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Proactive behavior: A selection perspective

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PROACTIVE BEHAVIOR: A SELECTION PERSPECTIVE

by

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ABSTRACT

In the 15 years since Bateman and Crant (1993) formulated the construct of proactive personality, numerous researchers have devoted a significant amount of attention to proactive attributes and behaviors (e.g., Parker, Williams, & Turner, 2006; Crant, 2000; Frese & Fay, 2001; Parker, 2000; Erdogan & Bauer, 2005). Campbell's (1990) model of performance suggests that an organization's selection system may ultimately promote proactive behavior. Consequently, in this dissertation, I advocate a selection approach as the initial building block towards creating a workplace in which proactive behavior is a fundamental outcome.

One of the selection tools yet to be explored by researchers and practitioners as a method of hiring proactive employees is biographical data. Biographical data, or biodata, is collected by asking a person to describe or report prior behaviors and experiences (Nickels, 1994) based on the rationale that an individual's past behavior provides some indication of what behavior is likely in the future (Childs & Klimoski, 1986; Nickels, 1994; Owens & Schoenfeldt, 1979; Mumford & Owens, 1987). Therefore, a proactivity-related biodata measure (PROBIO) was developed to predict proactive behavior based on the rationale that an individual who has been proactive in the past is likely to be proactive in the future.

In addition to developing a biodata measure to predict proactive behavior, one of the objectives of this dissertation was to provide a better understanding of the relationship

between proactive behavior and job performance. Campbell's (1990) model of performance suggests that supervisors will differ in their evaluations of proactive behavior based upon the utility they attach to such behavior. Therefore, in addition to examining the relationship between proactive behavior and job performance, supervisor learning goal orientation was examined as a potential moderator of that relationship.

Findings indicated that proactivity-related biodata is useful in predicting general proactive behavior. It was important to compare the predictive validity of the newly constructed PROBIO measure to that of proactive personality, a commonly studied predictor of proactive behavior (e.g., Detert & Burris, 2007). Therefore, the first meta-analytic review of proactive personality was conducted. Interestingly, when predicting proactive behavior, several of the PROBIO factors in this study offered a predictive validity similar to that demonstrated by proactive personality in the meta-analysis. Further, the results suggested that, in some cases, proactivity-related biodata provides incremental predictive validity for proactive behavior above that obtained by proactive personality.

In addition to providing a benchmark of predictive validity, results of the proactive personality meta-analysis have several implications for research in the area. Findings indicated that the predictive validity of proactive personality may differ based upon the type of proactive behavior chosen as the criterion of interest (e.g., voice versus taking charge). Results also suggested that the correlation between proactive personality and proactive behavior was significantly higher when the behavior was self-reported rather than provided by another source.

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Date 4/4/08

DEDICATION

Dedicated the LBR and BFM, the women who inspired in me a love of learning, and to Mom and Dad who have made all of my achievements possible.

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CHAPTER 1

INTRODUCTION

Until Campbell (1990) introduced a model of work performance, there were virtually no theories of performance. In fact, prior to the introduction of Campbell's (1990) model, performance was one of the most neglected dependent variables in management theory. Campbell (1990) defined performance as behavior, distinguishing it from effectiveness. According to his model, performance is the action itself, rather than the consequences of an action. On the other hand, effectiveness is the final evaluation of the results of performance (i.e., supervisory ratings). That is, what many people conceptualize as job performance is actually a supervisory judgment. According to Campbell (1990), organizational effectiveness depends upon individual behavior (i.e., individual performance). To maximize an individual's performance, Campbell (1990) emphasizes the importance of two systems: an organization's selection system, as well as the organization's classification system. Campbell states that organizational effectiveness is influenced by performance, and performance is what organizational selection should maximize. That is, because behavior is what individuals can control, rather than the evaluation of behavior, organizational selection processes should focus upon utilizing tools that are predictive of desirable behavior. Therefore, selection systems should seek to predict behavior, rather than performance evaluations. Classification systems may also be

used to maximize the performance of existing employees by ensuring that desired behaviors are rewarded. Organizations may utilize various Human Resource Management systems, such as training, to ensure that desirable behavior leads to organizational effectiveness.

In general, organizations value certain behaviors, attempt to foster such behaviors, and select employees who will engage in those behaviors. Job performance is often the ultimate "behavior" of interest to organizations, as well as researchers. As such, numerous researchers have acknowledged and sought to understand the multidimensional nature and complexity of performance (e.g., Campbell, 1990; Campbell, 1999; Borman & Motowidlo, 1993; Borman & Motowidlo, 1997; Dunnette, 1963). In addition to in-role job performance, Katz (1964) noted that organizations need behavior that goes beyond prescribed roles (i.e., in-role performance). Indeed, organizations have come to value employees who engage in activities beyond their job descriptions. For example, a great deal of literature explores how organizations can encourage employees to cooperate (e.g.,Tyler, 1999), foster organizational commitment (Fiorito, Bozeman, Young, & Meurs, 2007), and promote organizational citizenship behaviors (e.g. Organ, 1990). Accordingly, organizations are interested in selection tools that predict which employees will effectively perform jobs and engage in constructive behaviors that go beyond prescribed job requirements.

More recently, proactive behaviors such as problem solving and personal initiative have become increasingly desirable to organizations (Parker, Williams, & Turner, 2006; Crant, 2000; Frese, Fay, Hilburger, Leng, & Tag, 1997; Frese, Kring, Soose, & Zempel, 1996; Frese & Fay, 2001; Campbell, 2000; Parker, 2000; Frese, Teng,

& Wijnen, 1999; Fuller, Marler, & Hester, 2006; Erdogan & Bauer, 2005). Such behaviors are increasingly important because organizations are facing growing competitive pressure to operate in a global environment where speed and customer service are of primary importance. In addition, work is becoming more decentralized which has led to flatter organizational designs with wider managerial spans of control. In decentralized organizations, the surveillance function of managers is decreased (i.e., managers are not able to oversee employees as closely as they have in the past), and there is a need for employees who self start, solve problems, and take initiative (Parker et al., 2006; Campbell, 2000; Frese & Fay, 2001; Parker, 2000; Frohman, 1997). As a result proactive behavior has received considerable attention in the organizational behavior literature over the past 15 years. Empirical research reveals that proactive behaviors such as personal initiative contribute to organizational effectiveness (e.g., Frese et al., 1996; Motowidlo & Scotter, 1994) and may be important during change initiatives (Kanter, 1983).

Campbell's (1990) model of performance suggests two ways that organizations may ultimately promote proactive behavior. Specific proactive behaviors may be fostered among existing employees through a job design approach. In other words, organizations can design jobs so that they encourage employees to be proactive. Alternatively, organizations may use a selection process to hire employees who are likely to engage in proactive behaviors. Research suggests that a job design approach used in conjunction with a selection approach is more effective at maximizing proactivity in the workplace than either approach solely (e.g. Fuller et al., 2006). In addition, empirical research suggests that without employees who are predisposed towards making change,

an organization's efforts towards fostering proactivity through work design may be futile (e.g. Fuller et al., 2006). In other words, proactive personality is a necessary but insufficient condition for proactive behavior in the workplace. Therefore, as Campbell (1990) suggests, selection systems should be used to predict proactive behavior. Consequently, in this dissertation, I advocate a selection approach as the initial building block towards creating a workplace in which proactive behavior is a fundamental outcome.

