

LEADER EMERGENCE AND EFFECTIVENESS IN VIRTUAL WORKGROUPS:  
DISPOSITIONAL AND SOCIAL IDENTITY PERSPECTIVES

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In today's global competitive environment, many organizations utilize virtual workgroups to overcome geographic and organizational boundaries. Research into their dynamics has received the attention of scholars within multiple disciplines, and the potential for an integrative approach to the study of virtual workgroups exists. This dissertation is a first step towards such an approach.

The primary aim of this research is to examine antecedent and contextual factors that affect the emergence and effectiveness of leaders in virtual workgroups. To achieve this aim, an integrative model assembled from theory and empirical findings in leadership, management, social identity, and communications research is posited. Hypothesized relationships depicted in the model identify key dispositional and contextual variables linked to leader emergence, member behavior, and leader effectiveness within virtual workgroups.

This study employed a nonexperimental research design, in which leader emergence and social identity manifest as naturally occurring phenomena. Data collection occurred via two web-based surveys administered at different points in time. Hypothesized relationships were tested utilizing correlational and hierarchical moderated multiple regression analyses.

The findings of this dissertation suggest that traits, such as personality and cognitive ability, are not associated with leader emergence in virtual workgroups. In addition, the results indicate that the exhibition of relationship-oriented leader behaviors

enhances group identity. In turn, identification is associated with increases in perceptions of leader effectiveness and decreases in counterproductive behavior exhibited by group members.

This dissertation exposes an important limitation to the application of trait leadership theory. It also demonstrates the importance of relationship-oriented behavior and social identity in virtual contexts. Further, it advances an integrative theoretical model for the study of virtual workgroup phenomena. These contributions should assist and inform other researchers, as well as practitioners, interested in leadership and group member behavior in virtual workgroups.

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## CHAPTER 1

### INTRODUCTION

In today's dynamic global competitive environment, many organizations utilize virtual workgroups to overcome geographic and organizational boundaries (Bell & Kozlowski, 2002). According to Townsend, DeMarie, and Hendrickson (1998), this proliferation of virtual workgroups is attributable to five factors. The first factor driving the adoption of virtual workgroups is the shift towards horizontal organizational structures resulting from increasing global competitive pressures coupled with advances in information technologies. The second factor is the shift towards "strategic cooperation among a synergistic group of firms" (p. 18). The third factor driving the utilization of virtual workgroups is the technological expectations of incoming employees embracing advanced communication technologies (e.g., cell phones, personal digital assistants, etc.) on a daily basis. The fourth factor is the transition from a manufacturing economy to a service economy in which knowledge-based activities are critically important. Finally, the globalization of business activities that encourages trade across large geographical boundaries by firms of all sizes is the fifth factor advocating the implementation of virtual workgroups. Because of such factors, virtual workgroups are prevalent in today's organizations and are likely to remain so for years to come.

Unsurprisingly, given the prominence of these virtual workgroups, research into their dynamics has received the attention of scholars within multiple disciplines. For example, a large body of communications research investigates the effects of computer-mediated communications upon group member behavior (e.g., Flanagin, Tiyaamornwong, O'connor, & Seibold, 2002; Postmes, Spears, & Lea, 1998). The role

leadership plays in virtual workgroups has also received some attention (e.g., George & Sleeth, 2000; Kayworth & Leidner, 2002), but, with few exceptions (e.g., Carte, Chidambaram, & Becker, 2006; Tyran, Tyran, & Shepard, 2003), little attention is given to emergent leadership within self-managed teams. The study of virtual groups has permeated into areas of inquiry such as group studies (e.g., Barreto & Ellemers, 2002), engineering management (e.g., Bock, Ng, & Shin, 2008), human resource management (e.g., Fischer & Manstead, 2004), decision sciences (e.g., Jessup & Tansik, 1991), computing (e.g., Koh, Kim, Butler, & Bock, 2007), gender studies (e.g., Postmes & Spears, 2002), education research (e.g., Fun-Yun Yu, 2003), and others.

#### Statement of the Problem

With such a rich research base transcending disciplines, the potential for the application of a systems perspective to generate an integrative approach to the study of virtual workgroups exists. Unfortunately, however, such a holistic approach has yet to emerge. Research needs to begin to focus on the integration, across disciplines, of the concepts and theories that relate to virtual workgroups. This dissertation is a first step towards such an integrative approach.

In addition, the literature lacks sufficient investigations that assess ways people can improve the effectiveness of virtual workgroups. Early virtual workgroup literature concentrates primarily on the benefits associated with virtual workgroups (e.g., Townsend et al., 1998). More recent efforts investigate potential challenges inherent in their use (e.g., Bell & Kozlowski, 2002), yet little research addresses how to maximize the effectiveness of virtual workgroups. Given the prominence of virtual workgroups, this lack of research attention in the field represents a significant gap in the body of

research. This dissertation addresses issues related to improving the effectiveness of virtual workgroups.

### Purpose of the Study

The primary aim of this dissertation is to examine interrelationships between antecedent and contextual factors that affect the emergence and effectiveness of leaders in virtual workgroups. To achieve this aim, an integrative model assembled from theories and empirical findings in leadership, management, social psychology, and communications research is posited. Hypothesized relationships depicted in the model represent a systems view of virtual group dynamics that identifies key dispositional and contextual variables linked to leader emergence, member behavior, and leader effectiveness. The major research questions addressed by the model are:

1. What specific personality traits give rise to leader emergence in virtual workgroups?
2. What combination of personality traits and cognitive ability accounts for leader emergence in virtual workgroups?
3. What effect does social or group identity have on the effectiveness of an emergent leader in virtual workgroups?
4. How do emergent leaders contribute to the social or group identity of individual members in virtual workgroups?
5. What is the relationship between social or group identity and individual member behavior in virtual workgroups?

Ideally, evidence derived from empirically testing the relationships set forth in the model will answer these questions and advance theory concerned with virtual

workgroups. Furthermore, while the contribution to theoretical knowledge is paramount, this dissertation also aims to advance research-based practices that will enhance the effectiveness and performance of virtual workgroups. In fact, the research questions, context, and subjects that comprise this research have immediate relevance to educators and practitioners that develop and manage collaborative learning experiences within virtual classrooms. Accordingly, the findings of this dissertation should offer educators and practitioners some additional tactics for engaging members, maximizing learning, and increasing the effectiveness of virtual workgroups.

### Structure of the Research

This dissertation is sectioned into four remaining chapters. The second chapter provides a review of the literature and theoretical foundations of the research questions. The presentation incorporates relevant theories and empirical findings to develop the hypotheses under investigation and concludes with an integrative theoretical model. The third chapter describes the research design and methodology implemented in the study. The fourth chapter presents the results obtained from the data analysis. The fifth chapter discusses the implications of the research findings.

## CHAPTER 2

### REVIEW OF THE LITERATURE

#### Theoretical Foundations

#### *Leadership*

#### *Emergent Leadership*

The study of emergent leadership is primarily concerned with the conditions leading to the emergence of individuals as informal leaders of groups. This area of inquiry draws upon various leadership theories (e.g., trait, contingency, and behavioral) in order to investigate what prompts the emergence of leadership. Emergent leadership theory, however, is distinguishable from leadership theories in its intent to explain the emergence of leadership rather than the existence of specific kinds of leadership. Emergent leadership, therefore, shares conceptual space with leadership theories but differs in the questions it intends to answer.

#### *Background*

One of the first research efforts to consider leader emergence is the Ohio State Leadership Studies. These studies center on leadership problems in organizations and specifically address some conditions required for leader emergence (Stogdill, 1950). Despite early works in leader emergence during the 1950s (e.g., Crockett, 1955; Stogdill, 1950), emergent leadership did not appear as a formal research construct until the 1970s. Emergent leadership research of the 1970s primarily involves predicting leader emergence in various ways: utilizing contingency leadership models (e.g., Hollingsworth, Meglino, & Shaner, 1977; Rice & Chemers, 1973; Schneier, 1978),

applying motivational theory (e.g., Sorrentino, 1973), and analyzing communications (e.g., Nydegger, 1975; Sorrentino & Boutillier, 1975; Stein, 1975). With some notable exceptions (e.g., De Souza & Klein, 1995; Ellis & Cronshaw, 1992; Kalma, Visser, & Peeters, 1993; Sorrentino & Field, 1986), emergent leadership research of the 1980s and 1990s converges upon gender as a predictor of leader emergence (e.g., Dobbins, Long, Dedrick, & Clemons, 1990; Eagly & Karau, 1991; Lord, Phillips, & Rush, 1980; Kent & Moss, 1994; Wentworth & Anderson, 1984). In the 2000s, emergent leadership research includes evaluation of individual differences as predictors of leader emergence (e.g., Campbell, Simpson, & Stewart, 2003; Kickul & Neuman, 2000; Rubin, Bartels, & Bommer, 2002; Stewart, 2001), as well as, investigation of leader emergence in virtual teams (e.g., Carte et al., 2006; Simoff & Sudweeks, 2007; Tyran et al., 2003; Yoo & Alavi, 2004). This group of representative studies evidences a broad and evolving body of research on emergent leadership.

#### *Definition*

The first to use the term 'emergent leader' is Crockett (1955) who describes emergent leaders as individuals who serve in a leadership capacity without a formal designation as a group leader. Similarly, Schneider and Goktepe (1983) define emergent leaders as those who exert influence over other group members without formal authority to do so. Emergent leadership, therefore, refers to any group member who acts as an informal leader and is able to influence the actions/behaviors of other group members.



### *Assumptions*

Stogdill (1950) delineates the minimal conditions required for a leader to emerge: 1) a group must exist, 2) the group must have a common task, and 3) there must be a differentiation of responsibility. Clearly, a group leader cannot emerge unless a group exists. In addition, a leader (formal or informal) is unnecessary unless the group has a common task (i.e., goal), which requires cooperation between group members and coordination of group activities. Finally, some differences in responsibility between group members must be present; if all group members have the same responsibilities, leadership cannot exist and, thus, cannot emerge (Stogdill, 1950).

Leadership scholars tend to agree that for leadership to exist, group members must perceive such leadership as legitimate (Howell & Costley, 2006). With respect to emergent leadership, this assumption is implicit. An emergent leader is one who exerts influence over others without formal authority, and thus, group members voluntarily give informal authority to influence to an emergent leader. This requires that group members consider an individual worthy of such authority. If members of a group consider an individual worthy of informal authority and voluntarily subject themselves to this individual's influence, the group will perceive this emergent leader as legitimate.

### *Pertinent Concepts*

The totality of emergent leadership literature offers a number of factors associated with the emergence of a leader, including motivation (e.g., Sorrentino, 1973), situational/contextual influences (e.g., Schneier, 1978; Yoo & Alavi, 2004), individual differences (e.g., Kickul & Neuman, 2000), and demographic attributes (e.g., Lord et al., 1980). These few factors have the potential to induce or modify leader emergence, yet,

as Stogdill (1950) appropriately stated, “There are innumerable other group and situational factors which may influence leadership in varying degrees” (p. 4).

Individual differences, specifically differences in personality and cognitive ability, are commonly viewed as antecedents of leader emergence. Lord et al. (1986), in a meta-analysis of the relationship between individual differences and leadership perceptions, suggest that individual differences (i.e., personality characteristics and intelligence) significantly relate to leadership perceptions, hence, to leader emergence. Lord et al. (1986) invoke trait leadership theory to explain the emergence of leadership and suggest that leadership traits are more indicative of emergent leadership than leader effectiveness. Other researchers also apply the trait perspective to the emergence of a leader (e.g., Campbell et al., 2003; Judge, Bono, Ilies, & Gerhardt, 2002; Rubin et al., 2002); although, not all scholars concur with the conclusions drawn from that perspective (see Fielder, 1981, 1996).

Contextual influences also are associated with leader emergence. The most current trend in the field is the evaluation of emergent leadership in virtual teams. One approach to identifying emergent leaders in such teams is to evaluate the content and volume of communications between members (e.g., Simoff & Sudweeks, 2007; Yoo & Alavi, 2004). Another approach is to evaluate the extent to which individuals display leadership behaviors (e.g., Carte et al., 2006; Tyran et al., 2003). This later approach employs certain aspects of behavioral leadership theory in identifying the emergence of a leader. An extension of emergent leadership in virtual teams is the work of Tromp, Bullock, Steed, Sadagic, Slater, and Frecon (1998) which analyzes leadership

emergence in collaborative virtual environments where group members interact in virtual reality using avatars.

An interesting contextual element applicable to the study of emergent leadership is the idea of social identity/categorization. For example, Fielding and Hogg (1997) contemplate the relationship between emergent leadership and social identity/categorization and find that the effectiveness of an emergent leader is positively related to how prototypical of the group the leader is and find that this relationship is amplified for individuals who identify strongly with their groups. This study, and the associated underlying theory, provides a new direction for emergent leadership research. This particular direction, however, has yet to receive a significant amount of research attention.

#### *Conceptualization*

Emergent leadership is conceptualized, as the definition suggests, in terms of informal influence over others. The emergence of a leader is often evaluated in terms of the followers' perceptions; if group members perceive an individual as an informal leader, that individual is an emergent leader. Emergent leadership is also sometimes measured by the displayed leadership behavior; the group member who displays the most leadership behaviors is an emergent leader. In addition, the emergence of a leader may also be assessed in terms of contextual (i.e., contingency) factors. The individual whose leadership abilities best match the situation will likely emerge as the leader. In short, emergent leadership inherently involves the application of various leadership concepts. Although one can distinguish emergent leadership from various leadership theories, emergent leadership research ultimately must consider what a

leader is in order to identify when a leader emerges. To this end, therefore, emergent leadership research naturally incorporates various leadership theories. The preferences of the individuals conducting the research usually determine the choice of theory, and, as a result, emergent leadership research diverges with respect to the use of leadership theory. Applications of trait, contingency, and behavior leadership models all exist within the field of study. Valid arguments exist for each application, and emergent leadership research will possibly ultimately include aspects of all these leadership theories.

### *The Social Identity Perspective*

The social identity perspective is a collection of interrelated and integrative concepts that provide insights into self-conceptualization and group processes (Hogg, Abrams, Otten, & Hinkle, 2004). Often referred to only as social identity theory, the perspective actually includes numerous complementary concepts. Social identity theory is but one component of the social identity perspective that also includes self-categorization theory and other related concepts (see Hogg, 2003). The conceptual components of the social identity perspective represent different dimensions of a single overarching paradigm relevant to the study of numerous types of individual and group phenomena. The perspective traditionally focuses on intergroup processes but is equally effective in explaining intra-group processes (Hogg & Van Knippenberg, 2003). The social identity perspective is representative of the meta-theoretical framework of European social psychology from which it derives (see Hogg, 1996; Tajfel, Jaspars, & Fraser, 1984).

In general, the social identity perspective suggests that one's concept of self consists of a personal and a social identity. The personal identity consists of individual

characteristics such as cognitive abilities, personality traits, etc. The social identity is shaped by perceived salient (i.e., prominent and/or important) social classifications. Social identification is a sense of belonging to, or having affinity with, some social classification (Ashforth & Mael, 1989). People categorize themselves and others with respect to such classifications so that they may cognitively order their social environment and reduce uncertainty (Hogg, 2000). Social identification is relative and comparative (Tajfel & Turner, 1985); social identity is a definition of self and others relative to, and compared with, others in different classifications (Ashforth & Mael, 1989). Social identification is also evaluative since individuals evaluate themselves and others in terms of such classifications (Hogg & Reid, 2001).

