READING IT ACCURATELY:

THE ROLE OF RECEPTIVE NONVERBAL COMMUNICATION IN STUDENT LEADERSHIP ASSESSMENT

by

WILLIAM ALLEN GENTRY

(Under the Direction of Karl Kuhnert)

ABSTRACT

There are numerous theories and opinions for assessing leadership. However, studies judging receptive nonverbal communication in evaluating effective leadership are rare in number. The purpose of this study is to investigate the relationship between a measure of leadership in students, and their skill in receptive nonverbal communication. Results indicate students rating themselves higher on various leadership dimensions are also skilled at correctly identifying certain nonverbal behaviors, crucial for effective communication and in turn, successful interpersonal interaction and leadership ability.

INDEX WORDS: Student Leadership, Receptive Nonverbal Communication

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DEDICATION

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CHAPTER 1

INTRODUCTION

There is no doubt most companies and organizations desire effective leaders. According to Hirschorn (as cited in Posner & Brodsky, 1992), numerous colleges and universities, believing leadership can be learned and promoted, hold a leadership education program for their students. Consequently, colleges and universities cultivate future leaders for companies and organizations.

Recently, The Student Leadership Practices Inventory (SLPI; Posner & Brodsky, 1992) has been introduced to assess and measure student leadership potential, effectiveness, and capability. It utilizes self and observer ratings to evaluate five leadership practices:
(a) Challenging the Process; (b) Inspiring a Shared Vision; (c) Enabling Others to Act; (d) Modeling the Way; and (e) Encouraging the Heart. However, an area overlooked in assessing leadership effectiveness, especially in students, is nonverbal communication.

The total amount of nonverbal communication (NVC) in emotional interaction and interpersonal communication has been postulated to be anywhere from 65% (Birdwhistell, 1970) to 93% (Mehrabian, 1968). St. John (1985) revealed people spend 25 minutes of the day talking to others in words; the rest of communication is NVC. In addition, people not only believe nonverbal behaviors more than words, but also

concentrate on the nonverbal rather than verbal messages, especially when the verbal and nonverbal messages conflict (Burgoon, 1980; 1994; Guerrero, DeVito, & Hecht, 1999; Zahn, 1973). Burgoon (1994) foreshadowed the integral role of NVC in communication, illustrating:

> If messages are the heart of the interpersonal communication enterprise, then nonverbal cues are the arteries through which the linguistic lifeblood courses. They connect, channel, and constrain the verbal constituents. In short, nonverbal cues are an inherent and essential part of message creation (production) and interpretation (processing). (p. 239)

Despite these facts, the importance of nonverbal communication in a leadership context has been overlooked in research, and may be an area needing investigation. Leaders frequently interact and communicate face-to-face with their followers. Those most effective demonstrate proper verbal and nonverbal communication (Miller, 2000). Some of the practices essential to successful leadership, according to the SLPI, converge on interpersonal relationships. The importance of NVC in leadership, and the theory behind this line of research can be summarized in the following two sentences: People in general, and leaders specifically, must be skilled at interpersonal relationships to be effective. Those proficient at interpersonal relationships must be adept at communication, particularly nonverbal communication, especially receptive nonverbal communication. Therefore, it may seem fitting to examine whether students with higher self ratings on leadership dimensions encompassing interpersonal relationships are also more successful

in accurately identifying faces and tones of voices (i.e. receptive nonverbal communication).

Leadership

Jewell and Siegall (1990) professed that successful companies or organizations depend upon leaders' communication. Superiors communicate with subordinates to command, inform, and instruct. A company or organization is predicated upon interrelated subsystems, teams, or divisions; leaders link these subsystems, teams, or divisions with skill in sending messages crucial for success.

Several leadership theories state the importance of interpersonal relationships and communication. Studies from Ohio State and Michigan are two examples based on the style theory of leadership. According to the Ohio State studies, an important dimension in leadership is consideration "defined in terms of behaviors oriented toward concern with employee feelings, mutual trust, open communication, and respect (Jewell & Siegall, 1990, p. 415-416). The Michigan studies have a comparable communication and interpersonal relationships dimension, namely "employee-oriented" behaviors.

Other leadership theories reiterate the importance of interpersonal relationships. Some trait theorists believe a characteristic central to successful and effective leadership is sociability, "a leader's inclination to seek out pleasant social relationships...They are sensitive to others' needs...show concern for their well-being...have good interpersonal skills and create cooperative relationships with their followers" (Northouse, 2001, p. 20). Fiedler's contingency theory indicates one important variable in successful leaders is

their "need structure," whether leaders want to accomplish a task, or want to *cultivate interpersonal needs*. House's path-goal theory proposes effective leaders understand the wants, abilities, and capabilities of subordinates, with a *major focus on the interpersonal relationship* between leader and followers. Mintzberg (as cited in Riggio, 2001) described eight critical leadership skills, *four of which involve interpersonal skills*: "the ability to establish and maintain social networks with peers, the ability to deal with subordinates, skills in conflict resolution, and the ability to understand and empathize with top-level leaders" (p. 307). Transformational leadership explains leaders must be sensitive to followers' social and emotional needs, which "requires general ability to decode emotions and attitudes" (Riggio, 2001, p. 308). Finally, Robbins (2000) defines visionary leadership as "the ability to create and articulate a realistic, credible, attractive vision of the future for an organization or organization unit that grows out of and improves upon the present" (p. 144). The first quality visionary leaders must possess is proper communication skills, both verbal and nonverbal, in their words and in their behavior, to effectively communicate their vision. Summing up the importance of leaders' interpersonal skill in the leader-follower relationship, Riggio (2001) concluded:

> In summary, research on leadership has historically noted the contributions of sensitivity-related constructs to successful and effective leaders. Modern leadership theories seem to be putting even more emphasis on interpersonal skills, consistent with the trend toward more relationships-based theories of leadership...This should be a fertile area of research as measures of interpersonal

> sensitivity are refined and as leadership researchers become more aware of developments in interpersonal sensitivity research. (p. 309)

In essence, effective leaders maintain successful interpersonal relationships. However, to sustain interpersonal relationships, communication is paramount (DeVito, 1993; 2001; Giles & Street, 1994; Knapp, 1999; Wright, 1997). Successful interpersonal interaction in relationships between leaders and followers are vital to organizational achievement. But interpersonal relationships are contingent upon strong communication skills. Several studies have linked communication and leadership. Hyman (1980) estimated 66-75% of a manager's time is spent in interpersonal communication. Brock (1997) described how communication of leaders can be enhanced by knowledge of psychological types. Because different types of people are within an organization, leaders "need to communicate productively with a variety of people – both face-to-face and in writing – and using knowledge of psychological type can make them more effective" (p. 465). For instance, effective leaders must communicate differently with extraverts than introverts, sensors than intuitives, thinkers than feelers, and judgers than perceivers. Accordingly, leaders must match the energy and animation of an extraverted audience, while leave time and space for quiet reflection for an introverted audience. Likewise, leaders must exhibit facts and be practical for a sensing-thinking audience; must personalize interaction and be warm and friendly for a sensing-feeling audience; must create options and demonstrate competence for an intuition-thinking audience; and must sponsor vision and create harmony for an intuition-feeling audience. Finally, while being

spontaneous for a perceiving audience, a leader must move to closure and work to accomplish goals for a judging audience.

Orpen (1997) amplified the importance of a leader's communication in the workplace. Job satisfaction and work motivation were positively affected by the quality of leaders' communication. Consequently, job satisfaction and work motivation of highly involved managers were more affected by the timeliness, accuracy, and completeness of communication in their firm than managers not as involved in their organization.

Geddes (1992) examined union members' perception of stereotypical speech styles. While stereotypical feminine (or "powerless" style) speech is described as "tentative, unassertive, expressive, and responsive" with "qualifiers, fillers, disclaimers, tag questions, and a questioning intonation," stereotypical masculine ("powerful" style) speech is "direct, clear, precise" and brief (p. 592). The participants of this study, union members from three different unions, viewed and rated male and female managers on videotape based on gender and power speech styles. Results explained union members preferring a "mixed" speech style. In other words, they preferred female managers displaying a "powerful" speech style, and male managers exhibiting a "powerless" speech style.

The commonality of these studies is communication. The authors promoted their respective findings on the effectiveness of managers' communication skill, or more specifically, their *verbal* skill. However, two major points regarding this present study are overlooked by the literature. First, leadership studies of managers in an organizational

setting (like those reviewed above) may be different than leadership studies involving college or university students. For instance, Posner and Brodsky (1992) hinted that student leaders may be different than organizational leaders in compensation (those in college usually don't get paid to do lead groups, while those leading in an organization do), age, experience, work, and opinions about competition and objectives. Therefore, questions abound as to the validity and applicability of using measures designed for organizations to evaluate student leaders. However, for this study, use of the SLPI, designed specifically for students, is appropriate (as compared to the use of a leadership inventory designed for adults in an organization).

The second overlooked point is as follows. The studies above explained the importance of *verbal* communication. As previously stated, verbal communication is but a small portion of total interpersonal interaction (Birdwhistell, 1970; Mehrabian, 1968; St. John, 1985). A review of the literature revealed a limited number of studies involving leadership assessment and evaluation based on NVC. Therefore, it is justified to evaluate NVC in leadership assessment and more specifically, student leadership. The foundation of this research question rests with Nowicki and Duke (1994) concluding "skill in nonverbal communication is assumed to be a necessary ability for effective social interaction" (p. 10). Successful leaders must be skillful at face-to-face communication and social interaction, accurately interpreting and understanding the nonverbal expressions of their followers (Bray, 1982; Cascio, 1998; Muchinsky, 1997). Therefore, the global hypothesis behind this paper is that those with higher ratings on dimensions

emphasizing the importance of interpersonal relationships for leadership on the SLPI should successfully recognize nonverbal behavior (faces and tones of voices) of others. Consequently, a brief overview of NVC and studies linking NVC and leadership will be reviewed.

Communication and Nonverbal Communication

Leaders must be effective communicators (Brock, 1997; Geddes, 1992; Hyman, 1980; Orpen, 1997) and skilled at interpersonal interactions (Northouse, 2001; Riggio, 2001). However, to be skilled at interpersonal reactions, one must be skilled at communication, both verbal and nonverbal (DeVito, 2001; Knapp, 1999; Nowicki & Duke, 1994). Reviews of communication and NVC are discussed below.

Communication

The concept of communication encompasses many ideas and theories. For example, Fisher (1978) affirmed the existence of characteristics, models, and implications of four different perspectives of communication: mechanistic, psychological, interactional and pragmatic. However, the model of communication used for this paper will be the transactional model, discussed by Adler and Rodman (1997). Though much similar to Fisher's description of the mechanistic model of communication, the transactional model is more recent. Additionally, because of its simplicity and ease of understanding, this paper will utilize the transactional model of communication in relation to NVC.

According to Adler and Rodman (1997), communication is not linear; communication is not a one-way event starting with a sender and ending with a receiver. Nor is communication interactive; communication is not a two-way event with senders and receivers exchanging messages back and forth. Consequently, Adler and Rodman (1997) view communication as transactional, characterized by "the simultaneous sending and receiving of messages in an ongoing, irreversible process" (p. 510). There are no senders and receivers, but rather, communicators. They have the ability to receive, decode, and respond to behavior of other communicators simultaneously.

Nonverbal Communication (NVC)

Communicators receive, decode, and respond not only to words, but also to nonverbal behaviors in the transactional model of communication. Nowicki and Duke (1992) revealed six separate NVC channels. First, rhythm and the use of time include being "in sync" with others, silence and turn-taking in conversation, and respecting the time of others. The second channel is interpersonal distance (space) and touch. Hall (1966) specified four types of communication "zones" (intimate, personal, social, and public) that differ in size depending on the situation and person involved. Touch is also important; it can communicate liking, caring and affection (Mehrabian, 1981). Third, examples of objectics, according to Nowicki and Duke (1992), are the way people look (dress, cosmetics, jewelry, hairstyle), and the way people smell (perfumes and deoderants). The fourth channel is gestures and postures. While gestures include hand signals (a wave goodbye or holding up a hand to stop someone) and head nods of

affirmation and understanding, postures include the whole body. Fifth, facial expressions involve conveying emotion through the face, and eye contact. Finally, paralanguage includes tonality, volume, intensity, sounds like humming or whistling expressed in between or instead of words, and displaying emotion through tone of voice.

NVC has been used in association with several topics, many involving expressive nonverbal communication (E-NVC) defined as one person expressing, producing and sending any or all nonverbal behaviors through the six channels above, to a specified target audience (Nowicki & Duke, 1992). Examples of E-NVC are: a father smiling at his child signaling approval; a wife looking into her husband's eyes signifying eye contact and attention; a man flirting with a woman by touching her hand to convey liking; or counselors leaning forward in their chair indicating interest in what clients say.

On the other hand, there are few studies based on the counterpart to E-NVC, receptive nonverbal communication or R-NVC. While E-NVC involves a person sending nonverbal behavior to a target audience, R-NVC involves a person recognizing, understanding, and interpreting the nonverbal behaviors of his or her target audience (Nowicki & Duke, 1992). Examples of R-NVC using the aforementioned examples include: the son recognizing the father's smile as a sign of approval; the husband realizing the wife is looking into his eyes signifying she is paying attention; the woman discerning the man touching her hand means interest; or the client correctly surmising the counselor's interest because of his leaning in.

Effective communicators have accurate E-NVC and R-NVC (Burgoon, 1994; Nowicki & Duke, 1992). One must realize that there are gender differences and individual differences in E-NVC and R-NVC. In general, females are better than males are at E-NVC and R-NVC skills (Briton & Hall, 1995; Burgoon, 1994; Burgoon & Saine, 1978; Cashdan, 1998; Knapp & Hall, 1994; Payne, 2001). Aside from gender differences, some people in general express and/or read nonverbal behaviors more effectively than others. People more successful in E-NVC and R-NVC are better communicators and are better at social and emotional interactions, relationships, and social adjustment (Carton, Kessler, & Pape, 1999, Nowicki & Duke, 1994).

Barriers people may possess could hinder or impede the flow of communication, leading to unsuccessful interactions between people. Nowicki and Duke (1992) demonstrated that some people misunderstand information in expressing, receiving, or comprehending information through words, a verbal channel; some dyslexic people have difficulty reading words, others struggle producing verbal information correctly. Similarly, the authors illustrated people possessing barriers in the nonverbal domain may be labeled "dyssemic" ("dys" from the Greek for difficulty, "semes" for signs or signals) experiencing difficulty expressing, receiving, or comprehending information through nonverbal channels, obstructing the flow of communication. For instance, "a person with receptive facial dyssemia may misread a happy face as an angry one and as a result may return a smile with a frown or glare" (Nowicki & Duke, 1992, p. 19). Taking the examples from before, the child may be dyssemic if he misinterprets the father's smile as

a frown or a look of anger; the dyssemic husband may believe that his wife's eye contact is a sign of something other than attention; the dyssemic woman may think the man is a threat to her personal space when he touches her hand; the dyssmemic client would think the counselor is tired because he is leaning forward in his chair.