One of the selection tools yet to be explored by researchers and practitioners as a method of hiring proactive employees is biographical data. Biographical data, which has also been referred to as autobiographical data, background data (Mumford & Owens, 1987), biodata, personal or life history information (Gatewood & Feild, 1990), is collected by asking a person to describe or report prior behaviors and experiences (Nickels, 1994) and is hereafter referred to as biodata. While researchers have not yet come to agreement on a universal definition of biodata, Owens (1976) identifies two important features of biodata: it should be autobiographical (i.e., self-report) and should lend itself to conventional psychometric evaluation (i.e., objective scoring). Biodata items frequently inquire about factual data (i.e., verifiable information), but may also inquire about unverifiable information such as attitudes, feelings, and value judgments resulting from prior experience (Owens, 1976: 613). In the past, prior to much of the legislation intended to protect job applicants, biodata items frequently inquired about the following categories: demographic data, habits and attitudes, health, human relations, money, parents, childhood, teens, personal attributes, present home, spouse, hobbies, interests, education, self-impressions, values, opinions, and preferences (e.g., Glennon &

Albright, 1966). The focus of this dissertation will be biodata items which inquire about previous experiences which are likely to predict proactive behavior in the workplace.

Typically, when completing a biodata instrument, job applicants respond to a standardized list of questions inquiring about previous behavior and experiences, usually in the form of a multiple choice test (see Table 1.1). The use of biodata is based upon the rationale that past behavior and experience is the best predictor of future behavior and experience (Childs & Klimoski, 1986; Nickels, 1994; Owens & Schoenfeldt, 1979).

Table 1.1 Example Biodata Items from Schmitt & Kunce (2002)

1. How many work groups have you led in the past 5 years?
    a. 0
    b. 1
    c. 2
    d. 3
    e. 4 or more

2. How often have you rearranged files (business, computer, personal) to make them more efficient in the last year?
    a. Very frequently
    b. Often
    c. Sometimes
    d. Rarely
    e. Never

3. In how many of your previous jobs have you had to interact extensively (an hour or more per day) with clients or customers?
    a. 0
    b. 1
    c. 2
    d. 3
    e. 4 or more

In other words, biodata seeks to predict future behavior by inquiring about an individual's prior behavior and experiences. Biographical information is predictive of

future behavior because "it signifies prior development of the knowledge, skills, abilities, and other characteristics required of an individual in a new situation" (Schmitt & Chan, 1998:165-166). In other words, biodata provides insight into what individuals are *likely* to do in new situations based upon what they have done in previous situations. Biodata, which has been widely used as a selection procedure (Childs & Klimoski, 1986), demonstrates high predictive validity for a variety of job-related outcomes (Hunter & Hunter, 1984). Typical criteria in personnel selection that biodata items seek to predict are turnover, production, and performance ratings (Hogan, 1994: 70). Additionally, biodata has been useful in predicting outcomes such as training success (Hunter & Hunter, 1984), tenure (Hunter & Hunter, 1984), promotions (Hunter & Hunter, 1984), and salary (Carlson, Scullen, Schmidt, Rothstein, & Erwin, 1999).

Because organizations use a variety of selection devices to determine which job applicants are most likely to become successful employees, it is important to differentiate biodata from other selection tools. Common selection tools include interviews, work sample tests, cognitive ability tests, personality inventories, honesty tests, reference checks, and biographical data (Hunter & Hunter, 1984; Hausknecht, Day, & Thomas, 2004). There are several reasons that a biodata measure is preferable to other selection tools when organizations seek to predict which job applicants tend to be proactive in work situations. First, biodata demonstrates higher predictive validity than other selection tools when attempting to predict job performance (Hunter & Hunter, 1984). Hunter and Hunter's (1984) meta-analysis reveals that biodata has an average validity coefficient of .38, which is higher than that of interviews (.23), expert recommendations (.21), reference checks (.17), and academic achievement (.17). Second, biodata has

increased in popularity as an alternate to measures of cognitive ability because it offers similar predictive validity (Reilly & Chao, 1982) and does not lead to major concerns about adverse impact (Dean, 1999) which is a potential problem associated with the use of cognitive ability measures (Hunter & Hunter, 1984). Third, while biodata is similar to personality inventories, it has several advantages over them (Mael, 1991). Personality inventories are designed to reflect only the dispositional orientation of a person, while biodata may capture elements of the environment that affect a person in addition to a person's disposition (Mael, 1991). Further, biodata items may be constructed so that they are job-related and inquire about a person's previous experiences rather than a person's tendencies. Also, social desirability and faking are less of a concern with biodata than with other selection measures because biodata items are often less transparent than personality inventories (Mael, 1991; Mael & Hirsch, 1993; Baehr & Williams, 1967; Shaffer, Saunders, & Owens, 1986). In other words, it is less likely that a respondent would be able to guess the "correct" or desirable answer to a biodata item rather than a personality item. Fourth, biodata ensures that applicants each respond to the same list of standardized questions which are job-related and amenable to objective scoring which may not be the case with other selection tools such as unstructured interviews. Finally, biodata offers substantial incremental predictive validity when used in conjunction with other selection tools. For example, biodata provides substantial incremental predictive validity for performance criteria (i.e., quantity and quality of performance, problem solving, interpersonal relationship skills, and retention probability) beyond that accounted for by the Big Five personality factors and general mental ability (Mount, Witt, &

Barrick, 2000). Therefore, biodata offers the potential to provide organizations a new and better tool to identify workers who are likely to engage in proactive behavior.

In addition to developing a biodata measure to predict proactive behavior, this dissertation seeks to provide a better understanding of the relationship between proactive behavior and job performance. A review of the literature indicates virtually all models suggest proactive behavior should be positively related to job performance (e.g., Crant, 2000; Frese & Fay, 2001; Thompson, 2005). However, one of the more consistent themes discussed in the literature is that proactive behavior may also lead to negative outcomes (e.g., Bateman & Crant, 1993; Campbell, 2000; Crant, 2000; Farr & Ford, 1990; Janssen, Van de Vliert, & West, 2004; Van Dyne & LePine, 1998). Performance theory suggests that the relationship between proactive behavior and performance is likely to be a function of the utility an employee's supervisor ascribes to that particular behavior (Campbell, 1990; Campbell, McCloy, Oppler, & Sager, 1993; Vroom, 1964). Because proactive behavior sometimes involves ignoring or challenging rules and regulations as well as challenging the status quo, it may disrupt rather than preserve interpersonal relationships (Frese & Fay, 2001: 166). Thus, it may not result in higher evaluation of job performance. Campbell's (1990) model of performance suggests that supervisors will differ in their evaluations of proactive behavior based upon the utility they attach to such behavior.

The Need for Future Research

Currently, there are no biodata instruments designed specifically to predict proactive behavior. Because proactive behavior has emerged as an attractive outcome for many organizations and is likely to become increasingly important to a greater number of

organizations, the development of a biodata measure to predict proactive behavior seems to be a valuable addition to the human resource management literature and a practically useful tool for practitioners. Further, the likelihood that a biodata instrument can reduce faking and better withstand legal challenges associated with other selection tools makes the development of a proactivity-related biodata instrument particularly appealing to practicing HR managers. Because research has shown biodata to be an effective predictor of various outcomes critical to organizational success, numerous opportunities remain for researchers and practitioners alike to improve selection procedures by using biodata to predict outcomes that are emerging as increasingly desirable.

