, 2003), mentors must feel comfortable with using the technology for mentoring to be effective with it in that arena. This comfort can also be expressed using Vroom's (1964) expectancy theory model as the instrumentality and expectancy link underlying motivation to mentor at a distance (see Figure 9).

The current study includes a measure of participants' preference for personal contact to indicate their perceptions toward communications technology's utility for the intended mentoring purpose, and it includes a measure of technological self-efficacy to indicate how well participants can use the technology: both measures were adapted from Walker & Johnson (2006). Together, these measures should indicate technological competence as it relates to distance mentoring and the inclination to accept protégés who will depend upon communications technology for their mentoring activities. The vignettes devised for this study manipulated the required technology level of the protégé through the location of the protégé's home city and through the protégé's comments on the vignette regarding meeting schedules and available communication methods.

Those protégés *low* in technology required were shown to be local to the university where the experiment took place and readily available to meet with the mentor in the mentor's office. Protégés *high* in technology required were shown to live far away from the university, and comments made in the vignette referred to the rare occasions when the protégé could meet with the mentor in person and the need to use cellular and online technology. All vignettes developed for this experiment presented the protégés as ready to meet with the mentor on a regular basis (given the assumption that

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a protégé who was consistently unavailable likely would not be well rated by anyone). Therefore, high-technology protégés were construed as eager and available to meet with the mentor regularly, but generally they must use distance media to do so.

Since mentoring through CMC technology can still be considered non-traditional, the distance-mentoring hypotheses predict that protégé vignettes with low technology-required levels will be more highly rated and ranked than those with high technology-required levels. However, mentor preference for personal contact and technological self-efficacy should influence these ratings and rankings. The greater a participant's preference for personal contact, the more pronounced the curve should be: the difference between low-technology and high-technology vignettes is expected to be steeper than normal. Mentors with a higher preference for personal contact should believe that direct contact with the protégé will enhance their ease of communication, the amount and quality of work performed, and the enjoyment they will receive from meeting (Dabholkar & Bagozzi, 2002). Meanwhile, the greater a participant's technological self-efficacy, the less pronounced the curve should be: low-technology vignettes should not be as heavily valued and high-technology vignettes may even become more valued than low-technology vignettes. Mentors with more technological self-efficacy should not only feel more comfortable with using technology but should more easily focus on the enjoyment of interacting with someone through that technology (Dabholkar & Bagozzi). The following 14 distance-mentoring hypotheses (DM01 through DM14) and 2 research questions (DMQ1 & DMQ2) are derived from this explanation:

> *Hypothesis DM01*: Protégé vignettes in the low technology-required category will be rated significantly higher than those in the high technology-required category.

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Hypothesis DM02: Protégé vignettes in the low technology-required category will be ranked significantly higher than those in the high technology-required category.

The first 2 hypotheses relate to the expected main effects in which lower-technology protégés will be preferred over higher-technology protégés. The next 4 hypotheses test the expected correlation between participants' preference for personal contact and technological self-efficacy measures and the ratings they gave to protégés in the low-technology category and to those in the high-technology category.

Hypothesis DM03: Participant preference for personal contact measures will significantly and positively impact their ratings of low technology-required protégé vignettes.

Hypothesis DM04: Participant preference for personal contact measures will significantly and negatively impact their ratings of high technology-required protégé vignettes.

Hypothesis DM05: Participant technological self-efficacy measures will significantly and positively impact their ratings of high technology-required protégé vignettes.

Hypothesis DM06: Participant technological self-efficacy measures will significantly and negatively impact their ratings of low technology-required protégé vignettes.

Given there is an expected difference between the ratings a mentor would give to low-technology protégés and those he or she would give to high-technology protégés, there should be a relationship between a mentor's preference for personal contact and technological self-efficacy measures and the slope of a line of best fit drawn through the vignette ratings defining that high/low technology ratings difference. The y-axis of that line is defined by the relative high/low technology-required categories of the vignettes (found from the vignette pretesting covered in Appendix A).

Hypothesis DM07: Participant preference for personal contact measures will significantly and negatively impact the slopes of the lines of best fit drawn through each participant's protégé ratings against the relative high/low technology-required categories of the rated vignettes.

Hypothesis DM08: Participant technological self-efficacy measures will significantly and positively impact the slopes of the lines of best fit drawn through each participant's protégé ratings against the relative high/low technology-required categories of the rated vignettes.

Looking at just the low-technology protégé vignettes, their rankings should relate to the mentor's preference for personal contact and technological self-efficacy measures, and similarly when looking at just the high-technology protégé vignettes. These relationships must be tested using techniques that depend only on the use of rank-order data and do not require scalar data, and since a *most-preferred* ranking is "1" the directions are reversed.

Hypothesis DM09: Participant preference for personal contact measures will significantly and negatively impact their rankings of low technology-required protégé vignettes.

Hypothesis DM10: Participant preference for personal contact measures will significantly and positively impact their rankings of high technology-required protégé vignettes.

Hypothesis DM11: Participant technological self-efficacy measures will significantly and negatively impact their rankings of high technology-required protégé vignettes.

Hypothesis DM12: Participant technological self-efficacy measures will significantly and positively impact their rankings of low technology-required protégé vignettes.

Given there is an expected difference between the rankings a mentor would give to low-technology protégés and those he or she would give to high-technology protégés, there should be a relationship between a mentor's preference for personal contact and

technological self-efficacy measures and this difference. These relationships also must be tested using techniques that depend only on the use of rank-order data and do not require scalar data, and the directions are reversed due to "1" meaning *most-preferred*.

> *Hypothesis DM13*: Participant preference for personal contact measures will significantly and positively impact the difference between the average rankings given to the 3 high-technology protégé vignettes minus those given to the 3 low-technology vignettes.

> *Hypothesis DM14*: Participant technological self-efficacy measures will significantly and negatively impact the difference between the average rankings given to the 3 high-technology protégé vignettes minus those given to the 3 low-technology vignettes.

Mentor preference for personal contact and technological self-efficacy are considered to be orthogonal concepts: it is possible for a participant to be high on both measures or low on both measures. The effects of one are expected to counteract the effects of the other with regards to the ratings and rankings given to protégé vignettes on the basis of productivity level, but there is no reason to predict which will generate the stronger effect. Therefore, the following two research questions ask whether preference for personal contact and technological self-efficacy will counteract one another and, if so, by how much.

> *Research Question DMQ1*: Participant preference for personal contact and technological self-efficacy measures are expected to independently and in opposition affect the ratings mentors give to protégé vignettes based upon the protégé's productivity level. Will this occur, and if so which has the stronger effect?

> *Research Question DMQ2*: Participant preference for personal contact and technological self-efficacy measures are expected to independently and in opposition affect the rankings mentors give to protégé vignettes based upon the protégé's productivity level. Will this occur, and if so which has the stronger effect?

Explanation 3: The similarity-linking hypotheses.

The third series of hypotheses are concerned with the measured participant trait of learning goal orientation, the manipulated levels of mentor/protégé matching on culture and gender, and their interactions.

Research suggests that similarity in race and gender are important considerations in pairing (Burke, 1984; Thomas, 1990) since similarity-matching can affect the initially-perceived levels of shared identity (Turban & Jones, 1988), communication ease, potential relationship depth (Huston & Burgess, 1979; Hinde, 1981), and trust that can be safely applied to other party (Wildman, Magliaro, Niles, & Niles, 1992; Stanulis & Russell, 2000). This near-immediate allocation of identity and trust toward another is reflected in the similarity attraction paradigm (Byrne, 1971; Burke, McKeen, & McKenna, 1994), triggered by an apparent similarity in physical characteristics between parties (Byrne, 1971). The application of the similarity attraction paradigm to mentoring has been supported by various studies (Ensher & Murphy, 1997; Nielson, Pate, & Eisenbach, 1999; Ensher, Grant-Vallone, & Marelich, 2002), including one in which protégés directly expressed the desire to be mentored by "someone like them" (Murrell, Crosby, & Ely, 1999). Social identity theory (see Chapter 2) connects with mentoring research through the impact of restricted/shared identities in cross/same-gender and cross/same-racial relationships.

Thus, perceived similarity – viewed as one general determinant of attraction (Berscheid, 1985) – operates through improved identification and interpersonal comfort (Allen & Eby, 2003) and the perception of higher costs associated with being with those who are different (Schroeder, Penner, Dovidio, & Piliavin, 1995). Interestingly, the costs

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and benefits associated with perceived similarity appear to fade as the relationship progresses. Turban, Dougherty, & Lee (2002) found that dissimilarity in a mentor/protégé match was detrimental to the receipt of mentoring in the early stages of the relationship but that these differences actually became beneficial over time. While the early stages of a relationship may rely heavily on perceived similarity, later in the relationship the parties must cooperate over joint tasks and may shift the emphasis to differences between the parties that are complementary (Murstein, 1987; Hinde, 1997). This shift is consistent with filter theory, which suggests that individuals initially focus on differences to gauge relationship viability but later use deeper, better-informed, and longer-termed filters as the relationship progresses (Duck, 1977).

Mentors are, by nature, co-learners (Kram & Hall, 1995), and some argue that a learning orientation affects whether someone will even mentor at all (Allen, Poteet, & Burroughs, 1997). This view is supported by studies that link learning orientation with employees who seek developmental training and career planning (Noe & Wilk, 1993; Maurer & Tarulli, 1994; Birdi, Allan, & Warr, 1997; Brett & VandeWalle, 1999; Maurer, Weiss, & Barbeite, 2003) and with job hunters who are attracted to companies with formal mentoring programs (Allen & O'Brien, 2006). Relationships with non-similar others may provide the strongest possible development opportunity for the parties (Dreher & Cox, 1996), as cross-cultural mentoring has been called "a context for learning" (Johnson-Bailey & Cervero, 2002, 2004). Although some advocacy for learning is likely required of all mentors, those with higher inclinations toward learning should be more attracted to diversity mentoring relationships due to the prospect of a deeper learning opportunity than those with lower learning orientations.

Involvement in a deep learning opportunity involves personal development, risk, and changes in the behavior, attitudes, or even the personality of the learner (Rogers 1983). Therefore, voluntarily becoming involved in a deep-learning opportunity is not simply "a good idea:" it requires a strong orientation toward learning as a lifestyle. Learning goal orientation (Dweck, 1986; Button, Mathieu, & Zajac, 1996) is viewed as a personality fixture that affects much of an individual's decision making processes, so it holds great promise for applications in organizational research that link operational decisions to desired outcomes (Bobko & Colella, 1994; Farr, Hofmann, & Ringenbach, 1993). Accordingly, this study included a look at the link between learning goal orientation and the willingness to voluntarily become involved with a protégé of a different gender or culture.

As covered in Chapter 2, gender and racial implications in mentoring have been regularly studied. The general consensus (although not without detractors) is that mentors tend to choose protégés who remind them of themselves (Blackburn, Chapman, & Cameron, 1981) and also that gender and racial equivalence factor into this perception of similarity (Bandura, 1977). With regards to racial equivalence, the current study moves beyond the mere fact of race and uses the more inclusive concept of culture as the defining characteristic to include a multi-cultural view of similarity perception. With this view, a person who is racially Chinese but raised in the U.S. would be viewed as more similar to a person of another race raised in the U.S. than to a Chinese person raised in China. Role expectations and acceptable patterns of interaction vary considerably across cultures (Gaines, Gurung, Lin, & Pouli, 2006), and cultural values, such as collectivism and individualism, can significantly impact a

relationship (Chen et al., 2002). Therefore, the vignettes for this experiment were designed to reflect the culture of the protégé represented and not just his or her race, manipulating the gender and culture of the protégé through the protégé's name, the scholastic history displayed, and his or her picture. The names used are those culturally common within the 5 groups, and the schools used are those with a high population of students from the respective cultural group.

Protégé's were marked *same* when evaluated by a participant of the same gender or cultural group and *different* when evaluated by other participants. Gender and culture were each marked separately, so a protégé vignette could be marked as *different on both*, *same on one only*, or *same on both*. All vignettes developed for this experiment presented the protégés as educationally ready to work in a graduate English-speaking academic institution (given the assumption that a protégé who was unable to operate within a U.S. university graduate program would not be well rated by any U.S. graduate school mentor). Therefore, non-U.S. protégés were depicted as fully fluent in the English language.

Since same-gender and same-culture mentoring appear to be prevalent, the similarity-linking hypotheses predict that protégé vignettes of the same gender and culture as the participant will be more highly rated and ranked than those of a different gender and culture, both individually and together. Also, given that mentoring is in and of itself a learning activity, the similarity linking hypotheses predict that mentors with higher learning goal orientations will rate protégé vignettes higher overall. However, the interaction of similarity and orientation should provide interesting results. The greater a participant's learning goal orientation, the less pronounced the similarity curve should

be: similar vignettes should not be as highly valued and dissimilar vignettes may even become more valued than similar vignettes. Participants with a higher learning goal orientation should look forward to the deeper learning opportunity that comes with mentoring a protégé of a different gender and/or culture (Johnson-Bailey & Cervero, 2002, 2004). The following 25 similarity-linking hypotheses (SL01 through SL25) are derived from this explanation:

Hypothesis SL01: Protégé vignettes of the same gender will be rated significantly higher than those of a different gender.

Hypothesis SL02: Protégé vignettes of the same culture will be rated significantly higher than those of a different culture.

Hypothesis SL03: Protégé vignettes of both the same gender and the same culture will be rated significantly higher than those of either the same gender or the same culture, which will be rated significantly higher than those of both a different gender and a different culture.

Hypothesis SL04: Protégé vignettes of the same gender will be ranked significantly higher than those of a different gender.

Hypothesis SL05: Protégé vignettes of the same culture will be ranked significantly higher than those of a different culture.

Hypothesis SL06: Protégé vignettes of both the same gender and the same culture will be ranked significantly higher than those of either the same gender or the same culture, which will be ranked significantly higher than those of both a different gender and a different culture.

The first 6 hypotheses relate to the expected main effects in which similar protégés will be preferred over dissimilar protégés. The next hypothesis covers the expected main-effect of learning goal orientation on protégé ratings.

Hypothesis SL07: Participant learning goal orientation measures will significantly and positively impact their ratings of protégé vignettes.

The next 6 hypotheses test the expected correlation between participants' learning goal orientation measures and the ratings they gave to protégés who are the same gender/culture and those who are a different gender/culture.

> *Hypothesis SL08*: Participant learning goal orientation measures will significantly and negatively impact their ratings of same-gender protégé vignettes.
>
> *Hypothesis SL09*: Participant learning goal orientation measures will significantly and negatively impact their ratings of same-culture protégé vignettes.
>
> *Hypothesis SL10*: Participant learning goal orientation measures will significantly and negatively impact their ratings of same-gender-and-culture protégé vignettes.
>
> *Hypothesis SL11*: Participant learning goal orientation measures will significantly and positively impact their ratings of different-gender protégé vignettes.
>
> *Hypothesis SL12*: Participant learning goal orientation measures will significantly and positively impact their ratings of different-culture protégé vignettes.
>
> *Hypothesis SL13*: Participant learning goal orientation measures will significantly and positively impact their ratings of different-gender-and-culture protégé vignettes.

Given there is an expected difference between the ratings a mentor would give to similar protégés and those he or she would give to dissimilar protégés, there should be a relationship between a mentor's learning goal orientation measure and the slope of a line of best fit drawn through the vignette ratings defining that same/different ratings difference. The y-axis of that line is defined as a distance of "1" for gender and culture individually and as a distance of "2" for gender and culture together.

> *Hypothesis SL14*: Participant learning goal orientation measures will significantly and negatively impact the slopes of the lines of best fit drawn through each participant's protégé ratings against the relative same/different gender categories of the rated vignettes.

Hypothesis SL15: Participant learning goal orientation measures will significantly and negatively impact the slopes of the lines of best fit drawn through each participant's protégé ratings against the relative same/different culture categories of the rated vignettes.

Hypothesis SL16: Participant learning goal orientation measures will significantly and negatively impact the slopes of the lines of best fit drawn through each participant's protégé ratings against the relative same on both, same on one only, and different on both gender/culture categories of the rated vignettes.

Looking at just the similar-protégé vignettes, their rankings should relate to the mentor's learning goal orientation measures, and similarly when looking at just the different-protégé vignettes. These relationships must be tested using techniques that depend only on the use of rank-order data and do not require scalar data, and since a *most-preferred* ranking is "1" the directions are reversed.

Hypothesis SL17: Participant learning goal orientation measures will significantly and positively impact their rankings of same-gender protégé vignettes.

Hypothesis SL18: Participant learning goal orientation measures will significantly and positively impact their rankings of same-culture protégé vignettes.

Hypothesis SL19: Participant learning goal orientation measures will significantly and positively impact their rankings of same-gender-and-culture protégé vignettes.

Hypothesis SL20: Participant learning goal orientation measures will significantly and negatively impact their rankings of different-gender protégé vignettes.

Hypothesis SL21: Participant learning goal orientation measures will significantly and negatively impact their rankings of different-culture protégé vignettes.

Hypothesis SL22: Participant learning goal orientation measures will significantly and negatively impact their rankings of different-gender-and-culture protégé vignettes.

Given there is an expected difference between the rankings a mentor would give to similar protégés and those he or she would give to dissimilar protégés, there should

be a relationship between a mentor's learning goal orientation measure and this difference. This relationship also must be tested using techniques that depend only on the use of rank-order data and do not require scalar data, and again the directions are reversed due to "1" meaning *most-preferred*.

> *Hypothesis SL23*: Participant learning goal orientation measures will significantly and negatively impact the difference between the average rankings given to the 5 same-gender protégé vignettes minus those given to the 5 different-gender vignettes.

> *Hypothesis SL24*: Participant learning goal orientation measures will significantly and negatively impact the difference between the average rankings given to the 2 same-culture protégé vignettes minus those given to the 8 different-culture vignettes.

> *Hypothesis SL25*: Participant learning goal orientation measures will significantly and negatively impact the difference between the average rankings given to the 1 same-gender-and-culture protégé vignette minus those given to the 4 different-gender-and-culture vignettes.

Experimental Materials and Control Variables

Three primary sets of materials were developed for this experiment: the protégé vignettes, the mentor measurement instrument, and the participant information sheet. This section describes these materials.

The protégé vignettes.

Nine protégé vignettes were designed with 2 imbedded manipulations: the 1st was technology required (TR) and the 2nd was current productivity (CP). Appendix A details these manipulations by showing an example protégé vignette and how the elements of that vignette were altered to project a *low*, *medium*, and *high* category for each manipulation. The manipulations were accomplished through the protégé's home

city, a listing of prior research accomplishments and awards, and a short commentary from the prospective protégé that indicated the protégé's goals, availability for meeting with the mentor, and need for assistance. The first 9 vignettes were imbedded with these manipulations to deliver a 3x3 vignette set according to the layout in Figure 10. A 10th vignette was designed to duplicate the *medium* TR, *medium* CP position, making a full 10-vignette set. Appendix A also details a test performed on the vignettes before they were used in the experiment to help ensure the *low*, *medium*, and *high* categories for each manipulation were properly targeted.

In addition to the TR and CP manipulations, each vignette also included a gender manipulation and a culture manipulation. The prospective protégé's name, previous schools, and a picture signaled the protégé's gender and cultural (GC) combo group to

Current Productivity	Technology Required		
	Low	Medium	High
Low	*Combo 1* Low TR Low CP	*Combo 2* Medium TR Low CP	*Combo 3* High TR Low CP
Medium	*Combo 4* Low TR Medium CP	*Combo 5 & 10* Medium TR Medium CP	*Combo 6* High TR Medium CP
High	*Combo 7* Low TR High CP	*Combo 8* Medium TR High CP	*Combo 9* High TR High CP

Figure 10. The technology required (TR) and current productivity (CP) manipulations imbedded in the 10 protégé vignettes.

the participants. The cultural groups used were U.S. Caucasian, African-American, Hispanic-American, cultural Chinese, and cultural Indian, for a total of 5 cultural groups. One male and one female protégé profile was created for each group to complete the full 10-vignette set. Appendix B details these manipulations, including a procedure designed to help ensure that the names, previous schools, and pictures chosen for the protégé profiles did not introduce into the experiment unintended factors.