A complete review of the social identity perspective is beyond the scope of this dissertation, though central concepts pertinent to the research receive specific attention. For an excellent overview of the social identity perspective see Abrams, Hogg, Hinkle, and Otten (2005). In addition, Hogg et al. (2004) provide a comprehensive discussion of the social identity perspective, including historical background and conceptual components. The following subsections present features of the social identity perspective that motivate this research.

### *Identification*

The concept of group identification (Tolman, 1943) is the basis for several key concepts within the social identity perspective in general and the social identity theory in particular. In fact, researchers often utilize the terms social and group identification interchangeably (e.g., Ashforth & Mael, 1989). Several ideas inherent to the concept of group identification are applicable to, and subsumed by, the social identity perspective.

Ashforth and Mael (1989) describe four principles of group identification that are germane to the social identity perspective. First, behaviors or emotions are potential antecedents or consequences of identification (Foote, 1951; Gould, 1975). Second, identification is associated with personalizing the successes and failures of the group (Foote, 1951; Tolman, 1943). Third, identification differs from internalization (Hogg & Turner, 1987). Internalization refers to the adoption of group beliefs, values, attitudes, etc. as personal (*I believe*) guiding principles; in contrast, identification refers to the sense of self (*I am*) with respect to social categories (Ashforth & Mael, 1989). Fourth, identification involves the definition of oneself with respect to a social referent. The definition of self is relative to others. The social identity perspective includes these key concepts of group identification.

### *Social Identity Theory*

The social identity perspective is rooted in social identity theory. Social identity theory itself includes some core concepts of the social identity perspective, without which the perspective is incomplete. This subsection outlines the core concepts of social identity theory and, subsequently, of the social identity perspective, which drive this research.

#### *Background*

The development of social identity theory arises from the work of Tajfel (1972, 1978, 1981, 1982; Tajfel, Billig, Bundy, & Flament, 1971; Tajfel & Turner, 1979, 1985) and Turner (1975, 1982, 1984). It has roots in group identification (Tolman, 1943), social comparison theory (Festinger, 1954), and other concepts such as intergroup relations (see Ashforth & Mael, 1989; Turner, 1975; and Hogg et al., 2004, respectively,

for further elaboration of these historical underpinnings of social identity theory). The theory stems from European social psychology but now receives research attention worldwide across a variety of disciplines (e.g., Abrams et al., 2005; Fischer & Manstead, 2004; Hogg & Reid, 2006).

### *Definition*

Tajfel (1972) defines social identity as an “individual’s knowledge that he belongs to certain social groups together with some emotional and value significance to him of this group membership” (p. 292). Ashforth and Mael (1989) describe social identification as “the perception of oneness with or belongingness to some human aggregate” (p. 21). Social identity provides people with a sense of their place in the social environment. Scott (1997) suggests that, “Social identity is best understood as one aspect of the self-concept that, along with the more idiosyncratic personal identity, provides people with an answer to the question ‘Who am I?’ ” (p. 102).

### *Assumptions*

Tajfel (1972) describes, and Turner (1975) elaborates upon, some key assumptions associated with social identity theory. Individuals tend to seek and maintain group membership only if such membership contributes to the “positive aspects” of their social identity, those providing satisfaction (Tajfel, 1972). Implicit in this assumption is the notion that when group membership no longer contributes positively to an individual’s social identity, the individual tends to leave the group.

Tajfel (1972) states, “No group lives alone – all groups in society live in the midst of other groups” (p. 293). This assumption is essential to the relative and comparative nature of social identity theory; group membership can only contribute positively to

social identity inasmuch as other group membership can contribute negatively to social identity. Finally, in order for group membership to preserve its positive contributions to one's social identity, the group must positively distinguish itself from other groups (Tajfel, 1972). Individuals can only perceive their social identity as positive in relation to the positive distinction between groups; membership in a group perceived as positively distinctive from other groups results in positive contribution to social identity. The positive or negative distinctiveness of a group influences the likelihood of an individual identifying with the group.

#### *Pertinent Concepts*

Ashforth and Mael (1989) highlight some important factors that affect the likelihood of identification. These include distinctiveness (Oakes & Turner, 1986; Tolman, 1943), prestige (Chatman, Bell, & Staw, 1986; March & Simon, 1958), out-group salience (Allen, Wilder, & Atkinson, 1983; Turner, 1981), and aspects of group formation. The positive distinctiveness of a group, relative to other groups, increases the likelihood of identification with the group. In situations in which a generalized negative distinctiveness exists, individuals may choose to interpret such distinction as specifically positive, rather than negative. Using the example "Black is beautiful," Ashforth and Mael (1989) note that a potentially negative distinctiveness (e.g., a prejudice) can be re-conceptualized by members of the classification as a positive distinction. This example underscores the perceptual nature of social identity theory. While large-scale (e.g., societal) institutionalizations (e.g., stereotypes) can influence social identity, how and to what degree they affect an individual's social identity rests



squarely upon the perceptions of that individual (albeit large-scale institutionalizations act as compelling forces upon individual perceptions).

Another factor that affects the likelihood of identification is the prestige of the group. An important motivating force behind social identification is the need for self-enhancement or self-esteem (Hogg et al., 2004). People will, therefore, tend to seek membership in groups that are more prestigious than others in order to enhance their own self-esteem (Abrams & Hogg, 1988). Prestige is different from distinctiveness. A distinctive group is not by nature a prestigious group; for example, extremists groups are certainly distinctive, but questionably prestigious. Furthermore, the motivations behind seeking membership can differ for distinctive versus prestigious groups. Individuals tend to seek membership in prestigious groups in order to enhance self-esteem, while the need to define oneself with respect to the social environment can motivate seeking membership in distinctive groups. In other words, individuals may seek membership in distinctive groups simply to establish their place in society, relative to, and different from, others.

The salience of the out-group(s) also influences the likelihood of social identification. People define themselves, partially at least, by making social comparisons between classifications to which they belong (in-group) and those they do not (out-group). The more cognizant individuals are of the differences between the in-group(s) and the out-group(s), the greater the reduction of uncertainty with respect to their social environment and identity. Reduction of uncertainty is an important motivating force behind social identification. The need for self-enhancement also drives individuals to exhibit in-group favoritism. In-group favoritism exists even within minimal groups (Billig

& Tajfel, 1973; Tajfel, 1978; Tajfel et al., 1971) and is enhanced with the awareness of the in-group. The awareness of the in-group is reinforced by the awareness of the out-group (Ashforth & Mael, 1989). The more aware individuals are of the out-group(s), the more aware they are of the in-group. Awareness of in-group and out-group distinctions promotes in-group favoritism and strengthens identification with the in-group. In sum, the more distinct the out-group(s), the more likely individuals will identify with the in-group(s).

Factors associated with group formation also can influence the likelihood of social identification. Group characteristics (e.g., homogeneity, history, goals, etc.) as well as interpersonal elements (e.g., interaction, attraction, etc.) may increase social identification. Although neither factor is necessary for social identification to occur (Ashforth & Mael, 1989), each tends to affect the formation of groups and the extent to which individuals identify with such groups.

The extent to which identification occurs is a matter of degree (Ashforth & Mael, 1989). Individuals within the same group may experience different levels of identification. One may identify with the group strongly, while another may identify with the group moderately (or weakly). The level with which one identifies with a particular classification corresponds to the extent with which that classification is part of one's self-conception (Tajfel, 1972; Turner & Haslam, 2001). For example, many Native Americans consider their heritage an important part of their identity, and thus, many strongly identify with their tribe. This relationship between self-conception and social identity is reciprocal and complementary; both influence, and are influenced by, the

other. While many Native Americans identify strongly with their tribes, some do not. This is but one example of how the strength of social identification varies in intensity.

### *Conceptualization*

Tajfel (1979) describes social identity theory as a “conceptual tripod” which includes processes related to social categorization, social identity, and social comparison. Often, the phrase “social identity theory” refers specifically to the social identity components of this conceptual tripod, but all three aspects originated under the blanket of social identity theory. As the theory evolved, however, an extension to social identity emerged with a focus upon social categorization. This extension is the self-categorization theory.

### *Self-Categorization Theory*

Self-categorization theory is an important component of the social identity perspective. The theory is a natural extension of early social identity theory and focuses upon the cognitive processes underlying how people categorize themselves and others. According to Hogg (1996), the theory is often treated as part of social cognition theory because of its focus on individual cognitive processes. As previously discussed, however, Tajfel and Turner (1979) conceptualized these processes as part of social identity theory.

### *Background*

The earlier works of Turner (1975, 1981, 1982, 1984) within the realm of social identity theory (specifically related to the social categorization component), as well as the work of others on psychological group formation and group cohesion (e.g., Festinger, 1950; French, 1941; Schachter, Ellerton, McBride, & Gregory, 1951), laid the

groundwork for his conceptualization of self-categorization theory. Turner (1985) introduced self-categorization theory, and he and others (e.g., Turner, Hogg, Oakes, Reicher, & Wetherell, 1987) developed it further. The theory is primarily concerned with the “antecedents, nature, and consequences of psychological group formation” (Turner, 1985, p. 78). Turner’s (1985) seminal work outlines numerous key concepts associated with self-categorization theory; in addition, later elaborations upon the theory provide important clarifications and extensions (e.g., Hogg, 1996; Turner & Haslam, 2001). The following subsections highlight some of the concepts that are most relevant to this research.

### *Definition*

Turner et al. (1987) describes self-categorization theory as “the social identity theory of the group” (p. ix). According to the theory, social identity “refers to social categorizations of self and others, self-categories that define the individual in terms of his or her shared similarities with members of certain categories in contrast to other social categories” (Turner & Haslam, 2001, p. 33). Within self-categorization theory, social identity is one level of categorization within a hierarchy of categorizations (Turner, 1985). The theory focuses upon the cognitive processes associated with these categorizations (Hogg, 1996). The underlying assumptions of the theory outline these processes (see Turner, 1985). The following subsection highlights some of those.

### *Assumptions*

A number of assumptions comprise Turner’s (1985) presentation of self-categorization theory. These include general assumptions that underlie the theory as

well as specific assumptions related to the theory. Below are the core assumptions specifically relevant to this research.

One fundamental assumption within self-categorization theory is that a person's concept of self is contextual (i.e., an individual's sense of identity may differ across contexts). For example, an individual's identity at work can differ from that individual's identity at home; in such cases, the contextual factors influence one's identity, resulting in different identities. Turner (1985) suggests, "particular self-concepts tend to be activated ('switched on') in specific situations producing specific self-images" (p. 95).

The theory also assumes that the cognitive self-concept manifests itself through self-categorizations within a hierarchy of classifications; self-categorization takes place at three levels of abstraction. At the superordinate level, individuals identify with others as human beings, as opposed to other forms of life (or inanimate objects). At the ingroup-outgroup categorization level, individuals identify with others in relation to social group memberships (e.g., ethnic, political, and work groups). At the subordinate level, individuals essentially identify with themselves; categorization takes place based upon individual differences between oneself and others within the same social groups. These levels of categorizations "define one's 'human,' 'social,' and 'personal' identity respectively, based upon interspecies, intergroup (intraspecies), and interpersonal (intragroup) comparisons between oneself and others" (Turner, 1985, p. 95).

### *Pertinent Concepts*

Self-categorization theory focuses upon cognitive processes associated with categorization; one such process is the use of prototypes. Hogg (1996) defines prototype as, "a subjective representation of the defining attributes (beliefs, attitudes,

behaviors, etc.) of a social category, which is actively constructed and is context dependent” (p. 231). Individuals cognitively define social categories in terms of prototypes (Hogg, 1996), and the categorization of self and others is done with respect to prototypicality. People categorize themselves and others by examining how representative (i.e., prototypical) of the category they are. For example, many people consider Al Gore an environmentalist because they perceive him as representative (i.e., prototypical) of environmentalism. Furthermore, individuals may consider themselves environmentalists because they share many of the same beliefs, values, and attitudes as Al Gore and, hence, fit the perceived prototypical characteristics of the environmentalist category. In this sense, people self-stereotype in accordance with the prototypical characteristics of social categories. Self-stereotyping may result in depersonalization.

Turner (1985) defines depersonalization as “the process of ‘self-stereotyping’ whereby people come to perceive themselves more as the interchangeable exemplars of a social category than as unique personalities defined by their differences from others” (p. 99). Depersonalization is essentially a shift from personal identity towards social identity, facilitating group phenomena (e.g., normative behaviors) (Turner, 1985). Depersonalization represents a change in level of identity (i.e., personal versus social), not a loss of identity (Turner, 1985; Hogg, 1996). In other words, depersonalization is the result of self-categorization at the ingroup-outgroup level rather than at the subordinate level; thus, the self-concept consists more of social rather than personal identity. Turner (1985) suggests that depersonalization induces group behavior. He also distinguishes depersonalization from concepts such as deindividuation.

Deindividuation is the loss of individual identity; whereas, depersonalization is a shift in level of identity. Turner and Haslam (2001) suggest that social identity salience facilitates depersonalization, which in turn, facilitates group behavior.

The concepts of prototypes and depersonalization are key elements of self-categorization theory. Both topics are particularly relevant to this research. Other elements of the theory are less relevant here but remain important aspects of self-categorization theory (For a more comprehensive description of these elements, see Turner, 1985).

### *Conceptualization*

Turner (1985) conceptualized self-categorization theory as a means to describe and explain psychological group formation and behavior. As described by Turner and Haslam (2001):

In sum, as an account of the group, the theory's key ideas are 1) that the level and kind of identity used to represent self and others vary with one's motives, values, and expectations, one's background knowledge and theories, and the social context within which comparison takes place; 2) that the salience of shared social identity leads to depersonalization of self-perception; and 3) that depersonalization produces group behavior (p. 36).

In other words, identification/categorization is situational and contextual, the prominence and/or importance of shared identity/categorization create(s) a shift from personal to social identity (i.e., depersonalization), and the result is group behavior (e.g., cohesion). Given this, while social identity theory and self-categorization theory are distinguishable (Turner, 1985; Turner et al., 1987), they also share conceptual space. Based upon this

shared conceptual space, and the European meta-theoretical approach that roots both, scholars frequently employ elements of both theories within a single theoretical framework known as the social identity perspective.

### *Applying the Social Identity Perspective*

Both social identity theory and self-categorization theory make important, and unique, contributions to the understanding of group phenomena. Arguably, any investigation of social group phenomena that relies solely upon one theory or the other is deficient. In many instances, researchers employ the social identity perspective, which considers the implications of both theories (e.g., Abrams et al., 2005; Hogg, 1996, 2001a; 2001b; Hogg et al., 2004; Hogg & Reid, 2001; Hogg & Van Knippenberg, 2003; Van Knippenberg & Hogg, 2003).

