

2000

## Investigating the Executive Flexibility Model

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INVESTIGATING THE EXECUTIVE FLEXIBILITY MODEL

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A Thesis

Presented to

The Faculty of the Department of Psychology

The College of William and Mary in Virginia

In Partial Fulfillment

Of the Requirements of the Degree of

Masters of Arts

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by


Nancy J. Yanchus

2000


APPROVAL SHEET


This thesis is submitted in partial fulfillment of  
the requirements for the degree of

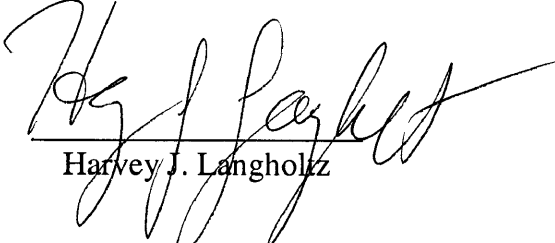
Master of Arts

  
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*For their loving support and seeing things through, this manuscript is dedicated to my immediate family—Robert, Meg, Susan, Sally Ann, and Dinah.*

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## ABSTRACT

The current study examines whether it is possible for the executive flexibility model (Zaccaro, 1996) to predict the potential for executive leadership. Two studies were performed. The first study used business undergraduates as its sample. The participants were given six personality inventories to complete and took part in a two-week, computer-based, marketing-simulation. Leadership ratings were taken to determine whether those high in the executive flexibility components, cognitive, behavioral, and dispositional flexibility—as measured by the personality inventories—would emerge as leaders of their companies. A similar procedure was used in the second study but with two different samples: ROTC cadets and Introductory Psychology students. For both the studies, the executive flexibility model failed to significantly predict the potential for executive leadership. Reasons for the null results are discussed.

## EXECUTIVE FLEXIBILITY

## Investigating the Executive Flexibility Model

Executive leadership is the set of leadership activities that occur at the top echelons of organizations. These activities are aimed at interpreting the external environment, providing direction, and maintaining and coordinating the organization as a whole. Executive flexibility has been proposed to be an essential aspect of effective leadership at this level (Zaccaro, 1996), and, as such, is a critical factor for an organization to achieve a competitive advantage.

A recurring theme in the literature on the requisite characteristics for effective leadership is the concept of flexibility. Zaccaro (1996) developed the term “executive flexibility” in his integrated model of executive leadership. In this model, executive flexibility is hypothesized to be necessary for effective executive leadership that “emerges from an integrated constellation of cognitive, social, and dispositional qualities” (Zaccaro, 1996, p.391). These qualities are considered to be interdependent, as opposed to additive, and all are thought to be necessary for effective executive leadership to emerge.

The purpose of this study is threefold. First, the theoretical concepts and their respective empirical support that are the backbone of Zaccaro’s (1996) integrated model of executive leadership are examined. Second, the model of executive flexibility and the exploratory research that is beginning to support it are discussed. Third, two studies that expand on that previous works are presented. It seems appropriate that a study devoted to the examination of executive leadership should begin with a basic review of how leadership has been defined in the literature.

### Executive Leadership Defined

According to Barnard (1938), an organization is a system of communication and is required to coordinate the essential efforts of cooperation. This system operates best when people who are defined as executives occupy centers of interconnection. Therefore, the function of the executive is to serve as a channel of communication, which assumes that communication must pass through central positions. Because the purpose of the communication system is to coordinate all aspects of the organization, it logically follows that the functions of the executive relate to all the work that is essential to a firm's success. However, not all work in an organization is executive. Specifically, executive work is not that *of* the organization, such as the CEO personally selling products for the company, but is instead the specialized work of *maintaining* the organization in operation.

Katz and Kahn (1978) describe an organization as an ongoing, open system in a state of dynamic equilibrium with the environment, which is partly composed of other organizations and partly made up of individual people. Within organizations there are three levels of leadership. At the bottom of the hierarchy, formally provided structure is used to keep the organization in motion and in effective operation or administration. This level is highly institutionalized and requires little if any leadership, which may only be necessary to quell a potential disruption that has already been predicted so that corrective mechanisms and procedures are prescribed and built into the organization. Leaders at the middle of the hierarchy engage in the interpolation of the existing formal structure, which is less apparent and continuous. For example, every supervisor functions within the limits of formal policy but also adds to or improvises with these limits. At the highest level of

the organization, leaders introduce structural change or policy formation. This is the most challenging of organizational tasks and is influenced by pressure from the external environment, such as changes in market or competition. Gilmore (1982) suggests that leadership at the organizational level centrally concerns managing the boundary between the organization and the environment.

Katz and Kahn (1978) indicate that executive leaders' boundary spanning includes sensitivity to environmental demands and to the requirements that the organization must meet in order to maintain a state of equilibrium with its environment. This external perspective involves openness and awareness to achieving a more advantageous relationship with the environment as well as sensitivity to trends and changes. Therefore, boundary spanning is a matter of obtaining information about the organizational environment, understanding environmental factors, and successfully relating facts about the environment back to the organization. In turn, this process permits forecasting the probable effects of different courses of action and the consequent choosing among them.

Likewise, the executive leader must also adopt an internal system perspective. Every organization is a system that consists of subsystems. These subsystems have different needs and the people in them have a multitude of interests. An unavoidable function of leadership is to attempt to integrate these subsystem differences. In order to do this, the executive leader is required to maintain a constant awareness and perspective regarding the changing needs of the subsystems and their populations.

The following is a definition of executive leadership that reflects these theories.

That set of activities directed toward the development and management of the organization as a whole, including all sub-components, to reflect long-range policies and purposes that have emerged from the executive leader's interactions within and interpretations of the organization's external environment (Zaccaro, 1996, p. 14).

### Cognitive Complexity Theories

Campbell (1988) provides an integrative framework of task complexity, which suggests that any objective task characteristic implies an increase in information load, information diversity, or rate of information change and can be considered a contributory to complexity. There are four basic task characteristics that meet this requirement. They are 1) the presence of multiple potential ways to arrive at a desired end-state; 2) the presence of multiple desired outcomes to be obtained; 3) the presence of conflicting interdependence among paths to multiple outcomes; and 4) the presence of uncertain or probabilistic links among paths or outcomes. Executives face higher information processing demands than those at lower levels of the organization, which require them to make more decisions and subsequently perform more tasks than others, creating a highly complex cognitive environment at the upper echelons of companies.

Interactive Complexity Theory (Streufer & Swezey, 1986) focuses on the structure of information processing by organizational managers. The theory proposes that two variables, individual differences and environmental conditions, interact to affect a person's optimal functioning. Individual differences are a person's ability and desire to differentiate and integrate multiple information sources. Environmental conditions, such as organizational structures and their operating environments, can be one-dimensional or highly differentiated. Streufert and Swezey (1986) suggest that success in organizations

occurs when the cognitive complexity of an individual matches the level of organizational complexity.

According to this theory, there are several broad differences in complexity between lower and upper organizational levels. As mentioned, an essential component of organizational complexity is information load, which is the amount of information flowing into the organization from the outside environment as well as information exchanges among segments of the organization. Managers at upper organizational levels deal with more sources of information flow that need differentiation and organization as do their responsibilities regarding the needs, demands, and climates of the segments within the company. Those at the higher-echelons have multiple short- and long-term goals that are operative and can include profit, investments, organizational change, and the best positioning of the company relative to its environment. Top managers, in order to achieve organizational success, must integrate the time frame and dimensions of each goal.

Another cognitive complexity theory is the Stratified Systems Theory (Jaques, 1976), which postulates that there exists a universal bureaucratic depth-structure in organizations, composed of organized strata, with boundaries at levels of work represented by time spans of 3 months, 1 year, 2 years, 5 years, 10 years, and 20 years or higher. These strata are not gradations but instead have observational boundaries and discontinuity. Thus, requisite organization of bureaucracy must be designed so that manager-subordinate role relationships are established at a one-stratum distance. Each discrete level is characterized in terms of amount of required abstraction. Shifts across boundaries represent shifts in the capacity of individuals to deal with increasingly



complex information in an increasingly abstract way. Table 1 provides a more in-depth look at the strata and their characteristics.

According to Jacobs and Jaques (1987), leadership requires a frame of reference, or mental map, for understanding information relevant to organizational requirements. This process underlies the thinking used to interpret the complex patterns of events, particularly external environmental events that typically are encountered at top organizational levels. The interpretive process is at the core of the conceptual skill area. The mental map consists of all salient factors, elements, and events and their interrelationships. By “mapping” factors and relationships, individuals’ frames of reference enable them to understand how a given situation came to be and how to influence it further.

The top three strata demand highly complex mental maps for three reasons. First, the number of elements that are interdependent increases. Second, the variance of timing of antecedent events increases with hierarchical levels so that differentiating between the consequences of certain events becomes more difficult. Third, at higher levels, managers increasingly deal with the external environment, which is filled with varying amounts of uncertainty and ambiguity.

Several studies empirically supporting cognitive complexity theory look at industries such as biotechnology (Judge & Spitzfaden, 1995), railroads (Barr, Stimpert, & Huff, 1992), and banking (Haas, Porat, & Vaughan, 1969). In one study, Fahey and Narayanan (1989) empirically linked changes in revealed causal maps and environmental change. They traced the revealed causal maps of the Zenith Company from 1960-1979. They grouped the 20-year period into five eras, based primarily on sales evolution. They

developed detailed descriptions of the environment for each era and derived the environmental elements that could be expected in the revealed causal maps. These expectations were then compared with the environmental elements actually found in the revealed causal maps. The structure of the raw and reconstructed revealed maps indicated that decision-makers were cognizant of the complexity of their environment. The content of the maps considerably changed from era to era. However, little interconnectedness between the elements of the macro-environment and the industry was present in the maps. This could reflect decision-makers' difficulty with constructing a complex and integrated view of the environment. The final results suggested that the revealed causal maps evolved over time and sometimes in accordance with the environment. A study such as this promotes further investigation into focusing on a cognitive orientation in strategic management.

An exploratory study by Calori, Johnson, and Sarnin (1994) looked at CEOs' cognitive maps and the scope of the organization. They selected 12 French companies and 14 British companies involved in four industries: brewing, car manufacturing, retail banking, and book publishing. The data on top managers' understanding of the business environments were collected by open-ended interviews. Twenty-six chief executives participated. The interviews were loosely structured but grounded on two broad questions designed to reveal the CEOs' strategic thinking about their industry and firm:

- a) "What main changes do you expect in your industry in the '90s?"
- b) "What changes are you thinking of for you company in the '90s?"

Content analysis was used to reveal cognitive concepts and links between the concepts and involved four steps: 1) revealing first order concepts and links; 2) weighting

concepts; 3) revealing second order categories; and 4) cognitive mapping. First order concepts were the core-constructs that were central to the manager's reasoning. Second order concepts were attempts to classify concepts at high levels of abstraction. The complexity of a CEO's cognitive maps of the structure of the environment was measured by three variables. First, the number of elements in the map measured the comprehensiveness of a manager's map of the structure of the industry. Second, the connectedness of a manager's map of the structure of the industry was measured by the number of links between concepts divided by the total number of concepts in the map. Third, the number of links between concepts in the map measured the complexity of a manager's cognitive map of the structure of the industry.

The complexity of a CEO's cognitive maps of the dynamics of the industry was similarly measured by the following three variables. First, the number of concepts in the map measured comprehensiveness. Second, connectedness was measured by the number of concepts in the largest sub-map divided by the total number of concepts in the map. Third, the number of concepts in the largest sub-map measured complexity. Results showed that top managers of firms with an international geographic scope have more complex cognitive maps of the structure of their environment than the other CEOs; and the top managers of firms related to foreign parents have more complex cognitive maps of the dynamics of the environment than the top managers of independent firms.

This study suggested that in situations in which the complexity of the task of reconciling forces of integration and forces of local adaptation, in combining product lines, geographic areas, and functional specialties, top managers had complex cognitive maps because they had to cope with the variety of the environment through more

complex understanding and because they learn from such variety. This study also indicated that in multinational corporations, career development should provide a variety of experiences in order to develop the cognitive complexity of CEOs who will have an integrative role within the top management team.

A few studies of military leadership have also tested the Stratified Systems Theory. Lucas and Markessini (1993) showed that the percentage of general officers who stated that long-term planning was important to their work increased from 25% for one-star officers to 40% for two-star officers, 63.6% for three-star officers, and 87.5% for four-star officers. Content analyses of these interviews were used to look at the specific range in work time frame for each of these levels. Two scores for each general were created to measure a) task planning time span; and b) the time horizon that he could envision future events. For the first measure, means were approximately in the 5- to 7-year time frame for all four ranks. For the second measure, mean responses were longer, with four-star officers averaging a 19-year time horizon. However, the maximum horizons for one-, two-, and three-star officers were all in the range of 9-11.5 years. This is within the lower and upper time frames proposed by Stratified Systems Theory for two-star and three-star officers, respectively, but it is longer than the span proposed for one-star officers.

In a study by Harris and Lucas (1991), 75% of four-star officers and 54.5% of three-star officers described joint/unified command as part of their performance requirements. Such commands require interactions with subordinates from different components of the military as opposed to within-Army command. Also, the four-star officers indicated that they reported to at least one external, nonmilitary

constituency (i.e. U.S. or non-U.S. government representatives), while no three-star officer reported this requirement. Finally, 87.5% of the four-star and 60.6% of the three-star officers reported that their work required a significant international focus. These findings support the presence of boundary-spanning activities at the military executive level.

### Behavioral Complexity Theories

According to Zaccaro (1996), behavioral capacity refers to an executive's ability to accomplish multiple organizational roles that require different and sometimes competing behavior patterns. Cognitive capacities are important to the executive so they can discern an integrated and meaningful pattern from complex and ambiguous information. Because problem situations confronting the top-level manager are complex, the resulting solution and its implementation should be correspondingly complex. Social capacities facilitate the execution of such plans within the complex social situations of organizations.

The Multiple Constituency Framework (Tsui, 1984a, 1984b) proposes that leader success is a function of the executive's reputational effectiveness. Reputation is "the effectiveness as perceived from the perspective of the individual or a specific group of individuals who are satisfied with the job behavior and activities exhibited by the manager being evaluated" (Tsui, 1984a, p.65). This view of effectiveness is based on elements of role theory (Katz & Kahn, 1978). According to role theory, each focal position in the company structure is faced with a set of role expectations. These expectations are prescribed by multiple role senders, such as superiors, peers, and subordinates, and may consist of desirable behaviors, norms, values, and attitudes.

According to Katz and Kahn (1978), individuals in focal positions act in relation and response to these expectations and their effectiveness results from the extent to which their job behaviors are congruent with the role senders' expectations. When these role expectations significantly diverge, a leader who is in the middle of this role set will receive different and often conflicting role information. According to Tsui, a leader's superiors may require different behaviors, which may be negatively related, to the behaviors required by the leader's subordinates or peers. To be seen as effective by multiple relevant constituencies, the leader must meet the different role requirements of all key role senders. Thus, executives' success likely depends upon their ability to maintain a balance of conflicting role behaviors (see Figure 1).

According to Tsui (1984a), different constituencies will vary in their expected frequency of each role behavior. For example, the spokesperson and liaison roles may be more important for reputational effectiveness perceived by peers than by subordinates or superiors. This may be because a manager's peers rely heavily on the exchange of information to coordinate their work efforts. Subordinates emphasize the leader, resource allocation, and environmental monitoring roles. Superiors are more likely to expect entrepreneurial roles. An effective manager is required to respond to each of these constituencies with their differing role expectations, which means that their perception of their own reputation depends on the successful accomplishment of all these roles.

Another behavioral complexity theory is Quinn's Competing Values Framework (Hart & Quinn, 1993; Hooijberg & Quinn, 1992; Quinn, 1984, 1988), which suggests that conflicting values, and thus opposing behavioral requirements, are inherent in executive leadership. Opposing values are of equal value to overall leader effectiveness making

necessary the mastery of contrasting behavior patterns. There are three sets of competing values. First, there is flexibility versus stability. Second, organizational effectiveness can be understood in terms of an emphasis on the well being of individual members versus the well being of the organization as a whole. Third, values differ regarding focus on process versus outcomes. Applied to executive leadership, these dimensions produce four sets of competing role requirements (Quinn, 1984), which are summarized along with requisite behavioral patterns in Table 2.

According to Hooijberg and Quinn (1992), significant behavioral complexity is required of organizational leaders. More of the roles in the competing values framework are enacted by effective, as opposed to ineffective, leaders. Effective leaders balance these roles in order to prevent emphasis on a particular role and in doing so exhibit significant behavioral complexity. Quinn (1984) proposed trait clusters for each of the roles in the theory (see Table 3). Each role is defined as emerging from qualitatively different sets of leader characteristics, all of which behaviorally complex managers will have. Leader effectiveness is based on the balancing of different dispositional orientations.

Several researchers have examined the question of what roles are required in the context of executive work by using analyses of subject matter experts (e.g., Luthans & Lockwood, 1984), analyses of managerial importance and time-spent ratings of job activities (Page & Tornow, 1987), and factor analyses of job description surveys (e.g., Baher, 1992; Morse & Wagner, 1978; Tornow & Pinto, 1976; Tsui, 1984a). Table 3 is a sampling of empirically derived role/behavior classifications. Most of these classifications contain activities and roles that can be placed in each of the four

competing sets of values identified by Quinn (1988; Hart & Quinn, 1993). Gibbs (1994) looked at the effects of environment and technology on managerial roles. The results of the study indicated that informational roles vary with environmental complexity; the decisional roles vary with environmental dynamism and complexity; and the interpersonal roles vary directly with dynamism and are moderated by complexity such that they are more frequent in complex as opposed to simple environments. These findings suggest that environmental characteristics will determine the need for executives to play many roles in order to facilitate organizational adaptation.

Behavioral complexity models posit that frequent role shifting, a constant pace of activity, and the need to balance multiple work requirements characterize executive work. Jonas, Fry and Srivastva (1990) noted the balancing of different organizational orientations from interviewing 24 chief executives who sought to maintain both innovation and stability within their organizations:

Part of the role of CEO is to simultaneously embody the status quo and to question it. As custodian of the firm's history he or she strives to define the strengths of the enterprise by acting as a force for stability and an expression of its culture. Equally concerned with the future, he or she regularly asks the frame-breaking question, challenges organizational norms, and plays maverick to stimulate creativity and innovation (p. 40).

A study by Baher (1992) provided evidence for the hierarchical differentiation of leader role requirements. He completed a cluster analysis of 16 job functions on 1,358 leaders at different levels in industry, health organizations, and banking. The cluster analysis indicated 11 clusters, with the first three reflecting the job functions of



executives, middle managers, and line supervisors. The top five activities in the executive cluster were 1) setting organizational objectives; 2) promoting community-organization relations; 3) communications; 4) interdepartmental coordination; and 5) handling outside conflicts. Middle managers were characterized by 1) communications; 2) developing teamwork; 3) interdepartmental coordination; 4) improving work practices; and 5) judgment and decision-making. The major job functions of line supervisors were 1) developing teamwork; 2) supervision; 3) coping with emergencies; 4) developing employee potential; and 5) personnel management. Overall, executives were more oriented toward planning and boundary-spanning roles than lower level managers, while the latter were concerned with intra-organizational coordination and personnel supervision.

Gilbert and Zaccaro (1995) looked at social intelligence and career achievement in military officers ranging in rank from 2<sup>nd</sup> Lieutenant to Colonel. They reported that both interpersonal and system perceptiveness were significantly associated with measures of military career success. Systems perceptiveness, but not interpersonal perception skills, contributed significantly to the prediction of rank and career achievement, even after officer intelligence and creative thinking skills were held constant.