Finally, a step-by-step procedure was followed to merge the 10 TR and CP combos with the 10 GC combos and create 60 protégé vignette sets that together met the following conditions:

1) Three vignettes were presented at a time to the participant, and within each set of 3 vignettes there were:

   a. One *low*, 1 *medium*, and 1 *high* vignette on the technology-required scale

   b. One *low*, 1 *medium*, and 1 *high* vignette on the current-productivity scale

   The 10th vignette (Combo 10) was always presented alone as a fourth group

2) The TR and CP combos were rotated in their pairings to not over-represent any pairing: for example, Combo 1 was paired with Combos 5 and 9 for half of the sets and with Combos 6 and 8 in the other half of the sets

3) The orders in which the 3-vignettes groups were to be presented were rotated so no group of 3 was over-represented as the 1st group, the 2nd group, or the 3rd group given to participants

When the GC combos were assigned to the vignettes:

4) Each 3-vignette group had to include either 2 males and 1 female or 1 male and 2 females

5)   Each 3-vignette group had to contain 3 of the 5 possible cultures that were being represented

6)   No culture, gender, or GC combo could be over- or under-represented in any of the 10 TR and CP combos from Figure 10

7)   No culture, gender, or GC combo could be over- or under-represented in the 1st group, the 2nd group, or the 3rd group given to participants, nor as the stand-alone 10th vignette

8)   No culture, gender, or GC combo could be over- or under-matched in a group with any other culture, gender, or GC combo

The 60 protégé vignette sets thus devised are shown in Appendix C, which also shows the participant groups to which each of them were assigned.

Construct	Developed from	Historic Alpha	Number of Items
Instrumentality	McFarland & Kidwell, 2006	.85	10
Expressiveness	McFarland & Kidwell, 2006	.91	10
Preference for personal contact	Walker & Johnson, 2006	.91	6
Technological self-efficacy	Walker & Johnson, 2006	.81	5
Learning goal orientation	McFarland & Kidwell, 2006	.89	5

Figure 11. The 5 measuring instruments given to participants.

The mentor measurement instrument.

Five previously-published instruments were used to measure participant traits, with minor alterations made to some of the questions to account for the specific issue or environment (for instance, to ask about cellular and online communications instead of about technology in general). The 5 instruments, including their sources and historical reliabilities, are shown in Figure 11. These 36 items were pulled together into a single measuring instrument with the order of the items randomly determined each time it was printed for an experiment. The measure was administered using a 7-point Likert scale anchored by *strongly disagree* and *strongly agree*, similar to the anchors used in the studies from which the instruments were developed.

The participant information sheet and control variables.

This study used a limited number of control variables, chosen based upon prior research that shows cause for expecting independent effects on protégé ratings. Four of the control variables were the participants' age, academic tenure, organizational rank, and whether or not he or she had previously been a graduate mentor. These 4 control variables were collected on a participant information sheet completed by the participant at the start of the experiment.

Age has long been associated with becoming a mentor in that older mentors are generally considered to be at a life-stage of generativity and legacy-building (Erickson, 1963; Levinson et al., 1978) and have the resources necessary to give to others (Kram & Isabella, 1985). Participant age could affect the tendency to mentor, the overall rankings given to protégé vignettes, and what a mentor is looking for from a mentoring relationship independent of the causal factors proposed. Organizational tenure has also

been shown to affect protégé ratings independent of age (Ragins & Cotton, 1993, Allen et al., 2006b). Therefore, participant age and the number of years working in academia were collected as control variables.

Some researchers have noted that age and tenure are not themselves the issue, but rather the difference in age and tenure between the mentor and the protégé (Perry, Kulik, & Zhou, 1999; Finkelstein, Allen, & Rhoton, 2003). In this experiment, all vignettes showed the protégé at the same rank (graduate student) and at similar ages (randomly assigned from 26-32, fully within the range of the "early career stage" per Kram & Isabella, 1985). Therefore, participant age and tenure were used as control variables as-given since all protégé ages and ranks were approximately the same.

Organizational rank has been found to affect one's intent to mentor independent of participant age and tenure (Ragins & Cotton, 1993). This could operate through a sense of career-maintenance associated with having reached one's upward potential (Baird & Kram, 1983), or it could come from a sense of reduced barriers to mentoring and greater freedom to access organizational resources (Allen et al., 2000; Eby et al., 2005). Therefore, participant rank was included on the participant information sheet, recorded using the titles of *assistant professor*, *associate professor*, *full professor*, and *regents professor*, and used as a control variable (Cohen & Cohen, 1983).

As noted in Chapter 2, previous mentoring experience has been shown to affect the decision to become a mentor (Allen, Poteet, Russell, et al., 1997) and could theoretically affect whether the participant knew what to expect from a mentoring relationship. Therefore, previous mentoring experience (*yes* or *no*) was collected as a control variable.

A final variable considered was the university college that employs the participant. Different colleges have differing operational requirements that could affect participant ratings of protégés: for example, some colleges make extensive use of labs or on-site training, and this could affect the acceptance of distance-education protégés. Colleges also carry environments and cultural variables toward mentoring (Johnson, 2002) that could affect the outcome of the experiment. Therefore, the college employing the participant was used as a binomial control variable.

Design of the Experiment

The goal was to recruit approximately 6 participants each from 10 groups based upon the culture and gender of the participants, totaling approximately 60 participants. All participants had to be graduate faculty at the university where the experiment was conducted, and potential participants were approached based upon the number of remaining openings by culture/gender group. Other than these 2 conditions, no other selection criteria were to be applied. The 10 participant culture/gender groups were:

i.   U.S. Caucasian males
ii.   U.S. Caucasian females
iii. African-American males
iv.   African-American females
v.   Hispanic-American males
vi.   Hispanic-American females
vii. Cultural Chinese males
viii. Cultural Chinese females
ix.   Cultural Indian males
x.   Cultural Indian females

With 60 sets of protégé vignettes created, combining the 10 TR and CP combos and the 10 GC combos to meet the 8 requirements listed above, each set was assigned to be used by a particular participant culture/gender group in a manner that met the following 3 additional conditions:

9)   Requirements 6, 7, and 8 were met evenly between participant genders (male and female)

10) Requirements 6, 7, and 8 were met evenly among the 5 participant cultures

11) Requirements 6, 7, and 8 were met as evenly as possible among the 10 participant culture/gender groups

Thus, the 60 experimental conditions were balanced in terms of the combinations and orders of the manipulations and how they were assigned to the participant groups. The participant group assignments are shown in Appendix C.

This procedure resulted in the allocation of 6 protégé vignette sets to each of the 10 participant culture/gender combinations. In other words: the U.S. Caucasian male participant group had 6 vignette sets assigned to them, the U.S. Caucasian female participant group had 6 vignette sets assigned to them, etc. When a prospective participant accepted the offer to engage in the experiment, he or she was randomly assigned to one of the remaining unused vignette sets allocated to his or her particular culture/gender group. Therefore, subjects were assigned to experimental conditions randomly within each group.

Since each experiment was composed of a manipulations phase (in which the 10 protégé sets were rated and ranked) and a measurements phase (in which the 36-item measuring instrument was presented to the participant for completion), the order of these 2 events was randomly determined. Finally, when more than 6 participants from any particular culture/gender group accepted participation, the experimental sets used for the overflow participants were randomly assigned from the 54 sets not already allocated to that culture/gender group. Thus, it was possible for a protégé vignette set to

be used twice, but not by 2 participants from the same culture/gender group. Also, if a vignette set was used twice, it was removed from the possibility of being randomly chosen again by another overflow participant.

Operation of the Experiment

To prepare for any one experiment, 4 random assignments took place:

1) The vignette set to be used was randomly drawn from those that remain for the participant's culture/gender group (or randomly assigned from the larger group if there had already been 6 participants from that culture/gender group)

2) The ages of the 10 protégés on the vignettes were randomly assigned from *26-32* before the vignettes were printed

3) The event order (the manipulations phase first or the measurements phase first) was randomly assigned

4) The order of the 36 items on the full mentor measurement instrument was randomly determined before the instrument was printed

Once these items were generated and printed, a time and place was arranged to meet the participant: generally at the participant's office and during normal office hours. Each experiment took approximately 30 minutes to complete.

Although the participants' cultural profiles and genders were used in determining whether to ask them to participate, they were not told that these were factors in the selection process. Participants were asked to participate in the experiment to help determine what graduate students they would prefer to mentor if given a choice among potential applicants, and with the assumption that all of the protégés were in the participant's department, had research interests that matched those of the participant,

and were actively looking for a graduate mentor. Once the experiment began, it proceeded through the following 4 phases:

1) Introductory phase: Informing the participant regarding the experiment's purpose, collecting the participant's signature on the required IRB consent form, and asking the participant to complete the information sheet

2) Manipulations phase: Prompting the participant to consider his or her reasons for becoming a mentor and what he or she might look for when deciding upon a protégé, giving the participant the vignettes to be rated in 4 rounds of tests, asking the participant to rank the vignettes from *most-preferable* to *least-preferable*, and documenting answers to open-ended questions asked of the participant regarding why he or she gave the vignettes those particular ratings and rankings (see further details below)

3) Measurement phase: Asking the participant to complete the 36-item instrument designed for this experiment

4) Debriefing phase: Answering any questions the participant has, thanking the participant for his or her time, and asking for referrals to other faculty

The above order assumes the experimental instance was one in which manipulation came before measurement. When it was randomly determined that measurement should come first, the 2nd and 3rd phases above were reversed.

Further details on the manipulations phase.

As elaborated upon in Chapter 2, there is a risk the participant may not have had mentoring experience, may have had a negative experience, or may not have considered before any personal reasons for becoming a mentor. Because the

participant's mentoring motives are being tested in this experiment, it was important for the participant to have them in mind. In the manipulations phase, the participant was asked to consider what he or she would want to see happen in a mentoring relationship, to receive from the mentorship, and would look for in a protégé before the rating and ranking procedures began.

To begin the rating procedure, a rating sheet was offered that listed the name of all 10 protégés to be rated along with room to rate the protégé on a *1-to-7* Likert scale, with the following titles for each of those ratings:

1 = I absolutely WOULD NOT want this protégé!

2 = I would find accepting this protégé to be DIFFICULT

3 = I could accept this protégé, but it would be A POOR FIT

4 = I could ACCEPT this protégé

5 = I could accept this protégé, and it would be A FAIR FIT

6 = I would find accepting this protégé to be EASY

7 = I absolutely WOULD want this protégé!

A 1st round of 3 protégé vignettes was then given to the participant with instructions to read all 3 of the first, then rate them on the rating sheet, and then to discuss why he or she gave them those ratings. The participant was given an open period of time to perform the reading and rating procedure.

Once the first 3 vignettes had been read, rated, and discussed, those vignettes were returned to the researcher and a 2nd round of 3 protégé vignettes was given to the participant with the same instructions. Following the return of those vignettes, a 3rd round of 3 protégé vignettes was given to the participant with the same instructions.

After those vignettes were returned, the last vignette was given to the participant to be read, rated, and discussed alone.

As each set was discussed, the participant was asked open-ended questions, such as "what do you see that makes you give this person that rating?" or "what makes these 2 vignettes different for you?" This discussion was documented to help shed light on the participant's thinking processes during the rating process. Each discussion on each of the sets took approximately 1 to 3 minutes.

Once all 10 vignettes had been rated, the participant returned the rating sheet and was given back all 10 vignettes. These vignettes had been randomly reorganized before they were returned, and the rating sheet was placed where the participant could no longer see it. The participant was then asked to put the vignettes into an order with the *most-preferred* protégé on top, the *least-preferred* protégé on bottom, and as best as possible in rank order the other vignettes between them. The participant was given an open period of time to perform the ranking procedure.

Afterward, the participant was asked to answer the following 2 questions:

1) "When you ranked these vignettes, what primary factor or factors did you find yourself focusing on as you ranked them?"

2) "Did you find these vignettes clustered into groups, such that some of them were very difficult for you to distinguish from one another, or did you find them fairly evenly spread out from 1 to 10?"

This discussion was also documented to help shed light on the participant's thinking processes during the ranking process, and this discussion took approximately 3 to 4 minutes.

The documentations made during the rating and ranking processes were not used for a full qualitative analysis: however, understanding the participants' thoughts during the manipulations phase of the experiment is a critical component of this study to help avoid perceptual bias and common method variance issues (Podsakoff & Organ, 1986; Crampton & Wagner, 1994). The questions asked were strictly exploratory or comparative, did not prompt the participant toward a set of motives or outcomes, and did not refer directly to the manipulations imbedded within the vignettes. This allowed the participant to tell his or her story without being led and generated data that could be used for follow-up quantitative studies (King, 1994).

Data Consolidation

Before it could be used to test all of this study's hypotheses, there were 4 forms of data consolidation to be performed. The 1st and 3rd arranged the vignette ratings and rankings into groups for comparison, and the 2nd and 4th arranged the vignette ratings and rankings into a unified manipulation differential statistic.

With regards to the 1st set of data consolidations, the TR and CP manipulations each generated three vignette rating values for the *low* category, four for the *medium* category, and three for the *high* category. As can be seen from Appendix A, tests on these manipulations show that the differences between the *high*-category vignettes and those in the *low*-category vignettes were significant on both manipulations. The average rating for the three vignettes in a manipulation's *low* category should differ from the average rating of the three in its *high* category based upon a participant's response to the manipulation. Therefore, an average *low*-category rating and an average *high*-category rating was generated for each participant on these two manipulations.

On the gender and culture manipulations, the vignette ratings for those that are *same* were averaged and for those that are *different* were averaged, creating 2 consolidated averages for gender-matching and 2 for culture-matching. For the GC-combined manipulation, one average was created from the 4 vignettes that are *different* on both gender and culture, one average was created from the 5 vignettes that are *same* on one but *different* on the other, and one average was created from the 1 vignette that was *same* on both gender and culture.

The 2nd set of data consolidations involves the unification of the protégé vignette ratings into a single slope statistic for each manipulation. Participants were asked to rate protégé vignettes on a *1*-to-*7* acceptability scale, and these ratings should reflect

Figure 12. Example of slope statistics, combining participant ratings of all 10 protégé vignettes into 1 unified statistic for each manipulation
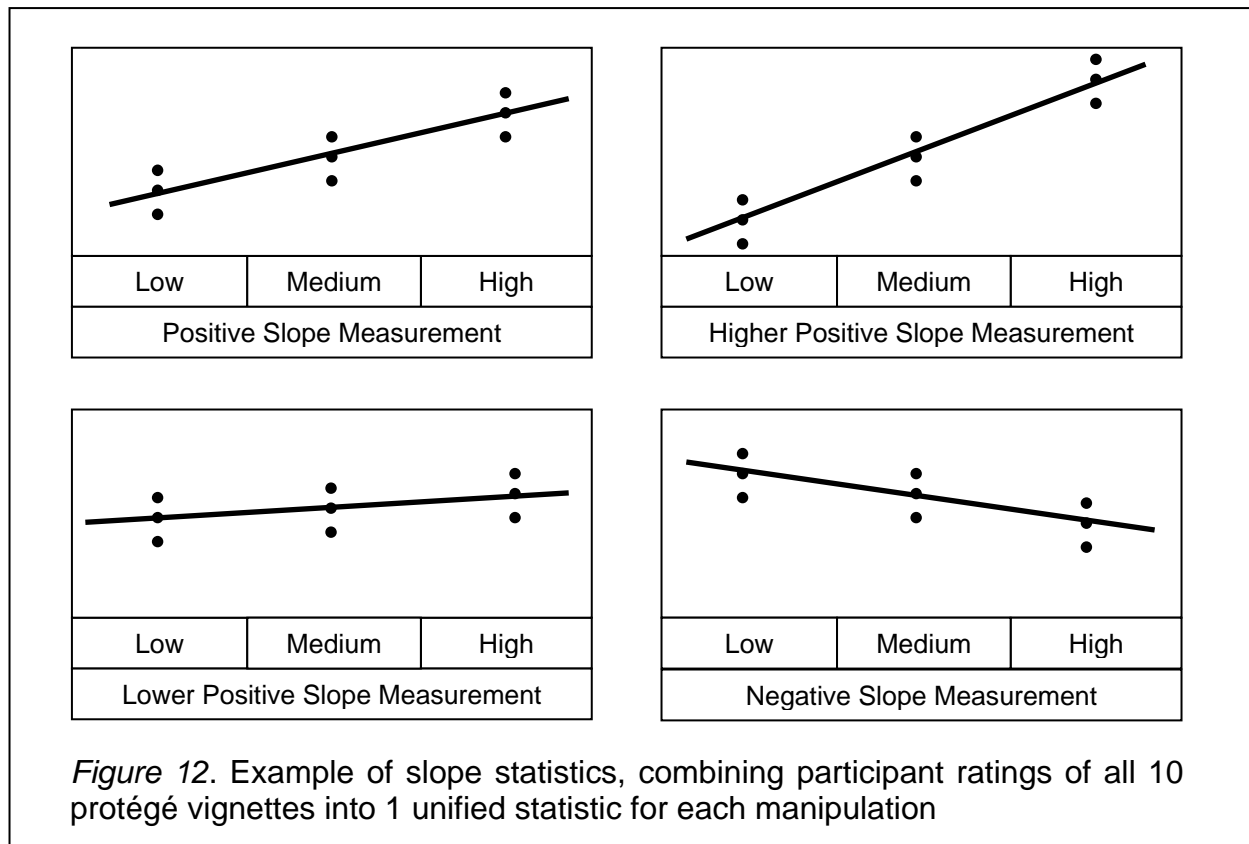
participant evaluations of the manipulations imbedded in the vignettes. Each of the manipulations has either 2 or 3 levels, and these levels can be viewed as categories along the y-axis of a graph. Participant ratings would then act as measurements along the x-axis of that graph, and a line drawn through the 10 ratings using a least-squares line-of-best-fit regression calculation would have a specific slope (see Figure 12). This slope would be positive if participant ratings toward the higher-level manipulations were greater than those toward the lower-level manipulations. Similarly, this slope would be greater the more pronounced the difference, smaller the less pronounced the difference, and negative if the lower-level manipulations were rated better than the higher-level manipulations. With all 10 data points thus mapped, the slope of a least-squares line through the data becomes a unified statistic indicating the direction of the manipulation valued by the participant and the relative strength of the effect.

Further, this statistic does not have to assume that the levels targeted for a manipulation were equivalent where there is reason to believe the manipulations actually held varying strengths. The scale values found in Appendix A on the TR and CP manipulations (Dunn-Rankin, 1983) show the strengths of these 2 manipulations across the 10 protégé vignettes. Therefore, rather than using a *low*, *medium*, or *high* level on these 2 statistics as the y-axis, the scale values from Appendix A will be used to calculate the least-squares lines-of-best-fit. On the similarity manipulations where no relative strength statistics are available, the y-axis will use just 2 levels for gender and culture individually and will use 3 equidistant levels for gender and culture combined.

For the 3rd set of data consolidations, the rankings of the 3 low-category vignettes were combined and the rankings of the 3 high-category rankings were

combined to create 2 sum-of-ranks statistics for the CP and TR manipulations. Since a ranking of "1" means *most-preferred*, in this case a lower score indicates a higher appreciation of the protégé by the participant. Similarly, a sum-of ranks score was found for different-gender, same-gender, different-culture, same-culture, different-on-both, same-on-one-only, and same-on-both to cover the similarity-linking hypotheses.

The 4th set of data consolidations involves the unification of the protégé vignette rankings into a single slope statistic for each manipulation. For the CP and TR manipulations, the 3 high-category rankings were subtracted from the 3 low-category rankings to find a net sum-of-ranks score on each. For the gender manipulation, the 5 same-gender ranks were subtracted from the 5 different-gender ranks. For culture, the 2 same-culture rankings were added and the sum multiplied by 4 before subtracting the 8 different-culture rankings. Finally, for gender and culture combined, the 1 same-on-both ranking was multiplied by 4 before subtracting the 4 different-on-both rankings. Once again, caution must be taken with these statistics given that a low ranking means the protégé vignette was more highly valued by the participant.

Data Analysis

SPSS 15.0 and Microsoft Excel 2007 were used to generate the data analysis results found in this report. Four primary statistical analysis techniques were used: two parametric (paired samples t-test and linear regression) and two non-parametric (Wilcoxon's signed ranks test and Spearman's rho correlation).

A paired samples t-test looks at the variation between two related samples and determines whether the means of those samples statistically differ. A failure means the two samples do not appear to be different, while a successful test indicates that the two

samples seem to have something making them settle around differing points. A paired test is particularly powerful because it assumes many things that could make two samples different have been excluded, given that both samples come from the same sources. However, the test requires the assumption that the underlying data is scalar and lies around the respective means in a fairly normal distribution.