Abrams et al. (2005) apply the social identity perspective to explain the impact of anonymity upon group behavior. As previously described, depersonalization is different from deindividuation – each provides different explanations of behavior. Early deindividuation research (e.g., Zimbardo, 1969) suggests that, under conditions of anonymity, group members experience a loss of individual identity (i.e., deindividuation) that results in anti-normative behavior (e.g., rioting). This interpretation suggests that a loss of individual identity, and self-awareness, results in a subsequent loss of self-regulation. Utilizing the social identity perspective, however, another interpretation is possible. Under conditions of anonymity, and a salient social identity, group members experience a shift from personal to social identity (i.e., depersonalization), and this depersonalization facilitates group behavior, which in this case is conformity to contextual group norms (e.g., rioting). This interpretation does not imply a loss of individual identity



or a loss of self-regulation; instead, there is merely a shift towards social identity, and self-regulation manifests in conforming to group norms. The application of the social identity perspective in this manner provides an alternative explanation of group behavior. The following section describes the impact of anonymity upon group behavior, as well as the interpretation of such behavior.

### *Anonymity and Behavior*

Over a century ago, social psychology scholars, LeBon (1895/1995) and Tarde (1890/1921), theorized about the “group mind” and the influence of anonymity upon behavior. More specifically, these theorists suggest that anonymity, and the associated loss of awareness of individual identity and breakdown of norms and values, lead to collective action within crowds (Postmes, Spears, & Lea, 1999). These early theories provide the foundation for deindividuation theory.

### *Deindividuation Theory*

Deindividuation theory seeks to explain anti-normative collective behavior such as rioting and crowd violence (Postmes & Spears, 1998). Deindividuation is a psychological state of decreased self-evaluation, leading to anti-normative and disinhibited behavior (Zimbardo, 1969). Deindividuation theory suggests that anonymity induces deindividuation, and subsequently, anti-normative behavior.

### *Background*

Festinger, Pepitone, and Newcomb (1952) extended Lebon’s (1895/1995) theory and introduced the term deindividuation, but Zimbardo (1969) developed the theoretical framework for deindividuation theory. Zimbardo (1969) conducted a series of experiments designed to induce deindividuation and evaluate the relationship between

anonymity and aggression. This researcher manipulates anonymity using lab coats, hoods, nametags, and lighting conditions and induces deindividuation under certain experimental conditions. Participants administer shocks to confederates, as deemed appropriate; aggression is operationalized as the frequency and duration of shocks. The results indicate, in general, that anonymity facilitates the exhibition of anti-normative behavior. Zimbardo's (1969) seminal work established deindividuation theory and led to numerous studies that provide empirical support for the theory (e.g., Mathes & Guest, 1976; Solomon, Neiger, & Solomon, 1978; Solomon, Solomon, Arnone, Maur, Reda, & Roth, 1981).

#### *Definition*

Festinger et al. (1952) describes deindividuation as a state in which, "individuals are not seen or paid attention to as individuals" (p. 382). Zimbardo (1969) defines deindividuation as a state of decreased self-evaluation. Diener (1977) suggests that deindividuation refers to a decrease in self-awareness, and Prentice-Dunn and Rogers (1989) define deindividuation as reduced private self-awareness (as opposed to public self-awareness). Implicit in all these definitions is a decrease in the regulation of one's own behavior.

#### *Assumptions*

Zimbardo (1969) describes some other fundamental assumptions of the deindividuation theory. First, anonymity induces deindividuation. Second, deindividuation results in anti-normative behavior. These two relationships (i.e., anonymity – deindividuation, and deindividuation – behavior) are inherent assumptions of the theory because, with few exceptions (e.g., Nadler, Goldberg, & Jaffe, 1982;

Prentice-Dunn & Rogers, 1980), most deindividuation research does not include an actual measure of the deindividuated state. The majority of deindividuation research evaluates the impact of anonymity upon behavior and implicitly postulates that deindividuation mediates this relationship.

Deindividuation theory assumes that factors such as anonymity result in a loss of identity and, hence, causes disinhibited or uncontrolled behavior (Reicher, Spears, & Postmes, 1995). Prentice-Dunn and Rogers (1980) specifically refer to a loss of private self-awareness. This implies that deindividuation is a loss of personal identity (Postmes & Spears, 1998). Under conditions of anonymity, therefore, individuals lose their sense of self and engage in disinhibited behavior.

#### *Pertinent Concepts*

As is the case with its predecessor crowd theory (Le Bon, 1895/1995), deindividuation theory typically focuses upon anti-social behavior within groups. The theory considers the group an antecedent to deindividuation (Reicher et al., 1995). Mathes and Guest (1976) suggest that group membership alone facilitates anonymity. Taken together, this implies that the mere existence of a group induces anti-social behavior. As noted by several scholars (e.g., Postmes & Spears, 1998; Reicher et al., 1995), this contradicts the idea that groups produce conformity with respect to group norms (e.g., Deutsch & Gerard, 1955; Hackman, 1992; Sherif, 1936). This is indicative of a limitation within deindividuation theory; it does not allow for a normative approach to the explanation of anti-social behavior. Furthermore, deindividuation theory focuses almost exclusively upon anti-social behavior, despite Zimbardo's (1969) acknowledgement that deindividuation might result in pro-social behavior. This strict

focus upon anti-social behavior also limits the theory. Limitations such as these ultimately led researchers to seek alternative explanations for effects associated with deindividuating conditions.

### *Conceptualization*

Theorists conceptualize deindividuation theory as an explanation of anti-social behavior within crowds or groups. The theory suggests that group formation facilitates anonymity, which induces deindividuation, which, in turn, leads to anti-social behavior. According to this model, deindividuation mediates the relationship between anonymity and behavior. Unfortunately, few studies actually capture this relationship; instead, the relationship is assumed to exist. A more recent development sheds light upon the nature of this relationship, in the form of the social identity model of deindividuation effects.

### *Social Identity Model of Deindividuation Effects (SIDE)*

While many studies provide empirical evidence supporting deindividuation theory, a meta-analysis conducted by Postmes and Spears (1993, 1998) finds a body of work fraught with inconsistencies. In fact, this is evident in Zimbardo's (1969) seminal work. More specifically, one experiment utilizing college student subjects demonstrates that anonymity facilitates anti-normative behavior, while the results of another experiment, utilizing soldier subjects, contradict this. SIDE, as presented by Reicher et al. (1995), provides an explanation for such inconsistencies.

SIDE applies a social identity perspective to provide alternative explanations for the deindividuating effects associated with anonymity (Spears, Postmes, Martin, & Watt, 2001). The SIDE model suggests that anonymity induces a loss of individual identity

(deindividuation) but that a salient social identity emerges that reinforces situational group norms, and thus, leads to normative behaviors. While deindividuation theory asserts that deindividuation leads to anti-normative behavior, SIDE suggests that deindividuation can lead to increased group salience, which leads to normative behavior.

### *Background*

Reicher et al. (1995) introduce SIDE as a normative approach to explaining the effects of deindividuating conditions (often manipulated through anonymity within deindividuation research). The meta-analysis by Postmes and Spears (1998) provides evidence in support of SIDE, as opposed to deindividuation theory. Numerous other studies lend empirical support to SIDE (e.g., Barreto & Ellemers, 2002; Kugihara, 2001; Postmes et al., 1998; Postmes, Spears, Sakhel, & De Groot, 2001; Reicher & Levine, 1994), while only a few contradict SIDE (e.g., Scott, 1999).

One area of research where SIDE demonstrates significant potential is in the study of online collaboration in virtual environments. For example, Postmes and Lea (2000) conducted a meta-analysis to test the assumption that anonymity is beneficial for decision-making within group decision support systems. Their findings contradict this assumption, but they assert that the lack of attention given to the operation of social norms may explain these findings. They suggest the interaction of anonymity and social norms can influence performance; whereas, anonymity alone may have little impact. Similarly, Flannigan, Tiyaamornwong, O'conner, and Seibold (2002) suggest that SIDE provides insights into the complex processes of computer-mediated communication (CMC). Douglas and McGarty (2001) assert that SIDE may explain "flaming" (i.e.,

hostile) behaviors in CMC. These are but a few examples of the potential of SIDE for the study of virtual environments.

### *Definition*

In SIDE literature, deindividuation generally refers to a loss of personal identity. Unlike deindividuation theory, however, this 'loss' of personal identity represents a shift in identity. More specifically, conditions that bring about deindividuation produce a shift from personal to social identity (Reicher et al., 1995). Under conditions of anonymity, for example, an individual's identity is less defined in personal terms and more defined in social terms. According to SIDE, deindividuation is a loss of personal identity in favor of a social identity.

### *Assumptions*

A fundamental assumption in much of the SIDE literature is that, under conditions such as deindividuation, a salient social identity emerges, influencing individual behaviors. This assumption is a trend rather than a requirement of the SIDE research. SIDE suggests that, when a salient social identity exists, individual identity tends to be more social rather than personal in nature, and, as a result, individual behavior tends to be more normative. The model does not suggest that a salient social identity always emerges, only that when one does, normative behavior is the likely result.

### *Pertinent Concepts*

SIDE takes a normative approach to the explanation of deindividuation effects and provides explanations of inconsistent results in deindividuation research. For example, SIDE shows its explanatory power with Zimbardo's (1969) initial experiments.

Zimbardo suggests that the results of his deindividuation experiment utilizing soldier subjects are due to the nature of the subjects. More specifically, he asserts that the subjects were already deindividuated (being soldiers in uniform) and that manipulating anonymity actually tainted the experiment. An alternative explanation emerges with the SIDE model. A salient social identity may have ultimately affected the soldiers' behavior. In particular, although the soldiers were deindividuated, they strongly identified with other soldiers and, thus, engaged in less anti-normative behavior against other soldiers. This explanation illustrates the fundamental principle of SIDE and aligns with the empirical support for the model. SIDE can also explain the findings of Zimbardo's other experiment. The student subjects may not have strongly identified with other students and, hence, may have been more likely to engage in anti-normative behaviors against other students. This particular application of SIDE has yet to receive attention in the literature.

### *Conceptualization*

In the majority of SIDE literature, deindividuation is a shift from personal to social identity, although operationalization of deindividuation is not always as such. In deindividuation theory, deindividuation is a *state* of decreased self-evaluation, while in the framework of SIDE, deindividuation is a *change* in definition of identity. This complicates the evaluation of deindividuation in SIDE research and may explain the difficulty in operationalization.

### *Anonymity Construct*

Research in both deindividuation theory and SIDE typically treats anonymity as an objective and dichotomous phenomenon. The majority of these studies are

experimental in which anonymity is often an experimental condition, where it either exists or does not exist. Recent trends in research involving anonymity, however, indicate a shift toward perceptions of anonymity. More specifically, researchers now acknowledge the relevance of individual perceptions of anonymity, irrespective of “real” anonymity. For example, Scott (1998) suggests that anonymity must be considered a continuum ranging from completely anonymous to fully identifiable; Marx (1999) echoes this conceptualization. Scott also asserts that behavior depends upon the perception of anonymity more so than whether anonymity actually exists (or not). Gavish and Gerdes Jr. (1998) suggest that perceptions of anonymity are more important than actual anonymity.

While definitions of anonymity vary across studies and contexts, the majority of these relate to identifiability, or how easily an individual can be identified. Unfortunately, many definitions are context specific or do not address perceptions of anonymity. Building upon the work of Hanye and Rice (1997), however, Hite, Voelker, and Robertson (2006) define perceived anonymity as “the extent to which individuals perceive that their personal identity is unknown to others or that they are unidentifiable as an individual.” In addition, these researchers provide a valid and reliable instrument for measuring perceived anonymity.

### *Summary*

The preceding section provides the theoretical foundations for this research. The section highlights background information, definitions, assumptions, pertinent concepts, and conceptualizations with respect to emergent leadership, social identity theory, self-categorization theory, deindividuation theory, and the social identity model of



deindividuating effects. In addition, the section discusses specific elements associated with identification, the social identity perspective, and the anonymity construct. The next section builds upon these theoretical foundations, integrating and expanding upon these theories, to develop the hypotheses within this research.

## Theory and Hypotheses

### *Emergent Leadership*

#### *Personality and Leader Emergence*

The “great man” view of leadership – the notion that personality traits can explain or predict differences in leadership effectiveness – is intuitively appealing. Yet, seemingly inconsistent results from several decades of research examining the link between personality and leadership prompted many scholars to question the value of the dispositional approach (e.g., Zaccaro, Foti, & Kenny, 1991). Evidence from meta-analyses (Judge et al., 2002; Lord et al., 1986), however, suggests that such conflicting results are largely artifactual. In fact, using the five-factor model (FFM) of personality, Judge et al. (2002) find significant mean correlations between leadership and four of the Big Five personality factors: extraversion, openness to experience, neuroticism (negative), and conscientiousness.

Results from the meta-analysis by Lord et al. (1986) also provide support for the dispositional view. These researchers argue that raters’ implicit leadership theories strongly influence subjective ratings, the predominant method of assessing effectiveness; rather than effectiveness, those ratings largely reflect leader emergence – or whether others view the individual as a leader. Lord et al. conclude that, “prior research on trait theories and leadership has been misinterpreted as applying to a

leader's effect on performance, when it actually pertains to the relation of leadership traits to leadership emergence" (p. 402). Judge et al. (2002) acknowledged this distinction in their meta-analysis; they examine correlations between the FFM traits and two different leadership criteria: effectiveness and emergence. Notably, extraversion displayed a stronger correlation with leader emergence than with leader effectiveness. That interaction was the strongest correlate in the overall analysis, suggesting that, "extraversion is the most important trait of leaders" (Judge et al., p. 773).

Ensuing research on personality and leadership lends additional support for the prominent role of extraversion in leader emergence. For example, Harms, Roberts, and Wood (2007) find that extraversion predicts peer ratings of social influence. Given that emergent leadership involves informal influence over followers, and that followers voluntarily subject themselves to such influence, social influence surfaces as a prerequisite to emergent leadership. Riggio, Riggio, Salinas, and Cole (2003) report that groups tend to elect leaders who are extraverted, even when they are not socially skilled. Such findings indicate the importance of extraversion with respect to the leadership perceptions of followers. Furthermore, Smith and Canger (2004) find a relationship between high levels of extraversion and subordinate ratings of satisfaction with supervisor. Similarly, Leung and Bozionelos (2004) show that when leaders exhibit high levels of extraversion, followers perceive them as characteristic of effective leaders. More important, these researchers find that this relation generalizes across cultural boundaries (i.e., Anglo-Saxon and Confucian cultures). Finally, Paunonen, Lonqvist, Verkasalo, Leikas, and Nissinen (2006) demonstrate that people who receive higher leadership ratings from peers are generally extraverted.

Given the meta-analytic results of Judge et al. (2002) and the subsequent research relating extraversion and leadership (e.g., Paunonen et al., 2006; Riggio et al., 2003), one can expect emergent leaders to exhibit high levels of extraversion.

H1: Extraversion is positively related to leader emergence.

In addition to extraversion, meta-analysis results provide evidence that both conscientiousness and openness predict leader emergence (Judge et al., 2002). While these bivariate relationships are consistent and reliable, treating each trait as a single predictor contrasts with more holistic approaches to the study of leadership (Yukl & Van Fleet, 1992). Accordingly, Judge et al. also examine multivariate relationships among the FFM traits and leadership. Their analysis reveals that all factors except neuroticism are predictive of emergent leadership, demonstrating that the effects of individual traits can vary in the presence of other traits. It follows that the totality of personality factors may offer a more complete understanding of the relationships between personality and leader emergence than any single trait. That is, different combinations of traits potentially influence leader emergence in different ways, and specific combinations likely have greater (or lesser) influence than other combinations. This raises the important question of what constitutes an “optimal” pattern of traits for predicting leader emergence.