In summary, the cognitive and behavioral complexity theories each emphasize different aspects of executive leadership. Cognitive complexity theories examine the differences in leader performance requirements across organizational levels. These approaches focus on the reflective and long-term planning aspects of executive leadership. High-level conceptual skills are employed to construct integrated causal maps of the organization and its environment that contribute to the creation of organizational

plans. Behavioral complexity theories focus on many executive leader roles as well as long-range planning. This suggests that leaders need both high conceptual skills as well as an ability to display and balance potentially competing roles and behaviors. Cognitive complexity theories are based in the higher levels of information processing demands that confront top executives whereas behavioral complexity theories reflect higher social demands. Based on the commonalities between these theories, Zaccaro (1996) developed an integrated theory of executive leadership.

#### Executive Leadership: An Integrated Model

Because the theories presented thus far emphasize different dimensions of top-level leadership but ignore other important aspects, Zaccaro (1996) proposed an integrated model of executive leadership. He suggested that an integrated model capitalizes on the contributions of previous theory and provides a more comprehensive framework for future research. This integrated model of executive leadership that is based on six premises, each of which has received substantial empirical support from analyses of executive performance. The premises are as follows (Zaccaro, 1996, pp. 357, 360):

- 1) Leader performance requirements can be described in terms of three distinct levels in organizational space (production level, organizational level, and systems level).
- 2) All organizational leaders engage in direction setting (e.g., goal setting, planning, strategy making, envisioning) for their constituent units. Such direction setting incorporates an increasingly longer time frame at higher organizational levels.

- 3) All organizational leaders engage in boundary-spanning activities, linking their constituent units with their environments. At lower organizational levels, this environment is the broader organization. At upper levels, boundary spanning and environmental analysis occurs increasingly within the organization's external environment.
- 4) All organizational leaders are responsible for operational maintenance and coordination within the organization. At upper levels, operational influence becomes increasingly indirect.
- 5) The effective accomplishment of executive performance functions facilitates organizational performance and success.
- 6) Characteristics of the operating environment influence the nature and quality of executive performance requirements.

Figure 2 (Zaccaro, 1996) depicts the influences on and functions of executive leadership. This activity occurs at the systems level and is where leaders manage the organization as a whole within the context of a complex environment and engage in more boundary-spanning activities. Executive leaders need to scan and analyze the environment of the organization in order to determine the types of changes in that environment, the requirements needed for the organization to adapt to changes, and the potential resources available to the organization to meet these requirements. The scanning activities are combined with analysis of organizational capabilities and requirements in order to determine a) the needs of the organization with respect to environment resources and change; and b) the types of opportunities that exist within the environment to which the organization can be most responsive. Part of executive boundary spanning includes

attempts by top leaders to influence and change the environmental conditions within which the organization must operate (Zaccaro, 1996).

As shown in Figure 2, there are two fundamental requirements for executive leaders. The first is to provide a direction for collective action. The second is to manage the day-to-day operations of the organization. Leader direction-making usually takes the form of a vision. An organizational vision projects a desired image of the organization at some point in the future. This vision is defined in terms of an organizational strategy that is passed down to lower organizational levels. Executives are responsible for developing a vision with a corresponding strategic plan, articulating these to the organization, and persuading organizational members to adopt and implement the plan. Once a vision and strategy are created, they become the guides for further analyses of the organization and its environment. Executives must then evaluate the organizational capabilities in light of the vision to determine the alignment of the organization with its environment. If there are significant changes in the environment or organization that create inconsistencies with the formulated direction, then executives must adapt their vision to the changed conditions or face failure. As shown in Figure 2, the leader performance requirements include feedback loops where leader visions shape the subsequent information acquisition by senior leaders of the organization and its environment; this information serves in an ongoing evaluation of organizational progress regarding the attainment of formulated objectives (Zaccaro, 1996).

The second key requirement of executive leadership is to implement their vision by coordinating the necessary organizational elements. When leaders translate their vision into strategy, objectives, goals, plans, and tasks, implementation has already

begun. The process of implementation takes two forms. First, it involves planned change in the structure and policies of the organization, which is the unique property of executive leadership. They may share these rights and responsibilities with lower level leaders, but that is their decision to make. Second, it involves changing the climate and culture of the organization and altering the basis for the connection between leaders and followers. This change involves a) greater emotional attachment based on the contents of the leader's vision, and b) an empowerment of subordinates through the enhancement of their work-related self-esteem. Changes in structure and policy or climate and culture influence each other and can lead the executive leader to evaluate their implementation strategies. As implementation proceeds, changes in the organization become information for subsequent scanning of the environment and evaluation of how the original formulated direction is working, as shown in the feedback loop at the bottom of Figure 2 (Zaccaro, 1996).

Two additional factors are part of the executive leadership model. First, the consequence of accomplishing executive performance requirements is organizational effectiveness and adaptation. Second, there exists the moderating role of environmental contingencies on executive performance requirements. Munificence is the resource richness or poverty of the environment. Complexity refers to the environmental diversity in terms of resource suppliers, clients/customers, markets, and geographical locations. Dynamism is the rapidity and unpredictability of change in the environment and the degree of interconnections among environmental elements. As shown in Figure 2, all of these dimensions can impact boundary-spanning activities and direction setting as well as operational management (Zaccaro, 1996).

## Executive Flexibility

According to Zaccaro (1996), the executive flexibility model shows the interdependencies and reciprocal influence among leadership functions and across organizational levels. The high information processing demands and social complexity that define upper echelons of organizations require executive leaders to have certain characteristics in order to perform effectively. There are five sets of qualities: cognitive capacities, social capacities, personality, motivation, and knowledge and expertise (see Table 3). Taken together, these executive leadership characteristics reveal the consistent theme of flexibility.

Streufer and Swezey (1986) contrast hierarchical and flexible complexity in terms of cognitive structure. Hierarchical complexity reflects fixed relationships among conceptual elements in a cognitive space whereas flexible complexity results in fluid and dynamic relationships among conceptual elements that vary according to changes in environmental stimuli. Thus, executives who exhibit flexible integrative complexity should be better leaders. Zaccaro, Gilbert, Thor, and Mumford (1991) argue that behavioral flexibility is based in social reasoning skills that provide the foundation for an executive's ability to make appropriate responses across diverse social situations. This indicates that behavioral flexibility depends in part on skill in differentiating and integrating social domain knowledge (i.e., on integrative cognitive flexibility).

According to Zaccaro (1996), flexibility also requires that leaders display openness and tolerance when faced with social uncertainty and ambiguity. This characteristic—openness to experience—is recognized as a major personality dimension of the Five-Factor Model (McCrae & Costa, 1987, 1991). Under uncertain conditions,

behavioral flexibility may lead to behavioral vacillation unless leaders possess self-discipline, which forces closure on a behavioral action even when social cues are ambiguous regarding an appropriate response set (Zaccaro, 1996). These observations led many researchers to argue that flexibility, and similar personal qualities, are important executive personality characteristics (Howard & Bray, 1988; Miller & Toulouse, 1986; Mumford, Zaccaro, Harding, Fleishman, & Reiter-Palmon, 1993).

Executive flexibility emerges from an integrated constellation of cognitive, social, and dispositional qualities (Zaccaro, 1996) (see Figure 4). There are three general sets of individual qualities that are portrayed: behavioral flexibility, flexible integrative complexity, and flexibility as a dispositional quality. The overlapping circles in the model represent the premise that effective executive leadership emerges partly from the joint influence of these qualities. These characteristics are neither additive nor independent in influencing executive leadership. For example, integrative complexity allows the leader to develop the elaborate response models required in complex social domains; however, behavioral flexibility reflects the mechanism of translating leader thought to appropriate leader action across diverse organizational situations.

Both cognitive and behavioral flexibility are facilitated by a disposition-based flexibility (Zaccaro, 1996). Conceptual capacity and the construction of elaborate frames of reference, as described by Stratified Systems Theory, require a degree of openness and curiosity by the executive leader. Similarly, individuals who are characterized as high in this quality display adaptiveness instead of rigidity in dynamic social domains and are more likely to be behaviorally flexible in these situations. Without this quality and a high

tolerance for ambiguity, leaders would be unable to cope with the complex and dynamic environment they need to model.

Another aspect of this dimension is self-discipline. Self-discipline minimizes the chance that a conceptually complex executive will cycle through too many decision iterations without reaching a functional level of conceptual understanding. The openness to new experiences that is part of the disposition-based flexibility prevents such thinking from becoming rigid (Zaccaro, 1996).

According to Zaccaro (1996), effective executive leadership lies at the center of these three interdependent qualities. Such leadership is unlikely to emerge from one or even two of these qualities, especially in dynamic or turbulent organizational environments. More basic, social or behavioral flexibility will not be displayed unless leaders also possess the disposition to be flexible as well as the conceptual skills to develop and distinguish among different situational appropriate response repertoires.

All of the research examining executive flexibility has been exploratory in nature. The first study, McGee, Banks, and Zaccaro (1998), derived a composite measure of executive flexibility. The express purpose of that study was to determine whether a composite measure of executive flexibility could be derived from measures that were currently in use in the executive assessment program at the National Defense University (NDU). Participants were 741 senior military officers and civil servants representing all five military services and the civil service. The participants had been carefully screened by their parent service and selected for an executive development program at NDU's Industrial College of the Armed Forces. The data were gathered over three years from



three different classes. The sample was heavily biased regarding gender (614 males, 127 females) but otherwise was homogenous in terms of SES and on-the-job performance.

The measures used in this study were from the executive assessment battery at NDU and consisted of 10 measures of 54 individual variables. Some of the measures included the Myers-Briggs, Modified Career Path Appreciation, the Operational Styles test, the Belbin test of Team Roles, the Strategic Leadership Development inventory, and the Gordon Personality Profile. Also, the NDU database contained several measures that were construed as performance criteria. These included academic performance that represented mastery of the requisite knowledge domain, a self-report disposition work at the executive level (Ghiselli Test of Management Potential), and two faculty ratings of participants' potential to lead at the executive level. The definitions of the 54 variables measured by the executive assessment battery were rationally analyzed and the authors were able to conceptually link 12 of the 54 variables to the component of executive flexibility. Four separate hierarchical regressions were performed, one for each of the performance criterion measures. For each of the four analyses, the order of variable entry was rotated so that each of the three variable sets occupied all three entry-levels. A simultaneous regression analysis was performed for each of the criterion measures using the variables that had significant regression weights in each of the four round-robin hierarchical regression analyses. Results indicated that the composite measure of executive flexibility, consisting of standardized scores for ingenuity, interpersonal competence (self), and NT-SF were valid and reliable.

The second study in this exploratory series, Banks, McGee, and Zaccaro (1998), looked at a multitrait-multimethod conceptualization of executive flexibility. It focused

on defining the components and sub-components of executive flexibility and proposed a list of measures that could be used to test these qualities. The findings of this study are summarized in Table 5 and Table 6.

Banks, McGee and Zaccaro (1999) used the executive flexibility model to predict leadership at the executive level. Participants in that study were obtained from an archival database. Using the same sample data as was collected by McGee et al. (1998), criteria variables were collected for one of the three classes, which reduced the sample size to  $N=243$ . The executive assessment battery consisted of 10 measures of 54 variables. The measures were: a mean faculty rating on the Big 5 personality characteristics, the MTBI, the Kirton Adaptation-Innovation Inventory, the Gordon Personal Profile and Inventory, and the Army Alpha Test of Intelligence. The data set contained four measures that were construed as performance criteria. They were: academic performance, the Ghiselli Test of Management Potential, a faculty rating of probability of promotion to the rank of 1 star general, and the faculty rating of the potential to think and lead at the 3 or 4 star level.

A principle factors analysis with varimax rotation was performed with the twenty measurement variables to determine the latent factors underlying the observed variables. Principal components extraction was used prior to the principal factors extraction to evaluate additional assumptions and to estimate the number of factors. Factor scores were computed and a series of multiple hierarchical regressions using the four criteria variables were conducted using factor scores as predictors. The variables loading on the first factor included preferred style of creativity and problem solving (KAI), preferred style of information acquisition (MBTI S/N scale), and preferred lifestyle (MBTI J/P scale). This factor was interpreted as representing cognitive flexibility. The Big 5 variables

(emotional stability, intellectance, conscientiousness, agreeableness, and surgency) all loaded on the second factor. The authors suggested that there was the possibility that these variables loaded together as a result of method variance and they interpreted the factor as reflecting individual personality differences and not as representing the dispositional component of the executive flexibility model. All of the variables that loaded on the third factor were related to an external versus internal focus. Those high in affiliation on the GPPI and those high on the extroversion end of the MBTI focus their attention on their abstract social environment while abstract reasoning, which loaded negatively on the factor, suggested an internal focus. These findings suggest that this factor can be theoretically linked to social flexibility. Two variables loaded on a fourth factor: energy and mood stability. The authors concluded that this factor might represent potential for productivity.

A series of four multiple regressions were conducted using the factor scores from the four extracted factors as independent variables. With faculty ratings of probability for promotion to 1 star general as the criterion variable, cognitive flexibility and dispositional factors accounted for 38% of the variance. For potential to think and lead at the 3 or 4 star level, the four factors accounted for 46% of the variance. The cognitive, dispositional, and social flexibility factors were all significant. For academic performance, the four factors accounted for 28% of the variance. The cognitive, dispositional, and social flexibility factors all accounted for significant and unique variance. For the self-report disposition to operate at the executive level, the four factors accounted for 31% of the unique variance. Cognitive flexibility explained significant and unique variance as did the personal productivity factor.

The authors noted that the limitations of this study were that they were unable to obtain true leadership performance and that the Big 5 factor was difficult to interpret, although they thought that this factor should continue to be investigated. Overall, these findings suggested that the notion of executive flexibility has utility for understanding executive selection.

The final study in the exploratory research examining executive flexibility, McGee, Banks, and Zaccaro (1999), also considered the question: can executive flexibility be useful for identifying executive-level leader potential? The primary purpose guiding this research was to determine if the assessment battery developed in Banks et al. (1999) (which continued to be refined by the authors), could discriminate between high and low potential executive candidates based on the integrated constellation of executive flexibility.

Participants in that study came from two universities. Constituting the low executive potential group were undergraduate Psychology students ( $n=114$ ) who had completed an executive assessment battery for extra course credit. The high-potential group ( $n=22$ ) consisted of graduate students enrolled in a degree-conveying program specifically designed to groom future executives. They were Air Force captains who were carefully screened and hand-selected for an internship program in which they were assigned to work for a high level mentor (e.g., Joint Chiefs of Staff). In addition to this work assignment, all of the officers were pursuing a MA degree at a major university.

The measures used in the executive assessment battery are as follows. The measures used for cognitive flexibility were the Modified Career Path Appreciation test and the Wonderlic Personnel test; for social flexibility the measured used were a social

intelligence test and the Revised Self-Monitoring Scale; to measure dispositional flexibility, Saucier's Mini-Marker's test was used. The criterion variable used was the final course grade received by the Air Force interns in a course titled "Leadership in Complex Organizations" that consisted of performance on a constructed response mid-term and final exam as well as a course paper that chronicled a case study of leadership at the executive level.

A discriminant functions analysis was performed using the constructs as predictors of membership in either the high or low potential for executive leadership group. The loading matrix of the correlations between predictors and the discriminant function suggested that the best predictors for discriminating between high and low potential for effective executive leadership were conceptual capacity and general mental ability and, to a lesser degree, system perception, behavioral flexibility, interpersonal perception, social competence, ability to modify self-presentation, conscientiousness, and emotional stability. One hundred and seven participants (98.2% were correctly classified into a high executive potential group and a low executive potential group. The high potential group had a significantly higher mean score for conceptual capacity compared to the low potential group (9.2 and 2.7 respectively on a scale of 1 to 21 where levels 16 through 21 represent the executive levels). Using CPA maturation curves (the CPA uses empirically derived maturation curves to predict conceptual capacity potential at various points in the future), which normed the entire sample at a common age at some specific point in the future, the high potential group had an average potential capacity of 16.0 which indicated that as a group, these participants had at least moderate potential to work at the executive level. The low potential group had an average potential capacity of 11.5,

indicating that as a group these participants did not have executive potential but did have the potential to work at the mid-management level.

The authors concluded that the executive assessment battery used in this study could distinguish between those who have high and low potential for effective executive leadership. However, there were some constraints and limitations to this study. First, the disparity between the two samples was great but the authors indicated that even after the two groups were normed, there were significant differences in at least one executive flexibility construct. Second, there were concerns about the reliability and valid mix of constructs and measures but the authors have, since performing this study, developed an executive assessment battery that has been content validated and is being construct validated. Finally, the authors queried exactly what the CPA measured—its content needs further systematic construct validation and is no longer part of the executive assessment battery.

### The Current Study

The current study is a continuation of previous research and investigates the following sub-components of executive flexibility to determine whether it is possible to use the model to predict the potential for executive leadership.

Cognitive flexibility is a necessary component of effective executive leadership because of the dynamic and novel problems that organizational leaders face. Constructs related to cognitive flexibility should be those that enable individuals to develop complex cognitive maps and to cope with high information processing demands. Conceptual capacity, which is the ability to think about and organize experience, is considered necessary for complex causal maps and abstract thinking (Jacobs & Lewis, 1992). It also

enables individuals to function with longer time horizons and to analyze problems and solution paths that have impact across greater spans of time. Creativity refers to the ability to originate something novel and valuable. Creative individuals diverge from old or recognized patterns in order to approach problems in an unconventional way (Feist, 1998; Sternberg, 1985). Those high in creativity have the ability to think flexibly when confronted with novel problems and have the desire to think flexibly and have innovation as a personal goal. These two constructs are examined in the current study as representing the component of cognitive flexibility.

Executives need to negotiate a variety of social situations as well as be able to differentiate between social situations, match appropriate responses to particular situations, and to select these responses from their behavioral repertoire (Zaccaro, Gilbert et al., 1991). They also must be able to balance a wide range of contradictory roles. Behavioral complexity is the capacity to integrate multiple, diverse, and conflicting roles (Denison, Hooijberg, & Quinn, 1995; Hart & Quinn, 1993; Hooijberg, 1996; Hooijberg & Quinn, 1992; Quinn, 1988; Quinn, Spreitzer, & Hart, 1992). Social intelligence, which is related to behavioral complexity, reflects how well developed and accurate an individual's social knowledge structures are and their ability to use these structures to appropriately adapt to changing situations (Ford & Tisak, 1983; Marlowe, 1986; Marlowe & Bedell, 1982; Walker & Foley, 1973). Leaders high in social intelligence are more likely to be effective at navigating complex social interactions (Zaccaro, Gilbert et al., 1991).

Emotional intelligence, a subtype of social intelligence, is the intelligent and efficient processing and use of affective information. It involves "the ability to monitor

one's own and other's feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions" (Salovey & Mayer, 1990, p.189). The appraisal and expression of emotion in oneself can be verbal or nonverbal; in others it can be nonverbal perception of emotion and empathy. The regulation of emotion can be done within the self and in others. Individuals have varying levels of ability to capture their emotions and use them to solve problems. First, mood swings can help people to "think outside the box" when contemplating their future thereby becoming more open to a wider variety future plans. Second, mood can affect the creative process because of its impact on the organization and use of information in memory. Third, emotion can help individuals to reprioritize the internal and external demand on their attention, allowing them to better allocate their resources. Fourth, moods are useful in motivating an individual to persist at challenging tasks (Mayer, Caruso, & Salovey, 1997; Mayer, DiPaolo, & Salovey, 1990; Mayer & Salovey, 1993, 1995, 1997; Salovey & Mayer, 1990).