Applications of E-NVC and R-NVC

A tremendous amount of studies have concentrated on NVC outside a leadership context. For example, job interviews have been a major focus area with respect to E-NVC. A literature search revealed more than 50 articles combining job interviews and NVC, many involving E-NVC. A major determinant in successful job interviews was related to NVC (Cissna & Carter, 1982; DeGroot & Motowidlo, 1999; Gifford, Ng & Wilkinson, 1985; Rasmussen, 1984), including amounts of eye contact, gestures, or facial expression (specifically smiling), objectics, posture, or proper use of space and touch (Baron, 1986; Forbes & Jackson, 1980; Hickson, III & Stacks, 1993; Hollandsworth, Kazelskis, Stevens & Dressel, 1979; Imada & Hakel, 1977; Keenan, 1976; Mack & Rainey, 1990; McGovern, Jones, Warwick & Jackson, 1981; Parsons & Liden, 1984; Staneski, Kleike & Meeker, 1977; Washburn & Hakel, 1973; Wexley, Fugita & Malone, 1975).

Political leadership is another area connected with E-NVC. Voters' opinions changed because of a candidate's (un)successful nonverbal behavior in presidential (Boller, 1985) and vice-presidential debates (Toon, 1994). Also, perceptions of candidates (Maurer et al., 1993) and personal feelings and emotions of participants

(Bucy, 2000; McHugo, Lanzetta, & Bush, 1991) are linked with the nonverbal behavior of political candidates.

Though many studies associated accomplishment in job interviews or politics with success in E-NVC, a review of the literature revealed few studies connecting E-NVC and success in evaluating leadership. Those below discuss the connection between E-NVC and leadership evaluation.

Participants in the Brooks, Church, and Fraser (1986) study viewed two actors in an interview setting. Participants judged actors as leaders (rather than followers) with increased eye contact between the actor and the person they were talking to on video. Furthermore, Butler and Geis (1990) revealed the importance of eye contact in leadership perception.

Besides eye contact, Richmond and McCroskey (2000) postulated that supervisors must be clear, fluent, and articulate with their words (paralanguage) to be judged as effective and credible. They also characterized successful managers as those showing "immediacy," perceived as being cooperative, trusting, sensitive, warm, responsive and approachable. Managers show "immediacy" nonverbally through facial expression (smiling), use of space, objectics, or posture. For example, as the authors implied:

> Obviously, a hunched-over, slumped-shoulder stance does not encourage immediacy. However . . . body position with a forward lean is much more likely to encourage communication and give the perception of immediacy . . . to create immediacy, one must have a posture that suggests openness, interest, and

attention. Such postural movements are forward leaning, relaxed body position, and direct body orientation. (p. 222)

These writings obviously exemplify the importance of separate E-NVC channels in leadership. However, people do not usually concentrate on only one channel during interpersonal interactions. Rather, all channels (verbal and nonverbal) are attended to in communication. One task of personnel representatives in the McGovern and Tinsley (1978) study was rating leadership potential of participants in a videotaped mock interview. Personnel representatives appraised actors displaying "high" E-NVC (steady eye contact, varied voice modulation, appropriate affect, high energy level with hand gestures, smiles, body movement) as better communicators with more leadership potential, than those expressing "low" nonverbal behavior.

Gitter, Black and Goldman (1975) examined how overall E-NVC affects the perception of leadership. An actor delivered the same message, once as a "superior" (a "strong" E-NVC condition) another as a "subordinate" (a "weak" E-NVC condition). Only the nonverbal aspects of the dialogue differed between the two conditions (voice, gesture, and grimace). Participants of the study rated the actor on variables seen as important in leadership by Stogdill (as cited in the Gitter et. al article). Participants viewing the "superior" condition rated the actor as having "leadership" qualities such as "Bold," "Strong," "Dynamic," and "Alert." Therefore, differences in the perception of leaders were based on the actor's overall E-NVC.

Two other studies reinforced the previous finding. Participants in the Gitter, Black and Walkley (1976) study, viewed an actor either in a "strong" or "weak" E-NVC condition. Subjects viewing "strong" E-NVC perceived the actor as "exciting, bold, strong and hard; those with the weak nonverbal communication saw him as warm, informal, impressionable, and pleasant" (p. 1118). Likewise, in the Gitter, Black, and Fishman (1975) study, E-NVC was more powerful in the perception of leadership than either sex of subject, race of communicator, mode of presentation, or verbal behavior. Participants evaluated the actor in the "strong" E-NVC condition as a leader more often than those viewing the actor in the "weak" E-NVC condition.

Unfortunately, these studies do not utilize E-NVC in assessing or evaluating leadership effectiveness. The next study attempts to assess ability to identify and assess leadership based on verbal and nonverbal behaviors.

In the Stein (1975) study, a meeting of a target group (numbering 8-9 people) was videotaped. Upon conclusion of the meeting, each member of the target group rank-ordered the other members based on three leadership functions: harmony, liking, and coordination. Simultaneously, researchers calculated a fourth leadership function, participation, measuring length of time each member talked. Participants of this study, after viewing the tape, judged leadership in the target group. Ultimately, participants viewing verbal and nonverbal presentations were able to identify the leaders in the target group. Additionally, verbal and nonverbal behaviors (E-NVC) from the target group

provided enough information in observing the leadership functions of coordination, harmony, and liking, regardless of participation rates.

This study comes a step closer in utilizing NVC to evaluate leadership. For example, it goes further than the Gitter studies; participants not only perceived leadership, but also assessed leadership in a group based on E-NVC. Consequently, Stein (1975) concluded there was "direct evidence that nonverbal behaviors are useful in perceiving and choosing leaders (a finding significant for the social perception and nonverbal communications literatures as well as the leadership literature)" (p. 134). This quote established a strong basis for using NVC in leadership assessment. However, this study, as all the others, neglects receptive nonverbal communication, or R-NVC.

Purpose of Present Study and General Hypotheses

There are relatively few studies linking R-NVC with leadership, and especially student leadership assessment. Though the studies above use college students as participants, NVC and more specifically, R-NVC, have not been compared with a student leadership development instrument like the SLPI. Why should NVC of any kind be associated with student leaders? To answer this question, one must look somewhat into the future of these student leaders.

Imagine a scenario where a supervisor of an organization or company has a scheduled meeting with a subordinate. The supervisor is "dyssemic" in that he or she does not properly read the emotions from others (i.e. lack of R-NVC skills). The subordinate is happy and smiling. However, the dyssemic supervisor processes the

subordinate's look as anger. Moreover, the dyssemic supervisor misinterprets the subordinate's tone of voice as anger instead of happiness. Instead of receiving the correct nonverbal signals of happiness and contentment, the supervisor incorrectly believes the subordinate is angry. If the supervisor deems the subordinate as angry, the context of the communicative interaction (nonverbal and verbal), will be changed to hostility and confrontation because of R-NVC inaccuracy. Hence, if leaders have inept R-NVC skills (are not able to accurately receive the E-NVC of subordinates) they will display incorrect nonverbal behaviors to their subordinates (E-NVC), resulting in mixed and incongruous messages, a total breakdown in communication, and a dissolving of the quality of interaction between supervisor and subordinate, all eventually leading to low morale and ultimately, a suffering organization.

Kay and Christophel (1995) concluded that interactions of managers with subordinates are crucial to successful companies or organizations. The authors examined whether supervisors' openness in communication and nonverbal behavior would impact relationships with, and the motivation of subordinates. Norton (as cited in the Kay and Christophel study) associated communication openness with measures of extroversion, approachability, and trusting. While results demonstrated that communication openness correlated positively with motivation of employees, nonverbal behavior was not shown to have much of an impact.

However, the authors conceded that nonverbal behaviors "enhance perceptions of communication openness" (p. 204). Therefore, NVC of managers and leaders are integral

parts of communication openness, thereby aiding in the motivation of, and interaction with employees. This is a key ingredient for organizational success. Lamude, Daniels, and Smilowitz (1995) addressed the manner in which "a manager communicates with the subordinate may be more important than the content" (p.467). Thomson (1996) amplified this sentiment, stating managers must have superior skill in NVC not only to express their messages (E-NVC), but also to gauge, and realize subordinates' feelings (R-NVC). In order to display proper E-NVC, leaders, managers, and supervisors, first and foremost, must accurately "read" the nonverbal behavior of their subordinates or followers. As Hall, Gaul and Kent (1999) suggested, "If the receiver of the nonverbal message misperceives the intent of the receiver but feels he [*sic*] is accurate, then this suggests some very important ramifications for everyday interactions" (p. 769). Reiterating the importance of R-NVC, Nowicki and Duke (2001) concluded "individuals need to be proficient in identifying the emotional communications of others [R-NVC] in order to be able to interact with them successfully" (p. 183).

Knowing the ramifications of inept skill at R-NVC in an organizational context, college students should prepare themselves as future leaders in those same organizational contexts. Effective communicators, managers, and leaders need to understand and correctly judge the nonverbal behaviors of others (Knippen & Green, 1994). In order to maintain successful interpersonal relationships (such as those between leaders and followers), the ability to successfully interpret correct nonverbal behavior is essential (Andersen, 1999; Guerrero, et al., 1999; Lancelot & Nowicki, 1997; Noller 1984;

Nowicki & Duke, 1992; 1994; Spitzberg, 1999). As previously mentioned, successful leaders and managers of organizations and companies should be adept at R-NVC. Consequently, college students proficient at R-NVC will have a necessary skill to prosper as future managers and leaders in companies and organizations. The present study attempts to estimate the importance of NVC, or more specifically, R-NVC, in evaluating student leadership effectiveness. Because of the apparent disregard for R-NVC in assessing leadership, this study has great potential in possibly discovering a new skill to evaluate leadership potential in individuals.

The Diagnostic Analysis of Nonverbal Accuracy 2 (DANVA2), a standardized test of R-NVC, was used to assess R-NVC skills in participants. There are four subtests, an adult facial expression test, an adult paralanguage test, a child facial expression test, and a child paralanguage test. For this study, adult facial expression (DANVA2-AF) and adult paralanguage (DANVA2-AP) was used, which are testing the last two channels of nonverbal communication previously discussed above by Nowicki and Duke (1992). The DANVA2-AF and DANVA2-AP not only measure total overall accuracy, but also accuracy of different emotions (happy, sad, angry, and fear) and intensities (high and low).

This paper so far has tried to explain the importance of NVC in leadership. The basis of this argument, the two sentences from page 4, is stated again with evidence integrated from above for support. People in general, and more specifically, effective leaders, must be skilled at interpersonal relationships which several leadership theories

(Ohio State and Michigan studies, Fiedler's contingency theory, House's path-goal theory, transformational and visionary leadership) demonstrate. Those proficient at interpersonal relationships must also be adept at communication, (Brock, 1997; DeVito, 1993; 2001; Geddes, 1992; Giles & Street, 1994; Kay & Christophel, 1995; Knapp, 1999; Orpen, 1997; Wright, 1997) particularly NVC, (Burgoon, 1994; Carton, Kessler, & Pape, 1999; Nowicki & Duke, 1992; 1994; Stein, 1975) especially R-NVC (Andersen, 1999; Guerrero, et al., 1999; Lancelot & Nowicki, 1997; Noller 1984; Nowicki & Duke, 1992; 1994; 2001; Spitzberg, 1999; Thomson, 1996). With the rationale in place, the next step is to test this theory. The hypotheses for this paper are discussed below.

Specific Hypotheses

Individual differences in R-NVC should be related to leadership potential, especially leadership dimensions subsumed in interpersonal relationships. The discussion below highlights the five leadership practices of the SLPI, giving reasons why the dimensions may involve or may not encompass interpersonal relationships. Below are the five leadership practices of the SLPI (Kouzes, & Posner, 1998):

1. Challenging the Process involves searching for opportunities and experimenting and taking risks. "Leaders seek and accept challenging opportunities to test their abilities and look for innovative ways to improve the organization" (p. 11). Leaders are symbolized as pioneers, experimenters, and risk-takers. With new and innovative ideas aimed at improvement, leaders gather information from all perspectives, willing to confront the status quo, ensuring to the best of their ability ideas for

improvement are embraced by all. Because leaders are not always successful in challenging the status quo with new and innovative ideas, they learn from their mistakes. Item examples for this dimension from the SLPI include "I look for opportunities that challenge my skills and abilities" and "I keep current on events and activities that might affect our organization."

"Challenging the Process" deals more with the internal disposition or traits of a leader than with interpersonal relationships. As previously stated, qualities like risk-taker, experimenter, and pioneer describe the leaders of this dimension. These internal dispositions or traits do not directly entail communicating with others. For these reasons, "Challenging the Process" is not a leadership dimension concerning interpersonal relationships.

2. Inspiring a Shared Vision demands envisioning an uplifting future and enlisting others in a common vision. Because leaders can be described as pioneers, they need a vision to lead followers and the organization through unknown territories. By formulating a bright future, leaders create a fervor and passion for that vision. However, the vision must be communicated to others "by appealing to their values, interests, hopes, and dreams, so that others clearly understand and accept the vision as their own" (p. 12). Only by knowing others, their needs and their interests, can these dreams become reality. Item examples of this dimension include "I describe to others in our organization what we should be capable of accomplishing" and "I look ahead and communicate about what I believe will affect us in the future."

Interpersonal relationships have a hand in the leadership dimension, “Inspiring a Shared Vision.” Leaders cannot communicate their dreams without people listening. Moreover, leaders cannot progress without knowing the interests, feelings, and needs of their followers. Because leaders have to know their followers’ needs, and because they need to communicate their dreams for others to accept and embrace them, interpersonal relationships are an important part of “Inspiring a Shared Vision.”

3. Enabling Others to Act concerns the ability to strengthen others and foster collaboration. Leaders cannot do everything by themselves; leaders need help from others to accomplish goals. While building groups based on trust and respect, leaders empower others to become leaders. Leaders do not accomplish everything on their own. Rather, they assign critical tasks to followers, trusting them to finish assignments. Item examples for this leadership dimension include “I include others in planning the activities and programs of our organization” and “I treat others with dignity and respect.”

Leaders “Enabling Others to Act” interact with others on a personal basis. The only way leaders can empower others, give responsibilities, and recognize achievements, is to know and relate with others on a personal level. Because of this personal involvement “Enabling Others to Act” is a leadership dimension encompassing interpersonal relationships and interaction.

4. Modeling the Way includes setting examples and achieving small wins. Leaders have high standards, principles, and values espoused not only by leaders but also by their followers and organizations. Leaders stand up for their credible beliefs. In short,

leaders are role models. Additionally, leaders break huge problems into smaller, manageable pieces. Said differently, leaders need a detailed plan to fulfill their dreams. Item examples of this leadership dimension include "I share my beliefs about how things can be run most effectively within our organization" and "I break our organization's projects down into manageable steps."

"Modeling the Way" revolves more around the personal disposition of a leader and the task at hand. Leaders need to be role models, and must think and plan ahead. On the surface, being a good role model and focusing on task-oriented behaviors are not representative of interpersonal relationships. For these reasons, "Modeling the Way" is not a leadership dimension ensconced in interpersonal relationships.