In addition, there is a need for additional research examining the relationship between proactive behavior and job performance. Empirical evidence indicates that employees who engage in proactive behavior generally receive higher performance evaluations than those who do not (e.g., Crant, 1995; Thompson, 2005). However, more recent research suggests the tenuous nature of the linkage between proactive behavior and performance evaluations. Chan (2006) argues that proactive behavior may, in fact, lead to negative outcomes. The findings from Chan's (2006) study indicate that proactive individuals only received higher evaluations of job performance when they had high situational judgment effectiveness which is "the general ability to make effective judgments or responses to situations" (p. 476). While Chan's (2006) research is suggestive, it includes a measure of personality rather than a measure of actual behavior. The paucity of evidence illustrating the negative effects of proactive behavior despite the claims that negative effects do indeed exist represents a major shortcoming in the literature. Only one unpublished article provides empirical evidence supporting the

importance of Campbell's model that casts performance as an evaluation of behavior. The findings of Fuller, Hester, and Marler (2007b) provide new insight into why "active performance" may not translate into "performance." The results indicate that for employees with proactive supervisors, there is a strong positive relationship between proactive behavior (i.e., taking charge) and job performance. However, for employees with more passive supervisors, there appears to be little relationship between proactive behavior (i.e., taking charge) and job performance. These findings are consistent with Campbell's model of performance and suggest that supervisors differ in their evaluations of proactive behavior. Fuller et al. (2007b) suggest that a supervisor's learning goal orientation may positively or negatively influence his or her evaluation of proactive behavior; however, the authors do not explicitly test this proposition. Because of the shortcomings in the extant literature, there is a need to further examine the relationship between proactive behavior and evaluations of job performance, especially because performance involves the evaluation of behavior by a supervisor. Therefore, I seek to examine the relationship between proactive behavior and job performance, as well as supervisor learning goal orientation as a potential moderator of that relationship.

Statement of the Problem and Objectives of the Study

Figure 1.1 presents the hypothesized model to be examined in this dissertation. The primary purpose of this dissertation is to develop a biodata measure which predicts proactive behavior. Because research has found the dispositional construct proactive personality to be related to a variety of cognitive motivational states and proactive behaviors, a secondary purpose of this dissertation is to examine the relationship between a proactivity-related biodata instrument with both proactive personality and proactive

cognitive motivational states. Specifically, I plan to provide evidence of the concurrent validity of the newly developed biodata measure by examining its relationship with Bateman and Crant's (1993) proactive personality scale which is the most widely validated personality instrument designed to predict proactive behavior. Also, I will examine its relationship with proactive cognitive-motivational states (i.e., role breadth self-efficacy and felt responsibility for constructive change). Therefore, the specific objectives of this dissertation are the following:

1. To develop a proactivity-related biodata instrument
2. To examine whether or not a newly developed biodata instrument relates similarly to proactive cognitive-motivational states as proactive personality
3. To compare the predictive validity of biodata to that of proactive personality when predicting proactive behavior and job performance
4. To explore why proactive behavior may not always be related to evaluations of job performance
5. To test the extent to which supervisor goal orientation influences the evaluation of employee job performance

Contributions

This dissertation promises several contributions. First, because biodata scales ask respondents about previous experiences and behavior, this dissertation will explore the experiences that are involved in shaping an individual who is change-oriented. As a result, I will develop a proactivity-related biodata measure in an effort to provide a greater understanding of how prior experience relates to proactive behavior. Second, this study aims to provide a valid selection tool that could be used by companies to select

individuals who are likely to engage in proa990ctive behaviors. Finally, it seeks to provide a greater understanding of why proactive behaviors do not consistently result in better performance evaluations by examining the extent to which supervisor goal orientation influences the relationship between proactive behavior and performance.

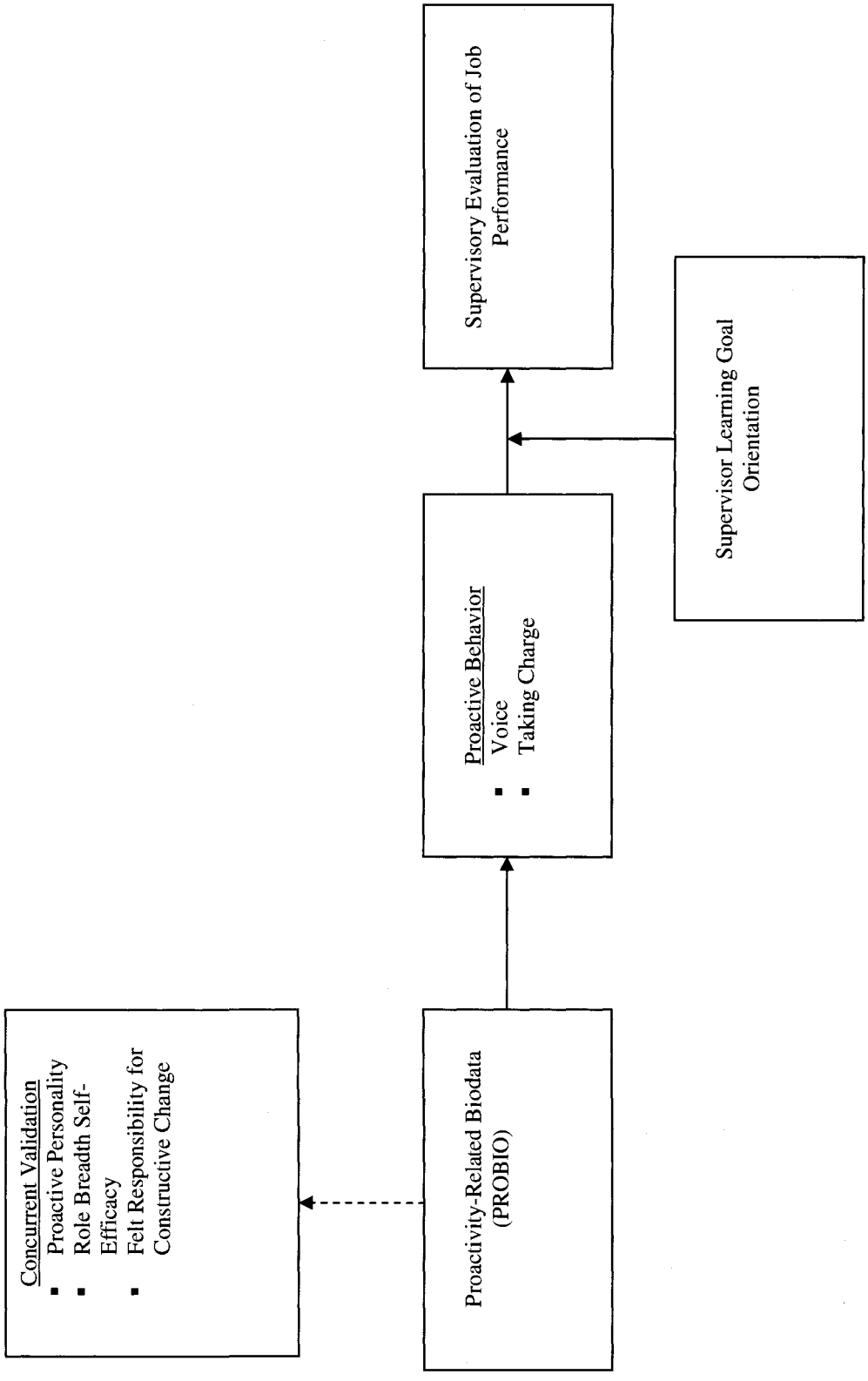


Figure 1.1 Hypothesized Model

CHAPTER 2

LITERATURE REVIEW AND HYPOTHESES

This chapter reviews literature on proactivity and biodata. Theoretical and empirical studies in each area are presented and reviewed. The proactivity literature review includes a discussion of proactive behavior, as well as demographic, personality, and cognitive-motivational variables which have been shown to predict proactive behavior. The literature review on biodata includes a discussion of what constitutes biodata, the historical evolution of biodata, biodata item content and format, biodata item generation, predictive validity of biodata, reliability of biodata measures, and concerns regarding the use of biodata as a selection tool.