As noted above, the link between extraversion and leader emergence is firmly established. An optimal pattern for predicting leader emergence, therefore, will include a relatively high level of extraversion. Meta-analysis results (Judge et al., 2002), as well as recent empirical work (e.g., Leung & Bozionelos, 2004), also suggest that an optimal pattern for an emergent leader likely includes elevated levels of conscientiousness and

openness. In addition, despite inconsistent evidence for the bivariate relationship between agreeableness and leader emergence, the discernible influence of this trait in a multivariate context (Judge et al., 2002) indicates that an optimal pattern for leader emergence includes a comparatively higher degree of agreeableness. Conversely, while the effect of neuroticism is stronger in bivariate than in multivariate analyses, the sign of the relationship is consistently negative. Hence, an optimal pattern for leader emergence should include a relatively low level of neuroticism. Altogether, an optimal FFM pattern for predicting leader emergence will likely include comparatively higher levels of extraversion, conscientiousness, openness, and agreeableness, as well as, relatively lower levels of neuroticism.

H2: An optimal pattern of personality traits consisting of high levels of extraversion, conscientiousness, openness to experience, and agreeableness, and low levels of neuroticism is positively related to leader emergence.

### *Cognitive Ability and Leader Emergence*

During the earliest period of leadership research, intelligence was promptly recognized as one of the principal traits associated with leadership (Stogdill, 1948). While intelligence entails a collection of specific abilities (e.g., verbal comprehension, mathematical aptitude, etc.), a sizeable body of research demonstrates that performance across different kinds of abilities tends to be correlated (e.g., Carroll, 1993). The accepted view is that a common factor, general cognitive ability (*g*), influences measured performance when assessing those abilities, and that both traditional tests of intelligence and college admissions tests tend to reflect *g*. In addition, extensive research demonstrates that *g* is the single best predictor of job performance

(Murphy, Cronin, & Tam, 2003). Given that general cognitive ability is a predictor of job performance, and that research indicates a correlation between leader emergence and performance (e.g., De Souza & Klein, 1995), one can infer that general cognitive ability predicts leadership emergence. In fact, several studies have shown a relationship between cognitive ability and leader emergence (e.g., Atwater, Dionne, Avolio, Camobreco, & Lau, 1999; Foti & Hauenstein, 2007; Kickul & Neuman, 2000; Lord et al., 1986; Rubin et al., 2002; Smith & Foti, 1998).

H3: Cognitive ability is positively related to leader emergence.

Although evidence points to the independent influence of personality and general cognitive ability on leader emergence, the potential for interactive effects exists. Industrial and organizational psychologists, for example, commonly view job performance as an interactive function of motivation and ability. According to Vroom (1964), both low and high ability individuals will perform poorly given low motivation; whereas, differences in general cognitive ability will be more evident under high levels of motivation. Alternatively, low ability will inevitably restrict any performance differences due to motivation. Figure 1 illustrates this model (adopted from Sackett, Gruys, & Ellingson, 1998).

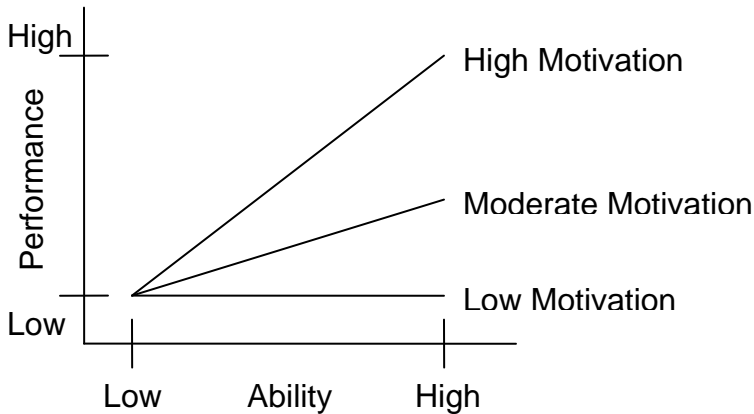


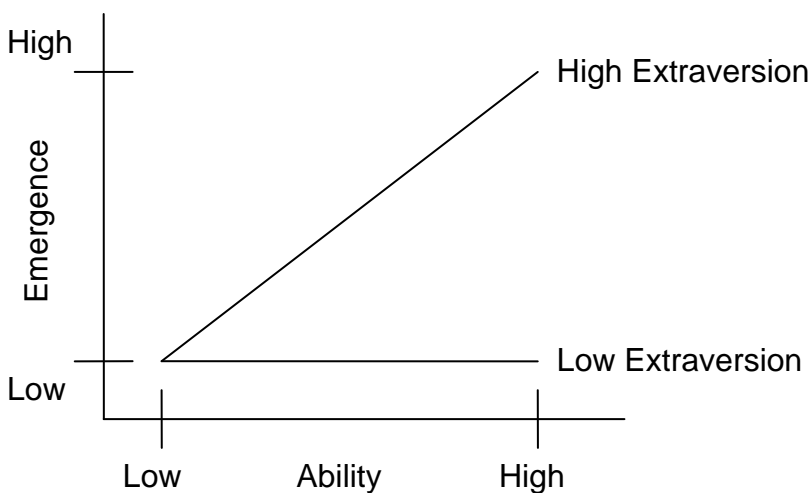
Figure 1. Performance as a function of ability and motivation.

Hollenbeck and Whitener (1988) extend such reasoning to include the influence of personality traits by inferring a direct relationship between personality and motivation. Their model suggests that job performance is a multiplicative function of ability and personality. Although several tests of the multiplicative model reveal the ability-personality interaction (e.g., Hollenbeck, Brief, Whitener, & Pauli, 1988; Lowery, Beadles, & Krilowicz, 2004; Wright, Kackmar, McMahan, & Deleeuw, 1995), the expected interaction fails to emerge in other studies (Mount, Barrick, & Strauss, 1999; Sackett et al., 1998). Thus, evidence that the relationship between personality and performance depends upon an individual's level of ability is mixed.

One can reasonably apply the interaction argument in the context of leader emergence. Previous meta-analysis results (Lord et al., 1986) and recent empirical data (Kickul & Neuman, 2000) indicate that cognitive ability and extraversion jointly account for the majority of the variance in perceptions of leadership. Furthermore, group members are less likely to perceive an individual as a leader, regardless of cognitive ability, if that person lacks a key trait like extraversion. For example, group members may not recognize an individual as a leader, even if the individual is intelligent, unless

that person is assertive within the group. At the same time, group members are unlikely to recognize an individual as a leader, even if the person is assertive within the group, if that person is not intelligent.

Both theory and research support dual arguments for moderation. First, the absence or presence of extraverted behavior may influence the relationship between leader emergence and cognitive ability. Second, higher, or lower, levels of general cognitive ability may influence the relationship between leader emergence and extraversion. Thus, the likelihood of leader emergence is a function of both cognitive ability and extraversion, as illustrated in Figure 2.



*Figure 2.* Emergence as a function of ability and extraversion.

As shown in Figure 2, leader emergence is a function of both ability and extraversion. In particular, the greatest likelihood that an individual will emerge as a leader exists only when that individual is high in both extraversion and cognitive ability. Should the individual be low in either attribute, leader emergence is less likely.

H4: Cognitive ability moderates the relationship between extraversion and leader emergence; when cognitive ability is higher, the relationship between extraversion and leader emergence is enhanced.

As suggested by Hollander & Julian (1969), and reinforced by Lord et al. (1986), followers recognize emergent leaders when these leaders conform to the followers' expectations of what constitutes a good leader (i.e., satisfy implicit leadership theories). As noted previously, empirical evidence suggests that both cognitive ability and personality affect leadership perceptions, and thus, followers expect leaders to be intelligent and to exhibit certain personality characteristics. For example, in addition to expectations of assertiveness (i.e., extraversion), followers often expect leaders to be self-disciplined (i.e., conscientious), empathetic (i.e., agreeable), and emotionally stable (i.e., not neurotic). Thus, implicit leadership theories may require a certain combination of personality traits. As in the case of extraversion, a comparable argument for moderating effects applies to the pattern of personality traits that predict leader emergence. Specifically, in the absence of intellectual ability, a relationship between personality and leader emergence is less likely to materialize. Conversely, a relationship between followers' perception of emergence and personality pattern will hold provided that the leader has some requisite level of cognitive ability. Hence, leader emergence is a function of personality pattern and cognitive ability, as illustrated in Figure 3.



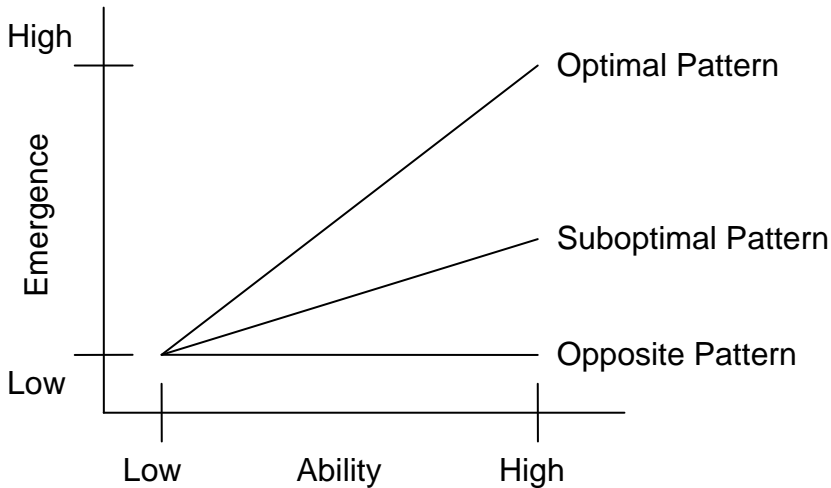


Figure 3. Emergence as a function of ability and personality pattern.

In sum, from a holistic perspective of personality, the likelihood that an individual will emerge as a leader depends upon their pattern of personality traits, their cognitive ability, and the interaction of these two dispositional factors. For example, if an individual has both the optimal personality pattern and high cognitive ability, that person is more likely to emerge as a leader than an individual with any different (i.e. suboptimal or opposite) personality pattern and high cognitive ability.

H5: Cognitive ability moderates the relationship between optimal personality pattern and leader emergence; when cognitive ability is higher, the relationship between personality pattern and leader emergence is enhanced.

#### *Behavior and Leader Emergence*

Another construct often associated with leader emergence is communication and/or participation rate. Emergent leaders generally exhibit greater rates of communication than do other group members. The correlation between emergent leaders and communication rates is well established (e.g., Bass, 1949; Morris & Hackman, 1969; Mullen, Salas, & Driskell, 1989; Stein & Heller, 1979; Yoo & Alavi,

2004). This correlation is often attributed to the exhibition of task-oriented behavior, and research supports this attribution (e.g., Stein & Heller, 1979; Yoo & Alavi, 2004).

Interestingly, the link between communication rate and leader emergence is not typically attributed to the exhibition of relationship-oriented behavior. For example, while Yoo and Alavi (2004) find significant differences in the number of task-oriented messages sent by emergent leaders, as compared to non-leaders, these researchers observe no such differences in the number of relationship-oriented messages sent by leaders and non-leaders. Similarly, while emergent leaders communicate more than other group members, they are not necessarily more socially skilled than others (Riggio et al., 2003). Such findings suggest that, while the exhibition of task-oriented messages tends to correlate with the emergence of a leader, the exhibition of relationship-oriented messages does not correlate as well.

Yoo and Alavi (2004) argue that relationship-oriented behaviors do not correlate with the emergence of a leader because all group members, not just leaders, engage in relationship-oriented behaviors. A primary function of an emergent leader is to define tasks and organize activities (i.e., engage in task-oriented behaviors), and followers tend to engage in such activities less so than leaders (Watson & Hoffman, 2004). According to Yoo and Alavi, however, all group members provide socio-emotional support for the group; all group members engage in the maintenance of the group. As a result, the exhibition of relationship-oriented behaviors does not correlate with emergent leadership, and no distinction exists between emergent leaders and followers with respect to relationship-oriented behaviors.

H6: Leader emergence is positively related to task-oriented behavior.

H7: Leader emergence is unrelated to relationship-oriented behavior.

As described herein, dispositional factors that are associated with leader emergence include personality and cognitive ability. In addition, the exhibition of task-oriented behaviors influences leader emergence. Such factors and behaviors do not, however, automatically imply that an emergent leader is effective. Leader emergence and leader effectiveness are distinct constructs (Lord et al., 1986). For example, while the exhibition of task-oriented behaviors are associated with the emergence of a leader, such behaviors do not distinguish successful from unsuccessful leaders (Korman, 1966). As suggested by Fiedler (1981), ineffective leaders are just as likely to exhibit task-oriented behaviors as effective leaders. Nygren and Levine (1996) suggest that while a relationship between emergence and effectiveness probably exists, such a relationship is likely affected by other important constructs. In fact, a growing body of literature suggests that social identity may play an important role in leader effectiveness (e.g., Abrams et al., 2005; Ellemers, De Gilder, & Haslam, 2004; Hogg, 2001b; Van Knippenberg & Hogg, 2003).

### *Identification*

#### *Leader Behavior and Identification*

Ellemers et al. (2004) propose that, “the potential of leaders or managers to communicate and create a sense of shared identity is an important determinant of the likelihood that their attempts to energize, direct, and sustain particular work-related behaviors in their followers will be successful” (p. 467). They assert that an important part of leadership within groups is the development of a group identity. These researchers, however, fail to mention any specific means by which leaders can develop

a group identity. Hence, the question of how can an emergent leader develop identification within a group arises.

Ashforth and Mael (1989) discuss several factors capable of increasing the likelihood that individuals will identify with a group. For example, aspects of group formation affect the likelihood of identification. These researchers suggest that interpersonal interaction, liking, and shared goals can increase the extent to which identification occurs. Arguably, an emergent leader is in a position to enhance these aspects of group formation, and thus, identification. If an emergent leader, for example, promotes interpersonal interaction, facilitates liking within the group, and stresses shared goals, the degree to which members identify with the group is likely to increase.

People also identify with groups to the extent that such identification provides them with satisfaction (Tajfel, 1972). The degree of identification, therefore, relates directly to the extent to which individuals derive satisfaction from group membership. An emergent leader can provide group members with satisfaction in several ways. For example, a leader can compliment followers' performance, show concern for followers, ask for input from followers, or express gratitude to followers.

Another source of satisfaction, and a fundamental motivating factor associated with identification, is self-esteem. Individuals tend to identify with groups in order to enhance their own self-esteem. For example, identification that is evaluative and comparably positive (e.g., membership in high status groups) facilitates positive self-esteem (Turner, 1981). Individuals often identify with groups to the extent that group membership makes them feel good about themselves. Based upon the role that self-esteem plays in identification and given that self-esteem is one of the psychological

reactions that leaders can stimulate in followers (Howell & Costley, 2006), an emergent leader that positively affects followers' self-esteem will, in turn, strengthen identification with the group.

Implicit in the discussion of identification and emergent leadership is the notion that leader behavior plays a role in developing group identity. Lord (1977) identifies several "socioemotionally related" or relationship-oriented leadership behaviors. These include behaviors associated with enhancing task motivation, fulfilling non-task needs of members, reducing or avoiding conflict, and developing a positive group atmosphere. Specific relationship-oriented behaviors include: stressing the importance of goals, complimenting individual task performance, showing concern for others, supporting members' self esteem, consoling others, asking for preferences, seeking consensus, resolving differences, indicating gratitude and positive affect, engaging in general courtesies, and exhibiting friendly behavior. The manifestation of such leader behaviors can potentially play a role in the development of a group identity.