5. Encouraging the Heart encompasses recognition of individual contributions and celebrating team accomplishments. Dreams and goals are very hard to accomplish. People may lose hope. However, to keep morale high, leaders must visibly recognize hard work and successfully completed projects. Leaders "provide people with clear direction, substantial encouragement, personal attention, and meaningful feedback" (p. 14). Item examples for this dimension include "I encourage others as they work on activities and programs in our organization" and "I make sure that people in our organization are recognized for their contributions."

Interpersonal relationships are a hallmark of the leadership dimension, "Encouraging the Heart." Kouzes and Posner (1998) amplify leaders, exemplary at

"Encouraging the Heart" as those cultivating high quality interpersonal relationships and promoting productivity.

In summary, interpersonal relationships are believed to compose some part of the dimensions "Inspiring a Shared Vision," "Enabling Others to Act," and "Encouraging the Heart." Consequently, those with higher self ratings on the three aforementioned SLPI dimensions involving interpersonal relationship should also be more successful (commit fewer errors) on the two DANVA2 subtests to be used. Based on the above explanations, the following hypotheses are as follows:

Hypothesis 1A: The higher the self rating on the dimension "Inspiring a Shared Vision" of the SLPI, the higher the participant's score on the DANVA2-AF.

Hypothesis 1B: The higher the self rating on the dimension "Inspiring a Shared Vision" of the SLPI, the higher the participant's score on the DANVA2-AP.

Hypothesis 2A: The higher the self rating on the dimension "Enabling Others to Act" of the SLPI, the higher the participant's score on the DANVA2-AF.

Hypothesis 2B: The higher the self rating on the dimension "Enabling Others to Act" of the SLPI, the higher the participant's score on the DANVA2-AP.

Hypothesis 3A: The higher the self rating on the dimension "Encouraging the Heart" of the SLPI, the higher the participant's score on the DANVA2-AF.

Hypothesis 3B: The higher the self rating on the dimension "Encouraging the Heart" of the SLPI, the higher the participant's score on the DANVA2-AP.

On the surface, interpersonal relationships are not part of the other two dimensions of the SLPI, namely "Challenging the Process" and "Modeling the Way." Therefore:

Hypothesis 4A: Results of the DANVA2-AF should not be significantly related to the self rating on the dimension "Challenging the Process" of the SLPI.

Hypothesis 4B: Results of the DANVA2-AP should not be significantly related to the self rating on the dimension "Challenging the Process" of the SLPI.

Hypothesis 5A: Results of the DANVA2-AF should not be significantly related to the self rating on the dimension "Modeling the Way" of the SLPI.

Hypothesis 5B: Results of the DANVA2-AP should not be significantly related to the self rating on the dimension "Modeling the Way" of the SLPI.

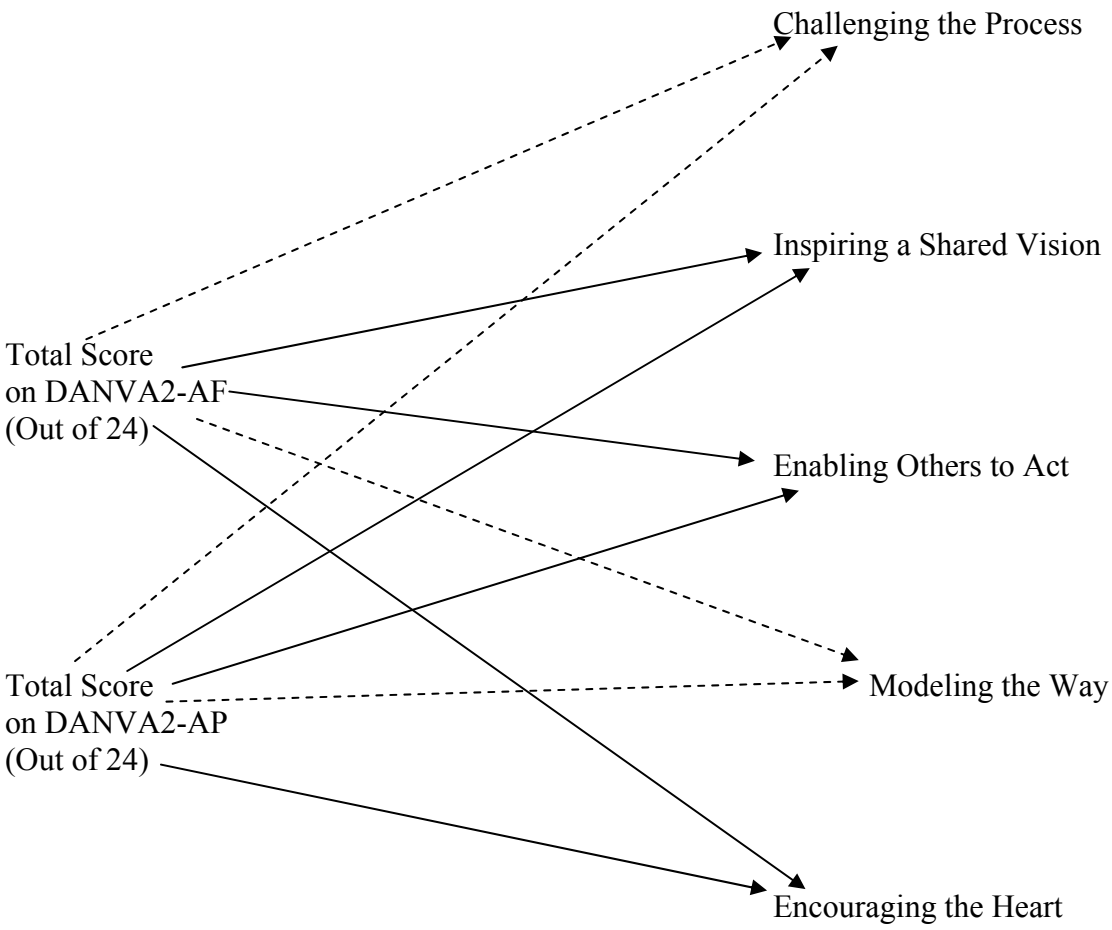
Additionally, there are gender differences in NVC. Women tend to be better at E-NVC and R-NVC when compared to men (Briton & Hall, 1995; Burgoon, 1994; Cashdan, 1998). S. Nowicki (personal communication, January 10, 2002) suggested when gender differences on the DANVA2 subtests are present, they usually favor women. Additionally, from Appendix A, females tend to score higher on the SLPI then males. For these reasons:

Hypothesis 6: Gender should moderate the relationship between each SLPI dimension and the DANVA2-AF and DANVA2-AP respectfully.

Finally, it is not known whether total successful recognition, recognition based on separate emotions, or recognition based on intensities of the DANVA2 subtests, are

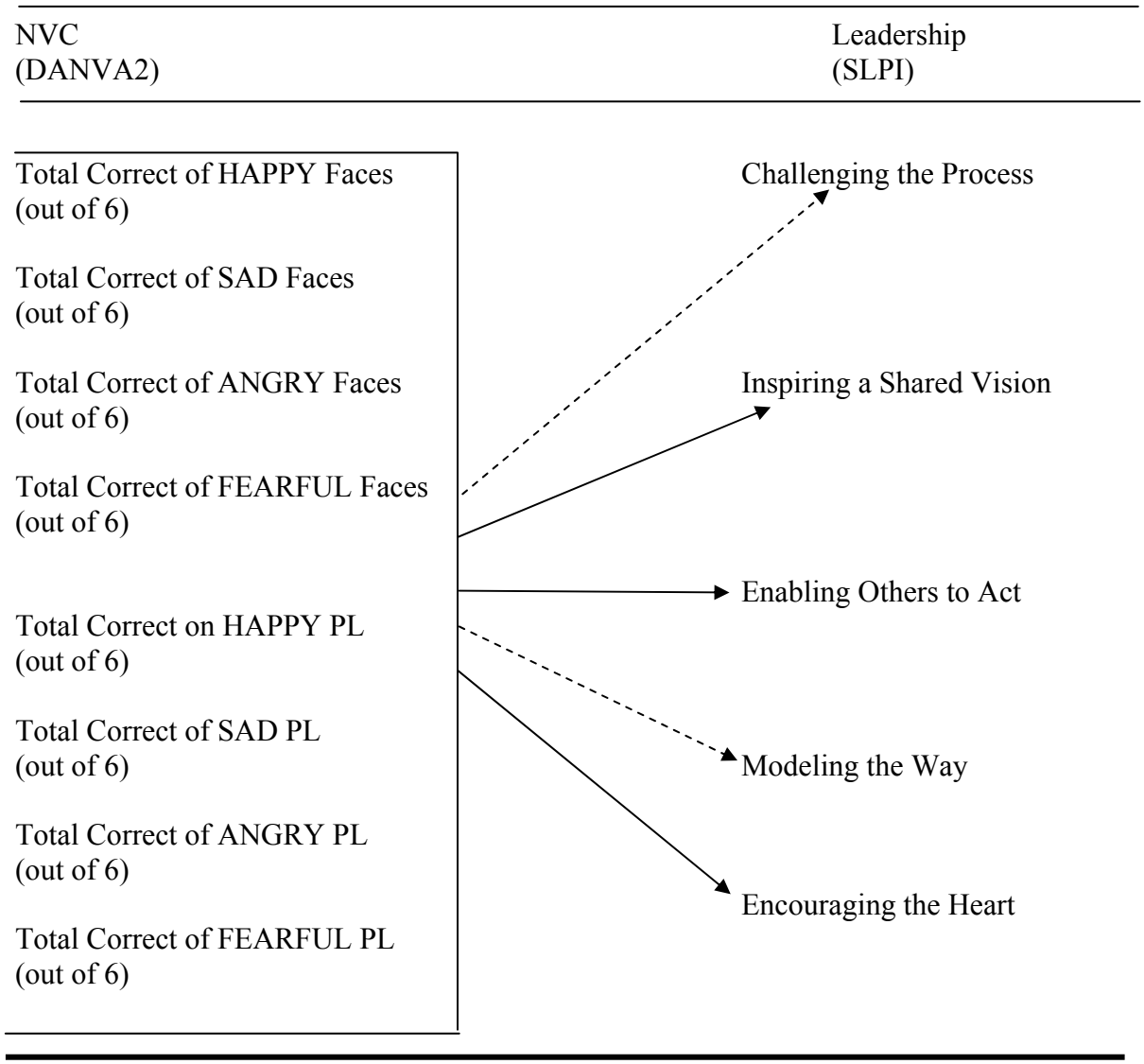
important in terms of successful nonverbal behavior and interpersonal relationships. As briefly touched-upon above (and more in-depth below in the "materials" section), the DANVA2 subtests are made up of "happy," "sad," "angry," and "fearful" faces and tones of voices. For each subtest, there is a total of 24 stimuli, six of each emotion. Also, each emotion is composed of three high intensities and three low intensities, for a total of 12 high intensities and 12 low intensities. Therefore, three separate regression analysis, used in an exploratory manner, will determine the predictive ability of the DANVA2 on leadership effectiveness. Figure 1 shows the predictive relationships between total scores on the DANVA2 subtests and their hypothesized relationship with dimensions of the SLPI, with solid lines illustrating hypothesized significant relationships, and dotted lines hypothesizing nonsignificant relationships. The same can be said for Figure 2 (emotions) and Figure 3 (intensities).

Figure 1. Hypothesized Relationships between Total Score on DANVA2 Subtests and SLPI Ratings.



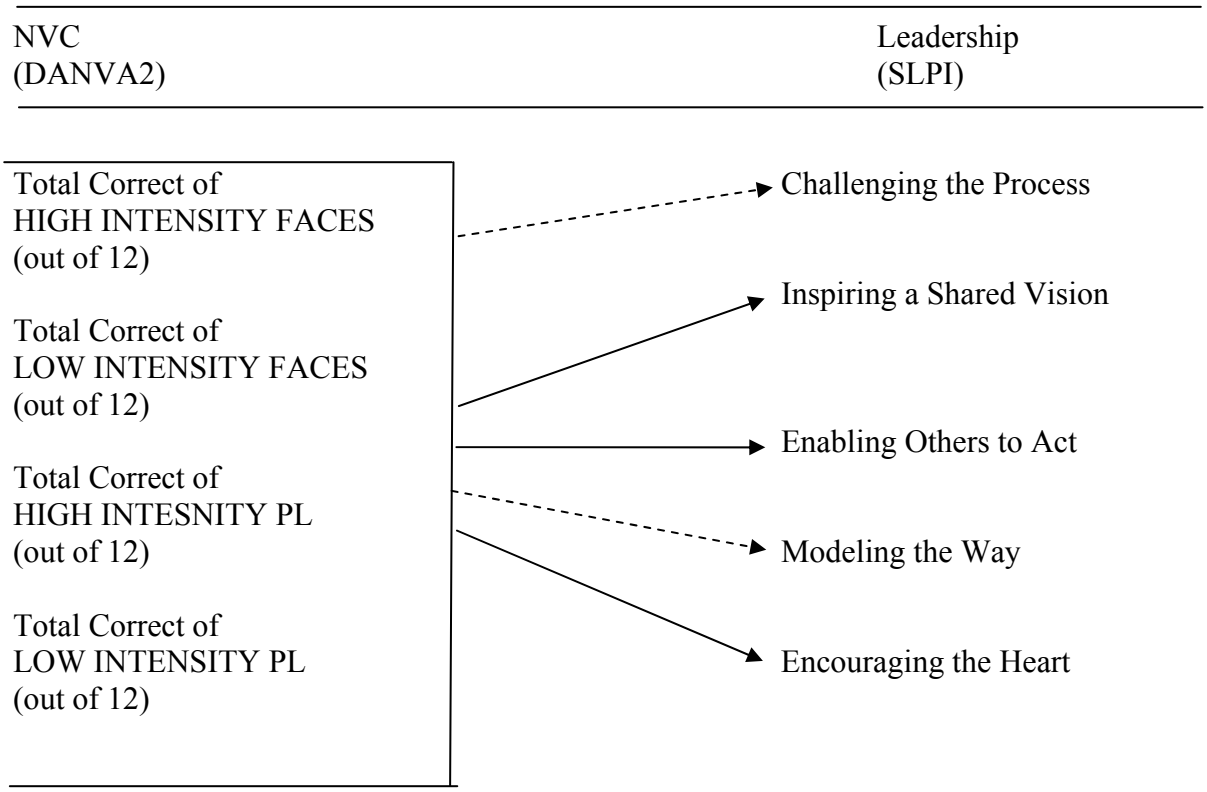
Note. Solid lines depict hypothesized significant predictive relationships between total scores of the DANVA2 subtests and SLPI dimensions. Broken lines depict hypothesized nonsignificant predictive relationships between total scores on the DANVA2 subtests and SLPI dimensions.

Figure 2. Hypothesized Relationships Between Total Subscore of Each Emotion of theDANVA2 Subtests and SLPI Ratings.