Empathy is a personality characteristic that reflects emotional intelligence. It is the ability to understand the feelings of others and to experience them oneself. This reaction contains both a cognitive and affective element (Davis, 1980, 1983a, 1983b). These three constructs constitute the component of behavioral flexibility that is measured in the current study.

According to Zaccaro (1996), flexibility also requires that leaders display openness and tolerance when faced with social uncertainty and ambiguity. This characteristic—openness to experience—is recognized as a major, distinctive personality dimension (McCrae & Costa, 1987, 1991). Those high in openness feel the need to



experience and understand situations and are more receptive to novel ideas or concepts (Barrick & Mount, 1993; Digman, 1990, Digman & Inouye, 1986; Goldberg, 1992; Hough, 1992; McCrae, 1993; Norman, 1963). The Big 5 are measured in the current study although the results will be interpreted with caution as suggested by Banks et al., (1999).

Although the two studies presented here investigate many of the same constructs used by Banks et al. (1999) and McGee et al. (1999), they are the first research to incorporate two of the sub-components of behavioral flexibility, emotional intelligence and empathy, into the executive assessment battery. The studies also target some of the limitations of previous research. In Study One, a non-military participant base was used and actual leadership data was obtained. In the second study, a military participant base and an undergraduate base were used in order to determine whether leadership training affected the predictive ability of the executive flexibility model.

## Study One

This study was designed to investigate whether it was possible, using existing personality inventories, to measure the subcomponents of the executive flexibility model—cognitive, behavioral, and dispositional flexibility—as well as to determine whether it was possible to use the model to predict the potential to lead at the executive level in a non-military sample. It was hypothesized that cognitive, behavioral, and dispositional flexibility would predict the potential to lead at the executive level.

### Method

#### Participants

Participants were 215 undergraduate business students organized into 43 “companies” (approximately 5 per group).

#### Measurements

Cognitive Flexibility: The Wonderlic Personnel Test (Wonderlic, 1983), a widely accepted indicator of general mental ability, was used (see Appendix A). The Cronbach  $\alpha$ 's = 0.88 to 0.94, construct validity with WAIS-R,  $r = 0.92$  (see Jensen (1977) and Hunter (1989) for content validity analysis). The short version of the Kirton Adaptation-Innovation Inventory, a measure of preferred style of creativity and problem solving (Kirton, 1976) was also used (see Appendix B). The Cronbach  $\alpha$ 's = 0.85 for efficiency, 0.79 for rule following, and 0.59 for originality (Shaver, Gartner, Gatewood, & Vos, 1996). The Meyers-Briggs's Intuition and Perception scales were used to test the construct validity of the KAI because these two combined were thought to measure creativity. The resulting correlation was 0.62, significant at the 0.05 level (Kirton, 1976).

Behavioral Flexibility: The Background Data Measure of Social Intelligence (Zaccaro, Zazanis, Diana, & Gilbert, 1995), which measures system perception (Cronbach  $\alpha = 0.72$ ), behavioral flexibility (Cronbach  $\alpha = 0.76$ ), social competence (Cronbach  $\alpha = 0.72$ ), and interpersonal perception (Cronbach  $\alpha = 0.82$ ) (see Appendix C) was used. The construct validity of the BDMSI was tested using peer rankings of effectiveness in team performance, a measure that directly taps into the social abilities measured by the BDMSI. The resulting correlations of the four subscales of the BDMSI with peer rankings of effectiveness in a team performance are 0.17, 0.15, 0.16, and 0.22. All four correlations are significant at the 0.05 level. The Multifactor Emotional Intelligence Scale, Shortened version (MEIS) (Mayer, Caruso, & Salovey, 1997), branch 3, which examines the understanding of emotion (Cronbach  $\alpha$ 's = 0.88) was also used (see Appendix D). The construct validity of the MEIS was tested using the Alpha Army vocabulary scale in order to find out if emotional intelligence was related to another intelligence. The correlation between the MEIS and the Alpha Army vocabulary scale was 0.36. The construct validity of the MEIS was also assessed using the Epstein-Mehrabian Empathy because empathy has been predicted to correlate with emotional intelligence (Salovey & Mayer, 1990). The relationship between these two scales is 0.33. Both of these correlations are at the 0.001 significance level. The Interpersonal Reactivity Index (Davis, 1980) (see Appendix E) was also used. It measures fantasy (Cronbach  $\alpha = 0.78$ ), perspective taking (Cronbach  $\alpha = 0.71$ ), empathic concern (Cronbach  $\alpha = 0.73$ ), and personal distress (Cronbach  $\alpha = 0.77$ ). See Davis (1983) for construct validities.

Dispositional Flexibility: This study used Saucier's (1994) Mini-Markers, which operationalize the Big 5 personality factors of extraversion (Cronbach  $\alpha = 0.87$ ),

agreeableness (Cronbach  $\alpha = .85$ ), openness to experience (Cronbach  $\alpha = 0.82$ ), emotional stability (Cronbach  $\alpha = 0.81$ , and conscientiousness (Cronbach  $\alpha = 0.87$ ). The correlation between the Mini-Markers and the 100 adjective checklist (Goldberg, 1992) is 0.92. (see Appendix F).

### Performance Criteria

Students' potential to lead at the executive level was measured with two questionnaires. The first questionnaire asked them to rate the other members of their company, on a 7 point Likert scale, from strongly disagree to strongly agree, on the following statement: "Who was the true leader of your company?" (See Appendix G.) The second questionnaire asked them to rate themselves, on a 7 point Likert scale, from strongly disagree to strongly agree, regarding the performance on 10 executive role activities they may have performed during the marketing-simulation (see Appendix H). Students were also asked to provide background information regarding the participation in a William & Mary athletic team and their SAT scores (see Appendix I).

### Procedure

Phase I: As part of a Business professor's research, participants completed several inventories, including the Mini-Markers, the IRI, and the KAI, on a data collection website. They were given extra course credit and a pizza coupon for completing the web survey.

Phase II: As an extension to their marketing course, participants took part in a two-week, computer-based, marketing-simulation. The simulation, Capstone, requires that groups act as companies competing in an industry with five other groups. Students

enter decisions for eight “years” of company activity and industry competition. Decisions cover finance, marketing, and operations.

Phase III: Students who participated in the marketing-simulation were recruited via e-mail as well as by an announcement of the study in their marketing classes. They were given the option of attending three data collection sessions with two \$100 lottery drawings per session as an incentive to participate. At the sessions, the experimenter read from the script for the session (see Appendix J) and handed out envelopes that contained a William & Mary consent form (see Appendix K), all the remaining inventories, and the performance criteria questionnaires. To protect the participants’ confidentiality, the students were told to put the last six digits of their SS# at the top of each form. First, participants filled out the performance criteria questionnaires and the background information sheet. Second, they were given the timed Wonderlic Personnel test. Third, they were told to fill out the social and emotional intelligence tests. Fourth, the lotteries were held.

Phase IV: Students unable to attend the three data collection session were contacted by phone so the experimenter could collect information on the two performance criteria questionnaires (see Appendix L for a script of the phone calls).

## Results

### Tests of Assumptions

Because only 19 participants were able to complete all six inventories (WPT, KAI, BDMSI, MEIS, IRI and the FFM, only data collected from participants who filled out the KAI, IRI, and FFM personality measures were used in these analyses. This criterion reduced the sample size from  $N=215$  to  $N=136$ . No abnormalities were found

when the minimum and maximum values, the means and standard deviations of each variable were screened for plausibility. Table 7 lists the mean and standard deviation for each variable.

### Factor Analysis

A principle axis factoring analysis extraction with varimax rotation was performed with the 12 variables from the three inventories—Interpersonal Reactivity Index (IRI), Kirton Adaptation-Innovation Inventory (KAI), and Saucier's Mini-markers (FFM)—to determine the latent factors underlying these observed variables. It was expected that at least four factors (Banks et al., 1999) would emerge representing the components of executive flexibility. KMO and Barlett's Test were performed and showed that sphericity could be assumed. Many correlations among the 12 variables were above .30, which suggested clusters in the data and factorability. The scree plots and eigenvalues from the analysis suggested four factors, with a total above 1, which accounted for a total of 68.07 percent of the total variance explained (see Table 8).

The variables loading on the first factor included openness (Factor V/FFM) and the fantasy scale (FS/IRI). The openness factor of the Big 5 model indexes the degree to which an individual is open to new ideas and experiences. The fantasy scale taps into the tendency to imaginatively transpose oneself into fictional situations (e.g., books, movies, daydreams). This factor is be interpreted as representing dispositional flexibility because its components fit most closely with the factor described by Banks et al. (1999) (see Table 9).

The variables loading on the second factor on the second factor included the perspective taking scale (PT/IRI), emotional stability (Factor IV/FFM), agreeableness

(Factor II/FFM), and the empathic concern scale (EC/IRI). The perspective taking scale reflects the ability or proclivity to shift perspectives-to step “outside the self” when dealing with other people. The empathic concern scale assesses the degree to which the respondent experiences feelings of warmth, compassion, and concern for observed individuals. This factor can be interpreted as representing behavioral flexibility because its components fit most closely with the factor described by Banks et al. (1999) (see Table 9).

The variables loading on the third variable included rule following (KAI), efficiency (KAI) and conscientiousness (Factor III/FFM). Rule following is an index of conformity. Efficiency represents an individual’s ability to maintain a high level of organization when completing a task. Conscientiousness is a dispositional characteristic revealed by attention to thoroughness. This factor can be interpreted as representing self-discipline because its components fit most closely with the factor described by Banks et al. (1999) (see Table 9).

The variables loading on the fourth factor included extraversion (Factor I/FFM), originality (KAI), and personal distress scale (PD/IRI). Originality reflects an individual’s ability to look at problems and situations in new, creative ways. The personal distress scale measures the individual’s own feelings of fear, apprehension, and discomfort at witnessing the negative experiences of others. This variable negatively loaded on the factor indicating that a low score on PD reflects the ability to remain maintain a cognitive, as opposed to emotional, response to distressing situations. This factor can be interpreted as representing cognitive flexibility because its components fit most closely with the factor described by Banks et al. (1999) (see Table 9).

All of the scales were subject to a reliability test to make sure that they assess the same construct in this sample (see Table 10).

### Multiple Regression

In order to examine data for which the participants both completed the inventories and received two or more leadership ratings, the sample size was further reduced from  $N=136$  to  $N=37$ . A series of independent sample t-tests were run to determine whether gender had a significant effect on the variable means. None of the tests showed significance. Next, the scores from the scales comprising the four factors were standardized and summed together to create factor scores.

A simultaneous multiple regression was conducted using four extracted factors. See Table 11 for the resulting regression weights from this statistical analysis.

With leadership rating by peers as the dependent variable, the four factors accounted for 6% of the variance, a non-significant amount. Each of the factors contributed some unique variance but not at a significant level. See Table 11 for the resulting correlations.

### Discussion

The results of the factor analysis were largely anticipated, based on the findings of Banks et al. (1999). The three factors of flexibility—cognitive, behavioral, and dispositional—were all replicated. However, a fourth factor, self-discipline, emerged that was not expected. Zaccaro's (1996) model of executive flexibility includes self-discipline as a component of dispositional flexibility. He suggests that the characteristic of self-discipline reduces the chance that a conceptually complex executive will cycle through too many decision iterations without reaching a functional level of conceptual



understanding. A possible explanation for the finding that self-discipline exists as its own factor may be that the sample used in this study, undergraduate students at a highly academically competitive college, may possess a greater than average amount of self-discipline in order to achieve their ambitious career goals.

The most salient finding of the multiple regression shows is that the executive flexibility factors accounted for 6% of the variance. Although this is a statistically non-significant amount it does indicate a very small trend towards the executive flexibility model being a predictor of the potential to lead at the executive level. Also, each factor did account for some unique variance, although not at a statistically significant level. Dispositional flexibility accounted for 1% unique variance, behavioral flexibility accounted for 1% unique variance, cognitive flexibility accounted for 2% unique variance, and self-discipline accounted for 3% unique variance.

The weakest aspect of this study was the small sample size. Although the sample used in the factor analysis was acceptable to perform that analyses, the reduced sample for the simultaneous multiple regression was perilously low. Very few ( $n=19$ ) individuals attended the data collection session in spite of the large lottery reward. Also, because of time constraints the experimenter was unable to contact by phone, in order to obtain leadership ratings of their peers, all of the participants who filled out the web survey. An alternative method for obtaining undergraduate business students is to develop a type of contract with professors from the business department and work with them so they integrate data collection sessions into a class syllabus that covers a similar topic as the experiment (see Paddock, 2000).

## Study Two

This study investigated the relationship between military experience and cognitive, behavioral, and dispositional flexibility to determine which variable was the stronger predictor of the potential to lead at the executive level. This study was developed because of concerns that previous research, including study One, had not addressed whether military experience co-varies with executive flexibility as a predictor of leadership potential. McGee et al. (1999) examined whether it was possible for the executive flexibility model to differentiate between individuals who had the potential for executive leadership (naval interns) and those who did not (Psychology undergraduates). A potential problem with that study was the selection of two highly different samples. The naval interns were older, had leadership training through the military, and were in a graduate program. The Psychology undergraduates were primarily younger with no distinctive leadership training. Because of this difference, it is difficult to ascertain whether the findings of the study—that it was possible to for the executive flexibility to determine high and low executive leadership potential—was a result of the effectiveness of the model or a result of the differences between the samples. The current study used two samples, more similar in age, ROTC cadets and Introductory Psychology undergraduates.

The ROTC cadets were chosen as a participant base because of their exposure to military science and leadership training. All ROTC cadets take part in the Field Leadership Reaction (FLRC) course as part of the studies. This is a tool to develop and evaluate leadership abilities. Another leadership course offered by the ROTC is the

Leadership Lab, which is a two-hour weekly lab in which the cadets are taught basic individual and group soldier skills and placed in positions of increasing leadership responsibility. Upper-class cadets learn higher-level leadership, planning and training techniques by planning and delivering the Leadership Laboratory training to more junior cadets. For the purposes of this experiment, based on the training William and Mary ROTC cadets receive, the argument can be made that this sample reflects to a certain degree the military samples used by Banks et al. (1999) and McGee et al. (1999).

Each sample, divided into groups of five, filled out five personality inventories, engaged in a leadership exercise, and rated each other in two leadership categories.

Below are the hypotheses for Study Two.

H1: Cognitive, behavioral, and dispositional flexibility characteristics would be significant predictors of leadership ratings.

H2: Military experience would be a significant predictor of leadership ratings.

H3: The cognitive, behavioral, and dispositional flexibility characteristics and military experience would account for equal amounts of leadership variance. This was examined by running two hierarchical multiple regressions, once with the flexibility characteristics in the step one and military experience in step two, and the other time with military experience in step one and flexibility in step two. If the two factors accounted for the same amount of variance, then the cumulative  $R^2$  should be the same regardless of the order in which they were entered.

## Method

### Participants

Participants in this study were 188 undergraduate students (138 Introductory Psychology students: 79 male, 59 female; 50 ROTC cadets: 29 male, 20 female) organized into 37 groups (approximately 5 students per group). Twenty-seven groups were composed entirely of Introductory Psychology students; 10 groups were composed entirely of ROTC cadets. The Introductory Psychology students participated in order to receive course credit; the ROTC cadets were volunteers. In order to have the same male to female ratio in the Introductory Psychology sample as in the ROTC sample, it was necessary to recruit male subjects from the College of William and Mary's Introductory Psychology subject pool after the sign-up sheets had been up for at least a week. See Appendix M for this script.

### Measurements

Cognitive Flexibility: The Wonderlic Personnel Test (Wonderlic, 1983) and the Kirton Adaptation-Innovation Inventory, shorter version (Shaver et al., 1996) were used.

Behavioral Flexibility: The Background Data Measure of Social Intelligence (Zaccaro et al., 1995) and the Multifactor Emotional Intelligence Scale, Shortened version (Mayer et al., 1997) were used.

Dispositional Flexibility: Saucier's (1994) Mini-Markers was used.

See Study One for a more detailed description of these measures.

### Leadership Performance Criterion

The groups of participants engaged in a 20-minute team problem-solving activity (adapted from Kelly, 1998; see Appendix N and O) to determine whom among the five members emerged as a leader. There were two measures of leadership performance. First, participants were asked to individually rate the other members of their group, on a 7-point Likert scale, from strongly disagree to strongly agree, on the statement: “In terms of keeping the activity on track, this person was the true leader of the group” (see Appendix P). Second, participants were asked to individually rate the other members of their group, on a 7-point Likert scale, from strongly disagree to strongly agree, on the statement: “In terms of influencing what decision was ultimately made, this person was the true leader of the group (‘influence leader’)” (see Appendix Q). The average of the other members’ ratings of each individual was the indicator of that individual’s a) process leadership performance and b) their content leadership performance (‘track leader’).

### Procedure

Inventory data collection. All participants were given a College of William and Mary Psychology Department Consent Form to fill out prior to receiving the inventories (see Appendix R). The Introductory Psychology students were given the measurements to complete at the beginning of their group session. The instructions for inventory data collection segment were read by the individual running the session, who was the experimenter or one of three female undergraduate research assistants. The ROTC cadets were given the measurements during a half-hour session as part of a start-of-the-semester orientation (see Appendix S for a script of this session).

Problem-solving activity. All participants engaged in a group problem-solving activity (approximately five per group). The Introductory Psychology students completed the activity immediately after finishing the inventories. The ROTC cadets met a month after the inventory data collection session and completed this part of the study after an orientation class.

A description of the activity is as follows. The activity is the description of an owner/manager of a hotel who must deal with one of the problems that has recently arisen that affects relationships within the hotel staff and with the hotel clients. There is a descriptive introduction to this problem after which participants were asked to decide between two choices on how to go about solving the issue.

As indicated in the instructions for the activity (see Appendix T), the participants needed to agree, as a group, on which decision to make. The instructions for the business activity segment were read by the individual running the session, who was the experimenter or one of four female undergraduate research assistants. The experimenter trained the research assistants on how to run and control the sessions. They were also told to write the last six digits of their social security number at the top of each page they go to. As per the instructions, each member was told to circle every decision that is chosen on the handout before the group can move on to the next segment in the scenario. The reason for this detail was to make sure the group was fully aware of the decision that had been made.

After a group decision was made, participants turned to the correct decision number and read the results of their previous choice. This was followed by three decision choices on how to proceed from there. After a group decision was made, participants

went to another segment of the scenario where they read the outcome of the previous decision and again were given three choices on how to proceed. Upon reading the resulting description of their decision, participants were asked to go to a specific page wherein they were given the first leadership rating form. After completing that, they had instructions that told them to turn the page and fill out the second leadership rating form. After this was completed, they were told to return the problem-solving activity handout to the envelope in which it was provided and to return this to the experimenter running the session. The experimenter thanked them for their participation and offered to answer any questions they had. She informed them that she would send them an e-mail later in the semester telling them where to find the results on the Internet (see Appendix U for the script of this session).

## Results

### Tests of Assumptions

No abnormalities were found when the minimum and maximum values, the means and standard deviations of each variable were screened for plausibility. Table 12 lists the means and standard deviation for the entire sample, Table 13 lists the means and standard deviations for the military sample, and Table 14 lists the means and standard deviations for the undergraduate sample.