Literature Review of Proactive Personality and Proactive Behavior

Defining Proactive Behavior

Various definitions of proactive behavior exist. Crant (2000) defines proactive behavior as "taking initiative in improving current circumstances or creating new ones; it involves challenging the status quo rather than passively adapting to present conditions" (p. 436), noting that it may be either in-role or extra-role (Crant, 2000). Frese and Fay (2001) characterize proactivity as anticipating problems and opportunities, then acting upon them. Grant and Ashford (2007), drawing upon the two previous definitions, later

defined proactive behavior as an "anticipatory action that employees take to impactthemselves and/or their environments" (p. 13). The most recent definition of proactivity, developed by Grant and Ashford, differs slightly from the previous two in that it characterizes proactive behavior as anticipatory, or future-oriented, and having an intended impact. Specifically, Grant and Ashford (2007) describe "proactivity as a process that can be applied to any set of actions through anticipating, planning, and striving to have an impact" (p.14). While definitions of proactive behavior may vary, each draws upon a central theme which is that proactive employees take an active approach to performing work.

Similar to proactive behavior, personal initiative is a change-oriented construct developed by Frese, Kring, Soose, & Zempel (1996). Personal initiative is defined as "work behavior characterized by its self-starting nature, its proactive approach, and by being persistent in overcoming difficulties that arise in the pursuit of a goal" (Frese & Fay, 2001). Frese and colleagues (1996) characterize personal initiative as behavior that is consistent with the organization's mission, which is future-oriented, goal-directed, persistent, and self-starting. According to Frese and Fay (2001), individuals demonstrating personal initiative are able to take a long-term view such that they anticipate opportunities and problems, as well as solutions. Because obstacles to change, such as failure or resistance from others, are often encountered, personal initiative requires persistence until barriers are overcome. Finally, personal initiative occurs when an individual, on his or her own accord, does something without being told or required to do it (Frese & Fay, 2001). Because this behavior is future-oriented and geared towards change, personal initiative may be considered to be synonymous with proactive behavior.

Classification of Proactive Behavior

A great deal of research in the past 15 years has focused on specific ways an employee may shape or alter his or her environment (i.e., different forms of proactive behavior). For instance, in the socialization literature, researchers have shifted from the view that organizations shape or mold employees (Van Maanen & Schein, 1979) to the view which portrays employees as active partners in the socialization process (e.g., Ashford & Black, 1996; Kammeyer-Mueller & Wanberg, 2003). Proactive behavior, which has emerged as a way in which employees may shape their environment, encompasses a wide variety of constructs including personal initiative (Frese et al., 1996), voice behavior (Van Dyne & LePine, 1998), taking charge (Morrison & Phelps, 1999), active feedback seeking (Ashford & Tsui, 1991), proactive socialization (Ashford & Black, 1996), network building (Thompson, 2005), career-related initiative (Seibert, Kraimer, & Crant, 2001: 847), transcendent behavior (Bateman & Porath, 2003), issue selling (Dutton & Ashford, 1993), problem solving (Parker et al., 2006), and adapting to new work environments (Ashford & Black, 1996).

While a unified stream of research regarding proactivity does not exist, as most proactive behaviors have been studied in isolation from one another (Grant & Ashford, 2007), Crant (2000) presented the first integrative framework in which he categorized proactive behaviors in two ways: general actions which reflect broad categories of proactive behaviors and contextual proactive behaviors which capture specific behaviors that occur in a limited domain. Examples of general proactive behaviors include identifying opportunities to improve things, challenging the status quo, and creating favorable conditions. Examples of context-specific behaviors include newcomer

socialization, feedback seeking, issue selling, innovation, career management, and stress coping. For the purposes of this dissertation, I will focus only on general proactive behavior.

General Forms of Proactive Behavior

Although the research is somewhat limited, the two most widely studied general forms of proactive behaviors are voice and taking charge behavior. Voice behavior, a general form of proactive behavior (Crant, 2000), is defined as "constructive change-oriented communication intended to improve the situation" (LePine & Van Dyne, 2001: 326). Voice, which may be considered a form of contextual performance (LePine & Van Dyne, 2001), is sometimes considered deviant behavior in that it challenges the status quo (Warren, 2003). However, voice behavior is intended to be positive (LePine & Van Dyne, 2001). In other words, voice is a challenging promotive behavior (Van Dyne & LePine, 1998). Van Dyne and LePine (1998) indicate that voice is intended to improve rather than criticize. For example, "voice is making innovative suggestions for change and recommending modifications to standard procedures even when others disagree" (Van Dyne & LePine, 1998: 109). While voice may be in-role or extra-role (Van Dyne & LePine, 1998), it is most commonly studied as an extra-role behavior (i.e., not required as part of the job).

Taking charge is another general form of proactive behavior (Crant, 2000). Taking charge behavior "entails voluntary and constructive efforts, by individual employees, to effect organizationally functional change with respect to how work is executed within the contexts of their jobs, work units, or organizations" (Morrison & Phelps, 1999: 403). Like voice behavior, taking charge is a change-oriented behavior

aimed at making improvements within the workplace. Also, there is a potential risk for an employee engaging in taking charge behavior (Morrison & Phelps, 1999). While taking charge and voice behavior are similar, the two constructs are distinct. Voice involves giving suggestions for improvement, while taking charge goes beyond voicing concerns or suggestions because it involves actively initiating and implementing change (Morrison & Phelps, 1999).

Individual-Level Predictors of General Proactive Behavior

A variety of demographic variables have been correlated with general proactive behavior. For instance, education and job level have consistently shown positive correlations with voice behavior. Van Dyne & LePine (1998) found that education and job level were both related to self, peer, and supervisor reports of voice behavior. Fuller et al. (2006) also found that level of education was positively correlated with voice behavior. Additionally, the results of a study conducted by Fuller, Barnett, Hester, Relyea, and Frey (2007a) revealed that education was significant when included as a control variable predicting voice behavior. Job level has also been related to proactive behavior. Graham and Van Dyne (2006) found that job level was related to gathering information, as well as exercising influence. Additionally, Fuller et al. (2006) found that position in organizational hierarchy (i.e., job level) was correlated with continuous improvement which is a general form of proactive role performance. Some researchers control for organizational tenure when predicting proactive behavior (e.g., Fuller et al., 2006; Detert & Burris, 2007) based on the rationale that employees who have longer tenure may be more comfortable voicing their ideas for improvement (Stamper & Van Dyne, 2001). Additionally, gender and ethnicity may play a role in proactive behavior

such that that white males tend to engage in voice behavior more than females and non-whites (LePine & Van Dyne, 1998: 864).

In addition to indicating a relationship between voice behavior and demographic variables, research has established that voice behavior is also related to both broad and narrow personality variables. Inconsistent findings exist regarding the relationship between the Big Five personality variables and voice behavior. The work of LePine and Van Dyne (2001), who studied voice behavior in a laboratory setting, provides support for a relationship between four of the Big Five factors and voice. Both conscientiousness and extraversion were positively related to voice behavior, while neuroticism and agreeableness were negatively related to voice behavior. However, Crant (2003), who studied voice behavior in a naturally occurring setting, found that only conscientiousness was positively related to voice behavior. One possible explanation for the inconsistency in empirical findings is that the settings in which the studies were conducted differ (i.e., laboratory vs. naturally-occurring setting).