Linear regression also looks at scalar, normally-distributed, paired-sample data, but from two different measurements. The test determines if changes in one measure correlates to changes in the other, reporting the strength of the correlation with a Pearson's product moment correlation statistic. The result of the test tells us if the two measures appear related to one another, the strength of that relationship, and the level of certainty that the relationship is not just due to random error.

The Wilcoxon's signed ranks test is similar to a paired samples t-test, but it does not require the assumption that the two samples represent normally-distributed scalar data. Instead, it only assumes the data to be ordinal: the numbers determine greater or lesser values but do not indicate relative distances. Non-parametric tests such as this one are powerful in that they operate in a manner like most people think: we generally compare outcomes as better or worse without measuring distances between them, or we prefer one over another given that our time and resources are limited. However, they also require larger samples because the computed relationship strengths cannot be assumed to be based upon measured distances. Therefore, means-differences and correlations found in this study using non-parametric techniques that do not successfully reach statistical significance may indicate something is there but that the study simply did not have enough participants to bring the underlying event fully to light. The

hypotheses in this study do not account for such a possibility – they will stand or fall as they are – but near-successes should be studied further to determine whether a larger sample would show the expected outcomes.

The Spearman's rho correlation, like the Wilcoxon, assumes that the underlying data is ordinal, not scalar, and like other non-parametric techniques it loses power due to this assumption. However, it is useful for testing the correlation between two measurements, like linear regression but using measurements that cannot be certified as scalar and normally distributed. Spearman correlations in this study will assume that the vignette sums-of-ranks and the correlated participant measurements represent data that only indicates the order of the outcomes and are not indicative of any relative distances between them.

The interview questions asked of the participants will be used to support or criticize the empirical findings. Viewed as an essential step in theory testing (Bacharach, 1989), the controlled setting of this experiment and its quantitative analyses allows for the establishment of cause-effect relationships (Cook & Campbell, 1979) while the qualitative interview questions help identify whether the manipulated variables and contextual conditions were important and, if not, what were (Babbie, 2001). Therefore, the analyses of empirical data and the incorporation of interview data go hand-in-hand. Together these two sources improve construct validity through triangulation (Jick, 1979; McGrath, 1981), more richly describe the experimental events in-depth (VanMaanen, 1979; Locke & Golden-Biddle 2002), and allow the strengths of one source to help overcome the weaknesses of the other (Aluko, 2006). There is no attempt herein to conduct a qualitative analysis on the interview data.

Ethical Considerations

This experiment was designed to be quick and non-intrusive on its participants, delivering no dramatic changes and leaving no residual effects. The materials were designed to make it easy for participants to participate and the questions and statements used by the researcher were designed to engage the participant without eliciting strong emotional responses. All activities undertaken and data collected were performed with the full knowledge and consent of the participants, none of whom come from an endangered population and all of whom are fully versed in the operation of experiments such as this one. Therefore, no adverse effects were expected nor encountered. This experiment and the materials used were reviewed and approved by the university's Human Subjects Review board before any experiments were conducted.

Conclusion and Chapter Summary

The prior chapter, Literature Review and Informing Theories, explained why the effects predicted by this experiment were reasonably anticipated. In this chapter, those theories have been brought together into an experiment that predicts how mentors will view protégé vignettes based upon 1) the matching of participant-mentor instrumentality and expressiveness traits to protégé current-productivity levels, 2) the matching of participant-mentor preference for personal contact and technological self-efficacy traits to protégé technology-required levels, and 3) the matching of the participant-mentor learning goal orientation trait to mentor/protégé matching along the lines of gender, cultural profile, and both together. The construction of the experiment and its materials has been described, and the methods used for data analysis have been explained and supported.

The next 2 chapters, written after completion of the experiments, explain the results. In Chapter 4, Analysis of Data, the experiment's participants are described, the measuring instruments are validated, and the hypotheses generated in this chapter are formally tested. In Chapter 5, Conclusions and Implications, the results of this study are explained along with a discussion of limitations and proposed future directions. Together, these chapters test 3 explanations regarding a mentor's reasons for choosing a protégé and advance mentorship research by delving into the mechanics of protégé selection and relationship initiation.

CHAPTER 4

ANALYSIS OF DATA

With the experiments completed and all data collected, this chapter begins with a description of the study's participants, continues with a verification of the validity of its measuring instruments, outlines the incorporation of control variables and other adjustments, and concludes with formal tests of the hypotheses developed in Chapter 3.

Description of the Study's Participants

All of those solicited for participation are University of North Texas faculty who regularly interact with and teach graduate students (93% of them are listed in the school's 2009–2010 Graduate Studies catalogue as Graduate Faculty on pages 464 through 485). There were 85 faculty members contacted with regards to participating,

Table 12

Sample Participation by Culture and Gender Profile

	Invited to Participate	Number Participated	Participation Percentage	Percentage of Sample
By Culture				
African American	23	18	78.3 %	27.3 %
Cultural Chinese	9	9	100.0 %	13.6 %
Cultural Indian	11	11	100.0 %	16.7 %
Hispanic American	16	9	56.3 %	13.6 %
U.S. Caucasian	26	19	73.1 %	28.8 %
TOTAL	85	66	77.6 %	100.0 %
By Gender				
Female	44	35	79.5 %	53.0 %
Male	41	31	75.6 %	47.0 %
TOTAL	85	66	77.6 %	100.0 %

Table 13

Sample Participants by the Intersection of Culture and Gender Profile

	African American	Cultural Chinese	Cultural Indian	Hispanic American	U.S. Caucasian	TOTAL
Female	10	4	5	5	11	35
Male	8	5	6	4	8	31
TOTAL	18	9	11	9	19	66

66 of whom accepted the invitation: an overall acceptance rate of 77.6%. Table 12 shows the participation of the sample by cultural profile and by gender, an important consideration given that one of the primary goals of this study was to solicit the input of participants as evenly as possible across 5 cultural profiles and both genders.

Nonetheless, in line with the cultural distribution within the population available, it is reasonable to expect and to accept some over-representation of African American and U.S. Caucasian participants in the study's sample. As can be seen in Table 13, each intersection of cultural and gender profile was represented in the final sample by a minimum of 4 (6.1% of the sample) a maximum of 11 (16.7% of the sample) participants. A chi-square statistic testing the hypothesis that the distribution of participants was not random would fail (χ^2 (4,N=66)=.769; *p*=.942). Therefore, the final sample is judged to adequately represent all of the targeted gender and cultural groups.

Four major snowball groups were used to generate the sample, a snowball group defined as a large set of participants linked together by a common first-level referring participant. After participants were interviewed, they were generally asked (and often volunteered without asking) to refer one or more other faculty members who might agree to participate. Four participants generated referrals that snowballed into a large

enough part of the final sample to become a snowball group. A fifth group consists of all of those participants who did not provide or come from referrals or whose referral set only consisted of 1 or 2 participants. Table 14 shows the sample participation statistics, along with the maximum number of levels (with the original participant as the first level), for each of these 5 snowball groups. Table 14 also shows the sample participation statics by the 9 university colleges within which the participants were employed, with those in Administration counted as a 10th college.

Table 14

Sample Participation by Snowball Sample Group and University College

	Number of Levels	Invited to Participate	Number Participated	Participation Percentage	Percentage of Sample
By Snowball Sample Group					
Group 1	3	12	11	91.7 %	16.6 %
Group 2	8	33	27	81.8 %	40.9 %
Group 3	3	18	10	55.6 %	15.2 %
Group 4	2	12	8	66.7 %	12.1 %
Group 5	2	10	10	100.0 %	15.2 %
TOTAL		85	66	77.6 %	100.0 %
By University College					
Administration		4	4	100.0 %	6.1 %
Arts & Sciences		23	17	73.9 %	25.7 %
Business		12	11	91.7 %	16.7 %
Education		7	5	71.4 %	7.6 %
Engineering		7	6	85.7 %	9.1 %
Information		6	4	66.7 %	6.1 %
Journalism		3	3	100.0 %	4.5 %
Merch. & Hospitality		7	6	85.7 %	9.1 %
Music		2	1	50.0 %	1.5 %
Public Affairs		14	9	64.3 %	13.6 %
TOTAL		85	66	77.6 %	100.0 %

The wide spread of participants across snowball groups and university colleges and the high rates of participation in each category indicate 1) there was no major distinction between participants and non-participants and 2) the participant sample represented an adequate cross-section of the population. Therefore, the sample generated is judged to be broad enough in its sources to adequately represent the population group.

Only 5 of the sample's 66 participants indicated they had not been a graduate mentor before. The oldest participant was 72 years of age and the youngest was 28, with a mean age of just over 46 years. The standard deviation on age was 10.4 years, and a skewness value of .43 and a kurtosis value of -.12 indicate these ages to be near-normally distributed. The longest a participant had been a PhD was 43 years and the shortest was still in the first year, with a mean of 12.6 years and a standard deviation of 9.8 years. A skewness value of 1.2 and a kurtosis value of 1.4 indicate that the number of years since receiving a doctoral degree was slightly skewed toward shorter-serving PhDs as well as somewhat leptokurtic. Titles collected indicate that 21 participants were Assistant Professors, 31 were Associate Professors, 11 were Full Professors, and 3 were Regents Professors.

Experiments were conducted in two parts: a measurement portion (in which the survey was administered to the participant) and a manipulation portion (in which the protégé vignettes were rated and ranked). The order of events, measurement first or manipulation first, was randomly assigned to experiments when they were scheduled. The final tally of actual assignments indicates no major over-representation of the order of events by participant title, cultural profile, gender profile, snowball group, or college of employment.

Since this study was designed to solicit the input of participants across 5 cultural profiles and both genders as evenly as possible, given the pool of potential participants, the experimental materials and instances were designed to be balanced in terms of participant-group exposure to the study's manipulations. This includes their order of presentation and their combination with other manipulations. With the experiments completed, a series of chi-square tests were performed to show that the final tally remained balanced across the 66 participants overall, by participant cultural group, and by participant gender group. The conclusion is that the positioning of the various types of vignettes and their matching of TR and CP combo with GC combo were not privileged anywhere in the study.

Validity of the Measuring Instruments

A 36-item instrument that combined modified versions of 5 published instruments was used in the experiment. An initial computation on the 36 items indicated a Kaiser-Meyer-Olkin measure of sampling adequacy of .548, considered low but adequate for factorial testing. Further, Bartlett's test of sphericity indicated the underlying correlation matrix was not deemed an identity matrix ($p<.001$). Therefore, the full 36-item instrument was judged suitable for factor analysis.

Figure 13. Initial scree plot of 36 items
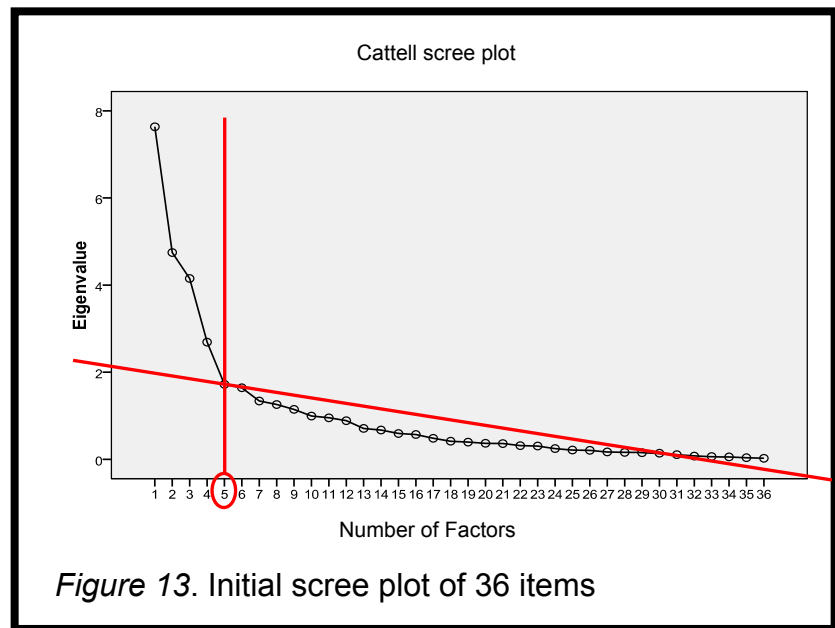
The initial factor analysis using Cattell's scree plot (see Figure 13) displayed 5 strong underlying factors. The principal components method was used in this analysis, and the solution was rotated with oblique rotation (since, at this point, there was little reason to force factorial independence). The structural matrix underlying the analysis (see Table 15) was used to identify these 5 factors, of which 3 emerged strongly and cleanly with minimal cross-loadings so were excluded from further factorial analysis. The 3 were preference for personal contact (PPC: 6 items; N=66, α=.86), technological self-efficacy (TSE: 5 items; N=66; α=.85), and learning goal orientation (LGO: 5 items; N=66, α=.80).

The instrumentality and expressiveness measures, however, appeared to have a few wayward items. A second factor analysis, this time using varimax rotation (since these measures are, according to theory, orthogonal concepts), was performed using just the 20 items from these 2 instruments. The analysis showed evidence of 4 underlying factors, 2 highly related to instrumentality and 2 highly related to expressiveness. Reliability analysis on each of the 2 instruments showed 1 item on each that could be removed to improve the instruments' cohesiveness.

The wayward item on the instrumentality instrument was "I am independent." Given that this study's participants are involved in a profession that highly values independence, it was reasonable to conclude that this item might pertain to all participants and not only to individual measures of instrumentality. The wayward item on the expressiveness instrument was "I am emotional." Again, given that the members of this profession stress cognitive reasoning over emotional persuasion, it is reasonable to conclude this item would be generally shunned by all participants and not pertain as much to individual measures of expressiveness. Therefore, these 2 items were removed

Table 15

Initial Factor Analysis of the 36-item Measuring Instrument

	Component								
	1	2	3	4	5	6	7	8	9
Q01				.405			.740		
Q02				.468			.815		
Q03			Learning Goal Orientation (LGO)				.801		
Q04	.417					.584	.539		
Q05							.519	-.593	
Q06	.732							-.422	
Q07			.435		-.488				
Q08	.796								
Q09			Instrumentality (Inst.)						.798
Q10	.689								.654
Q11	.809								
Q12	.517					.624			
Q13	.718								.624
Q14	.766								
Q15	.647								.550
Q16			.403		.780				
Q17			.770						
Q18			.835						
Q19			.790.		Expressiveness (Expr.)				
Q20			760						
Q21								-.792	
Q22			.707		.456				
Q23					.605				
Q24						.687			
Q25			.765						
Q26				.825			.439		
Q27				.674					
Q28				.849					
Q29				.717	Technological Self-Efficacy (TSE)				
Q30				.854					
Q31		.819							
Q32		.676							
Q33		.801							
Q34		.834	Preference for Personal Contact (PPC)						
Q35		.851							
Q36		.626							

and a third factor analysis performed. This analysis, with just the remaining 18 items for

instrumentality and expressiveness, delivered 2 strong sets of factors (see Table 16)

and became the final instrumentality (Inst.: 9 items; N=66; α=.88) and expressiveness (Expr.: 9 items; N=66; α=.82) measures.

To test for convergent and discriminant validity, the 34 items used were checked against the other items to determine whether they tended to correlate more highly with those within the same factor than with those that loaded onto other factors. With only 1 exception, every pair of items correlated more on the average, minimum, and maximum items within a factor than with those on items found in the other factors. That 1 exception was a pair of questions that both mentioned taking risks: the learning goal orientation

Table 16

Factor Analysis of the 18 remaining items for Instrumentality and Expressiveness

	Component				
	1	2	3	4	5
Q06		.598			
Q08		.747			
Q09			.589		.417
Q10			.792		
Q11		.825	Instrumentality (Inst.)		
Q12		.619			
Q13		.429	.746		
Q14		.733			
Q15			.775		
Q16				.864	
Q17	.815				
Q18	.820	Expressiveness (Expr.)			
Q19	.788				
Q20	.724				
Q21	.401				.402
Q22	.560			.621	
Q24					.856
Q25	.783				

question "For me, the development of my work ability is important enough to take risks" was strongly correlated with the instrumentality question "I am willing to take risks." This result, while unsurprising and interesting, is not viewed as a critical issue. On average, the learning goal orientation questions correlated with other learning goal orientation questions at .445, instrumentality questions correlated with other Instrumentality questions at .462, and learning goal orientation questions correlated with Instrumentality questions at just .274 (see Table 17). Therefore, it was concluded that the 5 factors

sufficiently exhibited convergent and discriminant validity and could be used as independent measurements.

	Learning Goal Orientation	Instrumentality	Expressiveness	Technological Self-Efficacy	Preference for Personal Contact
Table 17 *Average Correlations of Items Within and Between Factors, self-correlations excluded*					
LGO	.445	.274	.166	.282	.090
Inst.	.274	.462	.126	.129	.100
Expr.	.166	.126	.362	.117	.085
TSE	.282	.129	.117	.556	.210
PPC	.090	.100	.085	.210	.523

Description of Participant Measurements

Descriptive statistics on the final 5 measures of the 66 participants – Learning Goal Orientation (LGO), Instrumentality (Inst.), Expressiveness (Expr.), Technological Self-Efficacy (TSE Orig.), and Preference for Personal Contact (PPC) – are displayed on Table 18. Each measure was calculated as the average Likert scale reply on the final items that made up the measure, and 4 of the 5 items appeared to be at least near-normally distributed (skewness and kurtosis both within a -1/+1 range). The 5th item, Technological Self-Efficacy, required further analysis and adjustment. Visually charting the measure showed the outcome to be skewed toward higher self-efficacy, with over 83% of the respondents measuring from 5.0 to 7.0 and a mode of 5.8 (above the mean of 5.64). Less than 10% of the respondents rated at 4.2 or lower on the scale. This skewing by a few outliers from what appeared to be an otherwise reasonably-normal

Table 18

Summary Statistics for Participant Measures across 66 Participants

	Minimum	Maximum	Mean	Standard Deviation	Skewness	Kurtosis
LGO	4.2	7.0	6.0	.712	-.650	-.144
Inst.	2.6	7.0	5.2	.970	-.346	.006
Expr.	4.0	7.0	5.9	.644	-.560	.051
TSE Orig.	1.4	7.0	5.6	1.030	-1.343	3.380
PPC	3.2	7.0	5.5	.991	-.250	-.578
TSE Rev.	3.8	7.0	5.7	.891	-.475	-.412

distribution called for winsorizing the data (Tukey, 1962, p. 18). The .05 percentile was

at the score of 3.8, and so all of the scores below 3.8 were remarked to 3.8 (two data

points changed: one from an original score of 1.4 and the other from an original score of

3.2). The result left the revised measure of Technological Self-Efficacy (TSE Rev.)

nearly normal, with the summary statistics also found on Table 18. This revised amount

is the TSE measure used for the remainder of this report.

While not strictly a participant measurement, the average rating given to protégé

vignettes was checked for distribution and outliers. The minimum average of the ratings

given by a participant was 2.7 and the maximum was 6.3, with a mean of 4.65 and

standard distribution of .813. A skewness of -.302 and a kurtosis of -.265 indicate the

distribution to be at least near-normal. Therefore, there appears to be no reason to

adjust protégé vignette scores at the individual-participant level.

<div align="center">Description of Control Variables</div>

Five variables were considered as possible controls, given there were reasons to

believe they could influence protégé ratings beyond the independent variables of this

study. Neither participant age (N=660; r=.028; p>.05) nor the number of years working in academia (N=660; r=-.015; p>.05) appeared to affect results and were dropped for further consideration. Participant title did appear to affect results slightly, in that Associate Professors tended to rate protégés slightly higher than the other 3 groups, but this effect was not significant (3,656; F=.752; p>.05) and so was also dropped from further consideration.

Prior mentoring experience appeared to affect results: participants who indicated they had not been graduate mentors before rated their protégés significantly lower than did those who indicated they had been graduate mentors (1,658; F=9.137; p<.01). Therefore, prior mentoring experience was retained as a control variable. The college of employment also appeared to affect results: participants from 3 colleges rated their protégé's significantly lower than the others, and those from 1 college rated their protégé's significantly higher than the others (9,650; F=3.907; p<.001). Therefore, the participant's college was also retained as a control variable.