Note. PL = Paralanguage. Solid lines depict hypothesized significant predictive relationships between total correct of each emotion on the DANVA2 subtests and SLPI dimensions. Broken lines depict hypothesized nonsignificant predictive relationships.

Figure 3. Hypothesized Relationships Between Total Subscore of Intensity on theDANVA2 Subtests and SLPI Ratings.



Note. PL = Paralanguage. Solid lines depict hypothesized significant predictive relationships between total correct of high and low intensities on the DANVA2 subtests and SLPI dimensions. Broken lines depict hypothesized nonsignificant predictive relationships.

CHAPTER 2

METHOD

Participants

Participants (N = 224; 159 females, 65 males) were incoming first-year students to a large southeastern university. They were administered the SLPI and the DANVA2 subtests while attending a weekend college orientation program. Because of incomplete data, two data records were excluded, leaving data for 222 participants to be analyzed.

Materials

Measure of leadership assessment.

The development of the SLPI (Posner & Brodsky, 1992) followed the same method as the creation of the Leadership Practice Inventory (LPI; Kouzes & Posner, 1988). The foundation of the LPI rests with factor analysis and content analysis of personal observations and interviews from managers (Kouzes & Posner, 1987). These managers were asked to think of a "personal best" from their experience in leading. The five leadership practices ("Challenging the Process," "Inspiring a Shared Vision," etc.) came from these "personal best" situations and interviews. The actions composing each of the leadership practices were turned into 30 behaviorally-based statements, each on a five-point scale. This 30-item questionnaire became the LPI.

For the SLPI, instead of managers, Posner and Brodsky interviewed students nominated for "Leadership America." Four of these students were randomly selected based on year (junior or senior) and gender. They were asked to think about a personal leadership experience and to ponder the actions and behaviors believed to be crucial in success of that personal leadership undertaking. A week later, the students were interviewed, their answers content analyzed. The themes of the content analysis were coded into the five leadership practices of the LPI (Challenging the Process, Inspiring a Shared Vision, Enabling Others to Act, Modeling the Way, and Encouraging the Heart). This suggested leaders in a college setting utilized the same practices of leaders in an organization, giving relevancy of the conceptual framework of Kouzes and Posner (1987) for college students.

Next, the LPI was used as a basis for the SLPI. A pilot version of the SLPI reflected behaviors of students instead of managers in an organization. Most of the questions remained the same. Changes were based on terminology, language and concept (for example, "at our organization" replaced "at our work"). A student senate served as the first pilot group for this early version of the SLPI. Upon completion, 25 of the 30 items were deemed to be clear in terminology and conceptually relevant for students. The other five items were modified. Another group of student leaders took this second version of the SLPI. A discussion between the second set of students and the researchers led to minor editorial changes. A third version of the SLPI was given to a third separate group of students, resulting in no changes and finalized approval.

The SLPI is a 30-item questionnaire using a 5-point Likert scale for each question (seldom or rarely, once in a while, sometimes, fairly often, and very frequently). The inventory contains six questions for each leadership practice. Total scores range from 6 to 30 for each leadership practice. The authors believed that effective leaders would score higher than ineffective leaders on all five dimensions (Kouzes & Posner, 1998; Posner & Brodsky, 1994). The SLPI has been used in a wide variety of areas for various groups, including fraternity presidents (Posner & Brodsky, 1992), sorority chapter presidents (Posner & Brodsky, 1994), resident advisers (Posner & Brodsky, 1993), and orientation leaders (Posner & Rosenberger, 1997).

According to Posner and Brodsky (1992), indices of internal scale reliability are relatively high. For the Self instrument, internal reliability is above .60 and test-retest reliability ranges from .91 to .96 (Kouzes & Posner, 1998). Adams and Keim (2000) reported Cronbach alphas for each the five leadership practices range from .51 to .73. Normative data for the SLPI can be found in Appendix A.

Measure of receptive nonverbal communication.

A tool measuring the effectiveness and success of R-NVC is Nowicki and Duke's (1994) Diagnostic Analysis of Nonverbal Accuracy Scale (DANVA). The DANVA2 was used for this paper however, because it is newer than the previous version, has increased range, includes a paralanguage subtest, and allows for the ability of participants to identify R-NVC at different intensities (high and low). The DANVA2 subtests have been utilized across all ages (3- to 100-year-olds), both genders, and many races and backgrounds. Two of the four subtests, the DANVA Adult Faces 2 (DANVA2-AF) and

the DANVA Adult Paralanguage 2 (DANVA2-AP) were utilized for this study. The other two, the Child Faces and Child Paralanguage were not used because its use is designed for children, not adults. Means and standard deviations for the total correct score on the DANVA2 Adult subtests can be found in Appendix B.

The DANVA2-AF (Nowicki & Carton, 1993) consists of 24 photographs with an equal number of "happy" "sad" "angry" and "fearful" facial expressions. The six photographs of each emotion are displayed by 12 men and 12 women, and in 12 high and 12 low intensities. To construct this subtest, college students ($N = 21$) were read vignettes with "happy" "sad" "angry" and "fearful" themes, and were asked to make a facial expression of the emotion elicited from the particular vignette. Photographs were taken of the emotion made. Only those photographs with at least 80% agreement of subjects in college ($N = 54$) seventh ($N = 43$), third ($N = 34$), and first grades ($N = 54$) on the given emotion are used for the DANVA2-AF.

The highest total score for each subtest is 24, meaning the participant correctly identified all 24 stimuli. Scores can also be analyzed based on emotion and intensity. If participants score a 24, they also receive a score of six on the "happy" "sad" "angry" and "fearful" subscale, meaning they correctly identified each of the emotions. Finally, for both subtests, scores can be viewed based on intensity, with a score of 12 being the highest on both the high and low intensity subscale.

Nowicki and Carton (1993) reported internal consistency of items on the DANVA2-AF as .77 ($N = 104$ college students). McIntire, Danforth, and Schneider (1997) reported coefficient alpha of .90 for a study with 154 college students. Nowicki

and Carton (1993) have reported test-retest reliabilities over a two-month period as r = .84, N = 45, showing consistency over time. Scores from the DANVA2-AF and from the original DANVA-AF were significantly correlated in college students, r = .54, N = 102, producing evidence for convergent validity. Additionally, McIntire, et al. (1997) reported significant correlations (r = .54, N = 34) between the DANVA2-AF and the Japanese and Caucasian Facial Expressions of Emotions test. The DANVA2-AF is not related to general cognitive ability and IQ tests scores in college students (Mean age = 19.1; Nowicki, 1995) and older adults (Mean age = 71.3; Roberts, McClure, & Nowicki, 1998).

The DANVA2-AP (Baum & Nowicki, 1998) focuses on paralanguage, assessing the ability to identify happy, sad, angry and fearful emotions based on voice tone and volume. To construct the stimuli, a professional actor and actress responded to vignettes designed to elicit happy, sad, angry and fearful feelings. Afterwards, they said the neutral sentence, "I am going out of the room now but I'll be back later" to reflect the appropriate emotion. This particular sentence was considered "neutral" by 90% of undergraduates (Maitland, 1977). Out of 133 pieces of stimuli, the final 24 stimuli were chosen based on 70% agreement of the specific emotion from both college students (N = 147) and fourth graders (N = 57). Similar to the DANVA2-AF, the DANVA2-AP consists of an equal number of "happy" "sad" "angry" and "fearful" facial tones of voices, 12 male and 12 female, and 12 high and low intensities.

For the DANVA2-AP, the reported coefficient alpha in a study with college aged student (N = 72) was .78 (Nowicki, 1995). While Baum, Diforio, Tomlinson, and Walker (1995) found coefficient alpha to be .75 for middle aged adults (N = 20, Mean age = 33.5

years), Roberts, et al. (1998) reported a coefficient alpha of .77 in older adults ($N = 23$, Mean age 71.3 years). Test-retest reliability for the DANVA2-AP was .83 over a six week period with college students (Nowicki, 1995).

Procedure

On the first evening of the orientation weekend, each participant completed the self-report form of the SLPI. This activity lasted between 15 and 25 minutes. The next morning, participants took the DANVA2-AF and DANVA2-AP subtests. Each subtest lasted approximately 10 minutes. Participants sat in a large room. For the DANVA2-AF, faces were projected onto a screen one-at-a-time. The faces appeared for two seconds, a three second pause allowed participants to guess the emotion, and then the next face appeared on the screen. For the DANVA2-AP, a cassette tape of the 24 voices was played over a sound system. A three second pause occurred between stimuli to give time for participants to make their guesses.

CHAPTER 3

RESULTS

The mean scores of each of the five leadership practices of the SLPI are shown in Table 1. Scores of the incoming first-year students to college seem are congruent with other mean scores in other samples from Appendix A, including scores from the closest comparable group in the normative data, namely high school students (column 6). However, one must be careful in comparing the scores of the present sample to any of the normative data in Appendix A, since the present sample consists only of incoming first-year students to a University, while the normative data contains older college students (presidents of fraternities, resident advisers, orientation leaders) and high school students of all ages (freshman through senior). In reality, there is no real comparative group to measure the similarity of this sample with another normative group sample. The only proper thing to state about the present example when comparing scores with other samples, is that the means of this sample are not dissimilar to scores from other samples.

Additionally, the mean total correct scores from both DANVA subtests are also shown in Table 1. Again, these scores are comparable to those in a similar age range found in Appendix B. A slight difference may be found between the present sample's mean total correct score on the DANVA2-AF (18.4) and the mean total correct score from the normative data found in Appendix B (19.8). This could be explained by the fact that the faces were projected on a screen, and students sitting in the back of the large

Table 1

Mean Scores on Leadership Dimensions and DANVA Subtests, Overall and Based On Gender

Gender	Overall	Males	Females
	N=223	*N*=65	*N*=159
Challenging the Process	21.14	21.20	21.08[c]
Inspiring a Shared Vision	22.41	21.82	22.53
Enabling Others to Act	23.69	22.80	24.08
Modeling the Way	23.69	23.09	23.89
Encouraging the Heart	24.18	23.11	24.58
DANVA2-AF	18.4[a]	17.7[b]	18.66
DANVA2-AP	17.6	16.7	17.87

Note. The values represent mean scores. [a] *N*=222 because of incomplete data for this particular dimension. [b]*N*=64 because of incomplete data for this particular dimension. [C]*N*=158 because of incomplete data for this particular dimension.

room may not have been able to gather as much information from the projection as those sitting closer. Additionally, several people encountered difficulty in seeing because they did not have glasses. However, mean total correct scores from this sample on the DANVA2-AP (17.6) are comparable to the normative data found in Appendix B (17.4).

Correlations examined relationships between nonverbal accuracy and leadership assessment. A one-tailed significance test with an alpha level of .05 was used. As discussed previously, SLPI scores on "Inspiring a Shared Vision," "Enabling Others to Act," and "Encouraging the Heart" were hypothesized to be positively correlated with scores on both the DANVA2-AF and DANVA2-AP, while no significant relationship was hypothesized to be found between the other two leadership dimensions of the SLPI and results of the DANAV2. Table 2 displays these correlational results.

As one can see, 4 of the 10 correlations were significant according to the .05 level. A significant positive correlation was found between the SLPI score on "Challenging the Process" and the overall score on the DANVA2-AP, meaning those participants who rated themselves higher on the leadership dimension "Challenging the Process," were more capable to correctly identify "happy" "sad" "angry" and "fearful" tones of voices. Second, a significant positive correlation was found between the SLPI score on "Inspiring a Shared Vision" and total score on the DANVA2-AP, meaning those participants rating themselves higher on the leadership dimension "Inspiring a Shared Vision," were more capable to correctly identify "happy" "sad" "angry" and "fearful" tones of voices. The last two significant correlations both concern the leadership dimension "Encouraging the Heart." Positive correlations were found between the

Table 2

Intercorrelations Based on the Information from the Five Hypotheses to be Tested

SLPI Dimension	1	2
Challenging the Process		
Score from Self-rating	.107	.146*
Inspiring a Shared Vision		
Score from Self-rating	.048	.128*
Enabling Others to Act		
Score from Self-rating	.037	.082
Modeling the Way		
Score from Self-rating	.066	.045
Encouraging the Heart		
Score from Self-rating	.161**	.131*

Note. 1 = Overall Score on DANVA2-AF; 2 = Overall Score on DANVA2-AP.

* $p < .05$

** $p < .01$

aforementioned leadership dimension and both the results from the DANVA2-AP and DANVA2-AF, concluding participants rating themselves higher on the leadership dimensions "Encouraging the Heart" also had higher scores (had less errors) on the DANVA2-AP and DANVA2-AF subtests.

The sixth hypothesis suggested gender would be a moderator between each leadership dimension and results from the DANVA2-AF and DANVA2-AP. Hierarchical multiple regression (HMR) analysis was used to determine if gender was a significant moderator. A cross-product was created by multiplying the moderator (gender; 1=female, 2=male) and the predictor (the score on the DANVA2-AF and DANVA2-AP respectfully). Two regressions were then performed on each leadership dimension. The first used the SLPI dimension as the dependent variable, and both gender and the DANVA2-AF as the independent variables. The second regression used the same SLPI dimension as the dependent variable, with gender, the DANVA2-AF score, and the cross-product term as independent variables. If the R^2 from the second equation is significantly larger than the R^2 from the first equation, then gender is considered as a statistically significant moderator. The same procedure was completed with the DANVA2-AP in place of the DANVA2-AF to focus on the paralanguage (tone-of-voice) aspect of the analysis.

Ten separate tests were conducted to determine if gender moderated any relationship (a change in R^2 significance test for each leadership dimension, five using the DANVA2-AF as one of the independent variables, the latter five using the DANVA2-AP). While Table 3 shows results from the test of moderation between the SLPI

leadership practice "Challenging the Process" and the DANVA2-AF, Table 4 shows results from the test of moderation between "Challenging the Process" and the DANVA2-AP. The same pattern exists with "Inspiring a Shared Vision" (Tables 5 and 6) "Enabling Others to Act" (Tables 7 and 8) "Modeling the Way (Tables 9 and 10) and "Encouraging the Heart" (Tables 11 and 12). None of the analyses revealed significant changes in R^2 concluding that gender was not a moderator in the relationship between leadership dimensions and facial recognition and between leadership dimensions and tone-of-voice recognition.

Finally, as previously discussed, regression analysis were run in an exploratory manner to determine the predictive ability of (a) total scores on the DANVA2-AF and DANVA2-AP on all five SLPI leadership practices, (b) total scores based on each of the emotions of the DANVA2-AF and DANVA2-AP on all five SLPI leadership practices, and (c) total scores based on intensity of the DANVA2-AF and DANVA2-AP on all five leadership SLPI practices. The use of statistical significance tests of parameters based on the .05 level through the "Max R-Square" method was not the sole criteria for choosing the "best" model because, as Pedhazur (1997) explained, these values are not the true significance values, especially with multiple predictors. Therefore, Adjusted R-Square, Mallow's C(p), and MSE values were also utilized for selecting the "best" model. In this exploratory manner, models with significant parameters based on the .05 level, high adjusted R-squares values, and low C(p) and MSE values were deemed to be the "best" model.