### Factor Analysis

A principle axis factoring with varimax rotation was performed with the 12 variables from the five inventories—the Wonderlic Personnel Test (WPT), the Kirton Adaptation-Innovation Inventory (KAI), the Background Data Measure of Social Intelligence (BDMSI), the Multifactor Emotional Intelligence Scale—Shortened version

(MEIS), and Saucier's Mini-markers (FFM)—to determine the latent factors underlying these observed variables. Based on the factor analysis results of the pilot study, it was expected that four factors would emerge: cognitive, behavioral, and dispositional flexibility as well as self-discipline. KMO and Barlett's Test were performed and showed that sphericity could not be assumed. Few of the correlations among the 12 variables were above .30, which suggested no clusters in the data and no factorability. In spite of this, however, the scree plots and eigenvalues from the analysis suggested four factors, with a total above 1, which accounted for 59.66 % of the total variance explained (see Table 15).

The variables loading on the first factor included efficiency (KAI), conscientiousness (Factor III/FFM), and rule following (KAI). This factor can be interpreted as representing self-discipline (see Table 16). The variables loading on the second factor included Extraversion (Factor I/FFM), social intelligence (BDMSI), Agreeableness (Factor II/FFM), and Emotional Stability (Factor IV/FFM). This factor can be interpreted as representing behavioral flexibility (see Table 16). The variables loading on the third factor included Openness (Factor V/FFM) and originality (KAI). This factor can be interpreted as representing cognitive flexibility (see Table 16). The variables loading on the fourth factor included general mental ability (WPT) and Understanding Emotions (MEIS). This factor can be interpreted as representing cognitive-emotional intelligence (see Table 16) When arriving at a total score for each scale of the MEIS, Understanding Emotions sub-scale, the consensus and expert scores were summed together because the correlation between them was 0.90 for complex and



0.88 for transitions. As with Study One, the internal reliabilities for each scale were calculated (see Table 17).

### Multiple Regression

In order to examine data in which the participants both completed the inventories and received three or more leadership ratings, the sample size was further reduced from  $N=188$  to  $N=129$ . A series of independent sample t-tests were run to determine whether sex had a significant effect on the variable means. Three of the tests showed significance for gender: For rule following,  $t(126) = 2.28, p < .05$ ; for agreeableness,  $t(126) = 2.28, p < .05$ , for understanding emotions (complex),  $t(126) = -2.18, p < .05$  (see Table 18).

Females were higher than males on all three of these scales. Next, the scores from the scales comprising the four factors were standardized and summed together resulting in four factors.

Four hierarchical multiple regressions were run, with sex entered as the first step in each one. The regressions that were run with “track” leadership rating were non-significant as were the regressions run with “track” and “influence” ratings summed together. Because the “influenced the decision most” leader rating has the strongest theoretical link with the executive flexibility model, this is the only dependent variable used in the multiple regressions reported here. With leader rating by peers as the dependent variable, sex entered as step 1 accounted for 1% of the variance and the four factors entered as step 2 accounted for an additional 3% of the variance, both non-significant amounts. Each of the factors contributed some unique variance but not at a significant level (see Table 19).

With leader rating by peers as the dependent variable, sex entered as step 1 accounted for 1% of the variance and military experience, which was operationalized as military experience and no military experience, entered as step 2 accounted for an additional 1% of the variance, both non-significant amounts. Each of the factors contributed some unique variance but not at a significant level (see Table 20)

With leader rating by peers as the dependent variable, sex entered as step 1 accounted for 1% of the variance, the four factors entered as step 2 accounted for an additional 2% of the variance, and military experience entered as step 3 accounted for an additional 1% of the variance, all non-significant amounts. Each of the factors contributed some unique variance but not at a significant level (see Table 21).

With leader rating by peers as the dependent variable, sex entered as step 1 accounted for 0% of the variance, the military experience entered as step 2 accounted for an additional 1% of the variance, and the four factors entered as step 3 accounted for an additional 3% of the variance, all non-significant amounts. Each of the factors contributed some unique variance but not at a significant level (see Table 22).

#### Discussion

In accordance with Study One and Banks et al. (1999) the factor analysis displayed the three factors of the executive flexibility model: cognitive, behavioral, and dispositional flexibility. However, the variables that measured cognitive flexibility are somewhat different than the executive flexibility model suggested. In this study, the cognitive flexibility factor contained openness and originality. While the combination of these two as a measure of cognitive flexibility/creativity is well documented (see Feist, 1998) it is inconsistent with Zaccaro's (1996) theoretical explanation of the factor.

According to Zaccaro (1996), openness should load onto the factor of dispositional flexibility because it is a major personality dimension of the five-factor model. This discrepancy between Zaccaro's (1996) prediction and the research reported in Feist (1998) can probably be explained by the former's somewhat theoretically rigid view of personality constructs being solely related to other personality constructs as opposed to a more comprehensive understanding of the complex structure of cognitive flexibility/creativity.

Another interesting finding of the factor analysis is the factor loadings of the emotional intelligence and general intelligence scales. Research indicates that emotional intelligence is its own intelligence (Mayer and Salovey, 1990, 1993, 1997). The findings in this study show a relationship between general mental ability (problem solving) and emotional intelligence. Thus, this factor loading suggests that branch three of the MEIS, Understanding Emotions (Complex blends and transitions), has a relationship with general mental ability. This may be because this component of emotional intelligence involves understanding and reasoning about emotions. According to Lazarus (1991), there is a core theme from which each emotion is retrieved. For example, anger occurs when an individual experiences a perceived injustice. Each emotion follows its own characteristic appraisal rule, similar to how different pieces on a chessboard are moved. Emotional intelligence involves the ability to see the pieces, understand how they move, and reason about emotions accordingly (Mayer et al., 1997). This suggests that understanding emotions is similar to problem solving and may explain why this scale loaded onto the same factor as general mental ability.

Although none of the hierarchical multiple regressions were statistically significant, two of them should be briefly discussed. The first (see Table 19), in which sex was entered as step one and the executive flexibility factors were entered as step two indicates a very slight trend that supports the hypothesis that the executive flexibility model predicts the potential to lead at the executive level. This finding lends a very small support to the results reported by Banks et al. (1999), McGee et al. (1999) and Study One. Also, the second interesting result (see Table 20), in which sex is entered as step one, the executive flexibility factors are entered as step two, and military experience is entered as step 3, indicates a trend that supports the hypothesis that the executive flexibility factors are better predictors of the potential to lead at the executive level than is military experience. This finding is interesting because it helps clarify the issue raised about the McGee et al. (1999) study in which it was possible that military experience may have superceded the executive flexibility model as a predictor of the potential to lead at the executive level. Because none of the hierarchical multiple regressions accounted for a significant amount of variance, an analysis of variance was run on the data, comparing the categorical data of military experience and gender, but again no significant results were found.

It is possible that the weakest part of this study was the business activity that was used. Due to time limitations with the ROTC sample, the longest the activity could be was one half-hour, which may not be enough time for a definitive leader to emerge. Another problem with the business activity is that it could have been more interactive, with members of the groups being responsible for a variety of decision-making tasks. An example of a better leadership exercise is a task that was used by Zaccaro, Foti, and

Kenny (1991). The task involves building jeeps, robots, and boats out of Lego pieces and selling the finished products for the greatest amount of profit. This activity was shown to be significantly associated with leadership style and has been used in other leadership studies (see Smith & Foti, 1998). However, the activity takes 45 minutes to complete so it was not an option for the current study.

## General Discussion

The two studies reported here, which had statistically non-significant amount of variance explained and minimal effect size, overall provide little support for Zaccaro's (1996) model of executive flexibility. One explanation could have been, for the second study, that there was a lack of variability within the leadership rating data, which would have led to the null results. However this appears not to be the case because the range of the sample was 5.42, with leadership being rated on a 7-point Likert scale. In spite of this, the characteristics of the samples in this study must be addressed because they may have impacted the results.

Banks et al. (1999) found support for the executive flexibility model as a predictor of the potential to lead at the executive level. The sample in that study consisted of senior military officers and civil servants representing all five military services and the civil service. However, McGee et al. (1999) in his study examining whether the executive flexibility model could be used to differentiate between high and low potential between two different samples—Naval interns and Psychology undergraduates—for executive leadership found statistically significant support for only one component of the model—cognitive flexibility. This finding was limited to the military sample. The current studies, in which the samples were entirely composed of undergraduates, did not support at a significantly statistically significant level the model of executive flexibility model as a predictor of the potential to lead at the executive level. From the first study in this series that examine the executive flexibility model, the samples decrease in the amount of leadership within organizations that the participants have. And while there is a decrease

in statistically significant support for the model, it is of greater concern that in McGee et al. (1999) and current study that the only variable that accounts for the most unique variance, which is an almost non-existent amount in the current study, is cognitive flexibility. There is at least one possible explanation for the failure to replicate the findings of Banks et al. (1999), in which the entire executive flexibility model as a predictor of the potential to lead at the executive leadership was supported, and this is because organizational role experience, especially for behavioral complexity, is a necessary factor for the premise underlying the these studies of the executive flexibility model to work.

A brief recapitulation of role-theory is necessary at this point to further the argument posed above. According to Katz and Kahn (1978), each executive position in an organization is faced with certain role expectations. These expectations are set by multiple role senders and may consist of desirable behaviors, norms, attitudes, or other standards of work conduct. According to this theory, the executive is believed to act in relation and in response to these expectations. Leader effectiveness results from the extent to which their behaviors are congruent with the role senders, expectations. Each role set is made up of multiple role senders whose expectations may differ from each other. The leader may or may not be able to meet multiple role expectations. Therefore, a leader may have the reputation of being effective with some role senders but not with others.

Tusi's (1984a, 1984b) model of behavioral complexity—the Multiple Constituency Framework—builds upon role theory. It states that the behavior that is expected of the focal manager and the evaluation of their effectiveness are pluralistic.

Each constituency has their interest in and perceptions of different aspects the focal manager's total role behavior. If the perceived behavior is congruent with expected or preferred behavior, the constituent is more likely to form a favorable evaluation of that manager. The emphasis in this model is on the role set of the focal manager and their ability to balance expectations of various constituencies within the organization.

“Incompatible and unclear role expectations will be negatively related to reputational effectiveness. Perceived role conflict will be more strongly related to lower reputational effectiveness than objective role conflict, whereas objective role ambiguity will be more strongly associated with lower reputational effectiveness” (Tusi, 1984b, p. 35).

Therefore, the focal manager is required to exhibit behavioral flexibility in order to behave in a manner that is favorable to the expectations of multiple constituencies.

Zaccaro (1996) suggests that behavioral flexibility is one of three interdependent components of executive flexibility, which is a characteristic proposed in his theory to be essential for effective executive leadership though he does not indicate that this may be a role-specific characteristic. However, according to Tusi (1984b), as discussed above, behavioral flexibility is a requirement of a leader's role set in order to respond to multiple constituency expectations and earn reputational effectiveness. The question arises, then, whether behavioral flexibility is a component of executive leadership because it is part of the role that they engage in or whether it exists in and of itself as an a general executive leader characteristic that any potential leader would have, whether in a leadership role or not?

Based on the results of the studies examining whether the executive flexibility model can be used to predict the potential for executive leadership, from Banks et al.



(1999) to the present study, it appears that behavioral flexibility is an offshoot of an executive leader's experience in that role. In Banks et al. (1999), all components of the executive flexibility model as a predictor of the potential to lead at the executive level were supported. However, in the ensuing studies, support for all but cognitive flexibility disintegrated. The major difference between the samples used in Banks et al. (1999) and the other studies is that hers consisted of military and civil servant personnel who already were in a leadership position. This suggests that the executive flexibility model is only useful in predicting the potential to lead at the executive level when examining executives. Based on this reasoning, it seems that perhaps the best use of the executive flexibility model is not to predict the potential for executive leadership, which has been the purpose of the empirical research on the model thus far, but instead to examine the effectiveness of executive leaders. In fact, according to Zaccaro (1996), effective executive leadership lies at the center of the three interdependent qualities—cognitive, behavioral, and dispositional flexibility—of executive flexibility.

Based on this line of thinking there are at least two directions for future research on the executive flexibility model. First, if the executive flexibility model as a predictor of the potential to lead at the executive level should continued to be studied, the samples of such investigations should consist of individuals who are already established in managerial or leadership roles. Second, and this seems more appropriate, future research on the executive flexibility model should examine the effectiveness of executive leadership in relation to the model. Another interesting finding of the factor analysis is the factor loadings of the emotional intelligence and general intelligence scales. Research indicates that emotional intelligence is its own intelligence (Mayer and Salovey, 1990,

1993, 1997). The findings in this study show a relationship between general mental ability (problem solving) and emotional intelligence. Thus, this factor loading suggests that branch three of the MEIS, Understanding Emotions (Complex blends and transitions), has a relationship with general mental ability. This may be because this component of emotional intelligence involves understanding and reasoning about emotions. According to Lazarus (1991), there is a core of themes from which different emotions are retrieved. For example, anger occurs when an individual experiences a perceived injustice. Each emotion navigates based on its own characteristic rules, similar to how different pieces on a chessboard are moved. Emotional intelligence involves the ability to see the pieces, understand how they move, and reason about emotions accordingly (Mayer et al., 1997). This suggests that understanding emotions is similar to problem solving and may explain why this scale loaded onto the same factor as general mental ability.

Table 1

Levels of organizational stratification proposed by Stratified Systems Theory for industry and commerce

		Task Requirements and Characteristics				
Stratum	Domain	Industry	Systems, Resources, and Policy Task Requirements	Scope of Work		SST Postulated Time Span of Work
				Representative Number of Subordinates	Sphere of Influence	
VII	INDIRECT Strategic/Systems	Corporation	Create and integrate complex systems; organize acquisition of major resources; create policy	500,000 – 1,000,000	Continental	20+ years
VI		Group	Oversee directly operation of subordinate divisions, allocate resources, apply policy	50,000 – 60,000	National	10 – 20 years
V	Organizational	Full DMS	Direct operation of complex systems; allocate assigned resources; implement policy	11,000 – 12,000	Regional	5 – 10 years
IV		Medium-sized business	Direct operation of systems; tailor or task organize resource allocations to interdependent subordinate programs and subsystems; implement policy	5,000 2,500	Sector 10 – 15KM	4 – 7 years
III	DIRECT	One-person business or unit	Develop and execute plans and task organize subsystems; prioritize resources; translate and implement policy and assigned missions	500 – 600	4,000 – 5000M	1+ years
II	Command	Section	Supervise direct performance of subsystems; anticipate/solve real-time problems; shift resources; translate and implement policy	100 – 200	1500M	3+ months
I		Supervisor and Shop-and Office Floor	Direct performance of work; use practical judgment to solve ongoing problems.	3 – 40	400M	Less than 3 months

Table 2

Quinn's Competing Values Model of Leadership

Flexibility/Internal			Predictability/External	
Mentor	Shows Consideration: This leader is aware of individual needs, actively listens, is fair and objective, supports legitimate requests; attempts to facilitate individual development	versus	Director	Provides Structure: This leader engages in goal setting and role clarification, sets objectives, monitors progress, provides feedback, establishes clear expectations
Facilitator	Facilitates Interaction: This leader is interpersonally skilled, facilitates group process, encourages expression, seeks consensus, facilitates compromise	versus	Producer	Initiates Action: This leader is concerned about the task, stimulates appropriate performance in group members and others necessary to task completion
Flexibility/External			Predictability/Internal	
Innovator	Envisions Change: This leader seeks new opportunities, encourages and considers new ideas, is tolerant of ambiguity and risk	versus	Coordinator	Maintains Structure: This leader maintains the stability and flow of the work by scheduling, coordinating, problem solving, and seeing that rules, standards, and deadlines are understood and met
Broker	Acquires Resources: This leader develops interpersonal contacts, monitors the environment, amasses power and influence, maintains the external image of the unit, and secures resources	versus	Monitor	Provides Information: This leader deeply comprehends the task of the group, constantly collects and distributes information, facilitates the development of shared meanings, develops a group sense of continuity and safety

Table 3

Trait Clusters for Each of the Leader Roles in Quinn's Competing Values Framework

Mentor	Caring, Empathetic: This leader is concerned about individual people, is alert to their problems and needs, sees individuals as valued resources
Facilitator	Process-Oriented, Diplomatic, Tactful: This leader has good interpersonal skills, facilitates group interaction, cooperation, and cohesion
Monitor	Technically Expert, Well-Prepared: This leader is well-informed, knowledgeable as to the work of the group, competent, highly expert in technical matters
Coordinator	Dependable, Reliable: This leader is consistent, predictable, seeks to maintain continuity and equilibrium in the unit
Director	Decisive, Directive: This leader is conclusive and determinative, can rapidly plan work and provide direction
Producer	Task-Oriented, Work-Focused: This leader is action oriented, highly generative, invests great energy, and derives much satisfaction from productive work
Broker	Politically Astute, Resource-Oriented: This leader is very aware and sensitive to external conditions, particularly those related to legitimacy, influence, and resource acquisition
Innovator	Creative, Clever: This leader is innovative, conceptually skilled, seeks unique opportunities and improvements

Table 4

Requisite Executive Characteristics**Cognitive Capacities and Skills**

Intelligence

Analytical reasoning skills

Flexible integrative complexity

Metacognitive skills

Verbal/writing skills

Creativity

**Social Capacities and Skills**

Social reasoning skills

Behavioral flexibility

Negotiation/persuasion skills

Conflict management skills

**Personality**

Openness

Curiosity

Self-discipline

Flexibility

Risk of propensity

Locus of control

**Motivation**

Need for achievement

Need for socialized power

Self-efficacy

**Expertise and Knowledge**

Functional expertise

Social expertise

Knowledge of environmental elements

Table 5

Subcomponents of Executive Flexibility

<b>Cognitive Flexibility</b>	<b>Behavioral Flexibility</b>	<b>Dispositional Flexibility</b>
Integrative complexity	Behavioral complexity	Openness to experience
Conceptual capacity	Social intelligence	Need for cognition
Creativity	Social acuity	Curiosity
Metacognition	Empathy	Flexibility
Intuition	Emotional Intelligence	Authoritarianism (-)
	Communication Skills	Machiavellianism
	Negotiation skills	Emotional stability
	Self-monitoring	Cautiousness (-)
	Metaperception	Locus of control

Table 6

A methodology for operationalizing executive flexibility in a multitrait-multimethod format

Type of measure	Cognitive flexibility	Behavioral flexibility	Dispositional flexibility
Self-report	MBTI	Self-monitoring scale	Battery of interpersonal capabilities
	Measure of problem-solving preferences	Social awareness inventory	NEO-PI
	Creative personality scale	Trait meta-mood scale	Personal characteristic inventory
	Motivated strategies for learning questionnaire	Mood awareness scale	Need for cognition scale
	Students thinking about problem-solving scale	Hogan empathy scale	Academic curiosity scale
		Interpersonal reactivity scale	Ray's balanced F scale
		Inventory of communicator characteristics	Mach IV Scale
Test			
	Southern California test for divergent production	US Army situational judgment test	Group embedded figures test
		Profile of nonverbal sensitivity	Choice dilemmas questionnaire
		Emotional perception questionnaire	
Ratings			
	Content analysis		
Bio-data			
		Social intelligence scale	
Self-other			
		Hart & Quinn's measure of behavioral complexity	
		Hooijberg's measure of behavioral complexity	
		Malloy & Jaowski's measure of metaperception	
Interview			
	Career path appreciation		



Table 7

Study One: Descriptive Statistics

Variable	Mean	Standard Deviation
Average leader rating	4.29	1.64
Kirton efficiency	6.45	1.23
Kirton rule following	5.12	1.46
Kirton originality	6.28	1.10
Extraversion	5.93	1.62
Agreeableness	7.07	1.16
Conscientiousness	6.70	1.27
Emotional stability	5.34	1.32
Openness	3.47	0.81
Fantasy scale	3.47	0.81
Personal distress scale	2.39	0.77
Perspective taking scale	3.32	0.74
Empathic concern scale	3.80	0.58