These 2 control variables were converted into dummy variables and regressed against the protégé vignette ratings with the residual values saved. This information was

Table 19

Adjustments to Protégé Ratings to Account for 2 Control Variables

College of Employment	Adj.	College of Employment	Adj
Administration	- 1.55195	Information	- 1.02500
Arts & Sciences	- 0.72399	Journalism	- 0.85260
Business	- 0.56889	Merch. & Hospitality	- 0.71667
Education	- 0.29156	Music	0
Engineering	- 0.10000	Public Affairs	- 1.01667
Adjustment for those who have never been a graduate mentor			+0.75780

Table 20						
Summary Statistics on 660 Adjusted Ratings						
	Minimum	Maximum	Mean	Standard Deviation	Skewness	Kurtosis
TOTAL	.1474	6.9	3.9426	1.4653	- .343	- .435

used to determine the adjustments required of the protégé ratings to account for prior mentoring experience and participant's college of employment. The adjustments made to protégé ratings can be found in Table 19, and Table 20 shows the summary statistics on the 660 adjusted ratings. These adjusted ratings are the protégé vignette ratings that are used for the remainder of this report.

Description of Protégé Summarizing Statistics

The various summarizing protégé ratings statistics described in chapter 3 were calculated and checked for normalcy and reasonableness (see Table 21). Only two statistics, the average rating for protégés of the same culture (Avg Same Cult) and the culture slope statistic (Cult Slope), appeared to be somewhat leptokurtic: all others were well within the desired -1/+1 range for skewness and kurtosis. Visual charting of each statistic revealed no major outliers or causes to doubt the normalcy assumption of the data, so they were judged to be suitable for use in hypothesis testing without any need for adjustment.

Similarly, the summarizing protégé rankings statistics described in chapter 3 were also calculated (see Table 21). These calculations use sum-of-ranks (with "1" meaning "*most-preferred*"), so the results are treated as ordinal data and do not assume normalcy: but they were checked for reasonableness and found to be suitable.

Table 21

Summary Statistics for Protégé Vignette Ratings across 66 Participants

	Minimum	Maximum	Mean	Standard Deviation	Skewness	Kurtosis
Avg Ratings	2.23	5.28	3.94	.741	-.437	-.401
Avg Low CP	1.11	5.11	3.39	.994	-.426	-.555
Avg High CP	2.32	6.04	4.49	.909	-.373	-.273
Avg Low TR	2.64	6.9	4.67	.957	-.273	-.629
Avg High TR	.43	5.32	3.27	1.161	-.494	-.123
Avg Diff Gend	2.03	5.23	3.88	.779	-.370	-.402
Avg Same Gend	1.9	5.53	4.01	.886	-.257	-.659
Avg Diff Cult	1.56	5.49	3.92	.781	-.555	.378
Avg Same Cult	.43	5.98	4.02	1.059	-.763	1.317
Avg Diff Both	1.43	5.18	3.84	.864	-.528	-.069
Avg Same on 1	2.23	5.53	4.01	.834	-.373	-.701
Avg Same Both	.28	6.9	4.0	1.488	-.583	-.095
CP Slope	-.0092	.0511	.0159	.0143	.343	-.510
TR Slope	-.0544	.0198	-.0172	.0182	-.056	-.988
Gend Slope	-1.8	2.0	.132	.7664	.023	.230
Cult Slope	-2.75	3.38	.0919	1.012	-.202	1.726
GC Both Slope	-1.39	1.56	.1162	.6354	-.251	.197
Avg Low CP	3.67	9.0	6.94			
Avg High CP	2.00	7.33	3.80			
Avg Low TR	2.00	7.67	4.07			
Avg High TR	4.00	9.00	6.85	Sum of Ranks Data		
Avg Diff Gend	3.4	7.6	5.67			
Avg Same Gend	3.4	7.6	5.33	Parametric Computations Not Applicable		
Avg Diff Cult	4.5	6.5	5.52			
Avg Same Cult	1.5	9.5	5.40	Ranking of 1 means "*most preferred*"		
Avg Diff Both	3.5	8.0	5.74			
Avg Same on 1	3.6	7.6	5.34			
Avg Same Both	1.0	10.0	5.38			
CP HiLow Diff	-21.0	8.0	-9.40	3 high minus 3 low		
TR HiLow Diff	-9.0	21.0	8.35			
Gend S/D Diff	-21.0	21.0	-1.74	5 same minus 5 different		
Cult S/D Diff	-40.0	40.0	-.98	(2 same x 4) minus 8 different		
Both S/D Diff	-27.0	25.0	-1.43	(1 same both x 4) minus 4 diff both		

Hypothesis Testing

With control variables considered and all summarization completed, the study's hypotheses were ready to be tested. The remainder of this chapter explains the outcome of each test and summarizes this study's findings.

The need-attraction hypotheses.

> *Hypothesis NA01*: Protégé vignettes in the high current-productivity category will be rated significantly higher than those in the low current-productivity category.

A paired-samples t-test was performed that compared the means of participants' average ratings of low-CP vignettes against their average ratings of high-CP vignettes. The test was significant (N=66; t=-8.553; p<.001), with an average rating of low-CP vignettes of 3.39 and an average rating of high-CP vignettes of 4.49. Therefore, this hypothesis was supported.

> *Hypothesis NA02*: Protégé vignettes in the high current-productivity category will be ranked significantly higher than those in the low current-productivity category.

A paired-samples Wilcoxon signed ranks test was performed that compared the participants' mean sum ranks of low-CP vignettes against their mean sum ranks of high-CP vignettes. This test was also significant (N=66; W_+=-6.481; p<.001), so this hypothesis was also supported.

> *Hypothesis NA03*: Participant instrumentality measures will significantly and positively impact their ratings of high currently-productive protégé vignettes.

Linear regression was used to see if participants' instrumentality measures were predictive of their average ratings of high-CP vignettes. The test was not significant

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(r^2=.006; t=-.621; p>.10), indicating that instrumentality had little to do with participant ratings of high-CP protégés. Therefore, this hypothesis was rejected.

Hypothesis NA04: Participant instrumentality measures will significantly and negatively impact their ratings of low currently-productive protégé vignettes.

Looking at the other end of protégé current productivity, linear regression was used to see if participants' instrumentality measures were predictive of their average ratings of low-CP vignettes. This test was also not significant (r^2=.019; t=1.112; p>.10), indicating that instrumentality had little to do with participant ratings of low-CP protégés either. Therefore, this hypothesis was rejected.

Hypothesis NA05: Participant expressiveness measures will significantly and positively impact their ratings of low currently-productive protégé vignettes.

Linear regression was then used to see if participants' expressiveness measures were predictive of their average ratings of low-CP vignettes. The test was not significant, although expressiveness seems slightly more impactful than instrumentality on low-CP vignettes (r^2=.034; t=1.493; p>.10) but still not very strong. Therefore, this hypothesis was rejected.

Hypothesis NA06: Participant expressiveness measures will significantly and negatively impact their ratings of high currently-productive protégé vignettes.

Finally, linear regression was used to see if expressiveness was predictive of ratings on high-CP vignettes, also failing to reach significance (r^2=.011; t=.851; p>.10). Therefore, this hypothesis was rejected: it would appear that neither instrumentality nor expressiveness had much impact on the ratings of low-CP or high-CP vignettes.

Looking at their impact on the rating of vignettes overall according to current productivity:

Hypothesis NA07: Participant instrumentality measures will significantly and positively impact the slopes of the lines of best fit drawn through each participant's protégé ratings against the relative high/low current-productivity categories of the rated vignettes.

Hypothesis NA08: Participant expressiveness measures will significantly and negatively impact the slopes of the lines of best fit drawn through each participant's protégé ratings against the relative high/low current-productivity categories of the rated vignettes.

Linear regression was used to see if instrumentality or expressiveness carried much weight against an omnibus assessment of protégé ratings by CP. Both tests failed to reach significance: instrumentality (r^2=.045; t=-1.732; p>.05) was more potent than expressiveness (r^2=.008; t=-.733; p>.10), but neither was enough to sufficiently explain rating outcomes. Therefore, these two hypotheses were rejected.

Checking instrumentality and expressiveness effects using rank-order data, the following hypotheses repeat many of the previous tests non-parametrically. These tests have the advantage of utilizing comparative data but also the disadvantage of lower power when compared against parametric tests.

Hypothesis NA09: Participant instrumentality measures will significantly and negatively impact their rankings of high currently-productive protégé vignettes.

Non-parametric correlation between instrumentality and the sum-of-ranks given to high-CP vignettes by participants indicates a fair but insignificant correlation (ρ=.099; p>.10), but the hypothesis is rejected because it goes in the wrong direction.

Hypothesis NA10: Participant instrumentality measures will significantly and positively impact their rankings of low currently-productive protégé vignettes.

Non-parametric correlation between instrumentality and the sum-of-ranks given to low-CP vignettes by participants also indicates a reasonable correlation (ρ=-.194; *p*>.10), but again it flies in the opposite of the predicted direction.

Hypothesis NA11: Participant expressiveness measures will significantly and negatively impact their rankings of low currently-productive protégé vignettes.

Now looking at expressiveness, non-parametric correlation against the sum-of-ranks given to low-CP vignettes by participants produced a strong correlation and in the anticipated direction (ρ=-.175; *p*>.10). However, the hypothesis must be rejected due to insufficient power to reach significance.

Hypothesis NA12: Participant expressiveness measures will significantly impact their rankings of high currently-productive protégé vignettes.

And finally, non-parametric correlation of expressiveness against the sum-of-ranks given to high-CP vignettes by participants produced a reasonable and anticipated but statistically insignificant correlation (ρ=.106; *p*>.10). Therefore, due to insufficient power this hypothesis must be rejected.

The last 2 need-attraction hypotheses look at the impact of instrumentality and expressiveness overall according to current productivity:

Hypothesis NA13: Participant instrumentality measures will significantly and negatively impact the difference between the average rankings given to the 3 high-productivity protégé vignettes minus those given to the 3 low-productivity vignettes.

Hypothesis NA14: Participant expressiveness measures will significantly and positively impact the difference between the average rankings given to the 3 high-productivity protégé vignettes minus those given to the 3 low-productivity vignettes.

Non-parametric correlation was used to see if instrumentality or expressiveness carried much weight against an omnibus assessment of protégé rankings by CP. Both tests failed to reach significance: as with the ratings data, instrumentality (ρ=.185; p>.10) was more potent than expressiveness (ρ=.148; p>.10) but neither was enough to sufficiently explain ranking outcomes. Further, the instrumentality correlation goes in the opposite of the predicted direction. Therefore, these two hypotheses were rejected.

The distance-mentoring hypotheses.

> *Hypothesis DM01*: Protégé vignettes in the low technology-required category will be rated significantly higher than those in the high technology-required category.

A paired-samples t-test was performed that compared the means of participants' average ratings of low-TR vignettes against their average ratings of high-TR vignettes. The test was significant (N=66; t=7.822; p<.001), with an average rating of low-TR vignettes of 4.67 and an average rating of high-TR vignettes of 3.27. Therefore, this hypothesis was supported.

> *Hypothesis DM02*: Protégé vignettes in the low technology-required category will be ranked significantly higher than those in the high technology-required category.

A paired-samples Wilcoxon signed ranks test was performed that compared the participants' mean sum ranks of low-TR vignettes against their mean sum ranks of high-TR vignettes. This test was also significant (N=66; W_+=-5.380; p<.001), so this hypothesis was also supported.

> *Hypothesis DM03*: Participant preference for personal contact measures will significantly and positively impact their ratings of low technology-required protégé vignettes.

Linear regression was used to see if participants' preference for personal contact measures were predictive of their average ratings of low-TR vignettes. The test was not significant (r^2=.035; t=1.534; p>.10), indicating that preference for personal contact had little to do with participant ratings of low-TR protégés. Therefore, this hypothesis was rejected.

Hypothesis DM04: Participant preference for personal contact measures will significantly and negatively impact their ratings of high technology-required protégé vignettes.

Looking at the other end of protégé technology required, linear regression was used to see if participants' preference for personal contact measures were predictive of their average ratings of high-TR vignettes. This test was strong and significant (r^2=.119; β=-.403; t=-2.935; p<.01), indicating that preference for personal contact impacted participant ratings of high-TR protégés in the anticipated direction. Therefore, this hypothesis was supported.

Hypothesis DM05: Participant technological self-efficacy measures will significantly and positively impact their ratings of high technology-required protégé vignettes.

Linear regression was used to see if participants' technological self-efficacy measures were also predictive of their average ratings of high-TR vignettes. The test was also significant, even if not nearly as powerful as preference for personal contact (r^2=.080; β=.369; t=2.359; p<.05). Therefore, this hypothesis was supported.

Hypothesis DM06: Participant technological self-efficacy measures will significantly and negatively impact their ratings of low technology-required protégé vignettes.

Finally, linear regression was used to see if technological self-efficacy was predictive of ratings on low-TR vignettes, and like preference for personal contact this one also failed to reach significance (r^2=.015; t=.981; p>.10). Therefore, this hypothesis was rejected: it would appear that neither preference for personal contact nor technological self-efficacy had much impact on the ratings of low-TR vignettes, but both appear to impact the ratings of high-TR vignettes.

Looking at their impact on the rating of vignettes overall according to technology required:

> *Hypothesis DM07*: Participant preference for personal contact measures will significantly and negatively impact the slopes of the lines of best fit drawn through each participant's protégé ratings against the relative high/low technology-required categories of the rated vignettes.
>
> *Hypothesis DM08*: Participant technological self-efficacy measures will significantly and positively impact the slopes of the lines of best fit drawn through each participant's protégé ratings against the relative high/low technology-required categories of the rated vignettes.

Linear regression was used to see if preference for personal contact or technological self-efficacy carried much weight against an omnibus assessment of protégé ratings by TR. Preference for personal contact turned out to be a significant predictor (r^2=.157; β=-.397; t=-3.458; p<.001), whereas technological self-efficacy was not much of a predictor at all (r^2=.015; t=1.001; p>.10). Therefore, hypothesis DM07 was supported and hypothesis DM08 was rejected.

Checking preference for personal contact and technological self-efficacy effects using rank-order data, the following hypotheses repeat many of the previous tests non-parametrically. These tests have the advantage of utilizing comparative data but also the disadvantage of lower power when compared against parametric tests.

Hypothesis DM09: Participant preference for personal contact measures will significantly and negatively impact their rankings of low technology-required protégé vignettes.

Non-parametric correlation between preference for personal contact and the sum-of-ranks given to low-TR vignettes by participants indicates a strong and significant correlation (ρ=-.362; p<.005). Therefore, this hypothesis is supported.

Hypothesis DM10: Participant preference for personal contact measures will significantly and positively impact their rankings of high technology-required protégé vignettes.

Non-parametric correlation between preference for personal contact and the sum-of-ranks given to high-TR vignettes by participants also indicates a strong and significant correlation (ρ=.365; p<.005), and so this hypothesis is supported as well.

Hypothesis DM11: Participant technological self-efficacy measures will significantly and negatively impact their rankings of high technology-required protégé vignettes.

Now looking at technological self-efficacy, non-parametric correlation against the sum-of-ranks given to high-TR vignettes by participants produced a fair correlation and in the anticipated direction (ρ=-.170; p>.10). However, the hypothesis must be rejected due to insufficient power to reach significance.

Hypothesis DM12: Participant technological self-efficacy measures will significantly and positively impact their rankings of low technology-required protégé vignettes.

And finally, non-parametric correlation of technological self-efficacy against the sum-of-ranks given to low-TR vignettes by participants produced almost no correlation

between the two (ρ=-.006; *p*>.10), indicating that technological self-efficacy has no impact on low-TR choices. Therefore, this hypothesis is rejected.

The last 2 distance-mentoring hypotheses look at the impact of preference for personal contact and technological self-efficacy overall according to technology required:

>*Hypothesis DM13*: Participant preference for personal contact measures will significantly and positively impact the difference between the average rankings given to the 3 high-technology protégé vignettes minus those given to the 3 low-technology vignettes.
>
>*Hypothesis DM14*: Participant technological self-efficacy measures will significantly and negatively impact the difference between the average rankings given to the 3 high-technology protégé vignettes minus those given to the 3 low-technology vignettes.

Non-parametric correlation was used to see if preference for personal contact or technological self-efficacy carried much weight against an omnibus assessment of protégé rankings by TR. Preference for personal contact showed a strong correlation with the difference in high/low TR rankings (ρ=.399; *p*<.001), which technological self-efficacy did not (ρ=-.081; *p*>.10). Therefore, similar to the findings using ratings data, hypothesis DM13 was supported and hypothesis DM14 was rejected.

The similarity-linking hypotheses.

>*Hypothesis SL01*: Protégé vignettes of the same gender will be rated significantly higher than those of a different gender.
>
>*Hypothesis SL02*: Protégé vignettes of the same culture will be rated significantly higher than those of a different culture.
>
>*Hypothesis SL03*: Protégé vignettes of both the same gender and the same culture will be rated significantly higher than those of either the same gender or the same culture, which will be rated significantly higher than those of both a different gender and a different culture.

Paired-samples t-tests were performed that compared the means of participants'

average ratings of same-gender, same-culture, and same-on-both vignettes against

their average ratings of different-gender, different-culture, and different-on-both

vignettes, respectively. Same-on-one-only was included in the tests on the third

hypothesis as well. None of these tests were significant: gender (N=66; t=-1.397;

p>.10), culture (N=66; t=-.737; p>.10), neither against either one (N=66; t=-1.746;

p>.05), either one against both (N=66; t=.079; p>.10), and neither against both (N=66;

t=-.904; p>.10) were all insignificant. Therefore, all 3 of these hypotheses were rejected.

> *Hypothesis SL04*: Protégé vignettes of the same gender will be ranked
> significantly higher than those of a different gender.
>
> *Hypothesis SL05*: Protégé vignettes of the same culture will be ranked
> significantly higher than those of a different culture.
>
> *Hypothesis SL06*: Protégé vignettes of both the same gender and the same
> culture will be ranked significantly higher than those of either the same gender or
> the same culture, which will be ranked significantly higher than those of both a
> different gender and a different culture.

Paired-samples Wilcoxon signed ranks tests were performed that compared the

participants' mean sum ranks on the basis of gender, culture, and combined. These

tests were all also non-significant: gender (N=66; W_+=-1.642; p>.10), culture (N=66;

W_+=-.492; p>.10), neither against either one (N=66; W_+=-1.731; p>.05), either one

against both (N=66; W_+=-.141; p>.10), and neither against both (N=66; W_+=-.817;

p>.10). Therefore, all 3 of these hypotheses were also rejected.

> *Hypothesis SL07*: Participant learning goal orientation measures will significantly
> and positively impact their ratings of protégé vignettes.

Linear regression was used to see if participants' learning goal orientation measures were predictive of their overall average ratings of vignettes. This test was not significant, although it did approach significance and had some explanatory potential ($r^2=.047$; $\beta=.226$; $t=1.782$; $p>.05$). Therefore, this hypothesis was not supported but may deserve some further consideration.

Hypothesis SL08: Participant learning goal orientation measures will significantly and negatively impact their ratings of same-gender protégé vignettes.

Hypothesis SL09: Participant learning goal orientation measures will significantly and negatively impact their ratings of same-culture protégé vignettes.

Hypothesis SL10: Participant learning goal orientation measures will significantly and negatively impact their ratings of same-gender-and-culture protégé vignettes.

Linear regression tests showed learning goal orientation to have little influence over the ratings of same-gender ($r^2=.027$; $t=1.322$; $p>.10$), same-culture ($r^2=.013$; $t=.904$; $p>.10$), or same-on-both ($r^2=.013$; $t=.901$; $p>.10$). Therefore, these 3 hypotheses were rejected.

Hypothesis SL11: Participant learning goal orientation measures will significantly and positively impact their ratings of different-gender protégé vignettes.

Hypothesis SL12: Participant learning goal orientation measures will significantly and positively impact their ratings of different-culture protégé vignettes.

Hypothesis SL13: Participant learning goal orientation measures will significantly and positively impact their ratings of different-gender-and-culture protégé vignettes.

Interestingly, however, these three hypotheses did not reach significance but came very close to doing so. Linear regression tests showed learning goal orientation to have some influence over the ratings of different-gender ($r^2=.052$; $\beta=.25$; $t=1.875$;

p>.05), different-culture (r^2=.048; *β*=.241; *t*=1.801; *p*>.05), and different-on-both (r^2=.056; *β*=.287; *t*=1.947; *p*>.05). Because they failed to reach 95% significance, these 3 hypotheses were all rejected: but the outcomes indicate that they may deserve some further consideration.

Looking at the impact of learning goal orientation on the rating of vignettes overall according to gender and culture similarity:

> *Hypothesis SL14*: Participant learning goal orientation measures will significantly and negatively impact the slopes of the lines of best fit drawn through each participant's protégé ratings against the relative same/different gender categories of the rated vignettes.