Table 3

Hierarchical Regression Analysis Determining if Gender is a Moderator Between "Challenging the Process" and the DANVA2-AF

Step	R^2	ΔR^2
Step 1		
No Cross Product	.013	.013
Step 2		
With Cross Product	.014	.001

Table 4

Hierarchical Regression Analysis Determining if Gender is a Moderator Between "Challenging the Process" and the DANVA2-AP

Step	R^2	ΔR^2
Step 1		
No Cross Product	.024	.024
Step 2		
With Cross Product	.025	.001

Table 5

Hierarchical Regression Analysis Determining if Gender is a Moderator Between "Inspiring a Shared Vision" and the DANVA2-AF

Step	R^2	ΔR^2
Step 1		
No Cross Product	.006	.006
Step 2		
With Cross Product	.008	.002

Table 6

Hierarchical Regression Analysis Determining if Gender is a Moderator Between "Inspiring a Shared Vision" and the DANVA2-AP

Step	R^2	ΔR^2
Step 1		
No Cross Product	.019	.019
Step 2		
With Cross Product	.021	.002

Table 7

Hierarchical Regression Analysis Determining if Gender is a Moderator Between "Enabling Others to Act" and the DANVA2-AF

Step	R^2	ΔR^2
Step 1		
No Cross Product	.039	.039
Step 2		
With Cross Product	.056	.017

Table 8

Hierarchical Regression Analysis Determining if Gender is a Moderator Between "Enabling Others to Act" and the DANVA2-AP

Step	R^2	ΔR^2
Step 1		
No Cross Product	.042	.042
Step 2		
With Cross Product	.044	.002

Table 9

Hierarchical Regression Analysis Determining if Gender is a Moderator Between "Modeling the Way" and the DANVA2-AF

Step	R^2	ΔR^2
Step 1		
No Cross Product	.011	.011
Step 2		
With Cross Product	.012	.001

Table 10

Hierarchical Regression Analysis Determining if Gender is a Moderator Between "Modeling the Way" and the DANVA2-AP

Step	R^2	ΔR^2
Step 1		
No Cross Product	.013	.013
Step 2		
With Cross Product	.043	.030

Table 11

Hierarchical Regression Analysis Determining if Gender is a Moderator Between "Encouraging the Heart" and the DANVA2-AF

Step	R^2	ΔR^2
Step 1		
No Cross Product	.051	.051
Step 2		
With Cross Product	.052	.001

Table 12

Hierarchical Regression Analysis Determining if Gender is a Moderator Between "Encouraging the Heart" and the DANVA2-AP

Step	R^2	ΔR^2
Step 1		
No Cross Product	.047	.047
Step 2		
With Cross Product	.050	.003

Table 13 shows the Adjusted R-Square, Mallow's C(p), and MSE values for "Challenging the Process" using the total scores (2 predictors) of the DANVA2 subtests. Table 14 shows the Adjusted R-Square, Mallow's C(p), and MSE values for "Challenging the Process" using the total emotion scores (8 predictors) of the DANVA2 subtests. Table 15 shows the Adjusted R-Square, Mallow's C(p), and MSE values for "Challenging the Process" using the total intensity scores (4 predictors) of the DANVA2 subtests. Table 16 is a summary of the actual predictors from the "best" models chosen. The same pattern exists for "Inspiring a Shared Vision (Tables 17-20) and "Encouraging the Heart (Tables 21-24). The leadership dimensions "Modeling the Way" and "Enabling Others to Act" did not have any significant predictors and so their results are not shown. The other three dimensions revealed some significant and intriguing findings.

There were meaningful predictors for the leadership dimension "Challenging the Process" which can be seen in Table 16. First, when total scores on the two subtests were used as predictors, the total score on the DANVA2-AP could be seen as a significant predictor of this leadership dimension. Next, the leadership dimension was regressed on total scores of each emotion on both DANVA2 subtests to determine the predictive power of eight variables (total happy, sad, angry, and fearful emotional scores from the DANVA2-AF and DANVA2-AP) yielding a regression model with the total fear emotion score and total sad emotion score from the DANVA2-AF, and total sad, angry, and fear emotional scores from the DANVA2-AP as useful predictors. Finally, "Challenging the Process" was regressed on total intensity scores on both subtests to determine the predictive power of four variables (total high and low intensity scores from the

Table 13

Best Models Based on Total score on DANVA Predicting "Challenging the Process" (N = 222)

Predictor Model and Number of Variables	*Adj* R^2	*C(p)*	*MSE*
Best one predictor model	.017	2.23	11.45
Best two predictor model	.018	3.00	11.43

Note. The two predictors used for this analysis were (a) total score on the DANVA2-AF subtest and (b) total score on the DANVA2-AP subtest.

Table 14

Best Models Based on Total Emotion Score on DANVA Predicting "Challenging the Process"

(N = 222)

Predictor Model and Number of Variables	*Adj* R^2	*C(p)*	*MSE*
Best one predictor model	.032	9.35	11.27
Best two predictor model	.048	6.60	11.09
Best three predictor model	.058	5.21	10.97
Best four predictor model	.067	4.29	10.87
Best five predictor model	.071	4.29	10.82
Best six predictor model	.072	5.16	10.81
Best seven predictor model	.068	7.02	10.86
Best eight predictor model	.064	9.00	10.91

Note. The eight predictors used for this analysis were (a) total "Happy" emotion score on the DANVA2-AF subtest, (b) total "Sad" emotion score on the DANVA2-AF subtest, (c) total "Angry" emotion score on the DANVA2-AF subtest, (d) total "Fear" emotion score on the DANVA2-AF subtest, (e) total "Happy" emotion score on the DANVA2-AP subtest, (f) total "Sad" emotion score on the DANVA2-AP subtest, (g) total "Angry" emotion score on the DANVA2-AP subtest, and (h) total "Fear" emotion score on the DANVA2-AP subtest.

Table 15

Best Models Based on Total Intensity Score on DANVA Predicting "Challenging the Process"

(N = 222)

Predictor Model and Number of Variables	*Adj* R^2	*C(p)*	*MSE*
Best one predictor model	.041	1.32	11.17
Best two predictor model	.043	1.88	11.14
Best three predictor model	.041	3.45	11.17
Best four predictor model	.038	5.00	11.20

Note. The four predictors used for this analysis were (a) total High Intensity score on the DANVA2-AF subtest, (b) total Low Intensity score on the DANVA2-AF subtest, (c) total High Intensity score on the DANVA2-AP subtest, and (b) total Low Intensity score on the DANVA2-AP subtest.

Table 16

Summary of Regression Analyses for Variables Predicting "Challenging the Process" (N = 222)

Variable	*B*	*Adj* R^2	*C(p)*	*MSE*
Total Scores from DANVA2		.02	2.23	11.45
APTOTAL	.21*			
Total Emotion Score from DANVA2		.07	4.29	10.82
AFSAD	-.27			
AFFEAR	.48**			
APSAD	.35			
APANGRY	.58*			
APFEAR	-.39*			
Total Intensity Score from DANVA2		.04	1.32	11.17
APHIGH	.49**			

Note. AP=Adult Paralanguage; AF=Adult Face; HIGH=High Intensity.

* $p < .05$

** $p < .01$

Table 17

Best Models Based on Total score on DANVA Predicting "Inspiring a Shared Vision" (N = 222)

Predictor Model and Number of Variables	*Adj R^2*	*C(p)*	*MSE*
Best one predictor model	.010	1.03	13.70
Best two predictor model	.006	3.00	13.76

Note. The two predictors used for this analysis were (a) total score on the DANVA2-AF subtest and (b) total score on the DANVA2-AP subtest.

Table 18

Best Models Based on Total Emotion Score on DANVA Predicting "Inspiring a Shared Vision"

(N = 222)

Predictor Model and Number of Variables	*Adj* R^2	*C(p)*	*MSE*
Best one predictor model	.012	-.32	13.67
Best two predictor model	.014	.30	13.65
Best three predictor model	.015	1.14	13.64
Best four predictor model	.013	2.60	13.66
Best five predictor model	.011	3.94	13.68
Best six predictor model	.009	5.45	13.72
Best seven predictor model	.005	7.27	13.77
Best eight predictor model	.002	9.00	13.82

Note. The eight predictors used for this analysis were (a) total "Happy" emotion score on the DANVA2-AF subtest, (b) total "Sad" emotion score on the DANVA2-AF subtest, (c) total "Angry" emotion score on the DANVA2-AF subtest, (d) total "Fear" emotion score on the DANVA2-AF subtest, (e) total "Happy" emotion score on the DANVA2-AP subtest, (f) total "Sad" emotion score on the DANVA2-AP subtest, (g) total "Angry" emotion score on the DANVA2-AP subtest, and (h) total "Fear" emotion score on the DANVA2-AP subtest.

Table 19

Best Models Based on Total Intensity Score on DANVA Predicting "Inspiring a Shared Vision"

(N = 222)

Predictor Model and Number of Variables	*Adj* R^2	*C(p)*	*MSE*
Best one predictor model	.022	-.82	13.53
Best two predictor model	.019	1.01	13.58
Best three predictor model	.014	3.00	13.64
Best four predictor model	.010	5.00	13.70

Note. The four predictors used for this analysis were (a) total High Intensity score on the DANVA2-AF subtest, (b) total Low Intensity score on the DANVA2-AF subtest, (c) total High Intensity score on the DANVA2-AP subtest, and (b) total Low Intensity score on the DANVA2-AP subtest.

Table 20

Summary of Regression Analyses for Variables Predicting "Inspiring a Shared Vision" (N = 222)

Variable	*B*	*Adj* R^2	*C(p)*	*MSE*
Total Scores from DANVA2		.01	1.03	13.70
APTOTAL	.19			
Total Emotion Score from DANVA2		.01	-.32	13.67
APANGRY	.50*			
Total Intensity Score from DANVA2		.02	-.82	13.53
APHIGH	.17*			

Note. AP=Adult Paralanguage; AF=Adult Face; HIGH=High Intensity.

* $p < .05$

** $p < .01$

Table 21

Best Models Based on Total score on DANVA Predicting "Encouraging the Heart" (N = 222)

Predictor Model and Number of Variables	*Adj R^2*	*C(p)*	*MSE*
Best one predictor model	.020	1.61	11.04
Best two predictor model	.019	3.00	11.06

Note. The two predictors used for this analysis were (a) total score on the DANVA2-AF subtest and (b) total score on the DANVA2-AP subtest.

Table 22

Best Models Based on Total Emotion Score on DANVA Predicting "Encouraging the Heart"

(N = 222)

Predictor Model and Number of Variables	*Adj* R^2	*C(p)*	*MSE*
Best one predictor model	.024	4.65	11.00
Best two predictor model	.035	3.18	10.88
Best three predictor model	.043	2.32	10.79
Best four predictor model	.049	1.97	10.72
Best five predictor model	.046	3.53	10.75
Best six predictor model	.044	5.14	10.78
Best seven predictor model	.040	7.00	10.82
Best eight predictor model	.035	9.00	10.87

Note. The eight predictors used for this analysis were (a) total "Happy" emotion score on the DANVA2-AF subtest, (b) total "Sad" emotion score on the DANVA2-AF subtest, (c) total "Angry" emotion score on the DANVA2-AF subtest, (d) total "Fear" emotion score on the DANVA2-AF subtest, (e) total "Happy" emotion score on the DANVA2-AP subtest, (f) total "Sad" emotion score on the DANVA2-AP subtest, (g) total "Angry" emotion score on the DANVA2-AP subtest, and (h) total "Fear" emotion score on the DANVA2-AP subtest.

Table 23

Best Models Based on Total Intensity Score on DANVA Predicting "Encouraging the Heart"

(N = 222)

Predictor Model and Number of Variables	*Adj* R^2	*C(p)*	*MSE*
Best one predictor model	.030	4.05	10.94
Best two predictor model	.041	2.51	10.81
Best three predictor model	.043	3.12	10.79
Best four predictor model	.039	5.00	10.84

Note. The four predictors used for this analysis were (a) total High Intensity score on the DANVA2-AF subtest, (b) total Low Intensity score on the DANVA2-AF subtest, (c) total High Intensity score on the DANVA2-AP subtest, and (b) total Low Intensity score on the DANVA2-AP subtest.

Table 24

Summary of Regression Analyses for Variables Predicting "Encouraging the Heart" (N = 222)

Variable	*B*	*Adj* R^2	*C(p)*	*MSE*
Total Scores from DANVA2		.02	1.61	11.04
AFTOTAL	.18*			
Total Emotion Score from DANVA2		.05	1.97	10.72
AFHAPPY	.46			
AFFEAR	.34*			
APHAPPY	-.24			
APANGRY	.47*			
Total Intensity Score from DANVA2		.04	2.51	10.81
AFLOW	.21			
APHIGH	.39**			

Note. AP=Adult Paralanguage; AF=Adult Face; HIGH=High Intensity; LOW=Low Intensity.

* $p < .05$

** $p < .01$

DANVA2-AF and DANVA2-AP) concluding in a regression model with the total high intensity score from the DANVA2-AP as a useful predictor.

Second, Table 20 describes the regression analyses on the leadership variable "Inspiring a Shared Vision." The "best" model using total scores from both DANVA subtests contained the total score on the DANVA2-AP as a useful predictor for this leadership dimension. In selecting the "best" model using total emotion scores, the total angry emotion score from the DANVA2-AP was found to be useful in predicting this leadership dimension. Lastly, using total intensity score, the total high intensity score of the DANVA2-AP was viewed to be a useful predictor in forecasting scores of the leadership variable, "Inspiring a Shared Vision."

Finally, total scores, total emotion scores, and total intensity scores were each regressed on the leadership variable "Encouraging the Heart" producing some significant findings as shown in Table 24. Unlike the previous two, the total score of the DANVA2-AF was seen as a predictor of this leadership dimension. Secondly, the total happy and fear emotion score from the DANVA2-AF and the total happy and angry emotion score from the DANVA2-AP were useful predictors of "Encouraging the Heart." Thirdly, the total high intensity score from the DANVA2-AP and the total low intensity score from the DANVA2-AF were viewed as useful predictors of this leadership dimension.

CHAPTER 4

DISCUSSION

While some of the first five hypothesized relationships between leadership and R-NVC were confirmed, some were found not to be significant. Additionally, though some of the results were significant at the .05 level, the correlations were all very low; results may be statistically significant, but may not be meaningfully significant. Because these results are so low, some may think that the results are not significant and meaningful for the leadership literature or the NVC literature, and in the world in which we live and work. I would agree to some extent. These results should not suggest that skill in R-NVC is the most crucial in assessing leaders. However, the low correlations are not out of the ordinary when looking at the leadership or the NVC literature. I believe these results should give R-NVC a place (however small one may think) in the leadership literature, and add to the leadership literature since positive, significant correlations were found between variables that were never coupled before. In other words, R-NVC may not be the most important in assessing leaders, but may give people something else to think about when assessing leadership. These results should open the door to more research examining how R-NVC may possibly be linked to leadership.