Table 8

Factor Analysis: Total Variance Explained

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	2.90	24.20	24.20
2	2.23	18.61	42.80
3	1.85	15.41	58.21
4	1.18	9.86	68.07

Table 9

Principle Axis Factoring: Varimax Rotated Component Matrix

Factor Names	Component	1	2	3	4
Dispositional Flexibility	Openness	0.98			
	Fantasy Scale	0.98			
Behavioral Flexibility	Agreeableness		0.69	0.32	
	Perspective Taking Scale		0.69		
	Empathic Concern Scale	0.31	0.53		
	Emotional Stability		0.53		0.44
Self-discipline	Kirton Rule Following		0.33	0.31	-0.31
	Kirton Efficiency			0.82	
	Conscientiousness			0.68	
Cognitive Flexibility	Extraversion				0.56
	Personal Distress Scale				-0.55
	Kirton Originality				0.50

Table 10

Reliabilities for Study One

Factor Names	Variable Name	Number of Items	Cronbach $\alpha$
Dispositional Flexibility	Openness	8	0.78
	Fantasy Scale	7	0.83
Behavioral Flexibility	Agreeableness	8	0.88
	Perspective Taking	7	0.83
	Empathic Concern	7	0.76
	Emotional Stability	8	0.82
Self-discipline	Kirton Rule Following	4	0.70
	Kirton Efficiency	5	0.75
	Conscientiousness	8	0.85
Cognitive Flexibility	Extraversion	8	0.90
	Personal Distress	7	0.84
	Kirton Originality	3	0.52

Table 11

Simultaneous Multiple Regression

Source	r	sr <sup>2</sup>	t	R <sup>2</sup>	F
Dispositional Flexibility <sup>1</sup>	-0.07	0.01	-0.70		
Behavioral Flexibility <sup>2</sup>	-0.04	0.01	-0.83		
Self-Discipline <sup>3</sup>	0.15	0.03	1.75		
Cognitive Flexibility <sup>4</sup>	0.12	0.02	1.41		
All variables				0.06	1.28

N=37

<sup>1</sup> = Openness and Fantasy Scale; <sup>2</sup> = Perspective Taking Scale and Emotional Stability and Agreeableness and Empathic Concern Scale <sup>3</sup> = Kirton Rule Following and Kirton Efficiency and Conscientiousness; <sup>4</sup> = Extraversion and Kirton Originality and Personal Distress Scale

Table 12

Descriptive Statistics: Entire Sample

Variable	N	Mean	Standard Deviation
“Keep on track” leader: average rating	151	4.40	1.40
“Influenced decision most” leader: average rating	151	4.46	1.31
WPT	145	29.61	4.69
Kirton efficiency	135	5.21	0.96
Kirton rule-following	135	4.13	1.18
Kirton originality	136	5.04	1.07
Extraversion	143	5.73	1.55
Agreeableness	143	6.95	1.11
Conscientiousness	143	6.54	1.50
Emotional stability	143	5.59	1.43
Openness	143	6.80	1.04
Social intelligence	145	3.80	0.38
MEIS: Complex blends	141	1.27	0.22
MEIS: Transitions	141	1.47	0.22

Table 13

Descriptive Statistics: Military Sample

Variable	N	Mean	Standard Deviation
“Keep on track” leader: average rating	41	4.52	1.49
“Influenced decision most” leader: average rating	41	4.64	1.32
WPT	44	31.30	4.29
Kirton efficiency	43	5.30	0.10
Kirton rule-following	43	4.46	1.13
Kirton originality	44	4.92	1.28
Extraversion	43	5.86	1.52
Agreeableness	43	6.87	1.22
Conscientiousness	43	6.80	1.38
Emotional stability	43	5.74	1.39
Openness	43	6.81	0.92
Social intelligence	44	3.79	0.38
MEIS: Complex blends	42	1.28	0.24
MEIS: Transitions	42	1.49	0.17

Table 14

Descriptive Statistics: Undergraduate Sample

Variable	N	Mean	Standard Deviation
“Keep on track” leader: average rating	138	4.27	1.48
“Influenced decision most” leader: average rating	138	4.41	1.34
WPT	139	28.86	4.63
Kirton efficiency	130	5.20	0.99
Kirton rule-following	130	4.16	1.21
Kirton originality	130	5.10	0.99
Extraversion	138	5.73	1.58
Agreeableness	138	7.03	1.04
Conscientiousness	138	6.49	1.53
Emotional stability	138	5.53	1.43
Openness	138	6.73	1.07
Social intelligence	139	3.79	3.79
MEIS: Complex blends	137	1.26	1.26
MEIS: Transitions	137	1.47	1.47



Table 15

Principle Axis Factoring: Total Variance Explained

Component	Initial Eigenvalues		
	Total	% Variance	Cumulative %
1	2.98	24.84	24.84
2	1.71	14.27	39.11
3	1.35	11.21	50.32
4	1.12	9.35	59.66

Table 16

Principle Axis Factoring: Varimax Rotated Component Matrix

Factor Names	Component	1	2	3	4
Self-discipline	Kirton efficiency	0.94			
	Conscientiousness	0.70	0.30		
	Kirton rule-following	0.49			
Behavioral Flexibility	Extraversion		0.72		
	Social intelligence		0.59		
	Agreeableness		0.49		
	Emotional stability		0.32		
Cognitive Flexibility	Openness			0.95	
	Kirton originality			0.47	
	WPT				0.61
Cognitive-Emotional Intelligence	MEIS/Understanding emotions: Complex blends				0.36
	MEIS/Understanding emotions: Transitions				0.36

Table 17

Reliabilities of scales used in Study Two

Factor Names	Variable Name	Number of Items	Cronbach $\alpha$
Self-discipline	Kirton efficiency	5	0.73
	Conscientiousness	8	0.88
	Kirton rule-following	4	0.67
Behavioral Flexibility	Extraversion	8	0.89
	Social intelligence	41	0.85
	Agreeableness	8	0.81
	Emotional stability	8	0.83
Cognitive Flexibility	Openness	8	0.78
	Kirton originality	3	0.52
	WPT	50	0.88
Cognitive-Emotional Intelligence	MEIS: Complex blends	8	0.23
	MEIS: Transitions	8	0.09

Table 18

T-test results for sex

Variable Name	df	t-value	p-value
Kirton rule-following	1,126	2.28	0.02
Agreeableness	1,126	1.33	0.02
MEIS/Understanding Emotion: Complex Blends	1,126	-2.18	0.03

Note: gender coded, 1=female, 2=male

Table 19

Hierarchical Multiple Regression: Comparing sex and executive flexibility factors (cognitive, behavioral, and dispositional) as accounting for variance in leadership ratings

Source	r	sr <sup>2</sup>	t	Cumulative R <sup>2</sup>	F
Step 1					
Sex	0.09	0.01	0.96	.01	< 1
Step 2					
Self Discipline <sup>1</sup>	-0.02	0.00	-0.37		
Behavioral Flexibility <sup>2</sup>	0.00	0.00	-0.01		
Cognitive Flexibility <sup>3</sup>	0.16	0.02	1.64		
Cognitive-Emotional Intelligence <sup>4</sup>	0.09	0.00	0.71	.04	< 1

N=129

<sup>1</sup> = Kirton Efficiency and Conscientiousness and Kirton Rule Following; <sup>2</sup> = Extraversion and Social Intelligence and Agreeableness and Emotional Stability <sup>3</sup> = Openness and Kirton Originality <sup>4</sup> = WPT and MEIS/Complex Blends and MEIS/Transitions

Table 20

Hierarchical Multiple Regression: Comparing sex and military experience factors as accounting for variance in leadership ratings

Source	r	sr <sup>2</sup>	t	Cumulative R <sup>2</sup>	F
Step 1					
Sex	0.09	0.01	0.96	0.01	< 1
Step 2					
Military Experience	0.09	0.01	0.97	0.02	< 1
N=129					

Table 21

Hierarchical Multiple Regression: Comparing sex, executive flexibility FACTORS AND military experience as accounting for variance in leadership ratings

Source	r	sr <sup>2</sup>	t	Cumulative R <sup>2</sup>	F
Step 1					
Sex	0.09	0.01	0.96	0.01	<1
Step 2					
Self Discipline <sup>1</sup>	-0.02	0.00	-0.53		
Behavioral Flexibility <sup>2</sup>	0.00	0.00	0.05		
Cognitive Flexibility <sup>3</sup>	0.15	0.02	1.61		
Cognitive-Emotional Intelligence <sup>4</sup>	0.09	0.01	0.76	0.03	<1
Step 3					
Military Experience	0.09	0.01	1.03	0.04	<1
N=129					

<sup>1</sup> = Kirton Efficiency and Conscientiousness and Kirton Rule Following; <sup>2</sup> = Extraversion and Social Intelligence and Agreeableness and Emotional Stability <sup>3</sup> = Openness and Kirton Originality <sup>4</sup> = WPT and MEIS/Complex Blends and MEIS/Transitions

Table 22

Hierarchical Multiple Regression: Comparing sex, military experience, and executive flexibility factors as accounting for variance in leadership ratings

Source	r	sr <sup>2</sup>	t	Cumulative R <sup>2</sup>	F
Step 1					
Sex	0.06	0.00	0.68	0.0	<1
Step 2					
Military Experience	.09	.01	0.97	0.01	<1
Step 3					
Self Discipline <sup>1</sup>	-0.02	0.00	-0.61		
Behavioral Flexibility <sup>2</sup>	0.00	0.00	0.12		
Cognitive Flexibility <sup>3</sup>	0.15	0.02	1.69		
Cognitive-Emotional Intelligence <sup>4</sup>	0.09	0.00	0.63		
				0.04	<1
N=129					

<sup>1</sup> = Kirton Efficiency and Conscientiousness and Kirton Rule Following; <sup>2</sup> = Extraversion and Social Intelligence and Agreeableness and Emotional Stability <sup>3</sup> = Openness and Kirton Originality <sup>4</sup> = WPT and MEIS/Complex Blends and MEIS/Transitions



Figure 1

A multiple-constituency framework for managerial effectiveness (Tusi, 1984b)

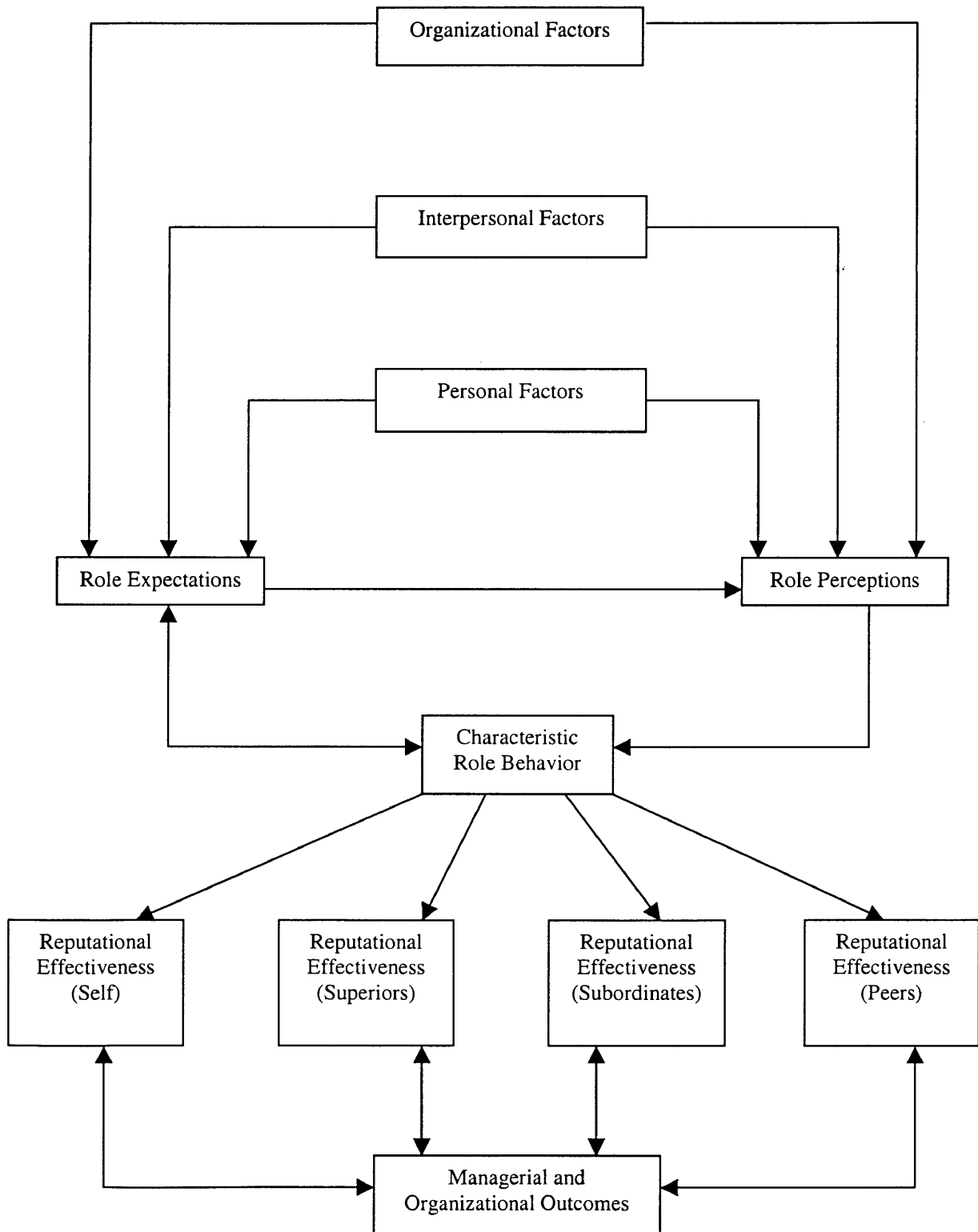


Figure 2

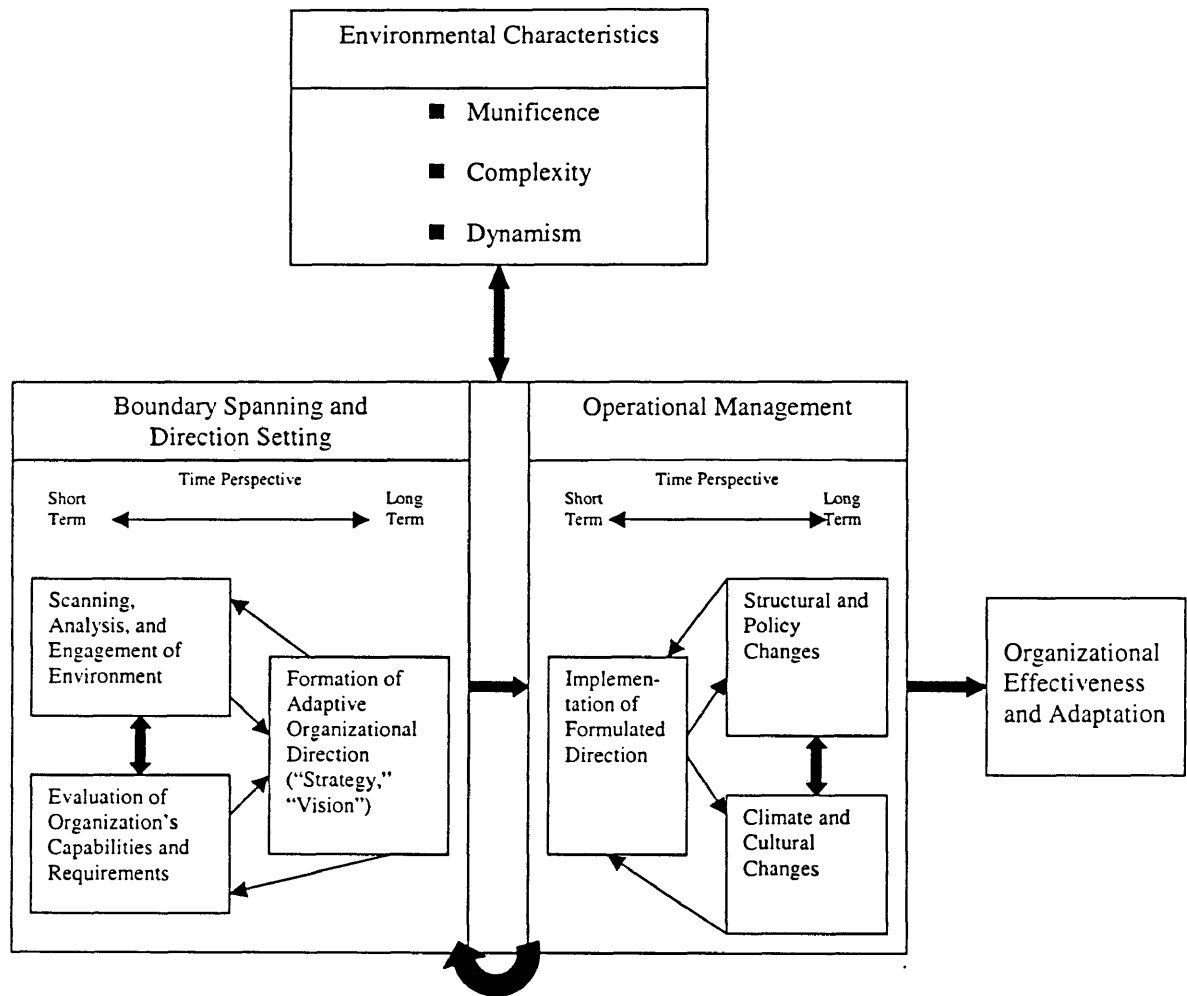
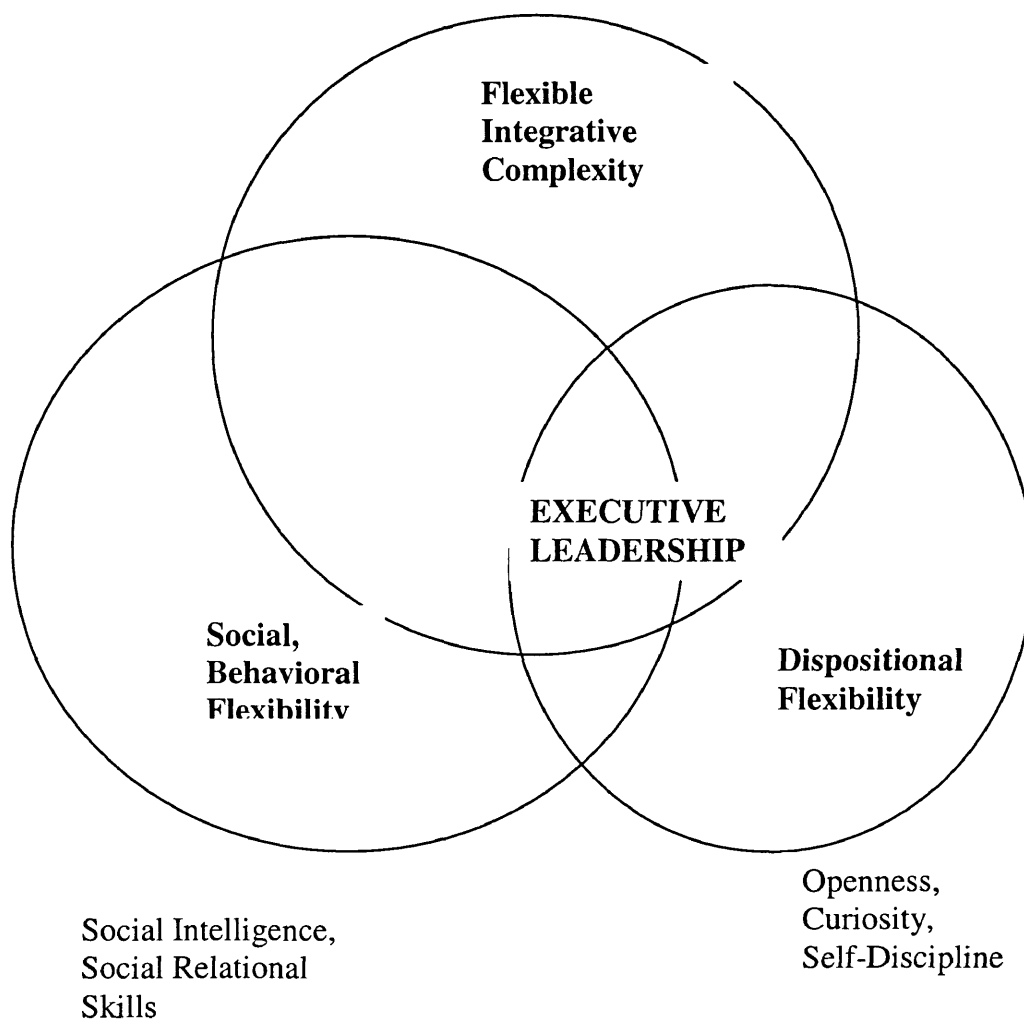
Executive Performance Requirements (Zaccaro, 1996)