Some research suggests that more narrow personality variables have a stronger relationship with voice behavior than the Big Five. LePine and Van Dyne (1998) found that individuals with higher levels of global self-esteem engaged in more voice than individuals with lower self-esteem. Crant's (2003) study revealed that proactive personality positively predicted both the presence and amount of voice behavior. Finally, shyness, which describes feelings of anxiety of social situations (Cheek & Buss, 1981), was negatively related to the total number of voice-related communications.

The presence of voice behavior has been related to several organizationally-relevant outcomes, such as higher performance evaluations (Thompson, 2005),

attributions of leadership ability (Fuller et al., 2007a), and supervisor ratings of promotability (Fuller et al., 2007b). Interestingly, research suggests that there may be negative consequences for engaging in voice behavior. Seibert et al. (2001) found that voice behavior was negatively related to various types of career success (i.e., salary progression and promotions in the past two years). However, voice had a strong positive relationship with innovation which in turn had a positive relationship with career progression (Seibert et al., 2001).

A small amount of empirical research examines the relationship between individual-level factors and taking charge. For example, self-efficacy, an employee's estimate of his or her capacity to perform (Gist & Mitchell, 1992), is positively related to taking charge (Morrison & Phelps, 1999). Also, taking charge is positively related to top management openness, which is "the degree to which top management is believed to encourage and support suggestions and change initiatives from below" (Morrison & Phelps, 1999: 406). The authors suggested that because employees assess the probability that it will be successful and the potential risk before taking charge, "anticipated consequences will play an important role in the decision to take charge" (Morrison & Phelps, 1999) and, as a result, top management openness fosters taking charge behavior.

Proactive Personality

Although it is a relatively new construct, there is empirical support linking a personality construct – proactive personality – to a variety of proactive behaviors. Building on literature in psychology which takes the view that individuals have some control in creating or shaping their own environments (e.g., Bowers, 1973; Buss, 1987; Bandura, 1986; Magnusson & Endler, 1977), Bateman and Crant (1993) introduced

proactive personality as a dispositional construct, which they characterize as a "stable and behavioral tendency to effect change" (p. 107). "Proactive personality is considered a stable disposition to take personal initiative in a broad range of activities and situations" (Seibert et al., 2001: 847). The proactive personality construct is built largely on the idea that individuals influence their environments (Bateman & Crant, 1993) and has roots in interactionism, which "argues that *situations are as much a function of the person as the person's behavior is a function of the situation*" (Bowers, 1973: 327), as well as social cognitive theory (Bandura, 1986) which holds that the person, environment, and behavior continuously influence each other bidirectionally (See Figure 2.1).

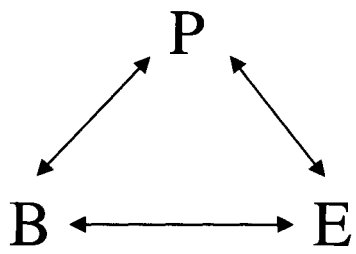


Figure 2.1 Wood & Bandura (1989)'s Schematization of the Relations among Behavior (B), Cognitive and Other Personal Factors (P), and the External Environment (E)

Bateman and Crant (1993) describe the prototypic proactive personality as "one who is relatively unconstrained by situational forces, and who effects environmental change" (p.105). Proactive people are characterized as seeking out opportunities, showing initiative, and persevering to bring about meaningful change (Bateman & Crant, 1993: 105).

Thus, Bateman and Crant (1993) contrast the approach that proactive individuals take toward their environment with that of more passive individuals. While proactive

individuals are more likely to bring about changes in their environment, passive individuals typically fail to demonstrate initiative, identify, or seize opportunities to change things (Bateman & Crant, 1993: 105). As a result, passive individuals are more likely to adapt to and endure current circumstances (Bateman & Crant, 1993).

Proactive Personality, Proactive Behavior, and Outcomes

Proactive personality demonstrates a positive relationship with a variety of proactive behaviors, such as voice and career initiative. Crant's (2003) study found that proactive individuals are more likely to engage in voice behavior. The work of Seibert et al. (2001) suggests that proactive employees experience career success because of the proactive behaviors in which they engage. Seibert et al. (2001) found that employees with proactive personalities take initiative in their own careers, such as developing political knowledge within an organization, engaging in career planning, furthering their skill development, and consulting with more senior personnel.

Research reveals that proactive personality relates to a variety of individual, job, group, and organizational outcomes. Proactive personality demonstrates a positive relationship with various individual outcomes such as job performance (Crant, 1995; Thompson, 2005), entrepreneurship (Becherer & Maurer, 1999; Crant, 1996), motivation to learn (Major et al., 2006) and leadership (Crant & Bateman, 2000), as well as a host of positive career outcomes such as success finding a job (Brown, Cober, Kane, Levy, & Shalhoop, 2006), work adjustment (Kammeyer-Mueller & Wanberg, 2003), salary and promotions (Seibert, Crant, & Kraimer, 1999), as well as career satisfaction (Seibert et al., 1999; Erdogan & Bauer, 2005). Additionally, proactive personality positively relates to job outcomes such as individual perceptions of access to resources and strategy-related

information (Fuller et al., 2006). Finally, proactive personality has been related to organizational innovation (Parker, 1998). Therefore, empirical research demonstrates that proactive personality predicts positive outcomes for both the individual and organization.

Interestingly, research suggests that proactive personality is a necessary, but insufficient, condition for proactive behavior. The proactive personality construct was designed to capture a behavioral tendency toward enacting, or changing, one's environment (Bateman & Crant, 1993). However, the work of Fuller et al. (2006) suggests that a job design approach may be used to foster proactive behavior and that individuals high in proactive personality may not always engage in proactive behavior. The results from their study indicates that when individuals with proactive personalities, unlike their more passive counterparts, are given the opportunity to adopt a proactive orientation towards work, they take advantage of that opportunity. For example, in their study, Fuller et al. (2006) found that when proactive individuals perceived that they had access to resources and information related to the company's strategy, they were more willing to assume responsibility for bringing about positive changes in the workplace. However, proactive individuals felt less responsible for constructive change when they did not perceive themselves as having access to resources and strategy-related information. Therefore, the results of this study support the notion that the relationship between proactive personality and proactive behavior depends upon opportunities to be proactive.

Cognitive-Motivational Mechanisms Underlying Proactive Behavior

Recently, Parker, Williams, and Turner (2006) and Fuller et al. (2006) introduced models in which proactive personality is a distal predictor of proactive behavior and cognitive-motivational states are more proximal predictors of proactive behavior (see Figures 2.2 and 2.3). In Parker et al.'s (2006) model, two cognitive-motivational states: role breadth self-efficacy (RBSE) and flexible role orientation mediate the relationship between proactive personality and proactive behavior. Similarly, Fuller et al. (2006) found proactive personality was positively related to felt responsibility for constructive change, a cognitive-motivational state, which was positively related to proactive behavior. These models have been developed as an attempt to enhance the understanding of *why* proactive personality relates to proactive behaviors.