> *Hypothesis SL15*: Participant learning goal orientation measures will significantly and negatively impact the slopes of the lines of best fit drawn through each participant's protégé ratings against the relative same/different culture categories of the rated vignettes.

> *Hypothesis SL16*: Participant learning goal orientation measures will significantly and negatively impact the slopes of the lines of best fit drawn through each participant's protégé ratings against the relative same on both, same on one only, and different on both gender/culture categories of the rated vignettes.

Linear regression was used to see if learning goal orientation carried much weight against an omnibus assessment of protégé ratings by similarity, and it failed to do so on all counts: gender similarity (r^2=.002; *t*=-.348; *p*>.10), cultural similarity (r^2=.003; *t*=-.417; *p*>.10), and the combination of the two (r^2=.004; *t*=-.515; *p*>.10) were all non-significant. Therefore, all 3 of these hypotheses were rejected.

Checking learning goal orientation effects using rank-order data, the following hypotheses repeat many of the previous tests non-parametrically. These tests have the advantage of utilizing comparative data but also the disadvantage of lower power when compared against parametric tests.

Hypothesis SL17: Participant learning goal orientation measures will significantly and positively impact their rankings of same-gender protégé vignettes.

Hypothesis SL18: Participant learning goal orientation measures will significantly and positively impact their rankings of same-culture protégé vignettes.

Hypothesis SL19: Participant learning goal orientation measures will significantly and positively impact their rankings of same-gender-and-culture protégé vignettes.

Hypothesis SL20: Participant learning goal orientation measures will significantly and negatively impact their rankings of different-gender protégé vignettes.

Hypothesis SL21: Participant learning goal orientation measures will significantly and negatively impact their rankings of different-culture protégé vignettes.

Hypothesis SL22: Participant learning goal orientation measures will significantly and negatively impact their rankings of different-gender-and-culture protégé vignettes.

Non-parametric correlations between learning goal orientation and the sum-of-ranks given to vignettes based upon gender and culture similarity all showed some correlations: rankings on same-gender (ρ=.064; p>.10), same-culture (ρ=.082; p>.10), same-gender-and-culture (ρ=.181; p>.10), different-gender (ρ=-.064; p>.10), different-culture (ρ=-.082; p>.10), and different-gender-and-culture (ρ=-.056; p>.10) vignettes were predicted by learning goal orientation in the anticipated direction. However, the study lacked the numbers to determine if there is truly sufficient power for prediction. Therefore, these 6 hypotheses are rejected due to lack of significance.

The last 3 similarity-linking hypotheses look at the impact of learning goal orientation overall according to similarity:

Hypothesis SL23: Participant learning goal orientation measures will significantly and negatively impact the difference between the average rankings given to the 5 same-gender protégé vignettes minus those given to the 5 different-gender vignettes.

Hypothesis SL24: Participant learning goal orientation measures will significantly and negatively impact the difference between the average rankings given to the 2 same-culture protégé vignettes minus those given to the 8 different-culture vignettes.

Hypothesis SL25: Participant learning goal orientation measures will significantly and negatively impact the difference between the average rankings given to the 1 same-gender-and-culture protégé vignette minus those given to the 4 different-gender-and-culture vignettes.

Non-parametric correlation was used to see if learning goal orientation carried much weight against an omnibus assessment of protégé rankings by gender and culture similarity. Learning goal orientation was insignificantly correlated with rankings of protégé vignettes divided by gender similarity ($\rho=.064$; $p>.10$), culture similarity ($\rho=.082$; $p>.10$), or both combined ($\rho=.159$; $p>.10$). Therefore, similar to previous findings, learning goal orientation appears to have some connection with similarity linkages between mentors and protégés, but the strength of that connection appears to be weak enough that it was only minimally picked up by this study. The last three similarity-linking hypotheses are therefore rejected.

Conclusion and Chapter Summary

This chapter has covered an in-depth analysis of the data collected in this study's experiments. It included a description of the participants, validation of the study's instrumentation, the effects of control variables, and a test of each of the study's hypotheses. Table 22 summarizes the outcomes of these tests. Chapter 5 follows to conclude this study with a discussion of its outcomes and a look at its limitations and possible future directions.

Table 22

Summary of Hypothesis Testing Results

	Ratings Data	Rankings Data
Need-attraction Hypotheses	Current Productivity	
Overall Effects	**Hypothesis NA01 Supported**	**Hypothesis NA02 Supported**
with Instrumentality	Hypothesis NA07 Rejected	Hypothesis NA13 Rejected (Reversed)
with Expressiveness	Hypothesis NA08 Rejected	Hypothesis NA14 Rejected (Low Power)
Low Current Productivity		
with Instrumentality	Hypothesis NA04 Rejected	Hypothesis NA10 Rejected (Reversed)
with Expressiveness	Hypothesis NA05 Rejected	Hypothesis NA11 Rejected (Low Power)
High Current Productivity		
with Instrumentality	Hypothesis NA03 Rejected	Hypothesis NA09 Rejected (Reversed)
with Expressiveness	Hypothesis NA06 Rejected	Hypothesis NA12 Rejected (Low Power)
Distance-mentoring Hypotheses	Technology Required	
Overall Effects	**Hypothesis DM01 Supported**	**Hypothesis DM02 Supported**
with Pref. for Pers. Contact	**Hypothesis DM07 Supported**	**Hypothesis DM13 Supported**
with Tech. Self-efficacy	Hypothesis DM08 Rejected	Hypothesis DM14 Rejected
Low Technology Required		
with Pref. for Pers. Contact	Hypothesis DM03 Rejected	**Hypothesis DM09 Supported**
with Tech. Self-efficacy	Hypothesis DM06 Rejected	Hypothesis DM12 Rejected
High Technology Required		
with Pref. for Pers. Contact	**Hypothesis DM04 Supported**	**Hypothesis DM10 Supported**
with Tech. Self-efficacy	**Hypothesis DM05 Supported**	Hypothesis DM11 Rejected
Similarity-linking Hypotheses	Gender Similarity	
Overall Effects	Hypothesis SL01 Rejected	Hypothesis SL04 Rejected
with Learning Goal Orient.	Hypothesis SL14 Rejected	Hypothesis SL23 Rejected (Low Power)
Same-Gender		
with Learning Goal Orient.	Hypothesis SL08 Rejected	Hypothesis SL17 Rejected (Low Power)
Different-Gender		
with Learning Goal Orient.	Hypothesis SL11 Rejected (Close)	Hypothesis SL20 Rejected (Low Power)
	Culture Similarity	
Overall Effects	Hypothesis SL02 Rejected	Hypothesis SL05 Rejected
with Learning Goal Orient.	Hypothesis SL15 Rejected	Hypothesis SL24 Rejected (Low Power)
Same-Gender		
with Learning Goal Orient.	Hypothesis SL09 Rejected	Hypothesis SL18 Rejected (Low Power)
Different-Gender		
with Learning Goal Orient.	Hypothesis SL12 Rejected (Close)	Hypothesis SL21 Rejected (Low Power)
	Gender & Culture Similarity Combined	
Overall Effects	Hypothesis SL03 Rejected	Hypothesis SL06 Rejected
with Learning Goal Orient.	Hypothesis SL16 Rejected	Hypothesis SL25 Rejected (Low Power)
Same-Gender		
with Learning Goal Orient.	Hypothesis SL10 Rejected	Hypothesis SL19 Rejected (Low Power)
Different-Gender		
with Learning Goal Orient.	Hypothesis SL13 Rejected (Close)	Hypothesis SL22 Rejected (Low Power)
	Main-effect of Learning Goal Orientation	
Overall Effects	Hypothesis SL07 Rejected (Close)	

CHAPTER 5

CONCLUSIONS AND IMPLICATIONS

This study has looked at the effects of a protégé's current productivity, requirement for technology, and gender/culture similarity with the mentor as indicators of how a potential mentor would view a potential protégé. The general hypotheses have been that highly-productive protégés, face-to-face protégés, and those who are similar to the mentor would be more attractive to participants than low-productivity, dissimilar, or distance protégés. Further, 5 mentor traits that could influence a mentor's view of these protégé traits were considered. A total of 66 graduate-school faculty, most of them who have been graduate school mentors, participated in the experiments.

The results support 2 of the 3 expected main effects: protégés who were highly-productive or who could regularly meet with the mentor face-to-face were preferred over those who were not-yet productive or required the use of distance technology in the mentoring relationship. Culture- and gender-similarity did not appear to influence participant choices. A fourth main effect, the influence of participant learning goal orientation on overall protégé ratings, merits further consideration on future studies but did not reach 95% significance herein.

Of the 5 mentor traits, learning goal orientation and technological self-efficacy appear to have some influence on mentor choices but generally failed to do so with significance, instrumentality and expressiveness did not appear to have much influence at all, and preference for personal contact did appear to affect mentor choices. Hence, mentor instrumentality and expressiveness did not interact with protégé current-productivity as predicted, while mentor preference for personal contact did interact with

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protégé technology-required as predicted. The interaction of mentor learning goal orientation with protégé similarity appears to deserve further consideration, and the interaction of mentor technological self-efficacy with protégé technology-required appears to have influence in limited circumstances.

<center>Discussion of Mentor-choice Explanations</center>

Each of these will now be looked at in turn, along with comments from participant discussions that help shed light on what they were thinking when making their evaluations of protégé vignettes in this experiment.

Explanation 1: The need-attraction hypotheses.

In the second half of the Allen (2004) study, she found that mentors motivated by self-enhancement mentoring reasons were more likely to be influenced by protégé ability, while those motivated by intrinsic-satisfaction mentoring reasons were more likely to be influenced by protégé willingness to learn. In this study, the protégé vignettes attempted to hold willingness to learn steady across all 10 vignettes (although this assertion was not tested), and instrumentality and expressiveness were used as indicators of the mentor's external and intrinsic motivations. One prediction was that instrumentality, as an indicator of external motivation, would lead a participant to highly value high-productivity protégés. Another prediction was that expressiveness, as an indicator of intrinsic motivation, would lead to a greater value toward protégés who were potentially, but not yet currently, productive and highly-appreciative junior scholars.

Whatever might influence a mentor with regards to choosing a lower-productivity protégé, it appears that instrumentality and expressiveness are not good choices. The results of this study did not support either measure as predictive of protégé ratings or

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rankings on the basis of the protégé's level of current productivity. What particularly frustrates interpretation is that mentor instrumentality, if it had any effects at all, appears to have impacted protégé ratings in the direction opposite of that predicted: there was a slight tendency for those with higher instrumentality measures to choose lower-performing protégés. Further, when looking at only the 11 participants (one-sixth of the total) with the largest CP slopes on protégé ratings (indicating they valued high-performing protégés more than the other five-sixths of the participants), 8 of them had expressiveness ratings that were in the top 50% of the participants measured.

A curious post-hoc finding came when analyzing the effects of instrumentality and expressiveness against the high-performing protégé group and separately against the low-performing protégé group. For the low-performing group, neither measure was impactful, individually or together. For the high-performing group, however, the interaction of the two measures was calculated to be significant. Dividing participants into a top-50% category and bottom-50% category on the two measures and using ANOVA to analyze the 2x2 participant categories against their ratings of high-performing protégés, the low-instrumentality, high-expressiveness category gave high-performing protégés the best ratings (4.92 versus 4.49 overall, N=66, F=4.832, p<.05). Since this flies in the face of theory and is likely a statistical artifact, this note is made only to point out that this was the *only* significant relationship between instrumentality and expressiveness measures and protégé ratings results that could be found. Therefore, it can be safely concluded that this study does not support any reasonable relationship between the mentor measures of instrumentality and expressiveness and the level of protégé productivity.

Protégé rankings data did not help to enlighten an underlying theme, either. Looking at the 11 participants with the most negative differences between their rankings of high-productivity protégés and low-productivity protégés (indicating their rankings of the former were much closer to first-place than of the latter), 6 of those 11 had expressiveness measures that were in the top 50% of all of the participants. Similarly, looking at the 11 most positive difference group (indicating a tendency toward low-productivity protégés), 9 of the 11 had instrumentality measures in the top 50% of the participants. If this were not a near-reversal of theoretical expectations, it would almost point toward relevant findings going in the opposite direction.

One theory was tested post-hoc to see if it might help explain these results. It would be reasonable to assume that participants high in instrumentality might gravitate toward specific colleges, while those high in expressiveness may move toward employment in other colleges. This could mean that using the university's college of employment as a control variable and removing those effects could also remove the instrumentality and expressiveness interaction effects that were sought. However, when all of the need-attraction hypotheses were re-computed using pre-control protégé vignette ratings, none of the hypotheses changed in their significance outcomes: those that were rejected before were rejected again, and vice-versa. Therefore, this explanation for this study's results does not hold much sway.

Three pertinent points were raised by participants while being interviewed about their choices with regards to current productivity. The 1st was that low-performing protégés may not be bad protégés, but they are unproven: they may require more effort to "bring them up to speed" than the mentor has available. Having an unproven quality

brought a sense of risk that several participants noted made them nervous about investing time and energy into them. This could mean that a high-expectation environment may be far more powerful than mentor attributes in the problem low-performing protégés have with finding mentors. This could also point to one reason why instrumentality and expressiveness trait measures in this study were so poor at predicting protégé ratings and rankings.

The 2nd point made was that high-performing protégés were not necessarily a good choice for mentoring either. While it's true that high-performing protégés were rated the highest (M=4.49), medium-performing were second-best (M=3.94), and low-performing protégés the lowest (M=3.39), several participants indicated they felt a protégé who was currently a high-performer could 1) require a great deal of time in keeping up with their efforts and energy, 2) already know more about what they want to do than the mentor could help with or influence, or 3) demand that cooperative projects be done in a fashion of their choosing rather than the mentor's. Participants tended to see a high-performing graduate student more as a peer than as a protégé, so they felt they were trying to evaluate a different type of relationship with a high-performing graduate student than they were with a medium- or low-performing graduate student. Again, the empirical results showed a marked preference for high-performing protégés: but the reason could point toward a preference for peer-relationships over mentoring-relationships and not at protégé productivity levels exclusively.

The 3rd interesting point made by participants related to the manipulations used in the protégé comments. The low-performing protégé comments of "I often feel overwhelmed by it all," "I sometimes feel like everyone gets what's going on but me,"

and "this has been the most difficult challenge of my life" were often taken as expressions of uncertainty, under-commitment, and even excuse-building. Allen (2004, p. 480) notes, "individuals can increase their chances of being selected by providing clear evidence to prospective mentors of their willingness to learn. This may be an important career management skill for individuals to cultivate." To the extent the above comments were perceived as an unwillingness to learn, participant reactions toward them seem to support Allen's assertion. This also means that the attempt to hold willingness-to-learn steady across vignettes may not have been fully successful.

Explanation 2: The distance-mentoring hypotheses.

Walker and Johnson (2006), in their review of why people use or fail to use internet banking and shopping services, found that the need for face-to-face contact was most pronounced where intense discussions (such as voicing a complaint or getting help with a particular issue) were involved. Given that mentoring is itself an intense relationship, full of discussions and questions, it stands to reason that face-to-face contact would be preferred by most mentor participants. As already noted, protégé's who could meet in person regularly were preferred over those who needed to use distance technology to meet with the mentor.

Further, participant preference for personal contact (PPC) and technological self-efficacy (TSE) were expected to indicate the mentor's relative need to conduct an intense relationship in person and his or her comfort with the use of distance technology. The prediction was that a high-PPC measure would lead a participant to more highly value low-technology protégés while a participant's high-TSE measure would lead to a greater acceptance of distance protégés.

PPC emerged as a strong predictor of those who would avoid distance- and require face-to-face-mentoring. Of the 11 participants with the most negative TR slopes on protégé ratings (indicating they valued face-to-face protégés more than the other 55 participants), 8 of them had PPC ratings that were in the top 50% of the participants measured. Further of the 11 participants who were the most accepting of distance-protégés, 8 of them had PPC ratings in the bottom 50% of participants. Finally, PPC emerged as a predictor of the strength of their conviction: of the 11 participants with the highest R^2 slopes, 9 of them had PPC ratings in the top 50%. The interaction of PPC with protégé technology-required levels was the strongest mentor/protégé-qualities relationship found by this study.

TSE only seemed to have an influence when considering the most distant of mentoring relationships or the least technologically-confident mentors. With full-distance mentoring relationships, TSE became a significant indicator of a participant's ratings of the protégé vignettes, but with mid-range or face-to-face mentoring relationships TSE did not matter much at all. Looking at the 22 participants (one-third of the total) who had the lowest TSE ratings, the strength of their TR slopes was extremely strong (R^2=.419), while the other 44 participants still favored face-to-face relationships but not nearly as powerfully (R^2=.187). Clearly, comfort with the technology can have an effect, but its effect appears to be limited to the more extreme cases.

The ranking data mimicked the ratings results: TSE only affected the rankings of those with the lowest self-efficacy, while PPC showed a steady change in rankings from the lowest PPC to the highest. High-PPC participants showed a marked preference for face-to-face protégés and shunned those who needed to be mentored through

technology, while low-PPC participants were more accepting of distance mentoring relationships. It should be noted that the ranking data failed to achieve statistical significance in the distance-mentoring hypotheses, but this appeared to be due to the study failing to have enough power to make these tendencies stand out. It is predicted that a larger study utilizing similar ranking instruments would find significant results that mirror what was found here.

Three interesting points were raised by participants while they were interviewed regarding their protégé vignettes choices with regards to distance mentoring. The 1st was their overwhelming concern that working with a protégé at a distance might never work out. The nuances of mentoring, the mentor's need to have the protégé available when the mentor was ready, the inefficiency of having to communicate by email or phone exclusively, and the possibility of needing to use equipment or other artifacts together in their work were all cited as reasons why many doubted distance mentoring was viable. One participant commented that a protégé who moved out of town would immediately lose that mentor's help, and another participant absolutely refused to even consider mentoring a full-distance student (ratings of "1" on all three). Although PPC and TSE did affect empirical results, no main-effect manipulation had a stronger reaction than mentoring a protégé at a distance. Where the bias against distance mentoring existed, it was both visceral and vocally noted.

The 2nd point was with regard to the interaction of distance mentoring with current productivity. As already mentioned, several participants commented that mentoring a highly-productive student was a different sort of relationship than what they were contemplating with the other students. When considering a distance arrangement with a

peer, they generally had much less of a problem with using technology than they would in a traditional mentoring relationship. An ANOVA test using protégé vignettes in positions 4, 5, 7, and 8 (representing a 2x2 table of low/medium technology-required against medium/high current-productivity) shows a strong interaction affect between technology required and current productivity (F=8.266, p<.01). This backs the possibility that the most highly-valued protégé, the one in position 7 (low in technology required, high in current productivity), was often looked upon as similar to a distance coauthoring relationship with a peer and not as a true distance mentorship.

The 3rd point, mentioned by a few participants, was that working with a moderately-distant protégé was not any harder than one who lived nearby and could even be beneficial. These participants indicated that they needed to see the protégé periodically, so fully distant mentoring relationships were not well received, but protégés who could come by for regular meetings and fill the time in between using distance technology would not be a problem for them. In fact, the periodic nature of working together would mean that the time they spent together would be more focused, with less time wasted on idle work. The empirical results clearly pointed to a preference toward face-to-face mentoring, but some participants noted that a little distance could result in a time-saving advantage for the mentor.

Explanation 3: The similarity-linking hypotheses.

Protégé and mentor matching along cultural and gender lines has been heavily studied, and in light of prior observations one prediction of this study was that mentors would tend to choose same-gender and same-culture protégés. However, there was no empirical evidence to support that participants were willing to promote a protégé on

either basis. With both rating and ranking data, the hypotheses predicting similarity-linking utterly failed to find meaningful correlation or reach significance. Interview data with participants indicated there were at least two reasons why this experiment may have failed to find similarity-linking preferences, even where they might have existed in a real-life protégé choice situation.

The 1st reason related to the nature of the experimental materials and how they were received by the participants. It was clear there were 10 protégé vignettes, they were evenly distributed across 5 cultures and both genders, and participants noticed this across-the-board distribution. Although a few female participants mentioned they felt more comfortable mentoring female students, similarity in culture or gender were rarely offered as reasons for protégé selection. However, participants would often defensively make statements such as, "I have no problem mentoring foreign students" or "I often mentor students of a different race." Participants appeared to indicate they felt they were being judged on whether or not they would pick similar cultural or gender profiles over the others and were almost apologetic at that possibility, even where no actual judgment was taking place. This defensive stance likely pressured some participants to actively make choices they would not have otherwise made in order to avoid judgment, or they may have simply ignored culture and gender in an attempt to not be manipulated by them. In either case, the culture and gender of the protégés often seemed to be "the elephant in the room:" participants mentioned it often enough to have noticed the manipulation, but they were careful to not show any influence from it. This could cause the experiment to suffer from lack of real-world validity where the gender and culture manipulations are concerned.