Figure 3

The components of executive flexibility (Zaccaro, 1996)

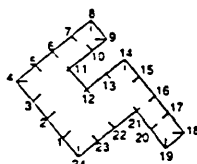


## Appendix A

.....START HERE

PLACE ANSWERS  
HERE

1. BITTER is the opposite of 1 acid, 2 cutting, 3 sharp, 4 sweet, 5 tart. \_\_\_\_\_ [ \_\_\_\_ ]
2. The sixth month of the year is 1 October, 2 August, 3 May, 4 June. \_\_\_\_\_ [ \_\_\_\_ ]
3. In the following set of words, which word is different from the others?  
1 cinnamon, 2 ginger, 3 clove, 4 cotton, 5 mint \_\_\_\_\_ [ \_\_\_\_ ]
4. MEDIEVAL MEDICAL — Do these words  
1 have similar meanings, 2 have contradictory meanings, 3 mean neither the same nor opposite? \_\_\_\_\_ [ \_\_\_\_ ]
5. Look at the following row of numbers. What number should come next? 49 42 35 28 21 14 ? \_\_\_\_\_ [ \_\_\_\_ ]
6. In the following set of words, which word is different from the others?  
1 slight, 2 vast, 3 massive, 4 bulky, 5 immense \_\_\_\_\_ [ \_\_\_\_ ]
7. FAITHFUL is the opposite of 1 true, 2 loyal, 3 firm, 4 fickle, 5 sure. \_\_\_\_\_ [ \_\_\_\_ ]
8. Sand sells at 8 1/2 cents per pound. How much will you save by buying a 100 pound sack at \$8.25? \_\_\_\_\_ [ \_\_\_\_ ]
9. IGNITE IGNORANT — Do these words  
1 have similar meanings, 2 have contradictory meanings, 3 mean neither the same nor opposite? \_\_\_\_\_ [ \_\_\_\_ ]
10. Are the meanings of the following phrases: 1 similar, 2 contradictory, 3 neither similar nor contradictory?  
Love me, love my dog. He that strikes my dog would strike me if he dared. \_\_\_\_\_ [ \_\_\_\_ ]
11. CLEAN is the opposite of 1 disinfect, 2 scour, 3 scrub, 4 debase, 5 sponge. \_\_\_\_\_ [ \_\_\_\_ ]
12. Assume the first 2 statements are true. Is the final one: 1 true, 2 false, 3 not certain?  
The voice is in tune with the piano. The piano is in tune with the cello. The voice is in tune with the cello. \_\_\_\_\_ [ \_\_\_\_ ]
13. In the following set of words, which word is different from the others?  
1 ill-matched, 2 unsuitable, 3 inconsistent, 4 accordant, 5 contrary \_\_\_\_\_ [ \_\_\_\_ ]
14. Assume the first 2 statements are true. Is the final one: 1 true, 2 false, 3 not certain?  
These girls are normal children. All normal children are active. These girls are active. \_\_\_\_\_ [ \_\_\_\_ ]
15. Two of the following proverbs have similar meanings. Which ones are they? \_\_\_\_\_ [ \_\_\_\_ ]  
1. Those that dance must pay the music.  
2. The tongue is the enemy of the neck.  
3. A golden hammer breaks an iron door.  
4. Who pays the piper calls the tune.  
5. A barking dog never bites.
16. CONQUER is the opposite of 1 overpower, 2 submit, 3 subject, 4 vanquish, 5 master. \_\_\_\_\_ [ \_\_\_\_ ]
17. Suppose you arranged the following words so that they made a true statement. Then print the last letter of the last word  
as the answer. than fortunate rich Better \_\_\_\_\_ [ \_\_\_\_ ]
18. ATTACK is the opposite of 1 aid, 2 assail, 3 combat, 4 besiege, 5 storm. \_\_\_\_\_ [ \_\_\_\_ ]
19. ILLICIT ILLITERATE — Do these words  
1 have similar meanings, 2 have contradictory meanings, 3 mean neither the same nor opposite? \_\_\_\_\_ [ \_\_\_\_ ]
20. Are the meanings of the following sentences: 1 similar, 2 contradictory, 3 neither similar nor contradictory?  
No wonder can last more than three days. All good things are three. \_\_\_\_\_ [ \_\_\_\_ ]
21. IDEA IDEAL — Do these words  
1 have similar meanings, 2 have contradictory meanings, 3 mean neither the same nor opposite? \_\_\_\_\_ [ \_\_\_\_ ]
22. A boy is 15 years old and his sister is twice as old. When the boy is 25 years old, what will be the age of his sister? \_\_\_\_\_ [ \_\_\_\_ ]
23. Are the meanings of the following sentences: 1 similar, 2 contradictory, 3 neither similar nor contradictory?  
Elbow-grease is the best polish. The work proves the workman. \_\_\_\_\_ [ \_\_\_\_ ]
24. This geometric figure can be divided by a straight line into two parts which will fit together in a certain way to make a perfect square. Draw such a line by joining two of the numbers. Then write these numbers as the answer. \_\_\_\_\_ [ \_\_\_\_ ]

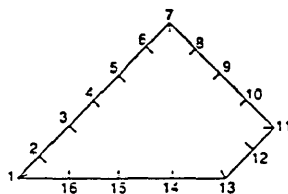


25. CHASTEN CHASTISE — Do these words  
1 have similar meanings, 2 have contradictory meanings, 3 mean neither the same nor opposite? \_\_\_\_\_ [ \_\_\_\_ ]
26. Two of the following proverbs have similar meanings. Which ones are they? \_\_\_\_\_ [ \_\_\_\_ ]  
1. Get money first; prestige comes afterward.  
2. Look not upon the wine when it is red.  
3. It's an ill wind that blows nobody good.  
4. No hill is so steep but a donkey loaded with gold can climb it.  
5. The watched pot never boils.
27. Assume the first 2 statements are true. Is the final one: 1 true, 2 false, 3 not certain?  
Great people are important. I am important. I am a great person. \_\_\_\_\_ [ \_\_\_\_ ]

.....CONTINUE HERE

PLACE ANSWERS  
HERE

28. PRIDE is the opposite of 1 reserve, 2 self-esteem, 3 self-abasement, 4 disdain, 5 arrogance. [ \_\_\_\_\_ ]
29. In 66 days a boy saved \$1.98. What was his average daily savings? [ \_\_\_\_\_ ]
30. PITEOUS PITIABLE — Do these words  
1 have similar meanings, 2 have contradictory meanings, 3 mean neither the same nor opposite? [ \_\_\_\_\_ ]
31. How many of the five items listed below are exact duplicates of each other? [ \_\_\_\_\_ ]
- |                   |                   |
|-------------------|-------------------|
| Waterhouse, H. L. | Waterous, H. L.   |
| Lindquist, W. C.  | Lundquist, W. C.  |
| Pollauf, A. S.    | Pollauf, A. S.    |
| Rosenfeld, F. E.  | Rosenfield, F. E. |
| Sivertsen, P. B.  | Sivertsen, B. P.  |
32. Are the meanings of the following sentences: 1 similar, 2 contradictory, 3 neither similar nor contradictory?  
Nothing is so bad as not to be good for something. A person who hopes for good, fears not. [ \_\_\_\_\_ ]
33. APPEAL is the opposite of 1 beseech, 2 entreat, 3 request, 4 deny, 5 invoke. [ \_\_\_\_\_ ]
34. Which number in the following group of numbers represents the smallest amount? 10 3 2 .8 .888 .96 [ \_\_\_\_\_ ]
35. Assume the first 2 statements are true. Is the final one: 1 true, 2 false, 3 not certain?  
Most explorers are risk takers. Most explorers are introverted. Some risk takers are introverted. [ \_\_\_\_\_ ]
36. A clock was exactly on time at noon on Monday. At 8 P.M. on Tuesday, it was 128 seconds slow.  
At that same rate, how much did it lose in 1/2 hour? [ \_\_\_\_\_ ]
37. Two of the following proverbs have similar meanings. Which ones are they? [ \_\_\_\_\_ ]
1. A person without money is a bow without an arrow.
  2. Money is a merry fellow.
  3. Fine words butter no parsnips.
  4. Don't try to carry water cans on both shoulders.
  5. The hot coal burns, the cold one blackens.
38. A plane travels 70 feet in 1/10 second. At this same speed, how many feet will it travel in 3 1/2 seconds? [ \_\_\_\_\_ ]
39. Suppose you arrange the following words so that they make a complete sentence. If it is a true statement, mark (T) in the brackets; if false, put an (F) in the brackets. of the Envy enemy is honor [ \_\_\_\_\_ ]
40. Assume the first 2 statements are true. Is the final one: 1 true, 2 false, 3 not certain?  
Marion called Glen. Glen called Jean. Marion did not call Jean. [ \_\_\_\_\_ ]
41. One number in the following series does not fit in with the pattern set by the others. What should that number be? 1/16 1/6 1/4 1/2 1 2 [ \_\_\_\_\_ ]
42. ASK is the opposite of 1 entreat, 2 crave, 3 demand, 4 appeal, 5 deny. [ \_\_\_\_\_ ]
43. When wire is selling at \$.0125 a foot, how many feet can you buy for a dollar? [ \_\_\_\_\_ ]
44. This geometric figure can be divided by a straight line into two parts which will fit together in a certain way to make a perfect square. Draw such a line by joining two of the numbers. Then write the numbers as the answer. [ \_\_\_\_\_ ]



45. In printing an article of 21,000 words, a printer decides to use two sizes of type. Using the larger type, a printed page contains 1,200 words. Using the smaller type, a page contains 1,500 words. The article is allotted 16 full pages in a magazine. How many pages must be in the larger type? [ \_\_\_\_\_ ]
46. Two of the following proverbs have similar meanings. Which ones are they? [ \_\_\_\_\_ ]
1. Mothers' darlings make but milksop heroes.
  2. Still water runs deep.
  3. Mother knows best.
  4. Wide will wear but narrow will tear.
  5. As a twig is bent, so is the tree inclined.
47. For \$4.50 a grocer buys a case of fruit which contains 14 dozen. She knows that four dozen will spoil before she sells them. At what price per dozen must she sell the good ones to gain 1/3 of the whole cost? [ \_\_\_\_\_ ]
48. Assume the first 2 statements are true. Is the final one: 1 true, 2 false, 3 not certain?  
All athletes are active. Some of the people in this room are active. Some of the people in this room are athletes. [ \_\_\_\_\_ ]
49. What is the next number in this series? 2 1 .5 .25 .125 ? [ \_\_\_\_\_ ]
50. Three individuals form a partnership and agree to divide the profits equally. X invests \$4,500, Y invests \$4,500, and Z invests \$1,000. If the profits are \$1,500, how much less does X receive than if the profits were divided in proportion to the amount invested? [ \_\_\_\_\_ ]

Appendix B

Last six digits of SS# \_\_\_\_\_

For each of the following items, please indicate how strongly you disagree or agree with each of the following statements. Place an X in the box that best represents your view. There are no right or wrong answers; I am interested in your honest first impression. So please do not spend a great deal of time thinking about any one question, but just indicate the first answer that pops into your mind.

NOTE: STR = Strongly, MOD = Moderately, SLI = Slightly

	DISAGREE			AGREE		
	STR	MOD	SLI	SLI	MOD	STR
I have original ideas.						
I am thorough.						
I fit readily into "the system."						
I am stimulating.						
I master all details painstakingly.						
I conform.						
I can handle several new ideas at once.						
I am methodical and systematic.						
I readily agree with the team at work.						
I would rather create than improve.						
I enjoy detailed work.						
I never try to bend or break the rules.						

## Appendix C

Circle one letter for your response.	A very long time	Longer than average	About average time	A very short time	Almost no time
	1. How long has it taken you to figure out when someone just wasn't going to fit in the group?	A	B	C	D
2. How long does it take you to figure out when someone is upset?	A	B	C	D	E
	Very uncomfortable	Somewhat uncomfortable	Comfortable as most	Comfortable	Very comfortable
3. How comfortable are you in working with different groups having very different goals and agendas?	A	B	C	D	E
4. How comfortable are you working with a variety of different projects?	A	B	C	D	E
	Very uncomfortable	Somewhat uncomfortable	Comfortable as most	Comfortable	Very comfortable
5. How comfortable are you in a rapidly changing work environment?	A	B	C	D	E
	Extremely difficult	Very difficult	Difficult	Not very difficult	Not at all difficult
6. How difficult is it for you to work with different groups of people at the same time?	A	B	C	D	E
7. How difficult is it for you to figure out why people were having problems?	A	B	C	D	E
8. How difficult has it been for you to recognize people's special capabilities?	A	B	C	D	E
9. How difficult is it for you to know what mood your friends are in?	A	B	C	D	E
10. How difficult has it been for you to remember the names and faces of new acquaintances?	A	B	C	D	E
11. How difficult have you found it to figure out a friend's mood just by looking at them?	A	B	C	D	E
12. How difficult has it been for you to figure out when it was a good time to ask for favors?	A	B	C	D	E
13. How difficult has it been for you to be polite to people you dislike when meeting in a social situation?	A	B	C	D	E
14. How difficult has it been for you to figure out what type food is served at fast food restaurants?	A	B	C	D	E
	Extremely difficult	Very difficult	Difficult	Not very difficult	Not at all difficult
15. How difficult have you found it to work with people who had very different goals and agendas?	A	B	C	D	E

	<u>Not at all</u>	<u>Slight extent</u>	<u>Moderate extent</u>	<u>Large extent</u>	<u>Great extent</u>
16. To what extent have you sensed when trouble was likely to arise?	A	B	C	D	E
17. To what extent would your friends describe you as someone who is good at "reading people"?	A	B	C	D	E
18. To what extent have you been able to predict group decisions before they occur?	A	B	C	D	E
	<u>Not at all</u>	<u>Slight extent</u>	<u>Moderate extent</u>	<u>Large extent</u>	<u>Great extent</u>
19. To what extent would your coworkers come to you for advice about what is the appropriate behavior in different work situations?	A	B	C	D	E
20. To what extent do you become upset by changes in plans, long lines, busy phones?	A	B	C	D	E
21. To what extent are you able to size up another person quickly?	A	B	C	D	E
	<u>Never</u>	<u>Seldom</u>	<u>Sometimes</u>	<u>Often</u>	<u>Very often</u>
22. How often have you wished you hadn't said something after you said it?	A	B	C	D	E
23. How often have people become angry with you for no reason?	A	B	C	D	E
24. How often have you correctly anticipated conflict between two acquaintances or work groups?	A	B	C	D	E
25. How often have you had the sense of who would fit into your group upon first meeting them?	A	B	C	D	E
26. How often do you become annoyed with people who suggest you try something new?	A	B	C	D	E
27. How often have you "made light" of a touchy issue when you saw it causing problems in your work group or among friends?	A	B	C	D	E
28. How often have you been the person in your family to tell it like it is in order to improve family relationships?	A	B	C	D	E
29. How often have you been described as fast on your feet?	A	B	C	D	E
	<u>Never</u>	<u>Seldom</u>	<u>Sometimes</u>	<u>Often</u>	<u>Very often</u>
30. How often do you know the right thing to say?	A	B	C	D	E
31. How often have you tried to avoid certain kinds of people you just know you wouldn't be about to deal with?	A	B	C	D	E



	<u>Never</u>	<u>Seldom</u>	<u>Sometimes</u>	<u>Often</u>	<u>Very often</u>
32. How often have you provided personal advice to the coaches of major professional sports teams?	A	B	C	D	E
33. How often have coworkers asked you for advice on how to talk to another coworker or supervisor?	A	B	C	D	E
34. How often have friends asked you for advice on how to talk to others?	A	B	C	D	E
35. How often have you been able to tell when someone needed to talk (had something on his or her mind)?	A	B	C	D	E
36. How often have you known what to say to get someone back on track when they were upset?	A	B	C	D	E
37. How often have you led a team of rescue personnel to the scene of airplane disasters?	A	B	C	D	E
	<u>Extremely unlikely</u>	<u>Very unlikely</u>	<u>likely</u>	<u>Fairly likely</u>	<u>Very likely</u>
38. When growing up, how likely were you to realize something was bothering a close friend?	A	B	C	D	E
39. How likely have you been to know the best person to complain to when you have a work group or team problem to solve?	A	B	C	D	E
	<u>Not at all easy</u>	<u>Not very easy</u>	<u>Easy</u>	<u>Very easy</u>	<u>Extremely easy</u>
40. How easy has it been for you to tell when personal problems are bothering a friend or colleague?	A	B	C	D	E
41. How easy has it been for you to communicate with others?	A	B	C	D	E
	<u>Not at all quickly</u>	<u>Not very quickly</u>	<u>quickly</u>	<u>Very quickly</u>	<u>Extremely quickly</u>
42. Relative to others, how quickly have you spotted a problem brewing in groups and organizations to which you belong?	A	B	C	D	E
	<u>Very little</u>	<u>Little</u>	<u>Some</u>	<u>Much</u>	<u>Very much</u>
43. How much has it bothered you when there were unexpected changes in meetings?	A	B	C	D	E
44. How much have you enjoyed working on a variety of different projects?	A	B	C	D	E

## Appendix D

Last six digits of social security # \_\_\_\_\_

### Test 3

*Instructions:* Some emotions are more complex than others and consist of two or more simple emotions. In this Part, you will be asked to indicate which simple emotions form a more complex emotion. Here is an example: Sadness most closely combines which two emotions:

1. anger and surprise
2. fear and anger
3. disappointment and acceptance
4. remorse and joy

The best answer is 3. For each complex emotion, select the emotions that go into it. Select the **single** best answer.