An emergent leader can enhance factors typically associated with group formation, such as interpersonal interaction, liking, and shared goals, and thus amplify identification, by engaging in relationship-oriented behaviors. For example, an emergent leader can increase interpersonal interaction and liking by complimenting individual task performance. An emergent leader can also reinforce liking by showing concern for and consoling others. Furthermore, an emergent leader can magnify shared goals by stressing the importance of group goals. An emergent leader can also enhance follower satisfaction, and thus identification, by engaging in relationship-oriented behaviors. More specifically, an emergent leader can increase satisfaction by asking for

preferences, seeking consensus, and resolving differences, indicating gratitude and positive affect, engaging in general courtesies, and exhibiting friendly behavior. An emergent leader can also augment follower self-esteem, and thus identification, by engaging in relationship-oriented behaviors such as complimenting individual task performance. In sum, an emergent leader can enhance the group identity by engaging in relationship-oriented behaviors as described above.

H8: The extent to which an emergent leader demonstrates relationship-oriented behaviors is positively related to the degree to which individuals identify with their workgroup.

#### *Identification and Leader Effectiveness*

Leadership involves influence. In the case of emergent leadership, this means followers willingly subjecting themselves to the influence of an emergent leader. In an organizational setting, effective leadership also involves influencing individual followers towards the pursuit of collective (e.g., organizational) needs and goals (Chemers, 2001). Therefore, the more an emergent leader can persuade followers to put collective needs and goals ahead of their own individual needs and goals, the more effective the emergent leader is.

Ellemers et al. (2004) propose that, “circumstances that enhance a sense of shared group identity facilitate a leader’s attempts to motivate his or her followers” (p. 469). These researchers contend that leaders can better motivate followers to pursue collective goals by enhancing a group identity. Hence, the more individuals identify with their group, the more effective emergent leaders are because they are able to better motivate followers towards the pursuit of collective goals.

The relationship between identification and leader effectiveness has some empirical support within the field of study. Hogg, Martin, Epitropaki, Mankad, Svensson, and Weeden (2005), for example, find a significant correlation between group identity and leader effectiveness. More specifically, these researchers find that greater identification is associated with higher perceived leader effectiveness and satisfaction with leader, regardless of whether the leader implemented a personalized or depersonalized leadership style. Accordingly, one can expect that the degree of identification will influence the effectiveness of an emergent leader.

H9: The degree to which individuals identify with their group moderates the relationship between leader emergence and perceived leader effectiveness.

#### *Identification and Counterproductive Behavior*

Thus far, the discussion has focused on how identification influences the effectiveness of emergent leaders. Of course, the power of identification stems from its effects on group members. In this instance, identification ostensibly increases member motivation, and this facilitating influence strengthens the relationship between leader emergence and leader effectiveness. Obviously, the sense of shared identity can affect a variety of member behaviors. While increased motivation implies a class of positive behaviors conducive to group effectiveness, scholars are equally concerned with understanding and explaining behaviors detrimental to group effectiveness. In the extreme, counterproductive work behaviors like threatening others, committing physical assault, or sabotaging the work can have a direct effect on work performance (Flaherty & Moss, 2007). In addition, even relatively minor acts such as doing work incorrectly,

neglecting to communicate information, or putting forth minimal effort can impact group effectiveness (Dilchert, Ones, Davis, & Rostow, 2007).

In a group context, perceptions of individual anonymity often create deindividuation conditions in which one is less self-aware, less restrained, and less self-regulated (e.g., Le Bon, 1895/1995). Deindividuation theory suggests that deindividuated persons are predisposed to wrongdoing and anti-normative behavior (Zimbardo, 1969). However, perceived anonymity does not inevitably lead to anti-normative or counterproductive behavior (Postmes & Spears, 1993). Rather, the relationship between deindividuation and behavior depends on the degree of identification with the group and group norms (Reicher et al., 1995). Proponents of the SIDE model hold that perceived anonymity induces a loss of personal identity (deindividuation) but that a group identity emerges that reinforces situational group norms and, thus, leads to normative behavior (e.g., Postmes & Spears, 1998). In other words, under conditions of perceived anonymity, a shift from personal identity to social identity occurs (Reicher et al., 1995). In such a situation, collective needs, goals, and norms become more important than individual needs and goals, and, as a result, individuals act in ways that are beneficial to the collective – by exhibiting positive behavior and refraining from counterproductive behavior. In short, the incidence of counterproductive behavior should decrease when group members feel relatively anonymous, given members identify strongly with their group.

Conversely, in the absence of a group identity, group members are less likely to put collective needs and goals ahead of individual needs and goals. Consequently, those members are more likely to act in ways that are detrimental to the collective.



Deindividuation theory maintains that perceived anonymity induces deindividuation (loss of personal identity), which leads individuals to exhibit anti-normative or counterproductive behavior. While SIDE assumes a shift from personal to social identity, deindividuation theory makes no such assumption. Under some circumstances, perceptions of anonymity diminish the group member's sense of personal identity without any concomitant increase in group identity. In such a case, an individual member has fewer guidelines for behavior – having neither personal nor social regulatory influences – and is more likely to exhibit counterproductive behavior.

H10: The degree to which individuals identify with their group moderates the relationship between perceived anonymity and counterproductive behavior.

The significance of group identity underlies the two preceding hypotheses. As described, these hypotheses contend that identification influences the link between leader emergence and effectiveness as well as the relationship between perceived anonymity and counterproductive behaviors. In particular, the stronger the group identity, the more effective an emergent leader is and the less likely group members will engage in counterproductive behaviors. In addition, emergent leaders can increase identification through relationship-oriented behavior. Accordingly, perceived leader effectiveness is increased and occurrences of counterproductive behavior are reduced to the extent that emergent leaders enhance group identity. Arguably, these outcomes can bring about improved overall performance.

With respect to the relationship between leader effectiveness and performance, previous research implies a positive relationship (e.g., Bock et al., 2008). More often than not, leader effectiveness and performance are simply treated as equivalent

constructs. For example, Kaiser, Hogan, and Craig (2008) argue that, “leadership effectiveness should be defined and evaluated in terms of the performance of the group or team for which a leader is responsible” (p. 107). Researchers also suggest a negative relation between group member counterproductive behavior and overall performance (e.g., Flaherty & Moss, 2007). Furthermore, some researchers even consider counterproductive behavior a core dimension of performance (e.g., Jackson, Colquitt, Wesson, & Zapata-Phelan, 2006). In short, perceived leader effectiveness and counterproductive group member behavior can be construed as components of overall group performance.

#### Integrative Theoretical Model

Although the hypotheses under investigation stand alone, the key variables are clearly interrelated. The integrative model presented in Figure 4 captures these interrelationships. While an empirical test of the full model is beyond the scope of this dissertation, presenting the model helps to summarize the theoretical contributions of the study.

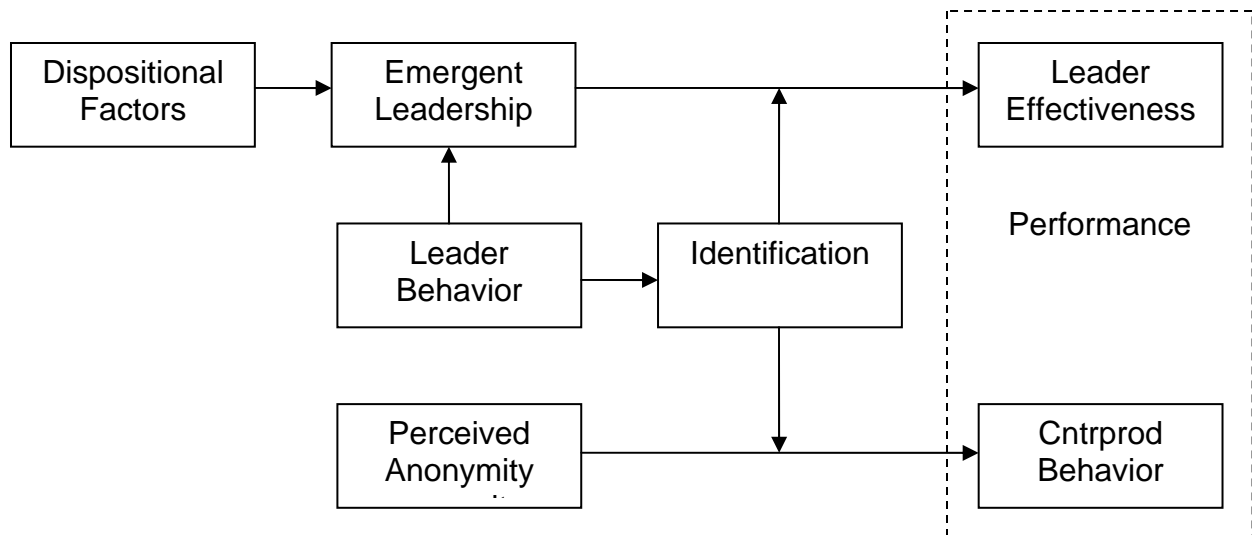


Figure 4. Integrative theoretical model.

On the one hand, dispositional factors (e.g., personality traits and cognitive ability) influence the likelihood that an individual will emerge as a leader. On the other hand, contextual factors (e.g., group identity) affect the effectiveness of the emergent leader. While the extent to which emergent leaders exhibit task-oriented behaviors can enhance their recognition and acceptance, the extent to which emergent leaders exhibit relationship-oriented behavior can enhance the group identity. Therefore, an emergent leader enhances group identity, thereby improving effectiveness and performance, by engaging in relationship-oriented behaviors. Furthermore, in the presence of perceived anonymity (contextual factor), an emergent leader that enhances group identity also reduces the occurrences of counterproductive behavior and, thus, improves group performance. In short, it is beneficial for an emergent leader to enhance the group identity by engaging in relationship-oriented behaviors.

The model presented above is not exhaustive. Arguably, no model ever is (Cook & Campbell, 1979). One could debate the possibility of additional variables and relationships. Nevertheless, examining the proposed set of hypotheses represents an

important first step toward evaluating the integrity of the model. The following chapter presents the research design and methodology for testing those hypotheses.

## CHAPTER 3

### RESEARCH METHODOLOGY

The integrative theoretical model presented in Chapter 2 illustrates how dispositional factors, such as personality traits and cognitive ability, relate to leader emergence, and how contextual factors, such as leader behavior and social identification, affect leader effectiveness, counterproductive behavior, and performance. This dissertation seeks to empirically test the hypothesized relationships derived from the integrative theoretical model and, in doing so, contribute to the theoretical development and body of empirical evidence in emergent leadership and social identity research. This chapter describes the research design and methodology employed to empirically test those hypotheses.

#### Research Design

This research employed a nonexperimental research design. By definition, variable manipulation and randomization are absent from such designs. The focal construct of this dissertation, leader emergence, manifests as a naturally occurring phenomenon. Despite threats to internal validity associated with uncontrolled variables, one cannot effectively capture the natural evolution of leader emergence and social identification through experimental manipulation. Thus, under such circumstances, a nonexperimental approach is better suited to assessing the hypothesized relationships.

#### Data Collection

Data collection for this research involved the use of survey instruments. The use of surveys is appropriate for this study because of the nature of the constructs in the theoretical model. For example, an emergent leader only exists to the extent that others

perceive a leader. Similarly, a group identity exists when group members perceive value associated with group membership. It is, therefore, necessary to capture the perceptions of individuals, and survey instruments are effective tools for accomplishing this without significant intrusion into the natural field setting.

### *Participants*

As a matter of convenience, the sample for this study included undergraduate students enrolled in online business courses, in which they interacted through workgroups, at a large southern university. While less than ideal, the use of a convenience sample of university students is appropriate for several reasons. Aside from the valid argument that students are people (see Campbell, 1986; Greenburg, 1987), the extensive use and merging of web and team-based learning in higher education establishes the University as a principal arena for using and studying workgroups in virtual classroom environments. Further, the use of a student sample aligns with the purpose of this study. Specifically, the study seeks to identify ways to improve the effectiveness of student virtual workgroups.

The sample consisted of 725 students assigned to 145 distinct groups. An a priori power analysis indicated that this sample size provided sufficient statistical power. Cohen (1988) recommends a power requirement of .80, with an alpha level of .05, and generally classifies effect sizes as small (.20), medium (.50), and large (.80). An a priori power analysis using GPOWER statistical software indicated that in order to achieve the power requirement, and detect small effects, a sample size of 200 was required.

## *Procedures*

Data collection occurred via two Web-based surveys administered at different points in time during a sixteen-week semester. Course instructors provided the student participants with hyperlinks to the online surveys. At the first data collection point, participants responded to survey items that assessed dispositional factors and gathered demographic information. This survey instrument, therefore, included measures of the personality and cognitive ability constructs. The second data collection point occurred eight weeks later, and participants responded to survey items that assessed the other constructs within the theoretical model. Hence, the second survey included measures of emergent leadership, task-related behavior, relationship-related behavior, identification, perceived anonymity, leader effectiveness, and counterproductive behavior.

## Construct Measures

### *Personality*

In this study, personality pattern is a combination of the five-factor model (FFM) dimensions. The FFM measure used in this study is a modified version of the FFM measure developed as part of the International Personality Item Pool: A Scientific Collaboratory for the Development of Advanced Measures of Personality and Other Individual Differences (<http://ipip.ori.org>). The modified measure included six items per dimension, for a total of thirty items, and is provided in Appendix A. Similar to the approach taken by Foti and Hauenstein (2007), a median split determined whether an individual was high or low on each dimension. An optimal personality pattern consisted of high ranking on the dimensions extraversion, openness, agreeableness, and conscientiousness, and a low ranking on neuroticism. The remaining combinations of

dimensions were suboptimal patterns. Based upon responses to the FFM measure, and the median split for each dimension, individual respondents were assigned personality patterns as described in the Data Analysis Plan section.

The creators of the International Personality Item Pool report reliability coefficients for the FFM measure. The original measure consists of ten items per dimension, and the reported reliability coefficients for the dimensions are .87 for extraversion, .82 for agreeableness, .79 for conscientiousness, .86 for neuroticism, and .84 for openness. A pilot test ( $n=292$ ) of the revised measure, consisting of six items per dimension, produced the following reliability coefficients: .90 for extraversion, .78 for agreeableness, .71 for conscientiousness, .87 for neuroticism, and .78 for openness. The reliability coefficients obtained for the revised measure during this study are: .86 for extraversion, .78 for agreeableness, .78 for conscientiousness, .84 for neuroticism, and .73 for openness.

### *Cognitive Ability*

Participants' self-reported SAT/ACT scores served as a measure for cognitive ability. As described in Chapter 2, both traditional tests of intelligence and college admissions tests tend to reflect general cognitive ability. In order to avoid a complete dependence upon a self-reported SAT/ACT score, and to potentially decrease any self-report bias, participants responded to the following question: "May the researcher access your... student record in order to verify test scores?" While participants were free to respond either positively or negatively to this question, the intent was to keep them honest. Participants also self-reported their GPA. Although this did not serve as a



formal measure for cognitive ability, it provided an informal way to evaluate the validity of the cognitive ability measure.