Hypotheses 3A and 3B were both confirmed; students with higher ratings on the SLPI leadership dimension "Encouraging the Heart" were more able to correctly identify "happy," "sad," "angry," and "fearful" faces and tones of voices. In fact, correlations

between this leadership dimension and scores on both the DANVA2-AF and DANVA2-AP were among the highest of all correlations in the present study. This is no surprise, since "Encouraging the Heart" mainly involves interpersonal relationships, namely recognizing individuals and their contributions to the organization, and commemorating accomplishments.

Hypotheses 5A and 5B stated R-NVC should not be related to the leadership dimension "Modeling the Way." Accordingly, results showed nonsignificant correlations between this leadership dimension and both the DANVA2-AF and DANVA2-AP. This makes conceptual sense because, as stated before, "Modeling the Way" concerns internal dispositions (being ethical leaders, standing up for beliefs) and task-oriented behaviors (breaking projects down into small, manageable parts), not interpersonal interactions and relationships. Additionally, for Hypothesis 4A, no significant correlation was found between results from the DANVA2-AF, and "Challenging the Process," a leadership dimension not seen as one focused on interpersonal relationships. However, Hypothesis 4B was disconfirmed; results from the DANVA2-AP were found to be significantly positively correlated with "Challenging the Process."

On the surface, "Challenging the Process" encompasses internal dispositions and task-oriented qualities like changing the status quo and risk-taking. However, looking deeper into the thoughts Kouzes and Posner (1987) proposed about "Challenging the Process," it may become clearer why the DANVA2-AP was significantly correlated with this leadership dimension. First, the authors conceded leaders not only must find challenges and opportunities for their followers, but also must personally know the

strengths, weaknesses, special skills, and challenges of their followers for maximum performance. Said differently, leaders "Challenging the Process" know their followers on a personal level, consequently establishing challenges and goals based on their strengths, weaknesses, and skills.

Secondly, the authors admitted most ideas for change do not come from leaders, but followers, peers, superiors, or customers. Accordingly, leaders must listen to these ideas and to sage advice. Communication is imperative for creativity to prosper. As said before, part of "Challenging the Process" is the creation of innovative ideas. Therefore, Kouzes and Posner (1987) continued:

> Innovation requires even more listening and communication than does routine work. When guiding a change, leaders must establish more relationships, connect with more sources of information, and get out and walk around more frequently. It is only through human contact that change and innovation can be effectively led...Leaders stay in touch...They stay in touch with the ideas and advice of others...It is only by staying in touch with the world around them that leaders can ever expect to change the business-as-usual environment. (p. 60)

The previous discussion could signify why students with higher self-ratings on "Challenging the Process" were more able to correctly identify tones of voices. First, to set challenges, leaders must realize the abilities of their followers. It is impossible for leaders to know the strengths, weaknesses, and capabilities of their followers unless they personally interact with, and personally know them. This is part of interpersonal relationships and communication, a link between effective leadership and nonverbal

communication. If interpersonal relationships and communication is so important for this dimension, one may wonder why only results from the DANVA2-AP were significantly correlated with "Challenging the Process" and not results from the facial subtest.

As previously stated, Mehrabian (1968) postulated that 93 percent of the total emotional interaction between two people is nonverbal communication. Also as previously mentioned, many entities involve nonverbal communication (e.g. dress, use of time, posture, etc). In his writings, Mehrabian portended the biggest and most important part of the nonverbal piece of interpersonal interaction lies in tone of voice, or paralanguage, the exact ability the DANVA2-AP measures. As Kouzes and Posner (1987) certified, leaders must listen, communicate and establish relationships to change the status quo. In order to listen, to communicate, and to establish relationships, leaders must be able to correctly identify what a person is conveying through the tone of voice, for the ability to recognize tone of voice is through hearing, and tone of voice is the biggest part of interpersonal communication, and in turn, effective leadership. In summary, leaders "Challenging the Process" must know their followers on a personal level. To do this, leaders must communicate, listen, and have the ability to correctly identify nonverbal behaviors, specifically paralanguage, or as previously defined, the nonverbal channel that includes tonality, volume, and displaying emotion through tone-of-voice.

Because paralanguage plays such a big part in interpersonal communication, it may overshadow, and may be more important than other nonverbal channels. From a literature research and theory standpoint, this could be the reason why results from the

DANVA2-AP were significantly correlated with ratings from the leadership dimension "Inspiring a Shared Vision" (Hypothesis 1B) while results from the DANVA2-AF were not significant (Hypothesis 1A), even though statistically, the R^2 for the former is not statistically different than the R^2 of the latter. Enlisting people into a leader's vision is part of "Inspiring a Shared Vision." As Kouzes and Posner (1987) identified, followers "must believe that you [leaders] understand their needs and have their interests at heart. Only through an intimate knowledge of their dreams, their hopes, their aspirations, their visions, their values is the leader able to enlist their support" (p. 10). For these reasons, leaders adept at "Inspiring a Shared Vision" must be skilled at knowing the needs, interests, and dreams of their followers, all part of interpersonal relationships. Proficiency in interpersonal relationships is dependent upon communication, especially R-NVC, with the biggest portion being paralanguage, so much so, that it may transcend other channels in importance. This could explain affirmation of Hypothesis 1B, but not 1A.

The only Hypothesis fully disconfirmed was Hypothesis 2A and 2B, concerning the SLPI leadership dimension "Enabling Others to Act." Interpersonal relationships were thought to be part of this leadership dimension because leaders need the help and support of others to succeed. Teamwork and cooperation are essential for success. Effective leaders use "we" and not "I." These examples all point to hypothesized significant positive correlations. Though correlations were positive, meaning those with higher self-ratings for this leadership dimension had higher scores on both DANVA subtests, they were not significant, leading to questions of why.

One of the tenets of "Enabling Others to Act" is strengthening others. According to Kouzes and Posner (1987) while effective leaders "Enabling Others to Act" recognize others and build relationships (interpersonal relationships), they also must delegate power by allocating important work to others, and giving them "discretion and autonomy over their tasks and resources" (p. 175). These can be seen as task-oriented qualities. By giving critical tasks and work to others, leaders allow others to feel powerful. Effective leaders also strengthen others by keeping others aware of new developments affecting business, and advised about critical problems reminding others how these new developments or issues are crucial to success. Additionally, as jobs change, so too do the skills needed to adequately perform those jobs. Effective leaders must be mindful of these changes, making the proper allotments for others to learn these new, critical skills. Finally, productive leaders "Enabling Others to Act" must allow others to be autonomous and independent, giving others more authority and responsibility over projects. "Leaders delegate important tasks and thus maximize the discretion that their team can exercise in their jobs" (Kouzes & Posner, 1987, p. 176).

While Kouzes and Posner conceded interpersonal relationships are important in the leadership dimension "Enabling Others to Act," there are task-oriented behaviors to this dimension as well. It may be possible task-oriented behaviors are more important to effective leaders "Enabling Others to Act" than interpersonal relationships. Delegating power, giving autonomy, keeping others cognizant of important issues, and allowing new skills to enter the organization are all important in strengthening others. It could be so important, that it overshadows the significance interpersonal relationships bring to this

particular leadership dimension. This could be the reason why results from the DANVA2-AF and DANVA2-AP were not significant with the leadership dimension "Enabling Others to Act."

The purpose of Hypothesis 6 was to determine if gender would moderate the relationship between SLPI dimensions and results from the DANVA2-AF and DANVA2-AP. HMR analysis was used, comparing the R^2 from two regression equations, one without and one including a gender and predictor cross-product term. None of the interactions were statistically significant, disconfirming the hypothesis that gender would be a moderator.

Despite past statistical findings that women score higher than males on the SLPI (Appendix A), that women have better NVC skills than men (Briton & Hall, 1995; Burgoon, 1994; Burgoon & Saine, 1978; Cashdan, 1998; Knapp & Hall, 1994; Payne, 2001) and that women tend to score higher on the DANVA2 subtests than men (S. Nowicki, personal communication, January 10, 2002), gender in this present study did not moderate the relationships between the SLPI and DANVA2 subtests. There are a few mean differences, which can be seen in Table 25. A t-test for the equality of means based on two-tailed significance at .05 shows females scored significantly higher than males on two leadership practices of the SLPI, namely "Enabling Others to Act" and "Encouraging the Heart." Additionally, females scored significantly higher than males on both DANVA2 subtests. These findings only reinforce the literature, stating females tend to score better on the SLPI and DANVA2. However, the differences did not equate to a moderation effect, which is the only focus of this paper in regards to hypothesis 6. This

Table 25

Group Differences for SLPI Leadership Practices and DANVA2 subtests scores Between Females and Males

	Females		Males			
Variable	*M*	*SD*	*M*	*SD*	*df*	*t*
"Challenging the Process"	21.08	3.359	21.20	3.598	221	-.25
"Inspiring a Shared Vision"	22.58	3.561	21.82	4.123	221	1.40
"Enabling Others to Act"	24.09	2.805	22.80	2.906	221	3.10**
"Modeling the Way"	23.92	2.932	23.09	3.778	221	1.75
"Encouraging the Heart"	24.62	3.178	23.11	3.509	221	3.13**
DANVA2-AF	18.66	2.817	17.73	3.213	221	2.13*
DANVA2-AP	17.87	2.179	16.74	2.533	222	3.36**

* $p < .05$

** $p < .01$

may suggest that while there are differences for leadership and NVC for males and females, these differences only mirror previous findings. Clearly, more work on the role of gender, when it pertains to leadership and NVC, needs to be done.

The final statistical analyses completed were regressions used for prediction in an exploratory basis. While Table 16 reveals parameter estimates, adjusted R^2, C(p), and MSE statistics for predicting "Challenging the Process," Table 20 is for the leadership dimension "Inspiring a Shared Vision" and Table 24 is for "Encouraging the Heart." No prior research had been conducted to determine the predictive ability of emotions and intensity of R-NVC on leadership. Thus, some findings can not be explained directly. For instance, regarding "Challenging the Process," parameter estimates for the total "sad" emotional score from the DANVA2-AF and the total "fearful" emotional score from the DANVA2-AP are negative (Table 3). Additionally, the parameter estimate of the total "happy" emotion score from the DANAV2-AP is negative in predicting "Encouraging the Heart" (Table 5). These negative parameter estimates are contrary to the literature, since higher scores on DANVA subtests should be positively related to higher scores on SLPI leadership dimensions.

In spite of some inexplicable findings, some definite patterns emerge across the regression analyses that could impact future research on R-NVC and leadership. These patterns will be the focus of the rest of this section. First, any information from the DANVA2 subtests was not useful in predicting the SLPI leadership dimensions "Enabling Others to Act" and "Modeling the Way." These findings reaffirm the correlational results described earlier (no significant results were found between total

scores on the DANVA2 subtests and these two leadership practices). This is sensible because interpersonal relationships and interactions are not involved in these two leadership dimensions. The literature, and these results demonstrate R-NVC should not be related, and should not predict leadership dimensions not involving interpersonal relationships.

Second, observing total overall scores on the DANAV2-AF and DANVA2-AP in predicting leadership ability, the DANVA2-AP seems to be a good predictor for two of three leadership dimensions, namely "Challenging the Process" and "Inspiring a Shared Vision." As previously stated, the one nonverbal channel composing the biggest part of the total emotional interaction between two people is tone-of-voice, or paralanguage (Mehrabian, 1968). Banse and Scherer (1996) reiterated the importance of vocal cues and tone-of-voice in conveying emotions in interpersonal interactions. Coincidently, tone-of-voice is the channel the DANVA2-AP measures. This further strengthens the argument that leaders who are effective in leadership practices concerning interpersonal relationships must be adept at R-NVC, especially in the biggest component, paralanguage.

Much like the total score of the DANVA2-AP, total high intensity scores from the DANVA2-AP were pivotal in predicting leadership effectiveness in these students. The ability to correctly recognize high intensity tones-of-voices was a significant predictor of all three leadership dimensions involving interpersonal relationships. Again, this makes logical sense because of the aforementioned importance of tone-of-voice in interpersonal interactions. But moreover, these results reveal the ability to correctly identify high

intensity tones of voices predict leadership effectiveness. While leaders must attend to the whole message when personally communicating with followers, they may not need to attend to the less obvious signs (low intensity) of the emotion displayed through tone-of-voice. Leaders may have to specifically pay attention to signals associated with high intensity tone of voice in conveying emotion. For instance, leaders may have to especially listen to volume, pitch, stressing words, or other signs of an emotion which would obviously denote that same emotion. In other words, leaders may not have to attend to characteristics of paralanguage that are subtle, but they may have to accurately recognize the more obvious, high intensity stimuli of paralanguage to be successful.

Thirdly, Daft (1999) affirmed leaders attuned to the emotions of others can enhance the organization. The results of the present study reveal two emotions may be important in predicting leader effectiveness. The total "fear" emotion score from the DANVA2-AF was a predictor for two of the leadership dimensions ("Challenging the Process" and "Encouraging the Heart"). The total "angry" emotion score from the DANVA2-AP was a predictor for all three leadership dimensions involving interpersonal interactions.

The ability to recognize and know "fearful" facial expressions may be important in "Challenging the Process" and "Encouraging the Heart." The first leadership dimension involves searching for opportunities and taking risks. Leaders "Challenging the Process" are considered pioneers and innovators wanting to change the status quo. Accordingly, they must communicate with others because ideas for change usually come from others (Kouzes & Posner, 1987). Ideas to change the status quo may disrupt the

lives of others or the organization no matter how thoughtful or timely. For example, subordinates may be scared to voice their opinions and thoughts on bettering the organization for fear of disrupting the work of others, or fear of ridicule. As leaders "Challenging the Process" become more personally involved, and stay in touch with others, they may have to recognize this "fear" in the faces of others when personally communicating with them. By successfully recognizing fear in the faces of others, leaders may be able to know others on a more personal level and discover why others may display fear for holding an idea that could change the organization for the better. If this is the case, leaders must be aware of fear in the face of others, for the next innovative idea could come from the person displaying the facial expression of fear.

Fear may also be important in leaders "Encouraging the Heart." Those utilizing this leadership practice recognize individual contributions and celebrate accomplishments. In leading any organization, leaders need to recognize the feelings of their subordinates, for they may feel "exhausted, frustrated, and disenchanted" (Kouzes & Posner, 1987, p. 12). Leaders must support others in times of stress, for encouragement tells others things are progressing well and is one of the best forms of personal feedback (Kouzes & Posner, 1999). Those who may need the most encouragement are those who may be fearful of the future. Reasons people in an organization may be fearful include giving a presentation, inability to meet a deadline, or not knowing what the future holds. This fear can easily show in the face of others. As leaders "Encouraging the Heart" communicate with these people, leaders must recognize the fear in the face of others, and give them encouragement that they will do an adequate job in their presentation, that the

deadline will be met, or that things will be better in the future so others can work at their full capacity and capability. Leaders "Encouraging the Heart" must be able to recognize fear in the faces of others, support and assist them, and calm their fears so they can do their job without fear, eventually helping the organization succeed.