1. Optimism most closely combines which two emotions? Circle (select) one:

1. pleasure and anticipation
2. acceptance and joy
3. surprise and joy
4. pleasure and joy

2. Love most closely combines which two emotions? Circle (select) one:

1. joy and anticipation
2. surprise and anticipation
3. fear and joy
4. acceptance and joy

3. Contempt most closely combines which two emotions? Circle (select) one:

1. anger and fear
2. fear and surprise
3. disgust and anger
4. surprise and disgust

4. Disappointment most closely combines which two emotions? Circle (select) one:

1. sadness and surprise
2. surprise and fear
3. anticipation and sadness
4. anger and fear

5. Remorse most closely combines which three emotions? Circle (select) one:

1. fear, disgust, and guilt?
2. anticipation, sadness, and fear?
3. guilt, regret, and sadness
4. sadness, fear, and resentment

6. Calmness most closely combines which three emotions? Circle (select) one:

1. relaxed, secure, and serene
2. pride, joy, and love
3. anticipation, acceptance, and satisfaction
4. tired, happy, and acceptance

7. Awe most closely combines which four emotions? Circle (select) one:

1. surprise, anger, fear, and happiness
2. anticipation, surprise, pride, and anger
3. sadness, remorse, joy, and fear
4. fear, joy, surprise, and embarrassment

8. Jealousy most closely combines which four emotions? Circle (select) one:

1. resentment, anger, anticipation, and pride
2. surprise, joy, frustration, and pride
3. humiliation, anger, fear, and frustration
4. sadness, surprise, humiliation, and regret

#### Test 4

*Instructions:* This part measures your understanding of the progression of emotions. You will be asked what happens when an emotion gets stronger and stronger. Try this example: Someone feels more and more happy. When their emotion gets even past happiness and they are out of control, they feel:

1. satisfied
2. content
3. manic
4. joyous

When a person experiences intense happiness, they can become joyous. But going beyond a feeling of happiness and losing control is mania. The best answer is 3 – manic. For each item pick the **single** best answer that makes the most sense.

1. If you feel guiltier and guiltier, and begin to question your self-worth, you feel (Circle/select ONE)

1. depression
2. fear
3. shame
4. pity

2. You are feeling angrier and angrier toward someone and you are losing control. This results in (Circle/select ONE)

1. gloating
2. resentment
3. hate
4. rage

3. Feeling livelier and livelier results in (Circle/select ONE)

1. joy
2. loving
3. surprised
4. excitement

4. Feeling more and more afraid results in (Circle/select ONE)

1. relief
2. terror
3. anger
4. disliking

5. Feeling sadder and sadder and realizing there is nothing you can do results in (Circle/select ONE)

1. mourning
2. acceptance
3. helplessness
4. disappointment

6. Feeling more and more resentful about what someone else has results in (Circle/select ONE)

1. envy
2. depression
3. hatred
4. surprise

7. Feeling angrier and angrier toward someone and then resigning yourself that you can't change matters would result in feeling (Circle/select ONE)

1. disgust
2. fear
3. hate
4. acceptance

8. Feeling more and more happy and then relaxing about it results in (Circle/select ONE)

1. joy
2. pride
3. contentment
4. loving

## Appendix E

preliminary questionnaire.

### Final Item Selection for the Empathy Subscales

In order to produce the strongest, most reliable instrument possible, selection of items for the final four empathy subscales were guided by two primary considerations. First, items were examined to ascertain which ones loaded most heavily, in both sexes, on their respective factors. Those items loading highest on a factor for both males and females were selected for inclusion on the corresponding subscale. The only exceptions to this rule concerned those few items which loaded heavily on two or more factors; those items were not utilized for any subscale. This procedure resulted in an instrument consisting of four seven-item, unit-weighted subscales corresponding to the four factors identified earlier. The items comprising these subscales are presented in Table 3.

Table 3

#### Items Comprising the Final Four Empathy Scales

##### Fantasy Scale

(Standardized alpha coefficients: Males, .78; Females, .79)

26. When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me.
5. I really get involved with the feelings of the characters in a novel.
7. I am usually objective when I watch a movie or play, and I don't often get completely caught up in it. (-)
16. After seeing a play or movie, I have felt as though I were one of the characters.
1. I daydream and fantasize, with some regularity, about things that might happen to me.
12. Becoming extremely involved in a good book or movie is somewhat rare for me. (-)
23. When I watch a good movie, I can very easily put myself in the place of a leading character.

##### Perspective-Taking Scale

(Standardized alpha coefficients: Males, .71; Females, .75)

28. Before criticizing somebody, I try to imagine how I would feel if I were in their place.

- 15. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments. (-)
- 11. I sometimes try to understand my friends better by imagining how things look from their perspective.
- 21. I believe that there are two sides to every question and try to look at them both.
- 3. I sometimes find it difficult to see things from the "other guy's" point of view. (-)
- 8. I try to look at everybody's side of a disagreement before I make a decision.
- 25. When I'm upset at someone, I usually try to "put myself in his shoes" for a while.

#### Empathic Concern Scale

(Standardized alpha coefficients: Males, .68; Females, .73)

- 9. When I see someone being taken advantage of, I feel kind of protective toward them.
- 18. When I see someone being treated unfairly, I sometimes don't feel very much pity for them. (-)
- 2. I often have tender, concerned feelings for people less fortunate than me.
- 22. I would describe myself as a pretty soft-hearted person.
- 4. Sometimes I don't feel sorry for other people when they are having problems. (-)
- 14. Other people's misfortunes do not usually disturb me a great deal. (-)
- 20. I am often quite touched by things that I see happen.

#### Personal Distress Scale

(Standardized alpha coefficients: Males, .77; Females, .75)

- 27. When I see someone who badly needs help in an emergency, I go to pieces.
- 10. I sometimes feel helpless when I am in the middle of a very emotional situation.
- 6. In emergency situations, I feel apprehensive and ill-at-ease.
- 19. I am usually pretty effective in dealing with emergencies. (-)
- 17. Being in a tense emotional situation scares me.
- 13. When I see someone get hurt, I tend to remain calm. (-)
- 24. I tend to lose control during emergencies.

The end result of the instrument construction process, then, was a 28-item questionnaire, consisting of four discrete, seven-item subscales. The fantasy scale (FS), which includes the three items from Stotland's (Stotland, Mathews, Sherman, Hansson, & Richardson, 1978) Fantasy-empathy scale, appears to tap the

## Appendix F

Please use this list of common human characteristics to describe yourself as accurately as possible. *Describe yourself as you see your self at the present time, not as you wish to be in the future.* Describe yourself as you are generally or typically, as compared with other persons you know of the same sex and of roughly the same age.

Before each characteristic, please write a number indicating how accurately or inaccurately that characteristic describes you, using the following rating scale:

<u>Extremely</u>	<u>Very</u>	<b>Inaccurate</b>		?	<b>Accurate</b>		<u>Very</u>	<u>Extremely</u>
1	2	<u>Moderately</u>	<u>Slightly</u>	6	<u>Slightly</u>	<u>Moderately</u>	9	8

- |                                       |   |
|---------------------------------------|---|
| <input type="checkbox"/> Bashful      | <input type="checkbox"/> Philosophical  |
| <input type="checkbox"/> Bold         | <input type="checkbox"/> Practical      |
| <input type="checkbox"/> Careless     | <input type="checkbox"/> Quiet          |
| <input type="checkbox"/> Cold         | <input type="checkbox"/> Relaxed        |
| <input type="checkbox"/> Complex      | <input type="checkbox"/> Rude           |
| <input type="checkbox"/> Cooperative  | <input type="checkbox"/> Shy            |
| <input type="checkbox"/> Creative     | <input type="checkbox"/> Sloppy         |
| <input type="checkbox"/> Deep         | <input type="checkbox"/> Sympathetic    |
| <input type="checkbox"/> Disorganized | <input type="checkbox"/> Systematic     |
| <input type="checkbox"/> Efficient    | <input type="checkbox"/> Talkative      |
| <input type="checkbox"/> Energetic    | <input type="checkbox"/> Temperamental  |
| <input type="checkbox"/> Envious      | <input type="checkbox"/> Touchy         |
| <input type="checkbox"/> Extraverted  | <input type="checkbox"/> Uncreative     |
| <input type="checkbox"/> Fretful      | <input type="checkbox"/> Unenvious      |
| <input type="checkbox"/> Harsh        | <input type="checkbox"/> Unintellectual |
| <input type="checkbox"/> Imaginative  | <input type="checkbox"/> Unsympathetic  |
| <input type="checkbox"/> Inefficient  | <input type="checkbox"/> Warm           |
| <input type="checkbox"/> Intellectual | <input type="checkbox"/> Withdrawn      |
| <input type="checkbox"/> Jealous      |   |
| <input type="checkbox"/> Kind         |   |
| <input type="checkbox"/> Moody        |   |
| <input type="checkbox"/> Organized    |   |

Appendix G

Last 6 digits of SS# \_\_\_\_\_

Please write in the names of the **other** members of your company below. Please indicate by placing an X in one of the boxes, how strongly you disagree or agree to the following statement:

“This person was the true leader of the company.”

STR = Strongly disagree/agree  
 MOD = Moderately disagree/agree  
 SLI = Slightly disagree/agree

NAME	DISAGREE			AGREE		
	STR	MOD	SLI	SLI	MOD	STR
1.						
2.						
3.						
4.						



Appendix H

Last six digits of SS# \_\_\_\_\_

Please indicate by placing an X in one of the boxes, how strongly you disagree or agree with your participation in the activities listed below during the computer-based marketing simulation.

STR = Strongly disagree/agree  
 MOD = Moderately disagree/agree  
 SLI = Slightly disagree/agree

ACTIVITY	DISAGREE			AGREE		
	STR	MOD	SLI	SLI	MOD	STR
I managed team conflict						
I motivated other members of the team						
I set the company objectives						
I handled financial planning and review						
I handled outside conflicts						
I was the company representative						
I planned and allocated resources						
I monitored the business environment						
I was central to company communications						
I spent a great deal of time problem solving						

Appendix I

Last six digits of SS# \_\_\_\_\_

BACKGROUND INFORMATION

Please fill out the following questions. All answers are confidential.

1. I am a member of a William & Mary athletic team: \_\_\_\_\_yes \_\_\_\_\_no

If yes, please indicate the specific sport(s) and the position(s) you hold on the team(s):

2. Please provide your SAT scores below:

Verbal\_\_\_\_\_ Quantitative\_\_\_\_\_

## Appendix J

Hi. My name is Nancy Yanchus and I am a Psychology graduate student at William & Mary. The nature of this study is to investigate organizational behavior. The model on which this study is based has only recently begun to be tested using a battery of measurements. Your participation in this study will help further understanding about this model of organizational behavior and its potential to be related to human resource departments in organizations. In this session you will be asked to a) to rate the members of your company regarding their leadership efforts in the marketing-simulation, b) indicate what activities you performed during the marketing-simulation, c) provide some background information, and d) to fill out three personality inventories. (Hand out envelopes).

Please take the materials out of the envelope. Before starting, I need you to read and sign the College of William & Mary Psychology Department Consent Form. This form explains that all the information you provide will remain confidential, that you may discontinue participation at any time, that grades etc. will not be affected by your responses, and that you may report dissatisfaction with the session to the Psychology Department Ethics Committee Chair, Dr. Lee Kirkpatrick. At the bottom of the form you are asked for your signature indicating consent to partake in this session as well as permission for your instructor to obtain GPA and SAT scores from the registrar. You are also asked for the last six digits of your SS#. This will ensure that your responses will remain confidential. For those of you who do not wish to sign the form and participate in the session, you are excused. Thank you for your time. (Those who want to leave, leave the room).

Thank you for agreeing to participate in this session. Please fill out the top three pages of the material and put down your pencil when you have finished. (Experimenter waits until the whole class finishes before moving on). Please put these forms back in the envelope.

Ok. The first inventory I would like you to fill out is the one with that has the letters "WPT." Please put the last six digits of your SS# on the cover sheet. I will read the instructions aloud:

"This test contains 50 test questions that increase in difficulty. It is unlikely that you will finish all of them, but do your best. After I tell you to begin, you will have exactly 12 minutes to provide as many correct answers as you can. Work carefully but do not spend too much time on any one question or skip around. Be sure to write your answers in the brackets provided. Before you begin taking this test, please answer the sample question below."

Please complete the two sample questions. Do you have any questions? Ok. After I say start, please turn to the next page and begin the test. You will have 12 minutes. (Kitchen timer used to time the test.)

Ok. Time's up. Please put down your pencils and put this inventory back in the envelope. (Experimenter waits until the participants are ready to continue.)

You may start filling in the remaining inventories; they are not timed but should take about fifteen minutes. Remember, don't think too hard about any one question, just

go with what first pops into your head. Please return these inventories to the envelopes when you are finished. (Experimenter waits until the participants are finished.)

Thank you for participating in this data collection session. I put the numbers from the back of your envelope in this hat and will pull out the lucky winner. Because this session is less than half full, there will only be one lottery drawing for \$100. Do you want one chance at the entire amount or should I break it down: \$50, \$25, \$10, \$10, and \$5? (all sessions chose more drawings with smaller amounts). Congratulations, #X, you've won \$X. (repeat four more times) Thanks again.

Appendix K

## College of William & Mary Psychology Department Consent Form

The general nature of this study of organizational behavior has been explained to me. I understand that I will be asked to a) to indicate the organizational positions my team members and I held during the two-week computer-based management simulation, and b) to fill out three personality inventories.

I further understand that my responses will be confidential and that my name will not be associated with any results of this study. I know that I may refuse to answer any question I find personally objectionable and that I may discontinue participation at any time. I also understand that any grade, payment, or credit for participation will not be affected by my responses or by my exercising any of my rights. I am aware that I may report dissatisfactions with any aspect of this experiment to the Psychology Ethics Committee Chair: Dr. Lee Kirkpatrick, at [lakirk@wm.edu](mailto:lakirk@wm.edu). I am aware that I must be at least 18 years of age to participate. My signature below signifies my voluntary participation in this study.

---

Date

---

Signature

I grant permission to William & Mary to disclose my GPA and SAT scores for use in this study. I understand that I need to provide the last six digits of my social security number for this information to be retrieved.

Last six digits of social security # \_\_\_\_\_

### Appendix L

Hi, may I speak with Mike?

Hi, Mike. My name is Nancy. May I ask you a few questions? First, did you participate in Dr. Mooradian's marketing-simulation this fall? Did you fill out his web survey? Did you participate in the graduate student's research? (If the student answered yes to this last question, they were thanked for helping out and the phone call ended.)

Mike, based on your answers to the first two questions I wondered if it would be possible to ask you about 5 minutes worth of questions related to your participation in the marketing-simulation. I'm doing research on organizational behavior and am contacting some of students from Todd's project to ask a few more questions.

Thanks. Really this takes about 3 to 4 minutes. In the first section, I will read you a statement and then ask you to disagree or agree with that statement as it relates to the members of your company. 1 is strongly disagree, 6 is strongly agree—you can answer anywhere within that range.

The statement is, "Who was the true leader of your company?" The first name I have listed is Marie Han. Next is Amit Gupta. Next is William Shipman. Last is Mark Hanley.

Ok. In this next section I will ask you questions regarding your own activities during the marketing-simulation. Again, 1 is strongly disagree and 6 is strongly agree.

Did you manage team conflict?

Did you motivate other members of your team?

Did you handle financial planning and review?

Did you plan and allocate resources?

Did you monitor the competitive business environment?

Were you central to the communications within the company?

Did you spend a great deal of time problem solving?

Ok. The next two questions are really brief. Are you a member of a William & Mary Athletic team? (If they answered yes, I asked for the sport and the position held and if they were a captain). Would you be able to provide me with your SAT scores, preferably the splits but if you only remember the whole score that's fine.

Ok. That's it. Thanks for your time.

Appendix M

Hi, may I please speak with David Miller? Hi David, my name is Nancy and I am an MA graduate student in the Psychology department. I am seeking participants for my thesis study that investigates organizational behavior, group dynamics, and decision-making. I am aware that you need to participate in research in order to obtain necessary credit for your Introductory Psychology course. Have you already completed your required hours? Would you be interested in attending one of my sessions to receive 1 hour of research participation credit? I have several times over the next week when I will be running sessions. What time is most convenient for you: the morning, afternoon, or evening? I have three sessions scheduled this week for the evening. Would you be available for Wednesday at 6pm? Good. I'll write in your name for that time slot. Be sure that you go to the sign-up sheet board in Millington and sign up for this session as well. This is the "official" record of your agreement to participate in this session and what is used to make certain that the requirement has been satisfied. The session will be held in the Social Psychology Research Lab, which is on the first floor of Millington, Room #X. Thank you for signing up and I'll see you Wednesday at 6pm.

## Appendix N

### SECTION 1

#### Section 1

Having carried out approximately 40% of the interviews, you start to realize that this approach is just too time-consuming. Also you suspect that you are getting increasing collusion between staff as accounts of the 'story' seem to become very similar. Or at least, each team's story! The problem seems to mainly do with a breakdown in communication between the two groups of staff. Food was ready for consumption but not at a time when the guests wanted to eat. By the time they were ready to eat the food was not quite so ready! Both of the groups of staff are blaming each other for the problem and each team leader is personally blaming their counterpart for what happened. Everyone seems to be expecting you to act as 'judge and jury.'

DO YOU:

- 1) blame them all and stress that as far as the client is concerned there is only one team, the hotel team? Point out that whatever the source of the trouble, everyone is at fault, either for starting things or allowing them to escalate. GO TO A (p.3)
- 2) decide that blame is not the best long-term strategy? You tell them that they are to meet together and come up with an action plan so that this type of incident doesn't happen again. GO TO B, (p.4)
- 3) decide that, if anyone is 'at fault' the team leaders are, and you require them to work together to prepare a report detailing what went wrong and how they recommend things should be changed? You stress that they must put in a jointly agreed report, and within three days. GO TO C (p.5)

A

You notice over the next few days that the staff around the hotel seem a little wary of you. Conversations stop as you appear. Most people don't seem their cheery normal selves. You guess its because of the way you dealt with the wedding fiasco! Well, they've just got to learn that if they make mistakes they have to carry the responsibility. At least, they've all still got their jobs! As far as you're concerned you've had to grovel to the clients with the wedding. They were not best pleased. Your hotel's reputation among at least two networks of friends and relatives has been tarnished. Who knows how your profits will suffer?

You're thinking about this when your head chef arrives to complain about it, in his words, the 'unfairness' of the treatment of his staff. "It wasn't their fault that the restaurant staff didn't tell them of the change of schedule. Why blame them? They did their best!"

DO YOU:

- 1) tell him, in no uncertain manner, that he's out of order complaining about your judgment? GO TO A1 (p.6)
- 2) ask him whom, in his opinion, should you blame? Him? Ask him what he would have done if it had been his hotel and not yours. GO TO A2 (p.7)
- 3) ask him to sit down and tell you more? Perhaps, it may be worth going through things just once more. GO TO A3 (p.8)

B

They seem to do what you've asked them to do, or at least small groups of both teams meet during a lull one afternoon in one of the unused meeting rooms. You only get to hear about it as you notice a tray of coffees and teas being taken into the room and this leads you to make an enquiry at Reception, just in case you have a new client on the premises. Sadly, no, but you eventually discover that the staff are meeting to 'air their grievances,' as one receptionist puts it.

After 40 minutes, there is an almighty bang which can be heard right across the hotel...you very quickly discover that it's the head chef storming out of the meeting, followed by his staff. He's just been accused by the restaurant manger and his staff of deliberately trying to wreck the wedding party as they knew that the bride was a personal friend of his. They had



wanted to 'punish' the restaurant manager for, in their view, putting a series of uncalled for complaints to you, the owner, usually on very minor things. This grievance appears to have been going on for several months; however, this was the first really major one where the hotel's reputation had been threatened.

At least this is what you've managed to pick up from snatches of conversations between staff that you've overheard as they discuss the door-slamming incident.

Clearly, things seem to be going from bad to worse. Having a meeting hasn't seemed to work.