The 2nd reason relates to the environment in which the experiments took place. A large university generally promotes diversity as an active component of its recruiting processes, and that promotion could dominate protégé selection in such a setting. This may again be an individual effort to not be judged, or it could simply be the acceptance of an organizational culture that promotes the goal of gender and culture diversity. A few participants mentioned "we do not have enough students of that culture or gender in this profession" or "I would like to see a better culture or gender balance in the students I mentor." Although the empirical results did not indicate any gender or culture of protégé was being overly promoted or avoided by participants, these statements appeared to be sincere attempts to promote diversity as a reason for selection and that reason had no relationship with the gender or culture of the participant.

This set of hypotheses also predicted that learning goal orientation (LGO) would influence mentor choices with regards to culture and gender matching, arguing that differences in culture and gender would promote learning experiences for the mentor that someone with a high LGO might seek. None of the LGO hypotheses reached 95% significance, and all of them were therefore rejected. However, many of them did approach 95% significance. Further, the ranking data appears to have promised some findings had there been a sufficient number of participants to make them stand out. Although LGO was not found to be significant in this study, neither could the study soundly eliminate the possibility that a mentor's LGO might influence protégé acceptance. It would appear there should be further work looking at LGO as at least one driver of similarity-linking choices, either alone or in conjunction with other personality or environmental variables.

Implications for Theory and Future Research

While it is still a valid goal to connect a mentor's traits and goals with his or her mentoring choices, the need-attraction hypotheses of this study show how difficult such connections can be to find. Potential mentors may not themselves know what they want to gain from a mentoring relationship, or previous mentoring problems could alter their future choices without regards to their actual desires. One important theme to emerge from discussions with the participants was the role environmental expectations could have when choosing protégés based upon current productivity. A number of participants noted that the job's time-management requirements and expectations for personal productivity could make their own needs secondary or even unimportant when choosing a protégé, and the university's policies on diversity could have overwhelmed any effects of individual learning-goal aspirations. Therefore, the 1st implication for theory is the need to divine the relative types and strengths of individual motivations against those that come from environmental limitations. While individual motives should hold some explanatory power, the needs of the mentor's environment could carry far more weight upon determining what the mentor actually chooses to do.

A 2nd implication for theory drags forward the oft-noted limitation regarding the definition of mentoring. When a participant looks at a highly-productive protégé and sees a peer instead, he or she is flirting with the line between a mentoring relationship and a co-authoring one. In this study, changes in the relationship the participant had in mind could have influenced his or her choices while moving from the medium-level of protégé productivity to the highest level. This calls for a stronger theoretical distinction between a protégé and a junior professional. Studies may be required that go beyond

just the protégé's level of current productivity to provide robust definitions and help explain the point when a protégé is treated less like a junior and more like a peer.

A 3rd implication comes from the different breaking points that a distance mentoring relationship could mean to different mentors. Some participants saw the low-distance and medium-distance protégés as nearly indistinct, with a large gulf between them and high-distance protégés. Others saw the medium-distance and high-distance protégés as uniformly problematic and distinct from low-distance protégés. Research that focuses on exactly what a medium-distance protégé represents to a mentor is called for, with variables such as the type of technology-connection required, the amount of time between face-to-face meetings, and the type of projects worked on as potential definitional constructs. This should help clarify where and when a distance mentoring relationship is acceptable to a potential mentor and the types of problems such a relationship might incur.

Technological self-efficacy (TSE) emerged as a predictor of mentor choice in some circumstances, but it did not remain powerful across all levels of the study. Similar to hygienic factors in 2-factor motivation theory (Herzberg, Mausner, & Snyderman, 1959), TSE may represent a de-motivator when low but not a motivator when high when related to mentoring distance protégés. Further, this has implications for the technology acceptance model (TAM), for ease of use may be more hygienic while usefulness for a given purpose may be more motivational. At least with regards to distance mentoring, a 4th implication of this study is to understand how TSE affects one's motivation to be a distance mentor. This would tell us when technology training would be important and helpful and when instead it may be superfluous, wasteful, or even harmful.

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A 5th implication is the call for continued work on learning goal orientation as one component that drives a mentor to choose other-gender or other-culture protégés. There may still be promise to this explanation with regards to mentor choice, for this study was unable to discount the proposed effects on mentor choice from LGO.

A final implication of this study is the role of topic difficulty when it is faced within an experimental context. Culture and gender issues are important to understand, but they also can elicit deep feelings and judgmental attitudes that can have an effect on participant choices even when those feelings and attitudes are not immediately present. If we are going to understand when similarity linking may be more beneficial to the relationship's participants, we have to first understand when discussing such a topic may engender avoidance or deceit from a study's participants. Therefore, this study represents a call for understanding how and when difficult topics can be addressed in an experimental context and a reasonable degree of measurement accuracy from the experiment can be expected.

Implications for Practice

Three practical implications emerged from this study as recommendations for those who would operate mentoring programs. The 1st is to understand the effects of time-expectations from all of the roles facing mentors and how they may encourage or discourage the mentors' mentoring activities. If it is true that the environment has a strong effect on a mentor's choices and actions, as indicated by participants in this study, then program administrators should seriously evaluate the rewards and obstacles of the program itself as well as others in the organizational environment. A typical method for helping mentors better serve their protégés is through training and mentor

development. However, if the environment is structured to limit mentoring time and energy, then such training and development may be wasted activity and could even be counter-productive. Those who want to see strong and active mentoring programs should consider the structure of those programs as well as the structure of competing programs to ensure that together they encourage mentors to take a proactive mentoring role.

The 2nd practical implication reflects on the need for potential protégés to carefully promote their willingness to learn with potential mentors, watching the words they use and the implications that could be derived from their actions. Those who are most in need of a mentor may unwittingly cast doubts about their worthiness for a mentor to invest time and energy in their development. Program administrators should consider coaching potential protégés, teaching them what mentors are looking for and how to best sell themselves as willing to learn and ready to work. This impression management should be viewed as a method for helping protégés understand how to be a good protégé and how to get the most from a mentoring experience. Johnson and Huwe (2003) would make an excellent text for such a coaching program. Additionally, program administrators should work to get potential mentors to accept higher-need protégés by selling the benefits of satisfied intrinsic motivations.

The final practical implication considers what is required for a mentor to make a good distance-technology mentor. This study indicates that those who have a low need for personal contact and are thoroughly comfortable with using distance technology are the most accepting of distance protégés. The first is a relatively stable personality trait that would be difficult to change but can be discovered through testing, while the second

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can be influenced through training. With the rise of distance graduate education programs, the need for distance mentoring is likely to increase. Program administrators would be advised to choose their distance mentors well and train them thoroughly for the challenge.

<center>Limitations</center>

There are potential moderators to any mentor/protégé-attribute connection that should be considered in a comprehensive model related to mentor choice. For example, Allen & Eby (2003) found that perceived similarity was a factor in mentor reports of mentoring outcomes and benefits, while Kram & Hall (1989) noted that pressures on mentors and the amount of stress they are facing at work can alter their perceptions of benefits available or desired. Such moderators, while important, were beyond the scope of this study and have been listed as avenues for theory development and future research. It should be specifically noted there are potential moderators, both personal and environmental, that could affect this study's results and were not considered herein, and this possibility should be taken as one limitation of this study.

A second limitation comes from the study's experimental design. Experiments, a valuable component of theory testing, generally suffer from elements that disconnect them from real-world events. They can also be accidentally structured to incorporate unintended elements, affecting outcomes in an unexpected direction. Therefore, the experimental nature of this research and all of the components that were developed should be viewed skeptically with an eye toward improving their applicability and eliminating wayward effects should the study be replicated, in whole or in part. Further, the results of this study should be interpreted with a full understanding of the

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instruments that generated them. Much effort was expended to make this study as focused and as clear as possible, but there is always room for misinterpretation and improvement.

Conclusion

This concludes the study, *Making the connection: How mentors choose protégés in academic mentoring relationships*. Its findings are intended to support mentoring research by connecting mentor attributes with the attributes of protégés at the point of mentor selection. It has included recommendations for further research and for practitioners who wish to improve formal mentoring programs, along with a detailed description of the study's design, operation, and results for critical examination. It is hoped that future researchers will find this study to be a valuable addition to the body of mentoring literature.

APPENDIX A

PROTÉGÉ VIGNETTES AND THE TR/CP MANIPULATIONS

The vignettes used for this experiment were designed to mimic typical students enrolled in any research-oriented graduate school program. Each vignette carried information geared toward 3 manipulations. The first 2 of those manipulations placed the protégé at *low*, *medium*, or *high* on 2 scales (see next page for an example):

1) Technology required (TR): This signaled the required use of cellular and internet technology for mentoring the protégé

2) Current productivity (CP): This signaled how productive the protégé currently was with regard to research

Ten vignettes were created to cover all 9 *low*, *medium*, and *high* combinations of TR and CP, with the *medium*, *medium* position repeated to make a 10th vignette.

Technology Required Manipulation

This manipulation was signaled through the protégé's city and state of residence and the 2nd half of the protégé's statement on the vignette.

Low TR: Manipulations for positions 1, 4, and 7.

Position 1: Gave the residence as Denton, TX. 2nd half of the statement said: "I live local to campus and can come see you whenever it is convenient."

Position 4: Gave the residence as Lewisville, TX. 2nd half of the statement said: "I can come meet you at your office anytime we need to get together."

Position 7: Gave the residence as Corinth, TX. 2nd half of the statement said: "Anytime we need to meet, just let me know: it's easy for me to come up and see you."

Name of Protégé

Education:

    Undergraduate: Name of University A

    Some Graduate: Name of University B

Personal Info:

    Age: Randomized 26-32

    Residence: City, State

Prior Graduate-School Accomplishments:

    Prior Accomplishments Manipulation A

    Prior Accomplishments Manipulation B

Statement:

    "Statement Manipulation CP combined with Statement Manipulation TR."

PICTURE OF PROTÉGÉ GOES HERE

Sample Protégé Vignette Used in Experiments

Medium TR: Manipulations for positions 2, 5, 8, and 10.

Position 2: Gave the residence as San Antonio, TX. 2nd half of the statement said: "I can come to Denton periodically, but otherwise we can keep in touch by phone or email."

Position 5: Gave the residence as Baton Rouge, LA. 2nd half of the statement said: "I come to the Denton area every few months or so anyway, so we can meet up then: but otherwise we can call or write."

Position 8: Gave the residence as Tulsa, OK. 2nd half of the statement said: "It isn't that hard for me to come to see you in person every so often: we can fill in the rest of the time by email or phone."

Position 10: Gave the residence as Amarillo, TX. 2nd half of the statement said: "I'm in the Denton area periodically, and we can talk over the phone or email otherwise."

High TR: Manipulations for positions 3, 6, and 9.

Position 3: Gave the residence as Chicago, IL. 2nd half of the statement said: "I would have to work with you almost exclusively by phone or internet, but that's easy for me to do."

Position 6: Gave the residence as Birmingham, AL. 2nd half of the statement said: "Since I'm a distance-student, I will have to work with you almost 100% by phone or email: I hope you're OK with that."

Position 9: Gave the residence as Fargo, ND. 2nd half of the statement said: "Since I don't have any way to get to Denton, we'll have to work together using email or calling each other."

Current Productivity Manipulation

This manipulation was signaled through prior graduate school accomplishments listed and the first half of the protégé's statement on the vignette.

Low CP: Manipulations for positions 1, 2, and 3.

Position 1: 1st accomplishment was "Nearly finished with leveling and introductory coursework," 2nd was "Has worked with professors on conference papers." First half of the statement said: "I often feel overwhelmed by it all, but I love the work: and I never back away from a challenge!"

Position 2: 1st accomplishment was "Completed most introductory and some statistics coursework," 2nd was "Submitted one conference paper, awaiting response." First half of the statement said: "I sometimes feel like everyone gets what's going on but me! But I am a hard worker, and I really want to learn."

Position 3: 1st accomplishment was "Completed leveling courses and has scheduled introductory courses," 2nd was "Has shown promise in papers written for classes." First half of the statement said: "This has been the most difficult challenge of my life, but I find the work fascinating: I won't let you down!"

Medium CP: Manipulations for positions 4, 5, 6, and 10.

Position 4: 1st accomplishment was "Nearly finished with research and seminar courses," 2nd was "Has had first paper accepted at a regional conference." First half of the statement said: "I appreciate your consideration: I know I have a great deal to learn from you, and I look forward to it."

Position 5: 1st accomplishment was "Completed research courses and some seminar courses," 2nd was "Gave poster presentations at two local conferences." First half of the statement said: "I am eager to learn all I can, and I am sure you can help me professionally grow through our work."

Position 6: 1st accomplishment was "Completed all seminar and some research courses," 2nd was "Worked with professors on journal articles and submitted a conference paper." First half of the statement said: "I look forward to working with you and learning from you, and I thank you for considering me."

Position 10: 1st accomplishment was "Nearly finished with research and seminar courses," 2nd was "Has given a poster presentation at one conference and submitted a conference paper." First half of the statement said: "It would be great to work with you and learn from you. I really do appreciate the consideration."

High CP: Manipulations for positions 7, 8, and 9.

Position 7: 1st accomplishment was "Completed all courses and has applied for the comprehensive exam," 2nd was "Two regional and one national conference papers." First half of the statement said: "I look forward to working with you right away and advancing both of our research and academic goals!"

Position 8: 1st accomplishment was "Completed coursework and most comprehensive exam requirements," 2nd was "3rd Best Graduate Student paper at conference." First half of the statement said: "To me it is very exciting to see what we can build together: if you are ready to get started, so am I!"

Position 9: 1st accomplishment was "Completed all courses and some comprehensive exam requirements," 2nd was "Co-authored one journal and two conference papers." First half of the statement said: "Increasing our research output and getting our names out for our work is very important to me!"

Testing the Manipulations

A group of 5 volunteers were asked to rank-order the protégé vignettes according to the following instruction: "Put these protégés in order from the one that would least require the use of distance technology for mentoring to the one that would most require the use of distance technology for mentoring." The sum of the ranks for the vignettes are presented in Table A.1, listed in the order from the least-requiring-technology to the most-requiring-technology according to the sum-rankings.

Table A.1

Protégés Least-requiring Technology to those Most-requiring Technology

	Targeted TR Category	Sum of Ranks Given in Test	Scale, per Dunn-Rankin (1983)
Position 1	Low	6	2
Position 7	Low	10	11
Position 4	Low	14	20
Position 8	Medium	24	42
Position 5	Medium	27	49
Position 10	Medium	29	53
Position 2	Medium	30	56
Position 3	High	41	80
Position 6	High	47	93
Position 9	High	47	93

The scale indicates the relative strength of the manipulation (Dunn-Rankin, 1983), and it is calculated as the percentage distance an evaluated item's sum of ranks is from the minimum possible sum of ranks (in this case, 5) to the maximum possible sum of ranks (in this case, 50). This test indicates that the low-TR group was successfully targeted below the medium-TR group, which itself was successfully targeted below the high-TR group.

The same volunteers were asked to rank-order the protégé vignettes again, but this time according to the following instruction: "Put these protégés in order from the one that is currently the least productive in research to the one that is currently the most productive in research." The sum of the ranks for the vignettes are presented in Table A.2, listed in the order from the least-currently-productive to the most-currently-productive according to the sum-rankings.

Table A.2			
Protégés Least-currently Productive to those Most-currently Productive			
	Targeted CP Category	Sum of Ranks Given in Test	Scale, per Dunn-Rankin (1983)
Position 2	Low	9	9
Position 3	Low	10	11
Position 1	Low	18	29
Position 4	Medium	22	38
Position 10	Medium	26	47
Position 5	Medium	29	53
Position 6	Medium	31	58
Position 9	High	41	80
Position 7	High	44	87
Position 8	High	45	89

As before with TR, this test indicates that the low-CP group was successfully targeted below the medium-CP group, which itself was successfully targeted below the high-CP group.

The Dunn-Rankin (1983) scale values, as indicators of the relative strength of the manipulations, are used in the tasks of consolidating the protégé ratings into a TR slope (using the scales in Table A.1) and into a CP slope (using the scales in Table A.2). See Chapter 3 for details regarding these consolidation tasks.

APPENDIX B

PROTÉGÉ VIGNETTES AND THE GC MANIPULATIONS

The vignettes used for this experiment were not designed to just represent potential graduate students: they were designed to mimic actual people by giving them a name, face, and history. The goal was to make the participant feel as if this was someone he or she could know and work with as much as possible. Therefore, the gender and culture manipulation objects were expected to both signal the protégé's gender and culture to the participant and to help the participant connect with the vignette viscerally. With this in mind, the GC manipulations geared each vignette toward one of 5 possible cultural profiles and as either a male or a female student.

The 5 targeted cultural profiles were:

1)   African American, 1 male and 1 female

2)   Cultural Chinese, 1 male and 1 female

3)   Cultural Indian, 1 male and 1 female

4)   Hispanic American, 1 male and 1 female

5)   U.S. Caucasian, 1 male and 1 female

Ten vignettes were created to cover all of these combinations. A vignette was marked as *same* on gender when rated by a participant of the same gender and marked as *different* otherwise. Similarly, a vignette was marked as *same* on culture when rated by a participant of the same culture and marked as *different* otherwise. When a vignette was of both the same gender and the same culture as the participant, it was also marked as *same on both*, when neither matched it was also marked as *different on both*, and otherwise it was also marked as *same on one only*.

The gender and culture manipulations were signaled through the protégé's name, prior universities listed for undergraduate and graduate studies, and a picture.

Appendix A shows an example of a protégé vignette and where these manipulations were located on the page and this appendix describes the processes used to generate the gender and culture manipulation objects.

A group of 5 volunteers were asked to assist with finding manipulations that met the following instructions: "I want to find names, schools, and pictures that represent someone typical of a person from the targeted gender and cultural groups and of the ages 26 to 32 years of age. Help me determine what those items should be. We are looking for typical, expected, and normal, and we want to avoid anything that is unusual or unexpected." These volunteers were 1 African-American female, 1 cultural Chinese male, 1 cultural Indian male, 1 Hispanic-American male, and 1 U.S. Caucasian female, all of whom were in the young-to-mid-adult age range and who were known to be conscientious and thoughtful in making such assessments. Together they were called the Dream Team Quintet (DTQ) of vignette consultants.

In general, the process consisted of the researcher generating a list of options through internet searches or other sources, preparing summaries for the DTQ, and presenting the information to them for debate and assessment one Saturday afternoon. Any member of the DTQ could present information that was not brought by anyone else, so all consultants had the freedom to both evaluate the presented material and to bring in new material. Special attention was paid to a volunteer of the same gender or of the same culture as the protégé for which the items were generated, but all 5 consultants were allowed to have input and provide debate until full consensus was reached.

Protégé Names

Internet searches generated several listings of male and female names by cultural profile, and these lists were presented to the DTQ for discussion. The team reviewed these lists and talked about names until 10 names had been generated that all agreed met the prescribed criteria. In the end, the following 10 names were decided upon as those that best fit the requirements:

1)   African-American female: Keisha Jamerson

2)   African-American male: Marcus Thompson

3)   Cultural Chinese female: SuMei Wang

4)   Cultural Chinese male: Wu-pen Li

5)   Cultural Indian female: Indrani Puriyana

6)   Cultural Indian male: Omprakash Dev

7)   Hispanic-American female: Maria Benedides

8)   Hispanic-American male: Julio Garcia

9)   U.S. Caucasian female: Jennifer Parker

10) U.S. Caucasian male: Tom Brisnold

Therefore, these were the 10 names used on the vignettes to help signal the protégé's gender and culture to the participant.