### *Emergent Leadership*

This study employed two measures of leader emergence. The first measure, a three-item scale developed by Kent and Moss (1990), asked respondents to rate demonstrated leadership ability of each group member (including themselves). Within this study, the average of the self and peer ratings provided individual leadership scores. While this approach is different from other research employing this measure (e.g., Kent & Moss, 1994; Moss & Kent, 1996), it results in a greater number of leadership scores. More specifically, if enough members of a group provided peer ratings, a leadership score could be calculated even for those that did not respond because their peers would have provided leadership ratings on them. Similar to the method employed by Yoo and Alavi (2004), the second measure of leader emergence was a voting procedure. In response to this measure, participants identified the one member who they perceived to be the group leader. The group member with the most votes, and at least 50% of the votes, was the emergent leader.

Kent and Moss (1994) report reliability coefficients of .90 and .94 for the self-reported and group-reported measures, respectively. In a separate study, Moss and Kent (1996) also report reliability coefficients of .89 and .97 for the self-reported and group-reported measures. Furthermore, these researchers also report significant correlations between this measure and other measures of emergent leadership, providing evidence of validity for the measure (Kent & Moss, 1994; Moss & Kent, 1996). The reliability coefficient obtained for the combined measure used in this study is .97.

### *Leader Behavior*

The measures for both task-oriented and relationship-oriented behaviors are based upon the work of Lord (1977). In his work, Lord identifies numerous task and relationship-oriented behaviors. Of these, seven task-oriented behaviors and seven relationship-oriented behaviors were selected for inclusion in the measure. In response to the survey items, participants indicated how often emergent leaders engaged in these behaviors.

The task-oriented and relationship-oriented behavior measures were new, and thus, required pilot testing. The results of this pilot testing ( $n=75$ ) provided reliability coefficients of .88 for the task-oriented scale, and .91 for the relationship-oriented scale. In addition, factor analysis for each scale indicated that each scale converged upon a single factor. Further, combined factor analysis indicated that the two scales sufficiently discriminated from each other. The reliability coefficients achieved in this study are .97 for the task-oriented scale and .95 for the relationship-oriented scale.

### *Leader Effectiveness*

This study employed Fielding and Hogg's (1997) measure for leader effectiveness. The measure included seven items for participants to rate the effectiveness of emergent leaders. For example, participants indicated to what degree an emergent leader "helped the group achieve its goals," "helped to motivate the group," and "was effective at influencing the group."

For their measure of leader effectiveness, Fielding and Hogg (1997) assess the reliability across two time periods. In their study, they report a reliability coefficient of .82 at time 1, and a reliability coefficient of .84 at time 2. Pilot testing ( $n=75$ ) provided a

reliability coefficient of .92 for the measure. The reliability coefficient obtained during this study is .96.

#### *Identification*

The measure for identification was adopted from Riordan and Weatherly (1999). This measure included five items associated with group identification. The measure was a self-report measure indicating to what degree an individual identified with a group. For example, the scale included the item, "It is important to me that others think highly of the group." Riordan and Weatherly (1999) report a reliability coefficient of .79 for this measure of identification. A reliability coefficient of .86 was obtained for the measure within this study.

#### *Perceived Anonymity*

The measure for perceived anonymity was developed by Hite et al. (2006). The measure included six items related to how anonymous one felt when engaged with others in their workgroups. Hite et al. report reliability coefficients of .90, .90, and .83 from three separate samples. A reliability coefficient of .90 was obtained for the measure during this study. This measure appears in Appendix A.

#### *Counterproductive Behavior*

The measure for counterproductive behavior was derived from qualitative data obtained from a sample of undergraduate students engaged in workgroups as part of their coursework. These students answered the following question, "When working with your online group, what things do other members of your group do that bother or upset you?" Sixty-five students responded, resulting in a pool of approximately ninety descriptions of counterproductive behavior, and six recurring issues emerged.

Specifically, not contributing, not communicating in a timely manner, putting things off to the last minute, lacking commitment, submitting poor quality work, and failing to do what was agreed, were all reported numerous times by students. The six-item measure for counterproductive behavior that appears in Appendix A reflected these six issues as reported by students. Pilot testing ( $n = 75$ ) for the measure indicated that the measure was reliable, demonstrating a reliability coefficient of .83. In addition, when subjected to factor analysis, all items loaded onto a single factor (3.25 eigenvalue) with loadings of .525 or greater. The measure produced a reliability coefficient of .91 during this study.

### *Control Variables*

In order to isolate and account for potential alternative explanations for the relationships investigated in this study, several control variables were included in the analysis. Aspects related to differences in course structure and requirements could potentially affect the relationships under investigation, thus controls for classes and the percentage of the total course grade accounted for by group work were included in the analyses. For example, in this study, the percentage of course grade accounted for by group work varied from zero to 30% – groups engaged in work that accounted for 30% of their grade were likely to put forth more of a team effort than groups in which group work was strictly voluntary. Further, different sized groups may interact somewhat differently, and hence, the study controlled for group size. Additionally, demographic variables (i.e. gender, age) and whether extra credit was given for participation were also controlled.

### *Scale Structure*

The majority of all the measures employed during this study utilized a seven-point Likert scale in which respondents indicated the level of agreement (ranging from strongly agree to strongly disagree) with the items within each measure. Specifically, the measures for personality, emergent leadership, leader behavior, leader effectiveness, identification, perceived anonymity and counterproductive behavior all utilized such a structure. Measures for cognitive ability (i.e. SAT score) and age involved open-ended responses, and gender was captured using a dichotomous response.

### *Data Analysis Plan*

#### *Variable Coding Issues*

For the purpose of analysis, a personality pattern variable was created that included all FFM dimensions. An individual with an optimal pattern had a personality pattern of HHHHL, corresponding to high levels of openness, conscientiousness, extraversion, and agreeableness, and a low level of neuroticism. Respondents were coded with a personality pattern based upon their responses to the FFM measure and the median split on each dimension. In contrast to a variable approach where the unit of observation is the individual difference variable, the person is the unit of observation when utilizing the pattern approach (Foti & Hauenstein, 2007). The pattern approach provides a more holistic view of a person where an individual is represented by more than simply a summation of variables (Magnusson, 1999).

The SAT underwent revisions in 2005 that changed the way the tests are scored. SAT scores prior to 2005 do not include a writing score; whereas, SAT scores of 2005

and beyond do include a writing score. The majority of self-report SAT scores were pre-2005, thus all post-2005 SAT and ACT scores were converted. The conversion chart in Appendix B allowed conversion of all scores into a standard format. Using this conversion chart, simple regression equations were created to convert post-2005 and ACT scores into pre-2005 SAT scores. For example, if an individual reported a post-2005 SAT score of 1920, this value was substituted for the variable  $x$  in the regression equation  $SAT = .667x$ , which results in a (pre-2005) SAT score of 1280. Similarly, if an individual reported an ACT score of 31, this value was substituted for  $x$  in the regression equation  $SAT = 176.313 + 39.931x$ , which results in a (pre-2005) SAT score of 1414. For analyses that required a categorical indicator of cognitive ability, a median split of the resulting SAT scores determined the categorization of participants into either high or low cognitive ability categories.

### *Summary*

This chapter described the research design and methodology employed in this dissertation. Online surveys administered to a sample of undergraduate students enrolled in business courses provided the dataset for this nonexperimental field study. All of the measures used in this research demonstrated acceptable reliability. Chapter 4 of the dissertation reports on the analysis and the results of hypothesis testing.

## CHAPTER 4

### ANALYSIS AND RESULTS

The previous chapter described the research design and methodology employed in this study. This chapter describes the procedures employed in order to prepare the data for analysis, the performance of the measures utilized, the testing of the hypotheses, and the post hoc analyses conducted. Discussion of the results is presented in Chapter 5.

#### Preliminary Analyses: Survey Process and Response Rate

As previously described, the data utilized for this study came from two online surveys administered at different points in time. Some respondents only completed the first survey. In order to test the hypotheses appropriately, the data must include responses to the second survey; thus, the responses of individuals that did not complete the second survey were removed from the data set. In all likelihood, these removed individuals include those who enrolled then later dropped.

The second survey asked respondents to indicate the percentage of face-to-face interactions in which their group engaged. Clearly, if groups engage in too much face-to-face interaction, they are not actually virtual workgroups. Since the primary focus of this study is virtual workgroups, groups that reported more than 50% face-to-face interactions were not considered virtual and were removed from the dataset.

The original sample consisted of 725 potential respondents. After removing the above-described cases, the data set consisted of 570 responses. Thus, the resulting response rate is approximately 79%.

Leadership scores were based upon group member ratings using a three-item scale. In a few instances, only one or two members of a group provided ratings. In such cases, no emergent leadership score was recorded for any member of the group. Individuals only received emergent leadership scores in situations in which at least three group members provided leadership ratings.

During the data analysis, cases with missing data were removed listwise. In fact, when missing data were detected, the associated responses were removed from the analysis. As a result, different analyses utilized different numbers of responses. The maximum and minimum number of responses utilized in any analysis is 500 and 313, respectively.

### Descriptive Statistics

Table 1 and Table 2 list the means, standard deviations, and correlations for all primary variables. All correlations listed are Pearson correlations using interval data. The following abbreviations are used in these tables: openness (O), conscientiousness (C), extraversion (E), agreeableness (A), neuroticism (N), cognitive ability (SAT), leadership score (LS), emergent leader score (ELS), task-oriented behavior (TOB), relationship-oriented behavior (ROB), leader effectiveness (LE), group member identification (GMI), perceived anonymity (PA), and counterproductive behavior (CPB).

Table 1  
*Descriptive Statistics – Part 1*

| Construct | Mean | Std Dev | O       | C       | E       | A     | N     | SAT   | LS    |
|-----------|------|---------|---------|---------|---------|-------|-------|-------|-------|
| O         | 5.48 | .775    | (.73)   |         |         |       |       |       |       |
| C         | 5.43 | .883    | .113**  | (.78)   |         |       |       |       |       |
| E         | 4.97 | 1.15    | .296**  | .105*   | (.86)   |       |       |       |       |
| A         | 5.61 | .861    | .205**  | .152**  | .212**  | (.78) |       |       |       |
| N         | 4.16 | 1.20    | -.151** | -.036   | -.159** | -.002 | (.84) |       |       |
| SAT       | 1080 | 169.70  | .050    | -.130** | -.026   | -.084 | .001  | N/A   |       |
| LS        | 4.32 | 1.36    | -.023   | .064    | .037    | .085  | .076  | -.061 | (.97) |

\*\* Significant at .01 level; \* Significant at .05 level



Table 2  
*Descriptive Statistics – Part 2*

| Construct | Mean | Std Dev | ELS     | TOB     | ROB     | LE      | GMI     | PA     | CPB   |
|-----------|------|---------|---------|---------|---------|---------|---------|--------|-------|
| ELS       | 5.77 | 1.07    | (.97)   |         |         |         |         |        |       |
| TOB       | 5.12 | 1.33    | .737**  | (.97)   |         |         |         |        |       |
| ROB       | 5.12 | 1.35    | .643**  | .841**  | (.95)   |         |         |        |       |
| LE        | 5.33 | 1.32    | .722**  | .872**  | .885**  | (.96)   |         |        |       |
| GMI       | 5.64 | 1.05    | .486**  | .547**  | .572**  | .609**  | (.86)   |        |       |
| PA        | 2.92 | 1.28    | -.158** | -.382** | -.381** | -.377** | -.359** | (.90)  |       |
| CPB       | 3.12 | 1.35    | -.287** | -.461** | -.502** | -.536** | -.399** | .337** | (.91) |

\*\* Significant at .01 level; \* Significant at .05 level

Tables 1 and 2 warrant several important observations. In Table 1, no significant correlation between personality traits or cognitive ability and leadership score occurs. With the sample size of this study, a correlation as small as .094 would have been significant (at the .05 level; two-tailed); therefore, the absence of a significant correlation is particularly extraordinary. In addition, in Table 2, the correlations between emergent leadership scores, leader behaviors, leader effectiveness, and social identity are all large (at least .486), a noteworthy occurrence. Further, perceived anonymity and counterproductive behavior are negatively correlated with emergent leadership scores, leader behaviors, leader effectiveness, and social identity.

#### Hypotheses Testing

Hypotheses 1 through 5 considered the relationship between leader emergence and individual differences in personality and ability. Hypothesis 1 proposed that extraversion was positively related to leader emergence. As shown in Table 1, the correlation between extraversion and leader emergence is not significant ( $r = .037$ ;  $p > .10$ ). Consequently, Hypothesis 1 is not supported. Similarly, the Kendall's tau correlation between leadership score and the optimal personality pattern is not significant ( $r = .055$ ;  $p > .10$ ). Thus, Hypothesis 2 – which predicted a positive association between leader emergence and optimal pattern of personality traits (i.e.,

high levels of extraversion, conscientiousness, openness, and agreeableness, and a low level of neuroticism) – is not supported. Hypothesis 3 asserted that cognitive ability is positively related to leader emergence. Correlational results (Table 1) do not support Hypothesis 3 ( $r = -.061$ ;  $p > .10$ ). Hierarchical moderated multiple regression (HRRM) analysis was performed to test Hypothesis 4 positing that leader emergence was a function of cognitive ability and extraversion. This analysis began with a base model that included only control variables, and subsequent models introduced one independent variable at a time. At each stage, the change in r-square for the model was evaluated. Table 3 provides the order that the variables were entered, as well as the results ultimately obtained. The results reveal a nonsignificant interaction between cognitive ability and extraversion ( $\beta = -.370$ ;  $p > .10$ ). In fact, none of the independent variables provided a significant change in r-square from the base model, indicating that neither direct nor interactive effects can be attributed to the independent variables. Therefore, Hypothesis 4 is not supported. Similarly, Hypothesis 5, which suggested that leader emergence was a function of cognitive ability and optimal personality pattern, was tested with hierarchical moderated multiple regression analysis. As shown in Table 4, the results indicate that a significant interaction between cognitive ability and personality pattern is absent. Further, none of the independent variables provided a significant change from the base model. Hypothesis 5 is not supported.