DO YOU:

- 1) insist that they meet again, but this time with you in the chair? GO TO B1 (p.6)
- 2) contact a friend of yours who works as a consultant within the hospitality industry and ask him if he's prepared to spend a day with you to try to sort things out, once and for all? GO TO B2 (p.7)
- 3) ignore the door slamming incident and the rumors about what was said in their meeting? Insist that an action plan is produced on time. How they go about the task is up to them. You make it very clear that you want the plan, 'come what may!' GO TO B3 (p.8)

C

"Why blame us? If you had to work with the types of staff we get nowadays, you would have probably resigned by now!"

Somewhat surprised by this outburst from the head chef, you find that the restaurant manager is agreeing with his comments. While neither of them likes your 'blaming' them for the problems, their comments suggest that perhaps there are other issues that need to be looked at within your hotel. You've always thought your staff were some of the best available locally. Perhaps you've been mistaken. It's some time since you've been involved in recruiting staff at this level. The two managers in front of you today have done most of the recruitment work. One could say that they are also to 'blame' for this issue too! But you won't say so, at least not today!

You are now faced with new issues in addition to the original matter.

DO YOU:

- 1) get the two managers to focus their attention back on the communication problems between their two teams and to do what you've already told them to do? GO TO C1 (p.6)
- 2) tell the managers to consider integrating their concerns about staff recruitment into their report on the team conflict situation? GO TO C2 (p.7)
- 3) suggest that they stop try to avoid taking the blame for their teams' performance and get on and sort things out? GO TO C3 (p.8)

A1

Within the hour, Reception are reporting several guests complaining about the length of time they've had to wait for their meals in the restaurant. Some also say that their food has been overcooked.

You're tempted to draw an obvious conclusion... only tempted, however!

GO TO PAGE 9

B1

Both teams of staff turn up at the allotted hour. They both sit on either side of the room leaving you on your own at the end of the long table.

Despite your best efforts to get both teams to start the discussion about what went wrong at the wedding, no one seems willing to take the lead. Even picking on specific individuals in each team doesn't seem to work. They either reply that they've nothing to say or they seem to want their managers to do the talking. Both, interestingly, seem remarkably quiet...not their normal style!

It looks like a stalemate. Left on their own, they go out of control and start abusing each other. With you in the chair, both teams turn into mice with hardly a squeak between them.

GO TO PAGE 9

C1

“So, you don’t believe us! You’re determined to make us the scapegoats!”

Your team leaders don’t seem very ready to deal with this incident constructively. Perhaps you will have to reconsider their positions within your hotel. Having the ability to accept criticism and to be able to learn from it and move on to better performance is something all managers need to be able to handle.

GO TO PAGE 9

A2

“We’ll, I wouldn’t have shot myself in the foot as you’ve done! You’ve now left yourself with both angry customers and angry staff! Before you just had the angry customers, which was of course bad enough but you could have sorted them out in some way, and there are always more customers tomorrow. Good staff are harder to find and often harder to keep!”

While some of his optimism about there always being customers tomorrow makes you wince at its naivete, you realize that he’s got a valid argument about the importance of the staff, especially in the hotel business.

GO TO PAGE 10

B2

The day before your friend, the consultant, is due to arrive to see you, someone gets to hear of his visit. You’ve made a special effort to keep the whole thing under wraps as you felt it might provoke even more trouble. How right you were! You guess it must have been something to do with his room booking details! Anyway, the cat’s out of the bag! As far as you can make out, there’s a rumor that you’ve employed top consultants to tell you how to make savings by cutting costs including staffing costs. While that’s clearly not true, you are now starting to regret ever thinking of contacting your friend.

GO TO PAGE 10

C2

“Well, that’s all very well but you’re still trying to pin the blame on us. If you’d heard what we were saying to you, you would have realized that a quick fix may not be possible.”

You’re not sure how they came to the view that you were looking for a quick fix. That wasn’t your intention. You do genuinely believe that there may well be longer-term issues that need to be addressed here. Your managers don’t seem very convinced, however.

GO TO PAGE 10

A3

After a few minutes of his moaning on about the restaurant staff and, in particular, their manager, you suddenly realize that you’re being drawn into a situation where you will be expected to take sides. Giving him the opportunity to open things up again may have not been the best move. You hope that the restaurant manager doesn’t hear of this meeting. Although in this place, there’s not much hope of that! Communication breakdowns may occur, but the grapevine is still fully operational!

GO TO PAGE 11

B3

You find that you may try to ignore the blow-up at the staff meeting but they don’t seem able to. Both teams of staff continue to bicker between themselves. Cooperation between them while on duty is becoming difficult and, at times, embarrassing. Customers are starting to complain about the service they are receiving. Insisting on an action plan doesn’t seem to be having much effect. Maybe it’s action rather than plans that is needed right now?

GO TO PAGE 11

C3

They don’t like your directness. They both go off in a temper, mumbling under their breath about people not understanding what the hotel business is really like. Or at least, that’s what you think they’re saying!

Only time will tell whether or not your particular approach to handling these two managers has worked. They must realize that as team leaders they have to be responsible for the behavior and performance of their teams. They can't duck out now!

**GO TO PAGE 11**

(Text on pp. 9-11)

**ATTENTION!**

The group decision-making segment of this session is finished. From this point forward you are to individually complete the next two pages. Do not discuss the decisions with your group members. Do not reveal your decisions to other group members. Please be as candid as possible with your responses. This information is confidential—other members of your group will not see the information. Please be sure to put the last six digits of your social security number at the top right of each page to ensure confidentiality. After completing the next two pages, please return your business scenario activity to the envelope from which it came and return it to the experimenter. At that point feel free to ask her specific details about the study, such as what specific organizational decision-making/group dynamic behavior was being investigated, and how you can get access to the results.

## Appendix O

### SECTION 2

#### Section 2

You arrange to see the kitchen staff in mid-afternoon and the restaurant staff immediately afterwards. In the kitchen meeting, the staff seem rather reticent about expressing their views and their manager ends up doing most of the talking. The restaurant team are quite the opposite and lose no time in telling you exactly why things have gone so wrong. They place much of the blame on the kitchen staff and their 'uncooperative' attitude and they are also concerned that they themselves don't get enough recognition from you, the owner. As one said, "This is the first time you've ever spent time with us as a team and it's only because there's a problem to sort out!"

Having completed both meetings and retired to your office for a welcome cup of tea, you are pondering on what you've heard this afternoon and indeed what you've not heard. You don't feel much the wiser.

DO YOU:

- 1) decide to issue a general reprimand to both sets of staff and to the two managers pointing out that disputes, of whatever cause, are not to get in the way of providing the highest quality of service to hotel guests? GO TO A (p.3)
- 2) decide to bring the two managers together and tell them in on uncertain terms that they have to get their teams to improve their performance and attitudes otherwise there will have to be changes? GO TO B (p.4)
- 3) decide that further investigation is warranted but this time you will ask your Office Manager to try to find out what went wrong and why? GO TO C (p.5)

A

Within an hour of your reprimand being circulated, you are aware that both teams of staff have met initially separately and then together. It seems that you may have re-united two warring teams by making yourself the common foe!

You receive a message that the staff wish to meet with you to discuss your reprimand.

DO YOU:

- 1) agree to meet but only with the two managers? GO TO A1 (p.6)
- 2) agree to meet with a small number of the two teams of staff but only after they've indicated in more detail what they wish to discuss? GO TO A2 (p.7)
- 3) indicated that the reprimand stands and that there is nothing to discuss? GO TO A3 (p.8)

B

"Yes, we agree with you. It is our responsibility to get our teams in shape. However, we also need something from you, and that is to leave us alone to manage our teams in our own way."

"I agree with my colleague. My restaurant staff are usually ok: however, they don't like being messed around. I've got a fairly settled team and they've got used to my ways and what I expect from them. Either we're in charge of them or we're not."

Having listened to both managers you start to realize that perhaps you have been making your own contribution to the problems. It still doesn't excuse the staff, however!

DO YOU:

- 1) suggest that the three of you should have more regular 'management' meetings so that everyone can be clear what's going on, the problems being dealt with and what is expected of the teams of staff? GO TO B1 (p.6)
- 2) make it very clear to them that they are the leaders of their teams and as such you hold them responsible for performance levels? You will only intervene by exception, when performance levels are unacceptable. GO TO B2 (p.7)

remind them that they should be very aware of how important customer satisfaction is to the hotel and if their staff fail to deliver then something has to be done? If that means you get involved then so be it. They need to learn from such events. GO TO B3 (p.8)

C

The Office Manager, who had obviously hear much of what has been going on, reluctantly agree to see what she can do. She speaks with the restaurant manager and head chef separately at first and then brings them together to bounce her own initial analysis of the situation off both of them.

There is still considerable disagreement between them but one issue is identified that all of them agree upon. This is that leading up to that particular wedding reception the level of communication and planning between the two team of staff was not as great as normal. While there doesn't appear to be one clear reason for this, it is suggested that having key staff moved to other parts of the hotel for training didn't help matters.

The other issue identified by the Office Manager relates to the long-standing grievance of the kitchen staff that the restaurant staff have the opportunity to benefit from tips left by satisfied customers. Whilst the restaurant staff pool all tips, they only share them out between themselves. The kitchen staff rarely, if ever, receive any direct financial reward even though it is often the quality of the meals that attracts the tip in the first place. The head chef has tried to get this practice changed for as long as he has been in post but to no avail. This issue tends to rumble on in the hotel and often lies beneath other disputes.

Having a report along these lines from the Office Manager you are faced with deciding on what to do next.

DO YOU:

- 1) decide to resolve this matter of tipping once and for all and to get it sorted right across the hotel, not just with these two teams? GO TO C1 (p.6)
- 2) decide to do nothing concrete and hope that, having allowed the two managers to let off steam, things will get better? GO TO C2 (p.7)
- 3) bring the two team managers, the Office Manager, and yourself together to thrash things out once and for all? GO TO C3 (p.8)

A1

The meeting takes place but against a background of some disquiet across the hotel.

Before anyone else says anything, you point out to your two managers that they are responsible for leading their teams of staff and that is why you've agreed to meet only with them. 'If I had to deal with every staffing issue personally then I might as well not employ people like you two! Don't you see my point?'

This seems to disarm them. They clearly had come to the meeting intending to raise the roof about the reprimands. They probably still feel angry but you've managed to place them in such a position that they can't really say too much without making their own position worse. The meeting soon breaks up and they return to their teams. With what message, who knows?

GO TO PAGE 9

B1

"If that means less interference from you then that's fine with me."

"Well, if we must! I'm not a great believer in meetings for meetings' sake. Surely if we have clear responsibilities and we know that we can see you if we need help or advice then why can't we just get on with our jobs?"

Clearly your idea of more meetings hasn't exactly had a warm reception. Maybe these are more to meet your needs than theirs?

GO TO PAGE 9

C1

Tipping proves an even more widespread bone of contention than you had realized. The cleaners, bar staff, leisure club staff, and even the reception staff all have strong views on the subject.

You suddenly realize that you've opened up a hornets' nest with this one. Some issues are sometimes best left alone. But it's too late now!

GO TO PAGE 9

A2

Having received a note indicating that both teams of staff regard your action in issuing a reprimand to all staff in the two areas as being unfair and uncalled for, you agree to meet two staff from each team.

Upon their arrival, you quickly indicate that you, as their employer, have every right to issue a reprimand. You also indicate that you regard both sets of staff as contributing to the unacceptable situation which arose at the wedding reception and therefore you have reprimanded all those staff on duty that day.

Both pairs of staff try to open up the discussion of the wedding reception again but you've had enough of it by now. Both teams seem to blame each other and its happening again in this meeting. After a couple of minutes you cut them short and indicated that you've listened to enough of this bickering and that there is nothing to be gained from continuing the meeting. You make it clear that the meeting is over.

You feel that, as the person ultimately in charge, you've made your point. Quality of service to guests is of the utmost importance. Staff who let you down will get dealt with. This incident should be treated as a warning for the future. Next time, in your view, heads may well roll!

GO TO PAGE 10

B2

"That's fine but we seem to have different views on the level of performance expected and how it is to be measured. You get a dissatisfied customer ringing you up and all hell breaks loose. What about all the time the customers say they are pleased with the service received? Do we ever hear of this? Do our teams get congratulated? No!"

Clearly, you've got some work to do with these two managers.

GO TO PAGE 10

C2

Some hope! Within a day or two both managers have been back to see you. The Office Manager also wants to know what you're going to do. As she points out, she has taken on board the investigation on your behalf and her good name is now on line in the hotel.

Clearly, things aren't going to quiet down.

GO TO PAGE 10

A3

Not the best thing to have done, perhaps! You receive a deputation in your office. You may not want to meet them but they are insisting on meeting you! Or else!

They make it very clear that if you want your hotel to continue to operate for the rest of the day then you must withdraw your reprimands and then sit down with them and discuss how things should operate in the future.

Your response is that you are willing to meet with them but at this point in time the reprimands stand. You're not going to be pushed around by a lot of waiters and kitchen hands!

GO TO PAGE 11

B3

"We realize that customers are the key to our business. But every time you intervene, you undermine our authority with our staff. They expect to see us sorting things out, telling them off if necessary. If they see you doing our job for us then we can gain a little respect from them. Having that respect is essential to team leadership. In the same way you need to have our respect!"

Maybe the head chef has a point. You hadn't thought about it in quite that way before.

GO TO PAGE 11

C3

After an hour of discussion that seems to go round and round in circles, you decide that things have to be stopped. You make a commitment to be more careful in the future about the timing of staff movements for training purposes, although you remain adamant that the teams should have been able to cope. In your view, this reinforces the very need for training. On the tipping business, you indicate that you will consult the hotel's accountant on the whole issue and then get back to them when you have a clearer view. In the meantime, there are to be no more arguments about who gets the tips and who doesn't...and that's an order!

GO TO PAGE 11

(Text on pp. 9-11)

ATTENTION!

The group decision-making segment of this session is finished. From this point forward you are to individually complete the next two pages. Do not discuss the decisions with your group members. Do not reveal your decisions to other group members. Please be as candid as possible with your responses. This information is confidential—other members of your group will not see the information. Please be sure to put the last six digits of your social security number at the top right of each page to ensure confidentiality. After completing the next two pages, please return your business scenario activity to the envelope from which it came and return it to the experimenter. At that point feel free to ask her specific details about the study, such as what specific organizational decision-making/group dynamic behavior was being investigated, and how you can get access to the results.

Appendix P

Last 6 digits of SS# \_\_\_\_\_

Please write in the names of the **other** members of your group below. Please indicate by placing an X in one of the boxes, how strongly you disagree or agree to the following statement:

“In terms of keeping the activity on track, this person was the true leader of the group.”

STR = Strongly disagree/agree  
 MOD = Moderately disagree/agree  
 SLI = Slightly disagree/agree

NAME	DISAGREE			AGREE		
	STR	MOD	SLI	SLI	MOD	STR
1.						
2.						
3.						
4.						



Appendix Q

Last 6 digits of SS# \_\_\_\_\_

Please write in the names of the **other** members of your group below. Please indicate by placing an X in one of the boxes, how strongly you disagree or agree to the following statement:

“In terms of influencing what decision was ultimately made, this person was the true leader of the group.”

STR = Strongly disagree/agree  
 MOD = Moderately disagree/agree  
 SLI = Slightly disagree/agree

NAME	DISAGREE			AGREE		
	<u>STR</u>	<u>MOD</u>	<u>SLI</u>	<u>SLI</u>	<u>MOD</u>	<u>STR</u>
1.						
2.						
3.						
4.						

Appendix R**College of William & Mary  
Psychology Department Consent Form**

The general nature of this study of organizational behavior has been explained to me. I understand that I will be asked to participate in two experimental sessions. In the first session I will be asked to complete five inventories. In the second session I will be asked to partake in a team problem-solving activity.

I further understand that my responses will be confidential and that my name will not be associated with any results of this study. I know that I may refuse to answer any question I find personally objectionable and that I may discontinue participation at any time. I also understand that any grade, payment, or credit for participation will not be affected by my responses or by my exercising any of my rights. I am aware that I may report dissatisfactions with any aspect of this experiment to the Psychology Ethics Committee Chair: Dr. Lee Kirkpatrick, at [lakirk@wm.edu](mailto:lakirk@wm.edu). I am aware that I must be at least 18 years of age to participate. My signature below signifies my voluntary participation in this study.

---

Date

---

Signature

## Appendix S

Hi. My name is Nancy Yanchus and I am doing some research, which looks at group dynamics, for my Master's thesis in Psychology. Please open the envelopes you have been given and take out the materials. The first sheet of paper that I would like you to read is the William & Mary Psychology Department Consent Form. Please read the form, sign it, and place it back in the envelope. Should you choose not to sign the consent from you are excused from participating in this study. Upon signing the consent form you are agreeing to participate in both sessions of this study. [For ROTC cadets, the second session is February 16, 2000.] [For the ROTC cadets, there is no penalty for choosing not to participate.] [For Introductory Psychology students, fulfillment of course credit depends of completing both sessions.] [For Introductory Psychology students, should you choose not to participate in this study, you must find an alternative study to complete in order to receive the required course credit.]

Thank you for agreeing to participate in the current study. As indicated on your consent form, there are two sessions in this study that you have agreed to attend. In this first session you will be given five personality inventories. As indicated in the consent form, you may refuse to answer any question you find personally objectionable and that you may discontinue participation at any time. Also understand that any grade, payment, or credit for participation will not be affected by your responses or by your exercising any of your rights.

The first inventory that you will fill out has a cover sheet on it with the letters "WPT." Please put the last six digits of your social security number on this sheet, for purposes of confidentiality, and read the instructions. Do you have any questions? This test is a timed test. You have twelve minutes to work on the test. Remember, do not skip questions, start at the beginning and work until time is up. Ready? Begin. Time is up. Please return this measurement to the envelope.

The next four inventories should be filled out in the order that they were placed in the envelope. Please put the last six digits of your social security number at the top right of each cover page. These inventories are not timed. However, when answering the questions please do not give any one question a great deal of thought. Just put down the first answer that pops to mind. Do you have any questions? Please begin.

Thank you for participating in this first session. Do you have any questions? The second session is scheduled for February 16, 2000. See you then.

Appendix T**INSTRUCTIONS**

As a group, you will be engaging in a decision-making activity regarding a business scenario. The first section of the activity you read is the introduction in which the primary character of scenario is introduced to you as well as a problem he is trying to solve. Although each of you have a separate page of this introduction, all the pages are the same. As a group you are to think as one person and make a decision about what this individual should do in this situation.

As you go through the activity, it is necessary that one decision be agreed upon before moving on to the next segment of the scenario. It may help to think of yourselves as one person who has five ideas of how to handle the situation and makes a decision based on what seems to be the most prominent solution. It is also mandatory that every member of the group circle, on their handout, the final decision that the group makes before moving on to the next segment of the scenario.

You have exactly 20 minutes to fully complete this exercise. After 20 minutes has elapsed I will let you know that time is up. At this point please return your activity handouts to the envelopes from which they came and hand them to the experimenter as you leave.

Do you have any questions? Please be sure to put the last six digits of you social security number on each page of the activity that you encounter as well as circle the decision that the group made at each step.

### Appendix U

In this part of the study you and the four members of your group will partake in a group problem-solving activity, which is in the envelope in front of you. Attached to the front of the envelope are the instructions for the activity. Please read along while I read them aloud. (Experimenter reads instructions verbatim.) Are there any questions? Remember that this activity is timed—you have twenty minutes in which to finish it. Please begin.

Twenty minutes are up. Before you return the activity sheets to the envelope go through and make sure you and your group members have circled each decision that you made during the activity. When ready, return the activity sheets to the envelope in which it came and hand them to me. The purpose of this study was to examine decision-making and leadership. I will e-mail you when the results of the study are posted and provide the web site address where they are located Also, I am happy to answer any questions you may have at this point. Thanks for your for your participation.

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