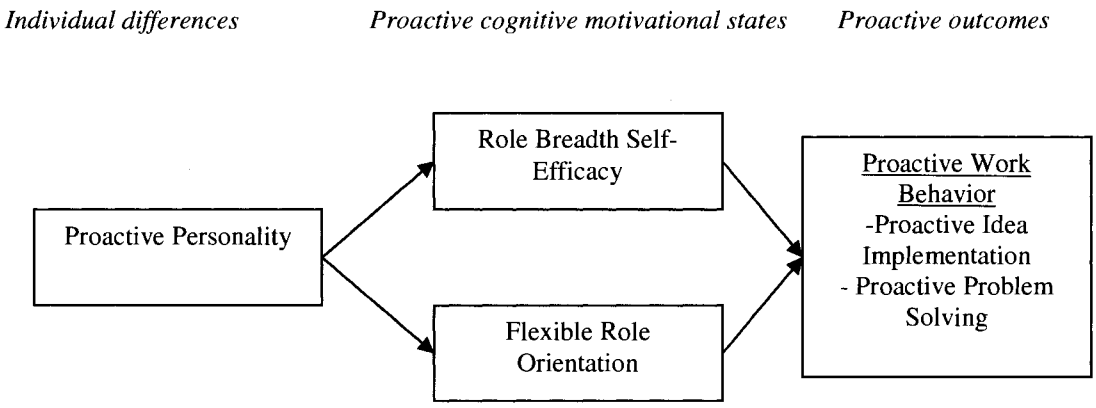


Figure 2.2 Parker, Williams, & Turner's (2006) Model of Proactive Personality and Proactive Behavior

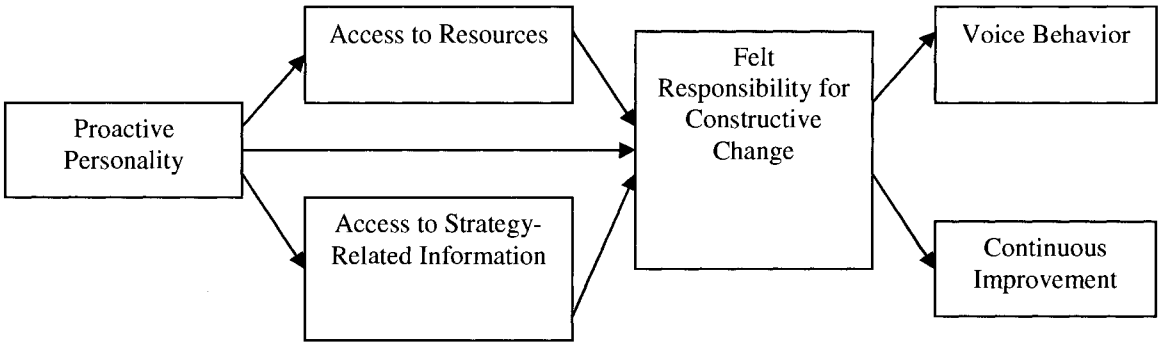


Figure 2.3 Fuller et al.'s (2006) Model of Proactive Personality and Proactive Behavior

Role breadth self-efficacy is "the extent to which people feel confident that they are able to carry out a broader and more proactive role, beyond traditional prescribed technical requirements" (Parker, 1998: 835). In other words, an employee high in role breadth self-efficacy perceives that he or she is capable of successfully carrying out tasks beyond prescribed role requirements, whereas an employee low in role breadth self-efficacy is more comfortable performing traditional role requirements. Role breadth self-efficacy differs from stable personality traits because it is a malleable state which may change across situations and over time (Parker, 2000). Parker (1998) emphasizes that the role breadth self-efficacy construct relates to an individual's *perceived ability* that he or she can accomplish a task rather than actually *perform* a task. Previous research indicates that RBSE is positively related to proactive work performance (Griffin, Neal, & Parker, 2007), proactive work behavior (Parker et al., 2006), worker innovation (Axtell, Holman, Unsworth, Wall, Waterson, & Harrington, 2000), and idea suggestion (Clegg, Unsworth, Epitropaki, & Parker, 2002). Similar to role breadth self-efficacy, flexible role orientation is "concerned with the breadth of experienced responsibility, or how far one's 'psychological' role extends beyond achieving basic technical goals" (Parker et al.,

2006: 639). Employees with a flexible role orientation broadly define their roles, feel ownership of goals which they view as part of their job (Parker, Wall, & Jackson, 1997), and are more likely to engage in proactive work behavior, specifically proactive idea implementation and proactive problem solving (Parker et al., 2006). These employees engage in proactive behavior as a result of a personal sense of responsibility they feel to accomplish a broader range of goals (Parker et al., 2006).

A similar cognitive-motivational state, felt responsibility for constructive change is "an individual's belief that he or she is personally obligated to bring about constructive change" (Morrison & Phelps, 1999: 407). Fuller et al. (2006) characterize felt responsibility for constructive change as a future-oriented construct because it reflects an individual's willingness to be held accountable for future behavior and results. Research has demonstrated the linkage between proactive personality and felt responsibility for constructive change (e.g. Fuller et al., 2006). This cognitive-motivational state has been related to several proactive behaviors. Morrison and Phelps (1999) found that felt responsibility for constructive change had a strong relationship with taking charge behavior. Similarly, Fuller et al. (2006) found that felt responsibility for constructive change was positively related to voice behavior (i.e., constructive, change-oriented communication).

Proactive Behavior and Job Performance

As noted earlier, organizations increasingly seek to employ individuals who engage in proactive behaviors. Thus, there is an assumption that proactive behavior will lead to improved productivity for the organization (Frese & Fay, 2001). Interestingly, researchers have established a positive relationship between proactive personality and job

performance (e.g., Crant, 1995; Thompson, 2005). Perhaps more importantly, researchers have provided an underlying reason for this relationship – proactive people engage in proactive behaviors, and proactive behaviors result in higher evaluations of job performance. In fact, empirical evidence supports the notion that proactive behavior leads to higher job performance. Thompson's (2005) study reveals that proactive employees take initiative and that because of doing so receive higher performance ratings. Additionally, Fuller et al. (2007b) found that employees who engaged in proactive behavior, specifically taking charge, received higher job performance evaluations from supervisors than employees who did not engage in taking charge behavior. Further, Fuller et al.'s (2006) study illustrated that voice behavior was correlated with continuous improvement, one aspect of a company's performance appraisal designed to assess change-oriented behavior aimed at improving productivity and quality.

While some research suggests that proactive behavior has been linked to higher evaluations of job performance, empirical evidence indicates that the proactive behavior/job performance relationship is inconsistent. That is, proactive behaviors do not consistently lead to higher performance evaluations (e.g., Chan, 2006). In fact, Chan (2006) suggests that a proactive disposition may be either adaptive or maladaptive. More recent research suggests that the relationship between proactive behavior and evaluations of job performance depends upon the values and expectations of an employee's supervisor. This finding is consistent with Campbell's (1990) model of performance which characterizes performance as an evaluation of an employee's behavior. Because a performance rating involves a judgment call made by a supervisor based upon what he or

she values and expects, some supervisors may value and expect proactive behavior and others may not.

Fuller et al. (2007b) found that the relationship between taking charge and supervisory ratings of job performance was moderated by supervisor proactive personality. That is, for employees with passive supervisors, there appeared to be little relationship between taking charge and ratings of job performance. However, for employees with proactive supervisors, taking charge was strongly related to ratings of job performance. This finding suggests that proactive supervisors value and notice when employees engage in proactive behaviors. Also, it suggests that when employees do not engage in proactive behaviors, the absence of such behavior translates into lower performance ratings for employees with proactive supervisors who expect active performance.