Table 3  
Hypothesis 4 Testing HRRM Results

| Variable                                     | b     | Std. Error | beta  | t        |
|--|-------|------------|-------|----------|
| Intercept                                    | 1.820 | 1.778      |       | 1.024    |
| % of Grade                                   | .037  | .006       | .328  | 6.168**  |
| Extra Credit                                 | -.539 | .128       | -.199 | -4.227** |
| Class  | .065  | .057       | .062  | 1.129    |
| Gender                                       | .391  | .118       | .149  | 3.304**  |
| Age  | .047  | .015       | .146  | 3.242**  |
| Group Size                                   | -.236 | .095       | -.111 | -2.467*  |
| Extraversion                                 | .409  | .324       | .363  | 1.263    |
| Cognitive Ability                            | .001  | .001       | .185  | .968     |
| Interaction Extraversion * Cognitive Ability | .000  | .000       | -.370 | -1.108   |

Model:  $R = .458$ ,  $R^2 = .210$ , Adjusted  $R^2 = .192$ ,  $F = 12.044^{**}$  ( $n=418$ ), Durbin-Watson = 1.885  
\*  $p < .05$ , \*\*  $p < .01$

Table 4  
Hypothesis 5 Testing HRRM Results

| Variable  | b     | Std. Error | beta  | t        |
|---|-------|------------|-------|----------|
| Intercept                                       | 3.874 | .740       |       | 5.234**  |
| % of Grade                                      | .037  | .006       | .330  | 6.212**  |
| Extra Credit                                    | -.539 | .128       | -.199 | -4.213** |
| Class   | .072  | .057       | .069  | 1.255    |
| Gender  | .379  | .118       | .144  | 3.205**  |
| Age   | .045  | .014       | .141  | 3.139**  |
| Group Size                                      | -.231 | .096       | -.109 | -2.412*  |
| Cognitive Ability                               | .000  | .000       | -.027 | -.567    |
| Optimal Pattern                                 | -.122 | 1.154      | -.027 | -.106    |
| Interaction Cognitive Ability * Optimal Pattern | .000  | .001       | .099  | .385     |

Model:  $R = .459$ ,  $R^2 = .210$ , Adjusted  $R^2 = .193$ ,  $F = 12.079^{**}$  ( $n=418$ ), Durbin-Watson = 1.875  
\*  $p < .05$ , \*\*  $p < .01$

Hypotheses 6 and 7 considered the relationship between leader emergence and leadership behavior. Hypothesis 6 proposed that leader emergence is positively related to task-oriented behavior. As shown in Table 2, the correlation between emergent leadership score and task-oriented behavior is significant ( $r = .737$ ;  $p < .01$ ). Hence, Hypothesis 6 is supported. The correlation between emergent leadership score and relationship-oriented behavior is significant ( $r = .643$ ;  $p < .01$ ), as shown in Table 2. Therefore, Hypothesis 7, which suggested that leader emergence is unrelated to relationship-oriented behavior, is not supported.

Hypothesis 8 asserted that the exhibition of relationship-oriented behavior by an emergent leader is positively related to the identification. As shown in Table 2, the correlation between relationship-oriented behavior and identification is positive and significant ( $r = .572$ ;  $p < .01$ ). Consequently, the data provide support for Hypothesis 8.

Hypothesis 9 predicted that identification moderates the relationship between leader emergence and perceived leader effectiveness. Initial collinearity statistics indicated large variance inflation factors for emergent leadership score, identification, and their interaction ( $VIF = 21, 18, \text{ and } 54$ , respectively); these variables exhibited multicollinearity. Therefore, standardized values of these variables were utilized during regression analysis. As shown in Table 5, hierarchical moderated multiple regression analysis results indicate that identification and leader emergence have a direct effect on leader effectiveness, but no interactive effect is present ( $\beta = .000$ ;  $p > .10$ ). The introduction of both independent variables provided significant change in the regression model, but the introduction of the interactive term did not. As a result, no moderating effect is present, and Hypothesis 9 is not supported.

Table 5  
*Hypothesis 9 Testing HRRM Results*

| Variable              | b     | Std. Error | beta  | t        | VIF   |
|-----------------------|-------|------------|-------|----------|-------|
| Intercept             | -5.78 | .314       |       | -1.841   |       |
| % of Grade            | .023  | .004       | .254  | 5.509**  | 1.834 |
| Extra Credit          | -.193 | .077       | -.095 | -2.493*  | 1.263 |
| Class                 | .062  | .032       | .082  | 1.956    | 1.524 |
| Gender                | -.130 | .069       | -.064 | -1.873   | 1.018 |
| Age                   | .010  | .006       | .064  | 1.830    | 1.051 |
| Group Size            | .001  | .054       | .001  | .028     | 1.114 |
| ELS                   | .475  | .042       | .483  | 11.270** | 1.588 |
| GMI                   | .277  | .044       | .258  | 6.262**  | 1.462 |
| Interaction ELS * GMI | .000  | .030       | .000  | -.010    | 1.309 |

Model:  $R = .806$ ,  $R^2 = .649$ , Adjusted  $R^2 = .639$ ,  $F = 62.265^{**}$  ( $n=313$ ), Durbin-Watson = 1.945  
\*  $p < .05$ , \*\*  $p < .01$

Hypothesis 10 posited that identification moderates the relationship between perceived anonymity and counterproductive behavior. Collinearity statistics indicated large variance inflation factors for perceived anonymity, identification, and their interaction ( $VIF = 29, 7, \text{ and } 25$ , respectively); thus, standardized values of these variables were utilized during regression analysis. As shown in Table 6, hierarchical moderated multiple regression analysis results indicate that both perceived anonymity and identification have a significant direct effect upon counterproductive behavior, but without a significant interactive effect ( $\beta = -.006; p > .10$ ). The introduction of both independent variables provided significant change in the regression model, but the introduction of the interactive term did not. As a result, Hypothesis 10 lacks support.

Table 6  
*Hypothesis 10 Testing HMMR Results*

| Variable             | b     | Std. Error | beta  | t        | VIF   |
|----------------------|-------|------------|-------|----------|-------|
| Intercept            | .334  | .345       |       | .970     |       |
| % of Grade           | -.029 | .004       | -.321 | -6.418** | 1.599 |
| Extra Credit         | .247  | .091       | .119  | 2.729**  | 1.215 |
| Class                | -.104 | .037       | -.137 | -2.795** | 1.527 |
| Gender               | .119  | .082       | .058  | 1.450    | 1.022 |
| Age                  | .005  | .007       | .031  | .768     | 1.047 |
| Group Size           | .016  | .057       | .011  | .275     | 1.034 |
| PA                   | .210  | .044       | .208  | 4.808**  | 1.196 |
| GMI                  | -.197 | .047       | -.197 | -4.216** | 1.391 |
| Interaction PA * GMI | -.006 | .039       | -.006 | -.157    | 1.046 |

Model:  $R = .534, R^2 = .286, \text{ Adjusted } R^2 = .272, F = 20.307^{**} (n=467), \text{ Durbin-Watson} = 1.851$   
 $** p < .01$

### Summary

This chapter presented the results of the data analysis conducted to test the hypotheses of the study. As summarized in Table 7, the data did not support Hypotheses 1-5, 7, 9, and 10 but supported Hypotheses 6 and 8. However surprising and seemingly disheartening, these results are particularly interesting for several reasons. The following chapter provides discussion of the importance of these findings.

Table 7  
*Hypothesis Testing Results*

| Hypothesis | Support | Findings  | <i>n</i> |
|------------|---------|---|----------|
| 1          | N       | Insignificant correlation                                   | 495      |
| 2          | N       | Insignificant correlation                                   | 495      |
| 3          | N       | Insignificant correlation                                   | 418      |
| 4          | N       | Insignificant main and interactive effects                  | 418      |
| 5          | N       | Insignificant main and interactive effects                  | 418      |
| 6          | Y       | .737 correlation significant at .01 level                   | 335      |
| 7          | N       | .643 correlation significant at .01 level                   | 335      |
| 8          | Y       | .572 correlation significant at .01 level                   | 500      |
| 9          | N       | Significant main effects, insignificant interactive effects | 313      |
| 10         | N       | Significant main effects, insignificant interactive effects | 467      |

## CHAPTER 5

### DISCUSSION AND CONCLUSIONS

A defining feature of this dissertation concerns the nature of emergent leadership in a virtual environment. Using a sample of virtual team members, this research first assessed the influence of dispositional and behavioral antecedents on the perception of leader emergence. Personality and cognitive ability, as well as relationship-oriented and task-oriented behaviors, are variables common to studies of leader emergence in face-to-face teams. The research also examined the role of group identity with respect to important outcomes such as team leader effectiveness and counterproductive behaviors of team members. In contrast to the antecedent variables mentioned above, research on the social identity perspective of leadership is relatively infrequent in face-to-face contexts and almost non-existent in virtual ones.

The following sections discuss the findings of this dissertation. First, tests of the dispositional perspective are discussed. This discussion underscores the differences between face-to-face and virtual environments, as well as, the implications the findings have for trait leadership theory. Next, the influence of leadership behaviors is discussed with a primary focus on the relevance of relationship-oriented behaviors in perceptions of leadership. This leads to discussion of results related to the social identity perspective. The key ideas addressed include the impact of relationship-oriented behaviors upon identification, the relationship between identification and counterproductive behavior and leader effectiveness, and the influence of perceived anonymity upon counterproductive behavior. A modified integrative theoretical model

follows the discussion. Finally, this chapter concludes with a discussion of the study limitations and suggestions for future research.

### Dispositional Perspective

As described in Chapter 2, evidence suggests that traits, such as personality and cognitive ability, are associated with leader emergence. Yet, the findings of this study contradict prior research evidence. Although potential issues such as model misspecification and measurement error can never be completely ruled out, context offers a more plausible, and a more important, explanation for such contradictory findings.

The theoretical foundations, from which the dispositional hypotheses derive, rest primarily on research involving face-to-face groups. This study tested those ideas in a virtual environment. Given the results obtained, extending notions about traits and leader emergence to virtual settings is not necessarily appropriate. In short, while traits may be associated with leader emergence in face-to-face groups, these traits do not appear to be related to leader emergence in virtual groups. What characteristics of virtual environments account for this failure to generalize from face-to-face settings? Perhaps traits do not manifest in the same manner in virtual environments as they do in face-to-face settings (Rouse & Haas, 2003). In virtual environments, non-verbal cues (Sproull & Kiesler, 1986) and shared frame of reference (Cramton, 2001) are absent, and time delays in information exchange exist (Yoo & Alavi, 2004). As a result, traits may be much more difficult to detect. As aptly expressed by others, “the visibility of a trait may vary according to the lens through which the trait is viewed,” (Funder, 1999, p. 154) “and the Internet may be a dark and hazy lens” (Rouse & Haas, 2003, p. 463).



Judge et al. (2002) state, "Extraversion represents the tendency to be sociable, assertive, active, and to experience positive affects, such as energy and zeal" (p. 767). While an individual may be able to exhibit assertiveness and action in terms of number and type of communications, how can an individual exhibit sociability, energy, and zeal in a virtual environment? The communication medium itself may inhibit the exhibition of characteristics related to extraversion and cognitive ability. To complicate the matter further, even when an individual exhibits assertiveness and action in communication, these actions do not necessarily equate to that individual being extraverted (e.g., Reid, 1998). In fact, the lack of social and contextual cues in a virtual environment (Yoo & Alavi, 2004) may facilitate atypical behavior (e.g., Joinson, 1998). For example, when online, shy or introverted persons may engage in behavior typically uncharacteristic for them (Stritzke, Nguyen, & Durkin, 2004). Specifically, an introvert may share personal details in a blog, details that would never be discussed in person, because the medium reduces the evaluation apprehension that introvert would usually feel (e.g., Scharlott & Christ, 1995).

The contextual factors inherent in a virtual environment may minimize perceived differences between extraverts and introverts (e.g., Rouse & Haas, 2003) and perceived levels of cognitive ability. Consequently, traits such as personality and cognitive ability proved to be unrelated to leader emergence in this study. Ultimately, while trait theory may provide important insights concerning leader emergence in face-to-face groups, it may lose explanatory power when applied to virtual workgroups.

In sum, the findings of this study imply that trait leadership theory is not a viable approach to predicting which members emerge as leaders in virtual workgroups.

Indeed, the link between traits and leader emergence in face-to-face workgroups is notably robust. Yet, the findings of this study demonstrate trait theory's lack of viability in virtual environment. As previously stated, given the large sample size of the study, a correlation as small as .094 would have been statistically significant. None of the correlations between any personality dimension, or cognitive ability, and leadership perceptions reached that magnitude. With the statistical power of the study, the null hypotheses would have been relatively easy to reject – but they were not rejected. This presents strong empirical evidence that traits do not relate to leader emergence in virtual workgroups.

### Leadership Behaviors

As is the case in previous studies, the results of this investigation suggest that task-oriented behavior is associated with leadership perceptions. That is, the more task-oriented behaviors an emergent leader exhibits, the more likely others will perceive that individual as a leader. Interestingly, the findings also suggest that the same can be said about relationship-oriented behaviors.

Contrary to previous research (e.g., Yoo & Alavi, 2004), the results of this study suggest that relationship-oriented behaviors are indeed associated with leadership perceptions. Specifically, the more relationship-oriented behaviors an emergent leader exhibits, the more likely others will perceive that individual as a leader. This implies that, in addition to task-oriented behaviors, relationship-oriented behaviors are incorporated into the participants' implicit leadership theories – they expect leaders to exhibit both task-oriented and relationship-oriented behaviors.

Two complementary arguments can be offered for the significance of relationship-oriented behaviors to leader emergence in this context. First, the lack of non-verbal and social cues in the virtual environment makes such behavior necessary. Indeed, in lieu of immediate feedback from non-verbal cues, such as facial expressions, followers may seek positive feedback through explicit positive communication that expresses compliments, politeness, and friendliness. In face-to-face groups, explicit expression of positive feedback may be less important because non-verbal and social cues substitute for such behavior. In contrast, the absence of such cues in virtual groups requires that leaders express positive messages explicitly. Without the explicit communication of positive feedback, individuals in a virtual environment are less likely to perceive an emergent leader as a strong leader. Further, in a virtual context, leaders may exhibit relationship-oriented behaviors in order to reassure others that they genuinely care for the welfare of the group and its members. Without such reassurance, followers may question the emergent leader's legitimacy – that is, an emergent leader establishes legitimacy by exhibiting relationship-oriented behaviors. In addition, a leader may employ relationship-oriented behaviors to develop and enhance group cohesiveness and a sense of belonging – a group social identity.

Second, today's team members may have different expectations in the virtual environment. Online social networking sites such as Facebook®, MySpace®, and Twitter® are pervasive and continue to grow in popularity. Users of these sites share various details of their lives with anyone who has access to the Internet. Similarly, users readily share their personal experiences and emotions on their homepages. Hence, when using these media, people are sharing information that, traditionally, would have

been considered 'personal' in nature and kept private. Further, regular users of these sites have become comfortable discussing their feelings openly with others, and, as a result, they may expect the same from those they consider leaders. In short, with more of their lives spent "online," today's virtual team members may be the source of an important shift in what people consider appropriate topics for discussion, and more importantly herein, what is expected of leadership.

### Social Identity Perspective

Ellemers et al. (2004) contend that it is important for leaders to develop a shared group identity in order to motivate followers. In this study, three interrelated predictions highlight the significance of shared group identity in the context of leader emergence and virtual teams. The dissertation asserts that leaders create a sense of shared identity by engaging in relationship-oriented behaviors. Findings of the dissertation support that assertion. These results complement the views of Ellemers et al. by identifying a mechanism through which leaders create and sustain a sense of shared identity. In addition to identifying an antecedent to shared group identity, this study stresses the potential moderating influence of the construct on relationships germane to team performance. However, the results fail to support the hypothesized moderating effects. Rather, group identity appears to influence both perceived leader effectiveness and counterproductive behavior directly. Importantly, increases in identification are associated with increases in the perceived effectiveness of team leaders and decreases in member counterproductive behaviors. The results support arguments that leaders can enhance a shared identity among team members and use it as a means of motivating followers and enhancing team performance.