The second emotion important for leaders to recognize is anger, especially in the tone-of-voice of others. The importance of tone-of-voice in interpersonal interactions has already been stated. An angry tone-of-voice can be described by a louder voice, sudden increases in pitch, a rougher voice quality, irregular inflection and rhythm, a higher speech rate, or emphasis on certain syllables (Argyle, 1999; Davitz, 1976; Frick, 1985; Miller, 2000; Scherer, 1986). Recognizing an angry tone-of-voice can be very important for effective leaders.

Those who are angry may show rage, animosity, hostility, resentment or may be violent (Daft, 1999). Through the results of this research, it seems the correct recognition of the angry tone-of-voice is critical for leader effectiveness. People in an organization may be angry with how things are (the status quo), which can be shown through their tone-of-voice. As previously stated, leaders "Challenging the Process" need to be in touch with others to change the status quo. When leaders communicate with others, they need to pay particular attention to anger in a tone-of-voice, for it may give leaders "Challenging the Process" the sense that there is a level of discontent with people in an organization because of the need to change the status quo. Additionally, leaders "Inspiring a Shared Vision" may also need to readily recognize anger in the tone-of-voice of others. These leaders must enlist people in their vision and find common ground

(Kouzes & Posner, 1987). The constituents of leaders may not exactly share the same feelings leaders do; at times, the feelings of leaders and others are polar opposites. These opposing feelings may bring about anger and frustration, sensed through tone-of-voice. To find a common vision, the authors promote face-to-face communicate of leaders with others. Differences in visions may cause anger, and those leaders "Inspiring a Shared Vision" need to recognize the anger, and find common ground for a vision suitable for all. Lastly, angry people in an organization may exhibit dissatisfaction with another co-worker, may be frustrated with a difficult problem, or may be angry because of a lack of recognition for their hard work. Leaders "Encouraging the Heart" can help ease tensions and reduce anger by celebrating accomplishments, instilling rewards for hard work, fostering social support networks, and encouraging others to succeed (Kouzes & Posner, 1987; 1999).

Despite the apparent absence of "fear" and "anger" in the leadership literature, other lines of research have stressed the importance of these two emotions. The effects of fear have been known to cause both physical and mental health problems and deteriorating quality of life (Kent & Keohane, 2001; Kirk, Haaga, Solomon, & Brody, 2000; Morris, 2001) The counseling and therapy literature have discussed ways to reduce fear, how reducing fear can help people cope, and the need to understand and consider fears when treating people (Bisio & Crisan, 1984; Bowen & Nimmo, 1986; Cicirelli, 1999; Ishiyama, 1986; Spillane, 1983; Tsao & Craske, 2000).

Regarding anger, Kopper and Epperson (1996) considered the suppression of anger, for women in particular, may lead to further and more serious mental problems

like guilt, low self-esteem, and depression. The field of counseling psychology in general has also discussed how anger can be reduced and managed for better personal effectiveness (Chandler, 1993; Dayringer, 1976; Deffenbacher, McNamara, Stark, & Sabadell, 1990). Putting this in a leadership context, if leaders can not recognize the fear or anger in others, and can not effectively deal with those people displaying fear and anger after correctly recognizing the emotions, this could lead to serious mental health problems of others, and ultimately ineffectiveness in the organization.

Limitations and Future Research

There are a few significant findings in this present research regarding students and their leadership and R-NVC ability. Additionally, the measures used were well-suited for this particular sample; students entering a university were given a leadership inventory specifically designed for students, and those same students were also given a test measuring R-NVC, a test used numerous times on students. However, limitations are present.

This study concerns the use of the SLPI based on self-report. Students were asked to personally rate *themselves* by answering the 30 questions about *their own* behavior. There may be self-presentation bias in the results since students filled out a self-questionnaire. Future research should consider using not only a self-questionnaire, but also utilizing a "360 degree" format, with peers, subordinates, and supervisors of organizations or mentors rating students. This could give a more unbiased estimation of leadership in students.

A second limitation concerns generalizability. This issue rests with expanding these results to older adults in a workplace setting. The SLPI is specifically designed for students. Therefore, for future research, a leadership inventory expressly designed for adults needs to be used. Moreover, the DANVA2 measuring R-NVC ability has not been used on adults as often as children, adolescents, and college students. The DANVA2 may be too easy for adults who continuously work and communicate with co-workers on a daily basis. While the DANVA2 can be utilized, another test of R-NVC accuracy specifically designed for adults may need to be implemented. Moreover, an R-NVC accuracy test based on an organizational context with organizational cues (correctly guessing the emotions of a meeting between superior and subordinates, or between two co-workers given a context) may give more credence to results comparing leadership ability with R-NVC skills in adults working in a company or organization.

If another R-NVC accuracy test can not be found, it is possible to use the DANAV2 if speed of recognition can be measured. For instance, those who recognize "happy," "sad," "angry," and "fearful" faces and tones of voices quicker may be more successful in leadership dimensions involving interpersonal relationships. Stated differently, the ability to correctly recognize the emotions may not be the only important part; how quickly one correctly recognizes those emotions may be important in leadership dimensions involving interpersonal relationships as well. For instance, Arkowitz, Licktenstein, McGovern and Hines (1975) explained socially anxious people, when interacting with an opposite sex partner, took longer to respond to a partner's cue than those not as anxious. Pilkonis (1977) compared shy and non-shy people, indicating

shy people took longer to initiate responses in conversations. These studies and others (Boice & Monti, 1982; Fischetti, Curran & Wessberg, 1977; Peterson, Fischetti, Curran, & Arland, 1981) promote successful interpersonal relationships contain one person not only correctly identifying the nonverbal behavior but also realizing the emotion and reacting quickly. If a person takes an inordinate amount of time interpreting what is being sent nonverbally, the rhythm of the conversation will stall, and ultimately, the interaction will suffer. Appropriate timings of responses are an important component of social skill, inherent in effective interpersonal interactions. In conclusion, an addition may need to be added to the sentences stated from page 4. People in general, and leaders specifically, must be skilled at interpersonal relationships to be effective. Those proficient at interpersonal relationships must be adept at communication, particularly nonverbal communication, especially receptive nonverbal communication, *with speed of processing (faster reaction times to recognizing the appropriate emotions) essential*. Assuming reaction time and speed of processing are keys for successful interpersonal relationships, the time required to identify the emotions from both DANVA2 subtests can add even more information regarding leaders and R-NVC skill.

Conclusion

Colleges and universities foster leadership development in their students because their students are the future leaders of organizations and companies. An area overlooked in the leadership literature, especially student leadership, is how R-NVC skill is connected with effective leadership especially with dimensions involving interpersonal relationships and interactions. This research demonstrates those students higher in some

leadership practices involving interpersonal relationships have better ability to correctly identify emotions of others. Companies and organization looking for future leaders from colleges and universities may need to look at R-NVC skill, for it has been shown to some extent, that people in general, and leaders specifically, must be skilled at interpersonal relationships to be effective. Those proficient at interpersonal relationships must be adept at communication, particularly nonverbal communication, especially receptive nonverbal communication.

REFERENCES

Adams, T. C., & Keim, M. C. (2000). Leaderhip practices and effectiveness among greek Student leaders. *College Student Journal, 34,* 259-270.

Adler, R. B., & Rodman, G. (1997). *Understanding human communication* (6th ed.). Fort Worth,TX: Harcourt Brace College Publishers.

Andersen, P. A. (1999). Creating close relationships through nonverbal communication: A cognitive valence approach. In L. K. Guerrero, J. A. DeVito, & M. L. Hecht (Eds.). (1999). *The nonverbal communication reader* (2nd ed.). Prospect Heights, IL: Waveland Press, Inc.

Argyle, M. (1999). Nonverbal Vocalizations. In L. K. Guerrero, J. A. DeVito, & M. L. Hecht (Eds.).(1999). *The nonverbal communication reader* (2nd ed.). Prospect Heights, IL: Waveland Press, Inc.

Arkowitz, H., Lichtenstein, E., McGovern, K,. & Hines, P (1975). The behavioral assessment of social cometence in males. *Behavior Therapy, 6(1)*, 3-13.

Banse, R., & Scherer, K. R (1996). Acoustic profiles in vocal emotion expression. *Journal of Personality and Social Psychology, 70,* 614-636.

Baron, R. A. (1986). Self-presentation in job interviews: When there can be "too much of a good thing." *Journal of Applied Social Psychology, 16,* 16-28.

Baum, K. M., Diforio, D., Tomlinson, H., & Walker, E.F. (1995, October). *Emotion recognition deficits in schizotypal personality disordered adults.* Presented at the annual meeting of the Society for Research in Psychopathology, Iowa City, IA

Baum, K. M., & Nowicki, S,. Jr. (1998). Perception of emotion: Measuring decoding accuracy of adult prosodic cues varying in intensity. *Journal of Nonverbal Behavior, 22,* 89-107.

Birdwhistell, R. L. (1970). *Kinesics and context: Essays on body motion communication.* Philadelphia: University of Pennsylvania Press.

Bisio, T. A., & Crisan, P. (1984). Stress management and nuclear anxiety: A structured group experience. *Journal of Counseling & Development, 63,* 108-109.

Boice, R., & Monti, P. M. (1982). Specification of nonverbal behaviors for clinical assessment. *Journal of Nonverbal Behavior, 7,* 29-41.

Boller, Jr.,P. F. (1985). *Presidential campaigns.* New York: Oxford University Press.

Bowen, B., & Nimmo, G. (1986). Going over the bridge: A practical use of metaphor and analogy. *Journal of Family Therapy, 8,* 327-337.

Bray, D. W. (1982). The assessment center and the study of lives. *American Psychologist, 37,* 180-189.

Briton, H., & Hall, J. (1995). Beliefs about female and male nonverbal communications. *Sex Roles, 32,* 79-85.

Brock, S. A. (1997). Strategies for using psychological type to enhance leaders' communication. In C. Fitzgerald, & L.K. Kirby (Eds.). *Developing leaders* (pp. 465-486). Palo Alto, CA: Davies-Black Publishing.

Brooks, C. I., Church, M. A., & Fraser, L. (1986). Effects of duration of eye contact on judgments of personality characteristics. *The Journal of Social Psychology, 126,* 71-78.

Bucy, E. P. (2000). Emotional and evaluative consequences of inappropriate leader displays. *Communication Research, 27,* 194-226.

Burgoon, J. K. (1980). Nonverbal communication research in the 1970s: An overview. In D.Nimmo (Ed.). *Communication yearbook 4*. New Brunswick, NJ: Transaction.

Burgoon, J. K. (1994). Nonverbal signals. In M. L. Knapp & G. R. Miller (Eds.). *Handbook of interpersonal communication* (pp. 229-285). Thousand Oaks, CA: Sage.

Burgoon, J., & Saine, T. (1978). *The unspoken dialogue: An introduction to nonverbal communication.* Boston: Houghton Mifflin.

Butler, D., & Geis, F. L. (1990). Nonverbal affect responses to male and female leaders: Implications for leadership evaluations. *Journal of Personality and Social Psychology, 58,* 48-59.

Carton, J. S., Kessler, E. A., & Pape, C. L. (1999). Nonverbal decoding skills and relationships well-being in adults. *Journal of Nonverbal Behavior, 23,* 91-100.

Cascio, W. F. (1998). *Applied psychology in human resources management* (5th ed.). Upper Saddle River, New Jersey: Prentice Hall.

Cashdan, E. (1998). Smiles, speech and body posture: How women and men display sociometric status and power. *Journal of Nonverbal Behavior, 22,* 209-228.

Chandler, G. M. (1993). A hypnotic intervention for anger reduction and shifting perceptual predispositions. *Journal of Mental Health Counseling, 15,* 200-205.

Cicirelli, V. B. (1999). Personality and demographic factors in older adults' fear of death. *Gerontologist, 39,* 569-579.

Cissna, K. N., & Carter, D. A. (1982). The employment interview workshop: A focus on communication skills. *Journal of Employment Counseling, 19*, 57-66.

Daft, R. L. (1999). *Leadership: Theory and practice*. Fort Worth, TX: Harcourt Brace College Publishers.

Davitz, J. R. (1976). *The communication of emotional meaning*. Westport, CT: Greenwood.

Dayringer, R. (1976). Fair-fight for change: A therapeutic use of aggressiveness in couple counseling. *Journal of Marital & Family Therapy, 2,* 115-130.

Deffenbacher, J. L., McNamara, K., Stark, R. S., & Sabadell, P. M. (1990). A comparison of cognitive-behavioral and process-oriented group counseling for general anger reduction. *Journal of Counseling & Development, 69,* 167-172.

DeGroot, T., & Motowidlo, S. J. (1999). Why visual and vocal interview cues can affect interviewers' judgments and predict job performance. *Journal of Applied Psychology, 84,* 986-993.

DeVito, J. A. (1993). *Essentials of human communication.* New York: HarperCollins College Publishers.

Devito, J. A. (2001). *The interpersonal communication book.* (9th ed.). New York: Addison Wesley Longman, Inc.

Fischetti, M., Curran, J.P., & Wessberg, H. W. (1977). Sense of timing: A skill deficit in heterosexual-socially anxious males. *Behavior Modification, 1,* 179-194.

Fisher, B A. (1978). *Perspectives on human communication.* New York: Macmillan Publishing Co., Inc.

Forbes, R. J., & Jackson, P. R. (1980). Non-verbal behaviour and the outcome of selection interviews. *Journal of Occupational Psychology, 53,* 65-72.

Frick, R. W. (1985). Communicating emotion: The role of prosodic features. *Psychological Bulletin, 97,* 412-429.

Geddes, D. (1992). Sex roles in management: the impact of varying power of speech style on union members' perception of satisfaction and effectiveness. *The Journal of Psychology, 126,* 589-607.

Gifford, R., Ng, C. F., & Wilkinson, M. (1985). Nonverbal cues in the employment interview: Links between applicant qualities and interviewer judgments. *Journal of Applied Psychology, 70,* 729-736.

Giles, H., & Street, R. L., Jr. (1994). Communicator characteristics and behavior. In M. L. Knapp & G. R. Miller (Eds.). *Handbook of interpersonal communication* (pp. 103-161). Thousand Oaks, CA: Sage.

Gitter, A. G., Black, H., & Fishman, J. E. (1975). Effect of race, sex, nonverbal communication and verbal communication on perception of leadership. *Sociology and Social Research, 60,* 46-57.

Gitter, A. G., Black, H., & Goldman, A. (1975). Role of nonverbal communication in the perception of leadership. *Perceptual and Motor Skills, 40,* 463-466.

Gitter, A. G., Black, H., & Walkley, J. (1976). Nonverbal communication and the judgment of leadership. *Psychological Reports, 39,* 1117-1118.

Guerrero, L. K., DeVito, J. A., & Hecht, M. A. (Eds.). (1999). *The nonverbal communication reader* (2nd ed.). Prospect Heights, IL: Waveland Press, Inc.