While they measured supervisor proactive personality, Fuller et al. (2007b) suggest proactive supervisors are likely to have a learning goal orientation which influences their evaluations of taking charge. Learning goal orientation is "a desire to develop the self by acquiring new skills, mastering new situations, and improving one's competence" (VandeWalle, 1997: 1000). Individuals with a learning goal orientation persist and increase effort when given a challenging task (VandeWalle, 1997). Interestingly, people with proactive personalities also tend to be more learning oriented and more motivated to take advantage of learning opportunities than people with passive personalities (Allen & O'Brien, 2006; Major, Turner, & Fletcher, 2006; Porath & Bateman, 2006). Therefore, research suggests that a supervisor's learning goal

orientation may moderate the relationship between an employee's proactive behavior and supervisor evaluations of job performance.

Literature Review of Biographical Data

The use of biodata as a selection tool is based on a variety of assumptions (see Gatewood & Feild, 1990). First, researchers using biodata assume that the best predictor of job applicants' future behavior is what they have done in the past. While past behavior may not perfectly predict future behavior, it sheds light on what behaviors are more likely in new situations (Mumford & Owens, 1987). Second, researchers assume that "the systematic measurement of applicants' past behavior and life experiences will provide an indirect measure of their motivational characteristics" (Gatewood & Feild, 1990: 438). Thus, biodata items may be descriptive of an individual, as well as predictive of future behavior. Finally, some researchers assume that individuals will be more receptive to reporting actual behaviors rather than the motivations behind behaviors (Gatewood & Feild, 1990: 438). That is, biodata typically inquires about "prior behavior and experiences occurring in specified, real-life situations" (Mumford & Owens, 1987: 3) rather than presenting a respondent with a hypothetical question or asking for a general description of behavioral tendencies which may be susceptible to social desirability.

Historical Evolution of Biographical Data

The idea of biographical data dates back to the late nineteenth century and has roots in the early development of Industrial Psychology (see Ferguson, 1961). In an effort to improve the selection of life insurance agents, Colonel Thomas L. Peters of the Washington Life Insurance Company of Atlanta, Georgia attended the Chicago

Underwriters Meeting in 1894 and proposed the idea of requiring job applicants to answer a standardized list of questions about their previous experiences. According to Peters, his associates in the Georgia Association of Life Insurers developed a list of questions such as the following: "Present residence? Residences during the previous ten years? Birthdate and place? Marital status? Dependent or not dependent for support on own daily exertions? Amount of unencumbered real estate? Occupation during previous ten years? Previous experience in life insurance selling? For what companies? For what general agents? When and where? Claims, if any, for unsettled accounts. References?" (see Ferguson, 1961). Interestingly, while many assume that a group of psychologists was responsible for the origin of biodata, Peters and his colleagues, who were actually businessmen, developed the standardized list of personal history items which served as the foundation for biodata (Ferguson, 1961).

The idea of using past life experiences to predict future behavior grew in popularity in the early twentieth century. Edward A. Woods, president of the National Association of Life Underwriters, who was also interested in improving the selection of life insurance agents, favored the plan introduced by Peters (see Ferguson, 1961). In 1915, Woods pioneered in the area of biodata when he attempted to conduct a statistical analysis of the standardized list of questions about life experiences proposed by Peters to determine which items had predictive value. Specifically, he was interested in items which discriminated between success and failure groups (Ferguson, 1961). Woods' application marked a major advance in the use of biodata to quantitatively discriminate between high and low performers (Mumford & Owens, 1987). Thus, the early work of Woods set the tone for further use of biodata (Mumford & Owens, 1987).

While the rationale for utilizing biodata has remained the same over the years (i.e., using past behavior to predict future behavior), the format in which biodata is collected has evolved. Initially, Peters proposed a standardized list of questions. Later, prior to World War I, biodata was collected by using weighted application blanks (Mumford & Owens, 1987). Yet, it was not until the time of World War II that the multiple choice format of biodata emerged (Owens, 1976). During World War II, biodata served to be particularly useful to the military in the selection of officers (Gatewood & Feild, 1990).

Both weighted application blanks and biodata tests evolved from the same source (i.e., Colonel Peters' list of standardized questions; Owens, 1976), and both collect similar personal history data. However, weighted application blanks and biodata differ. The weighted application blank usually focuses a limited amount of verifiable information (Schmitt & Chan, 1998; Gatewood & Feild, 1990) such as age, years of education, previous occupations, while a biodata test typically includes a broader spectrum of questions about a person's experiences (Mumford & Owens, 1987). Today, most biodata measures resemble a multiple choice test (Schmitt & Chan, 1998) and are objectively scored (Reilly & Chao, 1982).

Biodata Item Content and Format

While differing views exist about what information actually constitutes biodata (Nickels, 1994), biodata items typically inquire about a job applicant's personal background and past life experiences (Gatewood & Feild, 1990). Biodata questions are frequently presented in a self-report questionnaire in multiple choice format (Gatewood & Feild, 1990) and permit a "respondent to describe himself in terms of demographic,

experiential, or attitudinal variables presumed or demonstrated to be related to personality structure, personal adjustment, or success in social, educational, or occupational pursuits" (Owens, 1976: 612-613). However, while the multiple-choice format is widely used, biodata items may differ in terms of format, as well as content. Because there is little agreement about what constitutes biodata, various researchers have attempted to provide guidance in this area (e.g., Owens, 1976; Asher, 1972; Mael, 1991; Mumford, Whetzel, Murphy, & Eubanks, 2007) by classifying biodata items according to response type (i.e., format) or behavioral content (Gatewood & Feild, 1990). The response type of a biodata item depends on the format of response options offered to the respondent, while behavioral content depends on the behavior or experience about which the question is asking.

Asher (1972) was one of the first researchers to provide guidance on desirable attributes of biodata. He proposed that biodata items differ on eight dimensions of behavioral content. Table 2.1 presents examples of the following attributes of biodata: (1) verifiable, unverifiable, (2) historical, futuristic, (3) actual behavior, hypothetical behavior, (4) memory, conjecture, (5) factual, interpretive, (6) specific, general, (7) response, response tendency, and (8) internal, external. Some biodata items inquire about verifiable or "hard" information, whereas other responses are subjective, or "soft," and cannot be verified (Robertson & Smith, 2001). For example, an individual's college grade point average could be verified by his or her university; whereas what he or she found to be the most challenging course is less verifiable.

Table 2.1 Asher's (1972) Classification of Biodata Items by Behavioral Content

1. *Verifiable*
   - How many full-time jobs have you had in the past 5 years?

   Unverifiable
   - What aspect of your last full-time job did you find most interesting?

2. *Historical*
   - List your three best subjects in high school.

   Futuristic
   - Do you intend to further your education?

3. *Actual Behavior*
   - Did you ever build a model airplane that flew?

   Hypothetical Behavior
   - If you had training, do you think you would enjoy building innovative model airplanes for a toy manufacturer?

4. *Memory*
   - Before you were 12 years old, did you ever try to perform chemistry experiments at home?

   Conjecture
   - If your father had been a chemist, do you think you would have performed chemistry experiments at home before you were 12 years old?

5. *Factual*
   - Do you repair mechanical things around your home as appliances?

   Interpretive
   - If you had the training, how would you estimate your performance as an appliance repair man?

6. *Specific*
   - As a child did you collect stamps?

   General
   - As a child were you an avid collector of things?

7. *Response*
   - Which of the following types of cameras do you own?

   Response Tendency
   - In buying a new camera, would you most likely purchase one with automatic features?

8. *External Event*
   - Did you ever have private tutoring lessons in any school subject?

   Internal Event
   - How important did you view homework when you were in high school?