## Leader Effectiveness and Counterproductive Behavior

By definition, leader emergence precedes leader effectiveness. After all, one must be perceived as a leader before one's effectiveness in a leadership role can be assessed. As data from the dissertation indicate, leader emergence relates positively to perceived leader effectiveness. Although the relationship seems intuitively obvious, these constructs are unique, and each depends upon leader behaviors. Empirical results reveal that task-oriented behavior and relationship-oriented behavior relate strongly to leader emergence. As argued above, in virtual environments both relationship-oriented and task-oriented behaviors likely form part of team members' implicit leadership theories. Hence, in the absence of those behaviors, members may question the leader's legitimacy. At the same time, both types of behaviors contribute directly to perceptions of leader effectiveness even after controlling for judgments of leader emergence. In the virtual environment examined in this research, leader "behavior" refers exclusively to textual discourse read and written by team members. Galeher, Sproull, and Kiesler (1998) report that contributors to online forums obtain support and demonstrate legitimacy by convincing others that their concerns are genuine and justified. By extension, virtual team leaders (emergent and effective) apparently express themselves in ways that others see as genuine and justified. Conceivably, genuineness and justification parallel the concepts of relationship-orientation and task-orientation employed in this research. In effect, genuineness is communicated through positive relationship-oriented text that compliments, thanks, or shows concern for other members. Similarly, justification is achieved by posting task-oriented messages that coordinate team activities, facilitate information exchange, and

solve problems. Ultimately, each form of textual discourse contributes to leader emergence and leader effectiveness in virtual environments.

Perceptions of anonymity have a direct and important impact upon the exhibition of counterproductive behaviors by group members. The more anonymous individuals (leaders and followers alike) feel in a virtual environment, the more likely they are to engage in counterproductive behavior. Thus, reducing any such perceptions of anonymity in virtual workgroups is important. Findings from this dissertation demonstrate decreasing occurrence of counterproductive behavior with the expression of relationship-oriented behaviors by emergent leaders. In addition to leader behavior, group members can reveal aspects of their own identities in other ways in order to diminish the sense of anonymity. For example, attaching group members' photos to every communication could lessen perceptions of anonymity. Similarly, if each group member posted a brief personal introduction, accompanied by relevant contact information, anonymity perceptions could be reduced. Another way to minimize feelings of anonymity would be to engage in face-to-face introductions before participating in online interactions; albeit, this would limit the versatility of virtual workgroups.

#### Revised Integrated Theoretical Model

The findings of this study suggest that modifications to the integrative theoretical model presented in Chapter 2 are appropriate. The lack of evidence in support of traits being associated with leader emergence suggests that these constructs be removed from the model. Further, the absence of the predicted moderating effects of social identity suggests that these relationships be represented as direct effects. Taken

together, the findings support the revised integrative theoretical model shown in Figure 5.

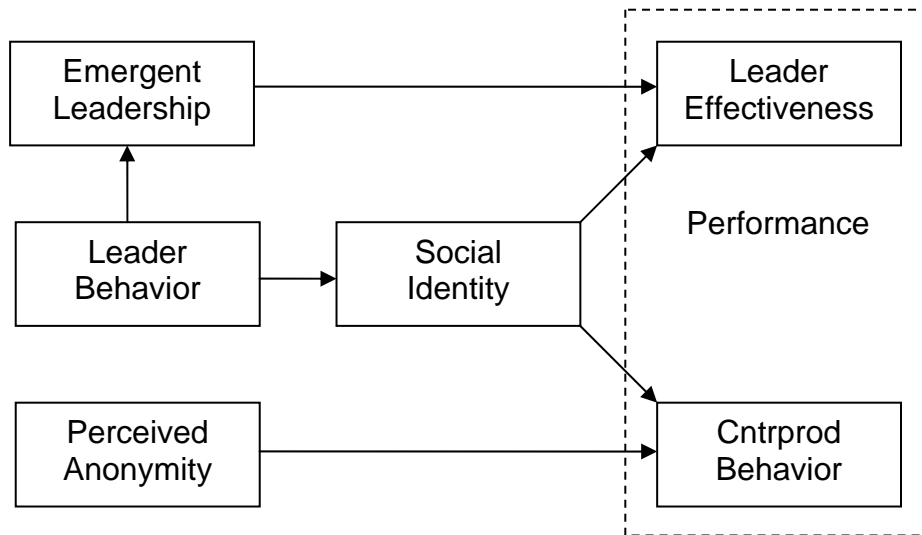


Figure 5. Revised integrative theoretical model.

#### Limitations

There are several limitations to consider with respect to the findings presented in this dissertation. The use of a convenience sample of students limits the overall generalizability of the results obtained, as does the lack of experimental controls within the study. The use of self-report surveys also limits the study in that such methods of data collection are potentially subject to common method variance, consistency motif, and/or social desirability (Podsakoff & Organ, 1986). In this study, an attempt was made to minimize consistency motif and social desirability in the survey design; Construct measurement items were intermixed (i.e., scale reordering) to avoid consistency motif, and the introduction to each survey assured respondents of their anonymity and encouraged them to provide honest and unbiased responses without fear of consequences. The most significant limitation associated with self-report surveys is common method variance. Less of a problem with respect to dispositional hypotheses

because of the use of two separate surveys to capture the associated data (i.e., separation of measurement), the common method variance remains a potential hazard with respect to the remaining hypotheses. However, given the magnitude of the correlations between the constructs of interest, it is reasonable to suggest the relationships would remain significant even if common method variance did exist. For example, even assuming that common method variance could potentially inflate correlations by as much as 30%, the lowest observed correlation (.486) would remain significant after adjusting for such inflation (.384). Therefore, while it would have been ideal to control for common method variance, the potential effects of any common method variance are unlikely to be large enough to influence the conclusions drawn in this study.

#### Future Research

Numerous possibilities for future research derive from this work. For example, given the lack of support for the dispositional perspective in virtual environments, it would be worthwhile to do a direct comparison of the predictive ability of traits in both virtual and face-to-face teams. It would be particularly interesting if, under the same conditions, traits would predict leader emergence in face-to-face groups but would not predict leader emergence in virtual workgroups. Such an investigation could provide significant insight into limitations of leadership trait theory.

Another important direction for future research is the further evaluation of the integrative theoretical model. This study was but a first step towards testing this model. Future testing should include confirmatory analysis such as structural equation modeling. In addition, experimental tests involving manipulation of variables (e.g.



identification, anonymity, etc.) within the model may be beneficial. Such testing could provide additional insights into the causal nature of these relationships as well as possible refinement of the model.

Future studies should also evaluate the relationships within the integrative theoretical model over time. These relationships will likely change over time. For example, social identification is likely to increase, and perceptions of anonymity should decrease, as group members become more familiar with each other and experience successes (or failures). Thus, future research should evaluate the effect of time upon these relationships with repeated measures and longitudinal research.

Finally, an in-depth comparison between the emergence of a single leader and the existence of shared leadership would be interesting. It would be worthwhile to evaluate the performance impact of a single leader versus the impact of leadership being shared by a number of group members. Sharing leadership responsibility might prove beneficial to certain types of workgroups – particularly virtual workgroups.

### Conclusions

One can draw several conclusions from this research. First, trait leadership theory loses explanatory power in virtual environments. While traits may play an important role in regards to leader emergence in traditional face-to-face contexts, traits are not associated with leader emergence in virtual contexts. Second, relationship-oriented behaviors play an important role in virtual workgroups. Most notably, the exhibition of such behaviors by virtual workgroup leaders enhances the group identity. In turn, higher identification increases perceptions of leader effectiveness while decreasing counterproductive behavior exhibited by group members. Thus, virtual

workgroup leaders should engage in relationship-oriented behaviors in order to enhance group identity and, ultimately, improve overall group performance. Finally, perceptions of anonymity can negatively influence virtual workgroup member behavior. In particular, the more anonymous members feel, the more likely they are to engage in counterproductive behavior. Hence, efforts should be made to reduce any such perceptions of anonymity in virtual workgroups.

In summary, this research has exposed an important limitation to the application of trait leadership theory. It has also demonstrated the importance of relationship-oriented behavior and identification in virtual contexts. Further, it advances an integrative theoretical model for the study of virtual workgroup phenomena. These contributions should assist and inform other researchers, as well as practitioners, interested in leadership and group member behavior in virtual workgroups.

APPENDIX A  
CONSTRUCT MEASURES

## *Personality*

“Please indicate your level of agreement or disagreement with each of the following statements.” (Strongly Agree, Agree, Slightly Agree, Neither Agree/Disagree, Slightly Disagree, Disagree, Strongly Disagree)

### *Openness*

1. I have a vivid imagination
2. I have excellent ideas
3. I am quick to understand things
4. I am full of ideas
5. I have difficulty understanding abstract ideas (reverse coded)
6. I do not have a good imagination (reverse coded)

### *Conscientiousness*

1. I am always prepared
2. I pay attention to details
3. I get chores done right away
4. I like order
5. I follow a schedule
6. I often forget to put things back in their proper place (reverse coded)

### *Extraversion*

1. I am comfortable around people
2. I start conversations
3. I talk to a lot of different people at parties
4. I keep in the background (reverse coded)
5. I am quiet around strangers (reverse coded)
6. I don't mind being the center of attention

### *Agreeableness*

1. I sympathize with others feelings
2. I take time out for others
3. I have a soft heart
4. I feel others emotions
5. I am not really interested in others (reverse coded)
6. I feel little concern for others (reverse coded)

### *Neuroticism*

1. I get stressed out easily
2. I worry about things
3. I am easily disturbed
4. I get upset easily
5. I change my mood a lot
6. I get irritated easily

### *Task-Oriented Behaviors*

“Please indicate the degree to which the leader of the group:” (Never, Rarely, Somewhat Rarely, Sometimes, Somewhat Often, Often, Always)

1. helped define task requirements
2. facilitated information exchange within the group
3. evaluated the ways to achieve group goals
4. developed plans for completing tasks
5. proposed solutions to problems
6. coordinated group activities
7. removed obstacles to group progress

### *Relationship-Oriented Behaviors*

“Please indicate the degree to which the leader of the group:” (Never, Rarely, Somewhat Rarely, Sometimes, Somewhat Often, Often, Always)

1. motivated group members
2. complimented group members' work
3. showed concern for individual group members
4. sought group consensus
5. developed a positive group atmosphere
6. said “please” and/or “thank you”
7. was friendly

### *Perceived Anonymity*

“Please indicate your level of agreement or disagreement with each of the following statements.” (Strongly Agree, Agree, Slightly Agree, Neither Agree/Disagree, Slightly Disagree, Disagree, Strongly Disagree)

“When interacting with my workgroup:”

1. It is difficult to identify me as an individual
2. I am confident that others do not know who I am
3. I believe that my personal identity remains unknown to others
4. I am easily identified as an individual by others (reverse coded)
5. Others are likely to know who I am (reverse coded)
6. My personal identity is known by others (reverse coded)

### *Counterproductive Behavior*

“Please indicate the extent to which members of your group:” (Never, Rarely, Somewhat Rarely, Sometimes, Somewhat Often, Often, Always)

1. simply did not contribute and/or participate
2. communicated in a timely manner (reverse coded)
3. put things off to the last minute
4. lacked commitment
5. did quality work (reverse coded)
6. failed to do what they agreed to

APPENDIX B  
SAT/ACT SCORE CONVERSION CHART

| SAT (before 2005) | SAT (after 2005) | ACT Composite |
|-------------------|------------------|---------------|
| 1600              | 2400             | 36            |
| 1560-1590         | 2340-2390        | 35            |
| 1520-1550         | 2280-2330        | 34            |
| 1480-1510         | 2220-2270        | 33            |
| 1440-1470         | 2160-2210        | 32            |
| 1400-1430         | 2100-2150        | 31            |
| 1360-1390         | 2040-2090        | 30            |
| 1320-1350         | 1980-2030        | 29            |
| 1280-1310         | 1920-1970        | 28            |
| 1240-1270         | 1860-1910        | 27            |
| 1200-1230         | 1800-1850        | 26            |
| 1160-1190         | 1740-1790        | 25            |
| 1120-1150         | 1680-1730        | 24            |
| 1080-1110         | 1620-1670        | 23            |
| 1040-1070         | 1560-1610        | 22            |
| 1000-1030         | 1500-1550        | 21            |
| 960-990           | 1440-1490        | 20            |
| 920-950           | 1380-1430        | 19            |
| 880-910           | 1320-1370        | 18            |
| 840-870           | 1260-1310        | 17            |
| 800-830           | 1200-1250        | 16            |
| 760-790           | 1140-1190        | 15            |
| 720-750           | 1080-1130        | 14            |
| 680-710           | 1020-1070        | 13            |
| 640-670           | 960-1010         | 12            |
| 600-630           | 900-950          | 11            |



APPENDIX C  
INFORMED CONSENT FORM

## Consent Notice

Before agreeing to participate in this research study, it is important that you read and understand the following explanation of the purpose and benefits of the study and how it will be conducted.

Title of Study: Effectiveness in Virtual Workgroups: Dispositional and Situational Perspectives

Principal Investigator: Dwight M. Hite, B.S., M.B.A., a Ph.D. student in the University of North Texas Department of Management

Purpose of the Study: You are being asked to participate in a research study investigating the factors that make virtual workgroups effective. This research seeks to identify factors that facilitate the effectiveness of virtual workgroups and enhance the online learning experience.

Study Procedures: You will be asked to complete a series of internet surveys during the study. These surveys will ask you about your perceptions regarding your experiences with virtual workgroups, as well as some general demographic questions. Each of the four surveys will take approximately 15 minutes to complete, and the total time you invest in participating in this study should not exceed approximately 1 hour.

Foreseeable Risks: No foreseeable risks are involved in this study.

Benefits to the Subjects or Others: This study may directly benefit you should you enroll in future online courses at UNT in which the instructors of such courses adopt practices designed to enhance the online learning experience as a result of this study. The results of this study will also likely benefit incoming UNT students who enroll in future online courses at UNT in which instructors adopt principles designed to enhance the online learning as a result of this study. This study is expected to benefit the field of organizational behavior in that the results will provide insights into factors that make virtual workgroups effective.

Procedures for Maintaining Confidentiality of Research Records: Your name will not appear in any data collected during this study. You will be asked to provide your EUID, but this will only be used to link your responses within the series of surveys. Once all the surveys are complete, the data is compiled, and your responses are linked, your EUID will be removed from the primary dataset. Your EUID will only be included with your acknowledgement of consent that will be maintained in a separate data file. With your EUID removed from the primary dataset, it will be impossible to connect any of your responses to you personally, and thus, your anonymity is maintained. As a result, no personally identifying information will ever appear in any subsequent publications or presentations associated with this research.

Questions about the Study: If you have any questions about the study, you may contact Dwight M. Hite at 940-565-3166, or the faculty advisor, Dr. Mark Davis, UNT Department of Management, at 940-565-3142.

Review for the Protection of Participants: This research study has been reviewed and approved by the UNT Institutional Review Board (IRB). The UNT IRB can be contacted at (940) 565-3940 with any questions regarding the rights of research subjects.

Research Participants' Rights: By completing and submitting this survey you indicate that you have read or have had read to you all of the above and that you confirm all of the following:

- You understand the possible benefits and potential risks and/or discomforts of the study.
- You understand that you do not have to take part in this study, and your refusal to participate or your decision to withdraw will involve no penalty or loss of rights or benefits. The study personnel may choose to stop your participation at any time.
- You understand why the study is being conducted and how it will be performed.
- You understand your rights as a research participant and you voluntarily consent to participate in this study.
- You understand that should you want a copy of this form, you should print it now by right clicking and selecting print.

Please select "Yes" below to indicate that you have read the information above.

Please enter your EUID (your myUNT/WebCT login name) below.

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