Hall, C. W., Gaul, L., & Kent, M. (1999). College students' perception of facial expressions. *Perceptual and Motor Skills, 89,* 763-770.

Hall, E. T. (1966). *The hidden dimension.* New York: Doubleday.

Hickson, III, M. L., & Stacks, D. W. *NVC: Nonverbal communication studies and applications* (3rd ed.). Madison, WI: Brown & Benchmark Publishers.

Hollandsworth, Jr., J. G., Kazelskis, R., Stevens, J., & Dressel, M. E. (1979). Relative contributions of verbal, articulative, and nonverbal communication to employment decisions in the job interview setting. *Personnel Psychology, 32,* 359-367.

Hyman, B. (1980). Responsive leadership: The woman manager – Asset or liability? *Supervisory Management, 25,* 40-43.

Imada, A. S., & Hakel, M. D. (1977). Influence of nonverbal communication and rater proximity on impressions and decisions in simulated employment interviews. *Journal of Applied Psychology, 62,* 295-300.

Ishiyama, F. I. (1986). Brief Morita therapy for social anxiety: A single-case study of therapeutic changes. *Canadian Journal of Counseling, 20,* 56-65.

Jewell, L. N., & Siegall, M. (1990). *Contemporary industrial/organizational psychology* (2nd ed.). St. Paul, MNL West Publishing Company.

Kay, B., & Christophel, D. M. (1995). The relationships among manager communication openness, nonverbal immediacy, and subordinate motivation. *Communication Research Reports, 12,* 200-205.

Keenan, A. (1976). Effects of the non-verbal behaviour of interviewers on candidate's performance. *Journal of Occupational Psychology, 49,* 171-176.

Kent, G., & Keohane, S. (2001). Social anxiety and disfigurement: The moderating effects of fear of negative evaluation and past experience. *British Journal of Clinical Psychology, 40,* 23-34.

Kirk, L., Haaga, D. A. F., Solomon, A., & Brody, C. (2000). Perceptions of depression among never-depressed and recovered-depressed people. *Cognitive Therapy & Research, 24,* 588-594.

Knapp, M. L. (1999). Nonverbal communication in developing and deteriorating relations: A conceptual framework. In L. K. Guerrero, J. A. DeVito, & M. L. Hecht (Eds.). *The nonverbal communication reader* (2nd ed., pp. 305-313). Prospect Heights, IL: Waveland Press, Inc.

Knapp, M. L., & Hall, J. A. (1997). *Nonverbal communication in human interaction* (4th ed.). Fort Worth, TX: Harcourt Brace College Publishers.

Knippen, J. T., & Green, T. B. (1994). How the manager can use active listening. *Public Personnel Management, 23,* 357-359.

Kopper, B. A., & Epperson, D. L. (1996). The experience and expression of anger: Relationships with gender, gender role socialization, depression, and mental health functioning. *Journal of Counseling Psychology, 43,* 158-165.

Kouzes, J. M., & Posner, B. Z. (1987). *The leadership challenge: How to get extraordinary things done in organizations.* San Francisco: Jossey-Bass.

Kouzes, J. M., & Posner, B. Z. (1988). *Leadership Practices Inventory (LPI): A self-assessment and analysis.* San Diego: University Associates.

Kouzes, J. M., & Posner, B. Z. (1998). *Student Leadership Practices Inventory: Facilitator's guide.* San Francisco: Jossey-Bass.

Kouzes, J. M., & Posner, B. Z. (1999). *Encouraging the heart: A leader's guide to rewarding and recognizing others.* San Francisco: Jossey-Bass.

Lamude, K. G., Daniels, T. D., & Smilowitz, M. (1995). Subordinates' satisfaction with communication and managers' relational messages. *Perceptual and Motor Skills, 81,* 467-471.

Lancelot, C., & Nowicki, S. (1997). The association between receptive nonverbal processing abilities and internalizing/externalizing problems in girls and boys. *Journal of Genetic Psychology, 158,* 297-302.

Mack, D., & Rainey, D. (1990). Female applicants' grooming and personnel selection. *Journal of Social Behavior & Personality, 5,* 399-407.

Maitland, G. E. (1977). The perception of facial and vocal expressions by emotionally disturbed and normal children. *Dissertation Abstracts International, 38,* 5396A.

Maurer, T. J., Maher, K. J., Ashe, D. K., Mitchell, D. R. D., Hein, M. B., & Van Hein, J. (1993). Leadership perceptions in relation to a presidential vote. *Journal of Applied Social Psychology, 23,* 959-979.

McIntire, K. A., Danforth, M. M., & Schneider, H. G. (1997). *Measuring cue perception: Assessment of reliability and validity.* Poster presented at the meetings of the Southeastern Psychological Association, Atlanta, GA.

McGovern, T. V., Jones, B. W., Warwick, C. L., & Jackson, R. W. (1981). A comparison of job interviewee behavior on four channels of communication. *Journal of Counseling Psychology, 28,* 369-372.

McGovern, T. V., & Tinsley, H. E. (1978). Interviewer evaluations of interviewee nonverbal behavior. *Journal of vocational Behavior, 13,* 163-171.

McHugo, G. J., Lanzetta, J. T., & Bush, L. K. (1991). The effect of attitudes on emotional reaction to expressive displays of political leaders. *Journal of Nonverbal Behavior, 15,* 19-41.

Mehrabian, A. (1968). Communication without words. *Psychology Today, 2,* (4) 52-55.

Mehrabian, A. (1981). *Silent messages: Implicit communication of emotions and attitudes.* Belmont, CA: Wadsworth Publishing Company.

Miller, P. W. (2000) *Nonverbal communication in the workplace*. Author.

Morris, T. L. (2001). Social Phobia. In M. W. Vassey, & M. R. Daads (Eds.). *The development of psychopathology of anxiety* (pp. 435-458). London: Oxford University Press.

Muchinsky, P. M. (1997). *Psychology applied to work* (5th ed.). Pacific Grove, CA: Brooks/Cole Publishing Company.

Noller, P. (1984). *Nonverbal communication and marital interaction.* Oxford, UK: Pergamon.

Northouse, P. G. (2001). *Leadership: Theory and Practice*. Thousand Oaks, CA: Sage Publications Inc.

Nowicki, S., Jr. (1995). *A study of the DANVA-AP in college students*. Unpublished manuscript. Department of Psychology, Emory University, Atlanta, GA.

Nowicki, S., Jr., & Carton, J. (1993). The measurement of emotional intensity from facial expressions: The DANVA FACES 2. *Journal of Social Psychology, 133,* 749-750.

Nowicki, S., Jr., Duke, M. P (1992). *Helping the child who doesn't fit in.* Atlanta: Peachtree Publishers.

Nowicki, S., Jr, & Duke, M. P. (1994). Individual differences in the nonverbal communication of affect: The diagnostic analysis of nonverbal accuracy scale. *Journal of Nonverbal Behavior, 18,* 1994.

Nowicki, S., Jr., & Duke, M. P. (2001). Nonverbal receptivity: The diagnostic analysis of nonverbal accuracy (DANVA). In J. A. Hall, & F. J. Bernieri (Eds.). *Interpersonal sensitivity: Theory and measurement* (pp. 183-198). Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.

Orpen, C. (1997). The interactive effects of communication quality and job involvement on managerial job satisfaction and work motivation. *The Journal of Psychology, 131,* 519-522.

Parsons, C. K., & Liden, R. C. (1984). Interviewer perceptions of applicant qualifications: A multivariate field study of demographic characteristics and nonverbal cues. *Journal of Applied Psychology, 69,* 557-568.

Payne, K. E. (2001). *Different but equal: Communication between the sexes.* Westport, CT: Praeger.

Pedhazur, E. J. (1997). *Multiple regression in behavioral research: Explanation and prediction* (3rd ed.). Fort Worth, TX: Harcourt Brace and Company.

Peterson, J., Fischetti, M., Curran, J. P., & Arland, S. (1981). Sense of timing: A skill deficit in heterosocially anxious women. *Behavior Therapy, 12,* 195-201.

Pilkonis, P. A. (1977). The behavioral consequences of shyness. *Journal of Personality, 45(4),* 596-611.

Posner, B. Z., & Brodsky, B. (1992). A leadership development instrument for college students. *Journal of College Student Development, 33,* 231-237.

Posner, B. Z., & Brodsky, B. (1993). The leadership practices of effective RAs. *Journal of College Student Development, 34,* 300-304.

Posner, B. Z., & Brodsky, B. (1994). Leadership practices of effective student leaders: Gender makes no difference. *NASPA Journal, 31,* 113-120.

Posner, B. Z., & Rosenberger, J.R. (1997). Effective orientation advisors are leaders too. *NASPA Journal, 35,* 46-56.

Rasmussen, Jr., K. G. (1984). Nonverbal behavior, verbal behavior, resume credentials, and selection interview outcomes. *Journal of Applied Psychology, 69,* 551-556.

Richmond, V. P., & McCroskey, J. C. (2000). *Nonverbal behavior in interpersonal relations* (4th ed.). Boston: Allyn and Bacon.

Riggio, R. E. (2001). Interpersonal sensitivity research and organizational psychology: Theoretical and methodological applications. In J. A. Hall, & F. J. Bernieri (Eds.). *Interpersonal sensitivity: Theory and measurement* (pp. 305-317). Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.

Robbins, S. P. (2000). *Essentials of organizational behavior* (6th ed.). Upper Saddle River, NJ: Prentice Hall.

Roberts, V., McClure, E., & Nowicki, S. (1998). *Emotional prosody recognition and right hemisphere functioning in the elderly.* Paper presented at the INS meetings in Honolulu, HA.

St. John, W. D. (1985). You are what you communicate. *Personnel Journal, 64,* 40-43.

Scherer, K. R. (1986). Vocal affect expression: A review and model for further research. *Psychological Bulletin, 99,* 143-165.

Spillane, R. (1983). Fighting fear of failure with rationale-emotive therapy. *Journal of Integrative & Eclectic Psychotherapy, 2,* 1-13.

Spitzberg, B. H. (1999). Perspectives on nonverbal communication skills. In L. K. Guerrero, J. A. DeVito, & M. L. Hecht (Eds.). *The nonverbal communication reader* (2nd ed., pp. 19-23). Prospect Heights, IL: Waveland Press, Inc.

Staneski, R. A., Kleike, C. L., & Meeker, F. B. (1977). Effects of ingratiation, touch, and use of name on evaluation of job applicants and interviewers. *Social Behavior & Personality, 5,* 13-19.

Stein, R. T. (1975). Identifying emergent leaders from verbal and nonverbal communications. *Journal of Personality and Social Psychology, 32,* 125-135.

Thomson, R. (1996). Actions speak louder than words. In J. Billsberry (Ed.). *The effective manager: Perspectives and illustrations* (pp. 276-286). London: Sage Publications.

Toon, M. B. (1994). Flirting with Perot: Voter ambivalence about the third candidate. In D. Carlin & M. S. McKinney (Eds.). *The 1992 presidential debates in focus* (pp. 109-123). Westport, CT: Praeger Publishers.

Tsao, J. C. I., & Craske, M. G. (2000). Timing of treatment and return of fear: Effects of massed, uniform-, and expanding-spaced exposure schedules. *Behavior Therapy, 31,* 479-497.

Washburn, P. V., & Hakel, M. D. (1973). Visual cues and verbal content as influences on impressions formed after simulated employment interviews. *Journal of applied Psychology, 58,* 137-141.

Wexley, K. N., Fugita, S. S., & Malone, M P. (1975). An applicant's nonverbal behavior and student-evaluators' judgments in a structured interview setting. *Psychological Reports, 36,* 391-394.

Wright, D. E. (1999). *Personal relationships: An interdisciplinary approach.* Mountain View, CA: Mayfield Publishing Company.

Zahn, G. L. (1973). Cognitive integration of verbal and vocal information in spoken sentences. *Journal of Experimental Social Psychology, 9,* 320-334.

APPENDIX A

NORMATIVE DATA FOR THE SLPI

SLPI Dimension	1	2	3	4
Challenging the Process	23.08	21.74	22.34	23.86
Inspiring a Shared Vision	24.07	20.66	23.16	24.34
Enabling Others to Act	25.58	25.20	25.76	25.43
Modeling the Way	23.66	23.25	23.15	23.63
Encouraging the Heart	25.54	22.23	25.36	24.57

Note. Adapted from *Student Leadership Practices Inventory* (pp. 68-71), by J. M Kouzes and B.Z. Posner, 1998, San Francisco: Jossey-Bass Publishers. 1 = Mean SLPI scores for Greek Chapter Presidents (N = 177); 2 = Mean SLPI scores for Resident Assistants (N = 333); 3 = Mean SLPI scores for Peer Educators (N = 152); 4 = Mean SLPI scores for Student Body Presidents (N = 35).

SLPI Dimension	5	6	7	8
Challenging the Process	23.04	21.62	21.65	22.63
Inspiring a Shared Vision	24.85	21.89	21.18	22.52
Enabling Others to Act	25.94	24.72	24.54	25.79
Modeling the Way	23.14	22.01	22.30	23.48
Encouraging the Heart	25.49	24.18	22.31	24.44

Note. Adapted from *Student Leadership Practices Inventory* (pp. 68-71), by J. M Kouzes and B.Z. Posner, 1998, San Francisco: Jossey-Bass Publishers. 5 = Mean SLPI scores for Orientation Advisers (N = 78); 6 = Mean SLPI scores for High School Students (N = 151); 7 = Mean SLPI scores for Males (N = 378); 8 = Mean SLPI scores for Females (N = 484).

SLPI Dimension	9	10
Challenging the Process	.66	.94
Inspiring a Shared Vision	.79	.93
Enabling Others to Act	.70	.95
Modeling the Way	.68	.91
Encouraging the Heart	.80	.96

Note. Adapted from *Student Leadership Practices Inventory* (pp. 68-71), by J. M Kouzes and B.Z. Posner, 1998, San Francisco: Jossey-Bass Publishers. 9 = SLPI Internal Reliability Data (N = 1255); 10 = SLPI Test-Retest Reliability Data (N = 37).

APPENDIX B

MEAND AND STANDARD DEVIATIONS FOR SCORES ON THE DANVA2-AF AND DANVA2-AP

		Adult faces		Adult voices	
Age	N	*M*	*SD*	*M*	*SD*
4	156	9.3	4.1	6.6	6.8
5	135	13.6	3.9	10.8	6.1
6-7	183	15.8	3.7	12.7	4.8
8-9	175	17.0	2.9	14.1	3.0
9-10	305	17.8	3.1	14.9	3.1
11-12	208	19.0	2.7	15.6	2.9
13-14	102	19.8	2.4	16.5	3.0
15-18	103	19.8	2.3	17.4	3.1
19-21	407	19.9	2.3	18.5	2.2
22-30	74	19.7	2.5	18.1	2.8
31-40	91	19.2	2.6	17.5	2.9
51-60	60	17.7	2.7	13.9	3.3
70-99	28	16.3	3.3	14.3	4.1

Note. Data taken from studies through 1/1/99.