Prior Education

Schools were targeted that had a large enrollment of those from the culture and gender being represented. Internet searches were used to create lists of schools that might be appropriate, including schools in China for the cultural Chinese profiles and schools in India for the cultural Indian profiles. Schools were also targeted based upon

being well enough known to be acceptable but not controversial or overly heralded, with the undergraduate school (A) a little less known than the graduate school (B). Further, the U.S. schools had to be reasonably far away from the University of North Texas and not actively or majorly connected with that school (where the experiments would be taking place). These schools were debated by the DTQ, and the following were decided upon that best fit the requirements:

1)	African-American female:	A -	Tuskegee University
		B -	University of Alabama
2)	African-American male:	A -	Cheyney University
		B -	Pennsylvania State University
3)	Cultural Chinese female:	A -	Henan University
		B -	Peking University
4)	Cultural Chinese male:	A -	Xiamen University
		B -	Beijing Normal University
5)	Cultural Indian female:	A -	Gulbarga University
		B -	University of Delhi
6)	Cultural Indian male:	A -	Mizoram University
		B -	University of Calcutta
7)	Hispanic-American female:	A -	Northcentral University
		B -	Arizona State University
8)	Hispanic-American male:	A -	Warner University
		B -	Florida State University
9)	U.S. Caucasian female:	A -	Frostburg State University
		B -	University of Michigan
10)	U.S. Caucasian male:	A -	Washington University
		B -	University of Northern California

Therefore, these were the 10 universities used on the vignettes to help signal the protégé's culture to the participant.

Protégé Pictures

Extra care was taken with the pictures used in the protégé vignettes, given that pictures can easily signal unintended messages. The instructions given to the DTQ was to choose pictures that were not too good-looking, not too ugly, not too hairy, not too bald, etc. and to be sure the pictures were clear, well balanced in color and form, and more or less equivalent to one another. With this in mind, the researcher generated over 100 color pictures of people in the appropriate age range, approximately 10 from each targeted gender and culture combination. These pictures came from friends, internet websites, and picture databases that allowed them to be used for this type of purpose. Since these pictures were not going to be printed in this or any other published document, there was no need to secure a full media release. All pictures were used and distributed only as a part of the protégé vignette materials.

The pictures of each gender and culture combination were placed together at a separate station so that 10 stations were created with approximately 10 pictures at each (there was an African-American female station, and African-American male station, etc.). The DTQ members were instructed to go to each station individually with instructions to 1) list three pictures at the station that best fit the requirements and 2) list any pictures at the station that he or she felt definitely did not meet the requirements. Once all DTQ members had the chance to individually make these determinations at all 10 stations, the group sat to discuss the pictures.

The process went through each of the 10 stations individually: for example, all of the cultural Chinese male pictures were laid out for the DTQ to discuss then at one time. Generally 1 or 2 pictures would be immediately rejected and 3 to 5 would rise to the top.

Two pictures were chosen from each station, so there were 2 finalist pictures chosen for each gender and culture combination.

Once these 20 pictures had been found, all 20 were laid out together so they could be compared to one another. The DTQ then debated to choose the final 10 pictures, one of each gender and culture combination, making sure the pictures chosen were representative of the GC group and were also equivalent to the other pictures chosen in clarity, expression, size, etc. These final 10 pictures were the ones used on the vignettes to help signal the protégé's gender and culture to the participant.

APPENDIX C

LISTING OF EXPERIMENTAL INSTANCES

Mentor Group / Set Number	Instance Number / Vignette Group	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
		Protégé TR Level	Protégé CP Level	Protégé Culture	Protégé Gender
U.S. Caucasian Male **Number One**	**01**	Measurements First, Manipulations Second			
	First Group	Low	Low	Cultural Indian	Female
		High	High	Cultural Chinese	Male
		Medium	Medium	African-American	Female
	Second Group	Low	High	U.S. Caucasian	Male
		Medium	Low	Cultural Indian	Male
		High	Medium	Hispanic-American	Female
	Third Group	Low	Medium	African-American	Male
		Medium	High	Cultural Chinese	Female
		High	Low	Hispanic-American	Male
	Tenth Vignette	Medium	Medium	U.S. Caucasian	Female
U.S. Caucasian Male **Number Two**	**02**	Manipulations First, Measurements Second			
	First Group	High	Low	U.S. Caucasian	Male
		Medium	High	Cultural Chinese	Female
		Low	Medium	Hispanic-American	Male
	Second Group	Medium	Medium	U.S. Caucasian	Female
		High	High	Cultural Indian	Female
		Low	Low	Cultural Chinese	Male
	Third Group	High	Medium	African-American	Female
		Low	High	Cultural Indian	Male
		Medium	Low	Hispanic-American	Female
	Tenth Vignette	Medium	Medium	African-American	Male
U.S. Caucasian Male **Number Three**	**03**	Manipulations First, Measurements Second			
	First Group	Low	High	African-American	Female
		High	Medium	U.S. Caucasian	Male
		Medium	Low	Cultural Chinese	Female
	Second Group	Medium	High	Hispanic-American	Male
		High	Low	African-American	Male
		Low	Medium	Cultural Indian	Female
	Third Group	Medium	Medium	Cultural Chinese	Male
		Low	Low	U.S. Caucasian	Female
		High	High	Cultural Indian	Male
	Tenth Vignette	Medium	Medium	Hispanic-American	Female

Mentor Group	Instance Number	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
Set Number	Vignette Group	Protégé TR Level	Protégé CP Level	Protégé Culture	Protégé Gender

U.S. Caucasian Male	04	Measurements First, Manipulations Second			
	First Group	Low	Low	Hispanic-American	Male
		High	Medium	U.S. Caucasian	Female
		Medium	High	Cultural Indian	Male
	Second Group	Low	Medium	Hispanic-American	Female
		Medium	Low	African-American	Female
Number Four		High	High	U.S. Caucasian	Male
	Third Group	High	Low	Cultural Chinese	Female
		Low	High	African-American	Male
		Medium	Medium	Cultural Indian	Female
	Tenth Vignette	Medium	Medium	Cultural Chinese	Male

U.S. Caucasian Male	05	Manipulations First, Measurements Second			
	First Group	Low	High	Cultural Chinese	Female
		Medium	Medium	Hispanic-American	Male
		High	Low	U.S. Caucasian	Female
	Second Group	High	Medium	Cultural Indian	Male
		Medium	High	Cultural Chinese	Male
		Low	Low	African-American	Female
Number Five	Third Group	Medium	Low	U.S. Caucasian	Male
		High	High	Hispanic-American	Female
		Low	Medium	African-American	Male
	Tenth Vignette	Medium	Medium	Cultural Indian	Female

U.S. Caucasian Male	06	Measurements First, Manipulations Second			
	First Group	Medium	Low	Cultural Indian	Male
		Low	Medium	Hispanic-American	Female
		High	High	African-American	Male
	Second Group	Medium	Medium	Cultural Indian	Female
		High	Low	Cultural Chinese	Female
		Low	High	Hispanic-American	Male
Number Six	Third Group	Medium	High	U.S. Caucasian	Female
		Low	Low	Cultural Chinese	Male
		High	Medium	African-American	Female
	Tenth Vignette	Medium	Medium	U.S. Caucasian	Male

Mentor Group	Instance Number	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
Set Number	Vignette Group	Protégé TR Level	Protégé CP Level	Protégé Culture	Protégé Gender

	07	Manipulations First, Measurements Second			
U.S. Caucasian Female Number One	First Group	Low	Medium	Cultural Indian	Male
		High	Low	Hispanic-American	Female
		Medium	High	African-American	Male
	Second Group	Medium	Low	Cultural Indian	Female
		High	Medium	Cultural Chinese	Female
		Low	High	Hispanic-American	Male
	Third Group	High	High	U.S. Caucasian	Female
		Low	Low	Cultural Chinese	Male
		Medium	Medium	African-American	Female
	Tenth Vignette	Medium	Medium	U.S. Caucasian	Male

	08	Measurements First, Manipulations Second			
U.S. Caucasian Female Number Two	First Group	Low	Low	U.S. Caucasian	Female
		Medium	Medium	Cultural Indian	Male
		High	High	Hispanic-American	Female
	Second Group	High	Low	African-American	Male
		Low	Medium	U.S. Caucasian	Male
		Medium	High	Cultural Chinese	Female
	Third Group	Medium	Low	Hispanic-American	Male
		High	Medium	Cultural Indian	Female
		Low	High	Cultural Chinese	Male
	Tenth Vignette	Medium	Medium	African-American	Female

	09	Measurements First, Manipulations Second			
U.S. Caucasian Female Number Three	First Group	High	Medium	African-American	Male
		Medium	Low	Cultural Indian	Female
		Low	High	Cultural Chinese	Male
	Second Group	High	High	African-American	Female
		Medium	Medium	U.S. Caucasian	Female
		Low	Low	Cultural Indian	Male
	Third Group	Medium	High	Hispanic-American	Female
		Low	Medium	U.S. Caucasian	Male
		High	Low	Cultural Chinese	Female
	Tenth Vignette	Medium	Medium	Hispanic-American	Male

Mentor Group	Instance Number	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
Set Number	Vignette Group	Protégé TR Level	Protégé CP Level	Protégé Culture	Protégé Gender
U.S. Caucasian Female Number Four	10	Manipulations First, Measurements Second			
	First Group	Low	High	Hispanic-American	Female
		Medium	Medium	African-American	Male
		High	Low	Cultural Indian	Female
	Second Group	High	High	Cultural Chinese	Male
		Low	Medium	Hispanic-American	Male
		Medium	Low	U.S. Caucasian	Female
	Third Group	Medium	High	Cultural Indian	Male
		Low	Low	African-American	Female
		High	Medium	U.S. Caucasian	Male
	Tenth Vignette	Medium	Medium	Cultural Chinese	Female

Mentor Group	Instance Number	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
U.S. Caucasian Female Number Five	11	Measurements First, Manipulations Second			
	First Group	Medium	High	Cultural Chinese	Male
		Low	Low	African-American	Female
		High	Medium	U.S. Caucasian	Male
	Second Group	Low	High	Cultural Chinese	Female
		High	Low	Hispanic-American	Female
		Medium	Medium	African-American	Male
	Third Group	Low	Medium	Cultural Indian	Female
		High	High	Hispanic-American	Male
		Medium	Low	U.S. Caucasian	Female
	Tenth Vignette	Medium	Medium	Cultural Indian	Male

Mentor Group	Instance Number	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
U.S. Caucasian Female Number Six	12	Manipulations First, Measurements Second			
	First Group	High	High	Cultural Indian	Female
		Medium	Low	Cultural Chinese	Male
		Low	Medium	African-American	Female
	Second Group	High	Medium	U.S. Caucasian	Male
		Medium	High	Cultural Indian	Male
		Low	Low	Hispanic-American	Female
	Third Group	High	Low	African-American	Male
		Medium	Medium	Cultural Chinese	Female
		Low	High	Hispanic-American	Male
	Tenth Vignette	Medium	Medium	U.S. Caucasian	Female

Mentor Group / Set Number	Instance Number / Vignette Group	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
		Protégé TR Level	Protégé CP Level	Protégé Culture	Protégé Gender

African-American Male	**13**	Manipulations First, Measurements Second			
	First Group	Low	Low	U.S. Caucasian	Male
		High	High	Cultural Chinese	Female
		Medium	Medium	Hispanic-American	Male
	Second Group	Low	High	U.S. Caucasian	Female
		Medium	Low	Cultural Indian	Female
		High	Medium	Cultural Chinese	Male
Number One	Third Group	Low	Medium	African-American	Female
		Medium	High	Cultural Indian	Male
		High	Low	Hispanic-American	Female
	Tenth Vignette	Medium	Medium	African-American	Male

African-American Male	**14**	Manipulations First, Measurements Second			
	First Group	High	Low	Hispanic-American	Female
		Medium	High	African-American	Male
		Low	Medium	Cultural Indian	Female
	Second Group	Medium	Medium	Cultural Chinese	Male
		High	High	Hispanic-American	Male
		Low	Low	U.S. Caucasian	Female
Number Two	Third Group	High	Medium	Cultural Indian	Male
		Low	High	African-American	Female
		Medium	Low	U.S. Caucasian	Male
	Tenth Vignette	Medium	Medium	Cultural Chinese	Female

African-American Male	**15**	Manipulations First, Measurements Second			
	First Group	Low	High	Cultural Chinese	Male
		High	Medium	African-American	Female
		Medium	Low	U.S. Caucasian	Male
	Second Group	Medium	High	Cultural Chinese	Female
		High	Low	Hispanic-American	Female
		Low	Medium	African-American	Male
Number Three	Third Group	Medium	Medium	Cultural Indian	Female
		Low	Low	Hispanic-American	Male
		High	High	U.S. Caucasian	Female
	Tenth Vignette	Medium	Medium	Cultural Indian	Male

Mentor Group	Instance Number	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
Set Number	Vignette Group	Protégé TR Level	Protégé CP Level	Protégé Culture	Protégé Gender
	16	Measurements First, Manipulations Second			
African-American Male	First Group	Medium	Medium	Cultural Indian	Male
		Low	High	Hispanic-American	Female
		High	Low	African-American	Male
	Second Group	High	High	Cultural Indian	Female
		Low	Medium	Cultural Chinese	Female
Number Four		Medium	Low	Hispanic-American	Male
	Third Group	Medium	High	U.S. Caucasian	Female
		High	Medium	Cultural Chinese	Male
		Low	Low	African-American	Female
	Tenth Vignette	Medium	Medium	U.S. Caucasian	Male
	17	Measurements First, Manipulations Second			
African-American Male	First Group	Medium	High	U.S. Caucasian	Female
		Low	Low	Cultural Indian	Male
		High	Medium	Hispanic-American	Female
	Second Group	Low	High	African-American	Male
		High	Low	U.S. Caucasian	Male
		Medium	Medium	Cultural Chinese	Female
Number Five	Third Group	Low	Medium	Hispanic-American	Male
		High	High	Cultural Indian	Female
		Medium	Low	Cultural Chinese	Male
	Tenth Vignette	Medium	Medium	African-American	Female
	18	Measurements First, Manipulations Second			
African-American Male	First Group	High	High	African-American	Female
		Medium	Low	U.S. Caucasian	Male
		Low	Medium	Cultural Chinese	Female
	Second Group	High	Medium	Hispanic-American	Male
		Medium	High	African-American	Male
		Low	Low	Cultural Indian	Female
Number Six	Third Group	High	Low	Cultural Chinese	Male
		Medium	Medium	U.S. Caucasian	Female
		Low	High	Cultural Indian	Male
	Tenth Vignette	Medium	Medium	Hispanic-American	Female

Table 19

Mentor Group	Instance Number	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
Set Number	Vignette Group	Protégé TR Level	Protégé CP Level	Protégé Culture	Protégé Gender
African-American Female	**19**	Measurements First, Manipulations Second			
	First Group	Medium	High	Cultural Indian	Female
		Low	Low	Cultural Chinese	Male
		High	Medium	African-American	Female
	Second Group	Medium	Low	U.S. Caucasian	Male
		Low	Medium	Cultural Indian	Male
		High	High	Hispanic-American	Female
Number One	Third Group	High	Low	African-American	Male
		Low	High	Cultural Chinese	Female
		Medium	Medium	Hispanic-American	Male
	Tenth Vignette	Medium	Medium	U.S. Caucasian	Female

Table 20

Mentor Group	Instance Number	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
Set Number	Vignette Group	Protégé TR Level	Protégé CP Level	Protégé Culture	Protégé Gender
African-American Female	**20**	Manipulations First, Measurements Second			
	First Group	Low	High	African-American	Male
		Medium	Medium	Cultural Indian	Female
		High	Low	Cultural Chinese	Male
	Second Group	Medium	High	African-American	Female
		Low	Low	U.S. Caucasian	Female
		High	Medium	Cultural Indian	Male
Number Two	Third Group	Medium	Low	Hispanic-American	Female
		High	High	U.S. Caucasian	Male
		Low	Medium	Cultural Chinese	Female
	Tenth Vignette	Medium	Medium	Hispanic-American	Male

Table 21

Mentor Group	Instance Number	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
Set Number	Vignette Group	Protégé TR Level	Protégé CP Level	Protégé Culture	Protégé Gender
African-American Female	**21**	Manipulations First, Measurements Second			
	First Group	Medium	Low	Cultural Chinese	Female
		Low	Medium	Hispanic-American	Male
		High	High	U.S. Caucasian	Female
	Second Group	Low	High	Cultural Indian	Male
		High	Low	Cultural Chinese	Male
		Medium	Medium	African-American	Female
Number Three	Third Group	Low	Low	U.S. Caucasian	Male
		Medium	High	Hispanic-American	Female
		High	Medium	African-American	Male
	Tenth Vignette	Medium	Medium	Cultural Indian	Female

Mentor Group	Instance Number	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
Set Number	Vignette Group	Protégé TR Level	Protégé CP Level	Protégé Culture	Protégé Gender
African-American Female	**22**	Measurements First, Manipulations Second			
	First Group	Low	Medium	U.S. Caucasian	Male
		High	Low	Cultural Chinese	Female
		Medium	High	Hispanic-American	Male
	Second Group	Medium	Low	U.S. Caucasian	Female
		Low	High	Cultural Indian	Female
		High	Medium	Cultural Chinese	Male
Number Four	Third Group	High	High	African-American	Female
		Low	Low	Cultural Indian	Male
		Medium	Medium	Hispanic-American	Female
	Tenth Vignette	Medium	Medium	African-American	Male
African-American Female	**23**	Measurements First, Manipulations Second			
	First Group	High	High	Hispanic-American	Male
		Medium	Medium	U.S. Caucasian	Female
		Low	Low	Cultural Indian	Male
	Second Group	Medium	High	Hispanic-American	Female
		Low	Medium	African-American	Female
		High	Low	U.S. Caucasian	Male
Number Five	Third Group	High	Medium	Cultural Chinese	Female
		Medium	Low	African-American	Male
		Low	High	Cultural Indian	Female
	Tenth Vignette	Medium	Medium	Cultural Chinese	Male
African-American Female	**24**	Manipulations First, Measurements Second			
	First Group	Medium	Low	U.S. Caucasian	Female
		High	Medium	Cultural Indian	Male
		Low	High	Hispanic-American	Female
	Second Group	Low	Low	African-American	Male
		Medium	Medium	U.S. Caucasian	Male
		High	High	Cultural Chinese	Female
Number Six	Third Group	Medium	High	Hispanic-American	Male
		Low	Medium	Cultural Indian	Female
		High	Low	Cultural Chinese	Male
	Tenth Vignette	Medium	Medium	African-American	Female

Mentor Group	Instance Number	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
Set Number	Vignette Group	Protégé TR Level	Protégé CP Level	Protégé Culture	Protégé Gender

Hispanic-American Male	**25**	Manipulations First, Measurements Second			
	First Group	Low	Medium	African-American	Female
		High	Low	U.S. Caucasian	Male
		Medium	High	Cultural Chinese	Female
	Second Group	Low	High	Hispanic-American	Male
		Medium	Low	African-American	Male
Number One		High	Medium	Cultural Indian	Female
	Third Group	High	High	Cultural Chinese	Male
		Low	Low	U.S. Caucasian	Female
		Medium	Medium	Cultural Indian	Male
	Tenth Vignette	Medium	Medium	Hispanic-American	Female

Hispanic-American Male	**26**	Measurements First, Manipulations Second			
	First Group	High	High	Cultural Chinese	Male
		Medium	Medium	African-American	Female
		Low	Low	U.S. Caucasian	Male
	Second Group	High	Low	Cultural Chinese	Female
		Low	Medium	Hispanic-American	Female
		Medium	High	African-American	Male
Number Two	Third Group	Medium	Low	Cultural Indian	Female
		High	Medium	Hispanic-American	Male
		Low	High	U.S. Caucasian	Female
	Tenth Vignette	Medium	Medium	Cultural Indian	Male

Hispanic-American Male	**27**	Measurements First, Manipulations Second			
	First Group	High	Medium	Cultural Indian	Female
		Medium	Low	Cultural Chinese	Male
		Low	High	African-American	Female
	Second Group	Low	Low	U.S. Caucasian	Male
		Medium	Medium	Cultural Indian	Male
		High	High	Hispanic-American	Female
Number Three	Third Group	Medium	High	African-American	Male
		Low	Medium	Cultural Chinese	Female
		High	Low	Hispanic-American	Male
	Tenth Vignette	Medium	Medium	U.S. Caucasian	Female

Mentor Group	Instance Number	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
Set Number	Vignette Group	Protégé TR Level	Protégé CP Level	Protégé Culture	Protégé Gender

Hispanic-American Male	28	Manipulations First, Measurements Second			
	First Group	Medium	Medium	U.S. Caucasian	Female
		Low	High	Cultural Indian	Male
		High	Low	Hispanic-American	Female
	Second Group	High	High	African-American	Male
		Low	Medium	U.S. Caucasian	Male
Number Four		Medium	Low	Cultural Chinese	Female
	Third Group	Low	Low	Hispanic-American	Male
		High	Medium	Cultural Indian	Female
		Medium	High	Cultural Chinese	Male
	Tenth Vignette	Medium	Medium	African-American	Female

Hispanic-American Male	29	Measurements First, Manipulations Second			
	First Group	Medium	High	African-American	Male
		Low	Low	Cultural Indian	Female
		High	Medium	Cultural Chinese	Male
	Second Group	Low	High	African-American	Female
		High	Low	U.S. Caucasian	Female
		Medium	Medium	Cultural Indian	Male
Number Five	Third Group	Low	Medium	Hispanic-American	Female
		High	High	U.S. Caucasian	Male
		Medium	Low	Cultural Chinese	Female
	Tenth Vignette	Medium	Medium	Hispanic-American	Male

Hispanic-American Male	30	Manipulations First, Measurements Second			
	First Group	High	High	Hispanic-American	Male
		Medium	Low	U.S. Caucasian	Female
		Low	Medium	Cultural Indian	Male
	Second Group	High	Medium	Hispanic-American	Female
Male		Medium	High	African-American	Female
		Low	Low	U.S. Caucasian	Male
	Third Group	Low	High	Cultural Chinese	Female
Number Six		Medium	Medium	African-American	Male
		High	Low	Cultural Indian	Female
	Tenth Vignette	Medium	Medium	Cultural Chinese	Male

Mentor Group	**Instance Number**	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
Set Number	Vignette Group	Protégé TR Level	Protégé CP Level	Protégé Culture	Protégé Gender

	31	Measurements First, Manipulations Second			
Hispanic-American Female	First Group	Low	Low	Hispanic-American	Female
		High	High	African-American	Male
		Medium	Medium	Cultural Indian	Female
	Second Group	Low	High	Cultural Chinese	Male
		Medium	Low	Hispanic-American	Male
		High	Medium	U.S. Caucasian	Female
Number One	Third Group	Low	Medium	Cultural Indian	Male
		Medium	High	African-American	Female
		High	Low	U.S. Caucasian	Male
	Tenth Vignette	Medium	Medium	Cultural Chinese	Female

	32	Measurements First, Manipulations Second			
Hispanic-American Female	First Group	High	Low	African-American	Female
		Medium	High	U.S. Caucasian	Male
		Low	Medium	Cultural Chinese	Female
	Second Group	Medium	Medium	Hispanic-American	Male
		High	High	African-American	Male
		Low	Low	Cultural Indian	Female
Number Two	Third Group	High	Medium	Cultural Chinese	Male
		Low	High	U.S. Caucasian	Female
		Medium	Low	Cultural Indian	Male
	Tenth Vignette	Medium	Medium	Hispanic-American	Female

	33	Manipulations First, Measurements Second			
Hispanic-American Female	First Group	Low	High	U.S. Caucasian	Male
		High	Medium	Cultural Chinese	Female
		Medium	Low	Hispanic-American	Male
	Second Group	Medium	High	U.S. Caucasian	Female
		High	Low	Cultural Indian	Female
		Low	Medium	Cultural Chinese	Male
Number Three	Third Group	Medium	Medium	African-American	Female
		Low	Low	Cultural Indian	Male
		High	High	Hispanic-American	Female
	Tenth Vignette	Medium	Medium	African-American	Male

Mentor Group	Instance Number	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
Set Number	Vignette Group	Protégé TR Level	Protégé CP Level	Protégé Culture	Protégé Gender
Hispanic-American Female Number Four	**34**	Measurements First, Manipulations Second			
	First Group	Medium	High	Cultural Chinese	Female
		High	Medium	Hispanic-American	Male
		Low	Low	U.S. Caucasian	Female
	Second Group	Low	Medium	Cultural Indian	Male
		Medium	Low	Cultural Chinese	Male
		High	High	African-American	Female
	Third Group	High	Low	U.S. Caucasian	Male
		Low	High	Hispanic-American	Female
		Medium	Medium	African-American	Male
	Tenth Vignette	Medium	Medium	Cultural Indian	Female

Mentor Group	Instance Number				
Hispanic-American Female Number Five	**35**	Manipulations First, Measurements Second			
	First Group	Low	High	Cultural Indian	Male
		Medium	Medium	Hispanic-American	Female
		High	Low	African-American	Male
	Second Group	High	Medium	Cultural Indian	Female
		Medium	High	Cultural Chinese	Female
		Low	Low	Hispanic-American	Male
	Third Group	Low	Medium	U.S. Caucasian	Female
		High	High	Cultural Chinese	Male
		Medium	Low	African-American	Female
	Tenth Vignette	Medium	Medium	U.S. Caucasian	Male

Mentor Group	Instance Number				
Hispanic-American Female Number Six	**36**	Manipulations First, Measurements Second			
	First Group	Medium	Low	African-American	Male
		Low	Medium	Cultural Indian	Female
		High	High	Cultural Chinese	Male
	Second Group	Medium	Medium	African-American	Female
		High	Low	U.S. Caucasian	Female
		Low	High	Cultural Indian	Male
	Third Group	Low	Low	Hispanic-American	Female
		Medium	High	U.S. Caucasian	Male
		High	Medium	Cultural Chinese	Female
	Tenth Vignette	Medium	Medium	Hispanic-American	Male

Mentor Group	Instance Number	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
Set Number	Vignette Group	Protégé TR Level	Protégé CP Level	Protégé Culture	Protégé Gender
Cultural Chinese Male Number One	**37**	Manipulations First, Measurements Second			
	First Group	Medium	High	U.S. Caucasian	Female
		High	Medium	Cultural Indian	Male
		Low	Low	Hispanic-American	Female
	Second Group	Low	Medium	African-American	Male
		Medium	Low	U.S. Caucasian	Male
		High	High	Cultural Chinese	Female
	Third Group	High	Low	Hispanic-American	Male
		Low	High	Cultural Indian	Female
		Medium	Medium	Cultural Chinese	Male
	Tenth Vignette	Medium	Medium	African-American	Female

Mentor Group	Instance Number	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
Cultural Chinese Male Number Two	**38**	Measurements First, Manipulations Second			
	First Group	High	Low	African-American	Female
		Medium	Medium	U.S. Caucasian	Male
		Low	High	Cultural Chinese	Female
	Second Group	Low	Low	Hispanic-American	Male
		High	Medium	African-American	Male
		Medium	High	Cultural Indian	Female
	Third Group	Low	Medium	Cultural Chinese	Male
		High	High	U.S. Caucasian	Female
		Medium	Low	Cultural Indian	Male
	Tenth Vignette	Medium	Medium	Hispanic-American	Female

Mentor Group	Instance Number	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
Cultural Chinese Male Number Three	**39**	Measurements First, Manipulations Second			
	First Group	Medium	Low	Cultural Chinese	Male
		Low	Medium	African-American	Female
		High	High	U.S. Caucasian	Male
	Second Group	Medium	Medium	Cultural Chinese	Female
		High	Low	Hispanic-American	Female
		Low	High	African-American	Male
	Third Group	Low	Low	Cultural Indian	Female
		Medium	High	Hispanic-American	Male
		High	Medium	U.S. Caucasian	Female
	Tenth Vignette	Medium	Medium	Cultural Indian	Male

Mentor Group	Instance Number	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
Set Number	Vignette Group	Protégé TR Level	Protégé CP Level	Protégé Culture	Protégé Gender

Cultural	40	Measurements First, Manipulations Second			
Chinese	First Group	Medium	High	Hispanic-American	Male
		Low	Medium	U.S. Caucasian	Female
		High	Low	Cultural Indian	Male
Male	Second Group	Low	High	Hispanic-American	Female
		High	Medium	African-American	Female
		Medium	Low	U.S. Caucasian	Male
Number Four	Third Group	High	High	Cultural Chinese	Female
		Low	Low	African-American	Male
		Medium	Medium	Cultural Indian	Female
	Tenth Vignette	Medium	Medium	Cultural Chinese	Male

Cultural	41	Manipulations First, Measurements Second			
Chinese	First Group	High	High	Cultural Indian	Male
		Medium	Medium	Hispanic-American	Female
		Low	Low	African-American	Male
Male	Second Group	High	Low	Cultural Indian	Female
		Low	Medium	Cultural Chinese	Female
		Medium	High	Hispanic-American	Male
Number Five	Third Group	Medium	Low	U.S. Caucasian	Female
		High	Medium	Cultural Chinese	Male
		Low	High	African-American	Female
	Tenth Vignette	Medium	Medium	U.S. Caucasian	Male

Cultural	42	Manipulations First, Measurements Second			
Chinese	First Group	High	Medium	Hispanic-American	Female
		Medium	Low	African-American	Male
		Low	High	Cultural Indian	Female
Male	Second Group	Low	Low	Cultural Chinese	Male
		Medium	Medium	Hispanic-American	Male
		High	High	U.S. Caucasian	Female
Number Six	Third Group	High	Low	Cultural Indian	Male
		Low	Medium	African-American	Female
		Medium	High	U.S. Caucasian	Male
	Tenth Vignette	Medium	Medium	Cultural Chinese	Female

Mentor Group	**Instance Number**	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
Set Number	Vignette Group	Protégé TR Level	Protégé CP Level	Protégé Culture	Protégé Gender

	43	Measurements First, Manipulations Second			
Cultural		Low	Low	African-American	Male
Chinese	First Group	High	High	Cultural Indian	Female
		Medium	Medium	Cultural Chinese	Male
Female		Low	High	African-American	Female
	Second Group	Medium	Low	U.S. Caucasian	Female
		High	Medium	Cultural Indian	Male
		Low	Medium	Hispanic-American	Female
Number	Third Group	Medium	High	U.S. Caucasian	Male
One		High	Low	Cultural Chinese	Female
	Tenth Vignette	Medium	Medium	Hispanic-American	Male

	44	Manipulations First, Measurements Second			
Cultural		High	Low	Cultural Indian	Female
Chinese	First Group	Low	Medium	Cultural Chinese	Male
		Medium	High	African-American	Female
Female		Medium	Medium	U.S. Caucasian	Male
	Second Group	High	High	Cultural Indian	Male
		Low	Low	Hispanic-American	Female
		Medium	Low	African-American	Male
Number	Third Group	Low	High	Cultural Chinese	Female
Two		High	Medium	Hispanic-American	Male
	Tenth Vignette	Medium	Medium	U.S. Caucasian	Female

	45	Measurements First, Manipulations Second			
Cultural		Low	High	Hispanic-American	Male
Chinese	First Group	High	Medium	U.S. Caucasian	Female
		Medium	Low	Cultural Indian	Male
Female		Medium	High	Hispanic-American	Female
	Second Group	High	Low	African-American	Female
		Low	Medium	U.S. Caucasian	Male
		Medium	Medium	Cultural Chinese	Female
Number	Third Group	Low	Low	African-American	Male
Three		High	High	Cultural Indian	Female
	Tenth Vignette	Medium	Medium	Cultural Chinese	Male

Mentor Group	Instance Number	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
Set Number	Vignette Group	Protégé TR Level	Protégé CP Level	Protégé Culture	Protégé Gender
Cultural Chinese Female Number Four	**46**	Measurements First, Manipulations Second			
	First Group	Medium	Medium	Cultural Chinese	Female
		Low	High	Hispanic-American	Male
		High	Low	U.S. Caucasian	Female
	Second Group	High	High	Cultural Indian	Male
		Low	Medium	Cultural Chinese	Male
		Medium	Low	African-American	Female
	Third Group	Low	Low	U.S. Caucasian	Male
		High	Medium	Hispanic-American	Female
		Medium	High	African-American	Male
	Tenth Vignette	Medium	Medium	Cultural Indian	Female

Mentor Group	Instance Number	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
Cultural Chinese Female Number Five	**47**	Manipulations First, Measurements Second			
	First Group	Medium	High	Hispanic-American	Female
		Low	Low	African-American	Male
		High	Medium	Cultural Indian	Female
	Second Group	Low	High	Cultural Chinese	Male
		High	Low	Hispanic-American	Male
		Medium	Medium	U.S. Caucasian	Female
	Third Group	Low	Medium	Cultural Indian	Male
		High	High	African-American	Female
		Medium	Low	U.S. Caucasian	Male
	Tenth Vignette	Medium	Medium	Cultural Chinese	Female

Mentor Group	Instance Number	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
Cultural Chinese Female Number Six	**48**	Manipulations First, Measurements Second			
	First Group	High	High	U.S. Caucasian	Male
		Medium	Low	Cultural Chinese	Female
		Low	Medium	Hispanic-American	Male
	Second Group	High	Medium	U.S. Caucasian	Female
		Medium	High	Cultural Indian	Female
		Low	Low	Cultural Chinese	Male
	Third Group	High	Low	African-American	Female
		Medium	Medium	Cultural Indian	Male
		Low	High	Hispanic-American	Female
	Tenth Vignette	Medium	Medium	African-American	Male

Mentor Group	Instance Number	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
Set Number	Vignette Group	Protégé TR Level	Protégé CP Level	Protégé Culture	Protégé Gender

Cultural	**49**	Measurements First, Manipulations Second			
	First Group	Low	Low	Cultural Chinese	Female
Indian		High	High	Hispanic-American	Male
		Medium	Medium	U.S. Caucasian	Female
Male	Second Group	Low	High	Cultural Indian	Male
		Medium	Low	Cultural Chinese	Male
		High	Medium	African-American	Female
Number One	Third Group	Low	Medium	U.S. Caucasian	Male
		Medium	High	Hispanic-American	Female
		High	Low	African-American	Male
	Tenth Vignette	Medium	Medium	Cultural Indian	Female

Cultural	**50**	Measurements First, Manipulations Second			
	First Group	High	Low	Cultural Chinese	Male
Indian		Medium	High	African-American	Female
		Low	Medium	U.S. Caucasian	Male
Male	Second Group	Medium	Medium	Cultural Chinese	Female
		High	High	Hispanic-American	Female
		Low	Low	African-American	Male
Number Two	Third Group	High	Medium	Cultural Indian	Female
		Low	High	Hispanic-American	Male
		Medium	Low	U.S. Caucasian	Female
	Tenth Vignette	Medium	Medium	Cultural Indian	Male

Cultural	**51**	Manipulations First, Measurements Second			
	First Group	Low	High	Cultural Indian	Female
Indian		High	Medium	Cultural Chinese	Male
		Medium	Low	African-American	Female
Male	Second Group	Medium	High	U.S. Caucasian	Male
		High	Low	Cultural Indian	Male
		Low	Medium	Hispanic-American	Female
Number Three	Third Group	Medium	Medium	African-American	Male
		Low	Low	Cultural Chinese	Female
		High	High	Hispanic-American	Male
	Tenth Vignette	Medium	Medium	U.S. Caucasian	Female

Mentor Group	Instance Number	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
Set Number	Vignette Group	Protégé TR Level	Protégé CP Level	Protégé Culture	Protégé Gender

	52	Manipulations First, Measurements Second			
Cultural		High	Medium	African-American	Male
Indian	First Group	Medium	High	Cultural Indian	Female
		Low	Low	Cultural Chinese	Male
Male		Medium	Low	African-American	Female
	Second Group	Low	Medium	U.S. Caucasian	Female
		High	High	Cultural Indian	Male
Number		High	Low	Hispanic-American	Female
Four	Third Group	Low	High	U.S. Caucasian	Male
		Medium	Medium	Cultural Chinese	Female
	Tenth Vignette	Medium	Medium	Hispanic-American	Male

	53	Manipulations First, Measurements Second			
Cultural		Low	High	U.S. Caucasian	Male
Indian	First Group	Medium	Medium	Cultural Chinese	Female
		High	Low	Hispanic-American	Male
Male		High	Medium	U.S. Caucasian	Female
	Second Group	Low	Low	Cultural Indian	Female
		Medium	High	Cultural Chinese	Male
Number		Medium	Low	African-American	Female
Five	Third Group	High	High	Cultural Indian	Male
		Low	Medium	Hispanic-American	Female
	Tenth Vignette	Medium	Medium	African-American	Male

	54	Measurements First, Manipulations Second			
Cultural		Medium	Low	Hispanic-American	Female
Indian	First Group	Low	Medium	African-American	Male
		High	High	Cultural Indian	Female
Male		Medium	Medium	Cultural Chinese	Male
	Second Group	High	Low	Hispanic-American	Male
		Low	High	U.S. Caucasian	Female
		Low	Low	Cultural Indian	Male
Number	Third Group	Medium	High	African-American	Female
Six		High	Medium	U.S. Caucasian	Male
	Tenth Vignette	Medium	Medium	Cultural Chinese	Female

Mentor Group	Instance Number	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
Set Number	Vignette Group	Protégé TR Level	Protégé CP Level	Protégé Culture	Protégé Gender

Cultural	**55**	Manipulations First, Measurements Second			
	First Group	Low	Medium	Cultural Chinese	Female
Indian		High	Low	Hispanic-American	Male
		Medium	High	U.S. Caucasian	Female
Female	Second Group	Medium	Low	Cultural Indian	Male
		Low	High	Cultural Chinese	Male
		High	Medium	African-American	Female
Number One	Third Group	Medium	Medium	U.S. Caucasian	Male
		Low	Low	Hispanic-American	Female
		High	High	African-American	Male
	Tenth Vignette	Medium	Medium	Cultural Indian	Female

Cultural	**56**	Manipulations First, Measurements Second			
	First Group	High	High	African-American	Female
Indian		Medium	Medium	U.S. Caucasian	Male
		Low	Low	Cultural Chinese	Female
Female	Second Group	High	Low	Hispanic-American	Male
		Low	Medium	African-American	Male
		Medium	High	Cultural Indian	Female
Number Two	Third Group	Medium	Low	Cultural Chinese	Male
		High	Medium	U.S. Caucasian	Female
		Low	High	Cultural Indian	Male
	Tenth Vignette	Medium	Medium	Hispanic-American	Female

Cultural	**57**	Measurements First, Manipulations Second			
	First Group	High	Medium	Cultural Chinese	Male
Indian		Medium	Low	African-American	Female
		Low	High	U.S. Caucasian	Male
Female	Second Group	Low	Low	Cultural Chinese	Female
		Medium	Medium	Hispanic-American	Female
		High	High	African-American	Male
Number Three	Third Group	Medium	High	Cultural Indian	Female
		Low	Medium	Hispanic-American	Male
		High	Low	U.S. Caucasian	Female
	Tenth Vignette	Medium	Medium	Cultural Indian	Male

Mentor Group	Instance Number	Which Comes First: either the Mentor Measurements or the Vignette Manipulations			
Set Number	Vignette Group	Protégé TR Level	Protégé CP Level	Protégé Culture	Protégé Gender

Cultural	**58**	Manipulations First, Measurements Second			
	First Group	Medium	Medium	Hispanic-American	Male
Indian		Low	High	U.S. Caucasian	Female
		High	Low	Cultural Indian	Male
Female	Second Group	Medium	Low	Hispanic-American	Female
		Low	Medium	African-American	Female
		High	High	U.S. Caucasian	Male
Number Four	Third Group	Low	Low	Cultural Chinese	Female
		High	Medium	African-American	Male
		Medium	High	Cultural Indian	Female
	Tenth Vignette	Medium	Medium	Cultural Chinese	Male

Cultural	**59**	Measurements First, Manipulations Second			
	First Group	Medium	High	Cultural Indian	Male
Indian		Low	Low	Hispanic-American	Female
		High	Medium	African-American	Male
Female	Second Group	Low	High	Cultural Indian	Female
		High	Low	Cultural Chinese	Female
		Medium	Medium	Hispanic-American	Male
Number Five	Third Group	Low	Medium	U.S. Caucasian	Female
		High	High	Cultural Chinese	Male
		Medium	Low	African-American	Female
	Tenth Vignette	Medium	Medium	U.S. Caucasian	Male

Cultural	**60**	Measurements First, Manipulations Second			
	First Group	High	High	U.S. Caucasian	Female
Indian		Medium	Low	Cultural Indian	Male
		Low	Medium	Hispanic-American	Female
Female	Second Group	High	Medium	African-American	Male
		Medium	High	U.S. Caucasian	Male
		Low	Low	Cultural Chinese	Female
Number Six	Third Group	Medium	Medium	Hispanic-American	Male
		High	Low	Cultural Indian	Female
		Low	High	Cultural Chinese	Male
	Tenth Vignette	Medium	Medium	African-American	Female

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