Although inconsistent empirical findings do not indicate whether verifiable or unverifiable items are preferable (Robertson & Smith, 2001), some researches suggest that subjective items that are nonverifiable may be as criterion valid or even more valid than verifiable or objective items (Hough & Paullin, 1994: 135). Biodata items may differ in their temporal orientation. Historical biodata items inquire about previous behaviors, while futuristic items ask an individual what he or she would do in a given situation (i.e., actual behavior-hypothetical behavior). Some researchers suggest that biodata items should be limited to historical behavior and experiences (e.g., Mael, 1991). Similarly, some items inquire about previous memories, and other items call for conjecture. Items may be either factual or interpretive in nature. A factual item seeks an objective response, whereas an interpretive item gives an individual the opportunity to provide a subjective response. Items also differ in their specificity so that some items are very specific in nature while others are general in nature. Additionally, a biodata item may ask an individual for a specific response (e.g., How many times have you traveled abroad?) or a response tendency (e.g., If traveling abroad, would you be most likely to visit Greece?). Finally, items differ in their internal/external orientation. Internal items relate to an occurrence within an individual, while externally-oriented items ask an individual about an occurrence external to themselves.

After Asher (1972) provided guidance of biodata item characteristics, Owens (1976) identified commonly used response formats for biodata items which include the following: (1) yes-no, (2) continuum, single choice, (3) non-continuum, single choice, (4) non-continuum, multiple choice, (5) continuum, plus escape option, (6) non-continuum,

plus escape option, and (7) common stem, multiple continua. Table 2.2 presents examples of each format.

Table 2.2 Owens' (1976) Summary of Common Biodata Item Formats

1. *Yes – No*
   Have you found your life to date to be pleasant and satisfying?

2. *Continuum, single choice*
   What is your weight?
   (a) under 135 pounds
   (b) 136 to 155 pounds
   (c) 156 to 175 pounds
   (d) 176 to 195 pounds
   (e) Over 195 pounds

3. *Non-continuum, single choice*
   What was your marital status at college graduation?
   (a) single
   (b) married, no children
   (c) married, one or more children
   (d) widowed
   (e) separated or divorced

4. *Non-continuum, multiple choice*
   Check each of the following from which you have ever suffered.
   (a) allergies
   (b) asthma
   (c) high blood pressure
   (d) ulcers
   (e) headaches
   (f) gastrointestinal upsets
   (g) arthritis

5. *Continuum, plus "escape option"*
   What was your length of service in your most recent full-time job?
   (a) less than 6 months
   (b) between 6 months and 1 year
   (c) 1 to 2 years
   (d) 2 to 5 years
   (e) More than 5 years
   (f) No previous full-time job

Table 2.2 (Continued)

6. *Non-continuum, plus "escape option"*
   When are you most likely to have a headache?
   (a) when I strain my eyes
   (b) when I don't eat on schedule
   (c) when I am under tension
   (d) January first
   (e) Never have headaches

7. *Common stem, multiple continua*
   Over the past 5 years, *how much* have you enjoyed each of the following?
   (1 = very much, 2 = some, 3 = very little, 4 =not at all)
   (a) loafing or watching TV
   (b) reading
   (c) constructive hobbies
   (d) home improvement
   (e) outdoor recreation
   (f) music, art, or dramatics, etc.

Of the various forms of biodata, continuum items are preferable to non-continuum items in terms of validation and statistical analysis according to Owens (1976). Also, single choice items are preferable to multiple choice items for the purposes of statistical analysis. A single choice item resembles requires a respondent to select one answer choice for a question. Notably, items that Owens (1976) refers to as "single choice" are sometimes referred to as "multiple choice" in the extant literature. In other words, some researchers use the term "multiple choice," instead of "single choice," for a response format in which respondents are asked to select only one answer choice.

It was not until 1991 that a more comprehensive framework emerged when Mael presented a taxonomy of biodata. In his taxonomy to better classify biodata, Mael (1991) acknowledged that previous attempts to define biodata had been unsystematic. When explaining what constitutes biodata, Mael (1991) proposed that biodata scales measure

the behaviors and events that are indicative of previous adaptive choices (p. 788). Further, he concluded that the only necessary attribute of biodata was that it be historical. Mael emphasized the importance of biodata attributes in reducing response faking, enhancing perceptions that items are fair, and ensuring the legality of items. Additionally, because biodata sometimes makes subjective inquiries resembling a personality test (Robertson & Smith, 2001), Mael (1991) made a clear attempt to differentiate biodata from measures of personality.

Building on previous taxonomies (e.g., Asher, 1972), Mael (1991) provided guidance on the desirable characteristics of biodata items as shown in Table 2.3. He proposed the following ten dimensions of biodata: (1) history, (2) externality, (3) objectivity, (4) first-handedness, (5) discreetness, (6) verifiability, (7) controllability, (8) equal accessibility, (9) job relevance, and (10) invasiveness. Using historical items requires the applicant to report behaviors that he or she has typically engaged in sometime in the past, rather than inquiring about future or hypothetical events. According to Mael (1991), biodata should inquire about external events (i.e., service in the military) rather than internal events (i.e., how a person felt about serving in the military). By inquiring about external rather than internal events, biodata measures are more likely to achieve higher validities than personality measures which are more subject to distortion. "Biodata scales dealing with external events purport to force the respondent to either answer honestly or consciously distort answers" (Mael, 1991: 775). Some recommend that biodata items should be objective and require first-hand knowledge. In other words, items should require objective answers rather than subjective ones, and should require first–hand knowledge rather than speculation about what someone else

would think (e.g., a parent). The attribute of discreetness conveys that a biodata item should relate to one piece of information. Verifiability is also an important consideration when generating biodata items. Items that are verifiable can be corroborated from an independent source (Mael, 1991: 777). While Mael suggested that biodata items be verifiable, others argue that verifiability limits items as mentioned previously.

Table 2.3 Mael's (1991) Taxonomy of Biodata Items

Biodata Item Dimension
1. *Historical* • How old were you when you got your first paying job? *Future or hypothetical* • What position do you think you will be holding in 10 years? • What would you do if another person screamed at you in public?
2. *External* • Did you ever get fired from a job? *Internal* • What is your attitude toward friends who smoke marijuana?
3. *Objective* • How many hours did you study for your real-estate license test? *Subjective* • How adventurous are you compared to your coworkers?
4. *First-hand* • How punctual are you about coming to work? *Second-hand* • How would your teachers describe your punctuality?
5. *Discrete* • At what ages did you get your driver's license? *Summative* • How many hours do you study during an average week?

Table 2.3 (Continued)

6. *Verifiable*
   - What was your grade point average in college?

   Nonverifiable
   - How many servings of fresh vegetables do you eat every day?

7. *Controllable*
   - How many tries did it take you to pass the CPA exam?

   Noncontrollable
   - How many brothers and sisters do you have?

8. *Equal access*
   - Were you ever class president?

   Nonequal access
   - Were you captain of the football team?

9. *Job relevant*
   - How many units of cereal did you sell during the last calendar year?

   Not job relevant
   - Are you proficient at crossword puzzles?

10. *Noninvasive*
    - Were you on the tennis team in college?

    Invasive
    - How many young children do you have at home?

The controllability dimension taps into whether or not an item asks a person about something which he or she could control. Equal accessibility refers to whether an item inquires about experiences that could be equal for all candidates. Mael (1991) suggested that items be written in a way that all respondents in the target population would be able to respond. Job relevance is a dimension of biodata that should be considered prior to item generation. Some would argue that all life experiences are potentially relevant to any

job; however, others favor items that ask about behaviors that are similar to behaviors required in the prospective job. Thus, job relevance is a consideration when constructing items. Finally, the invasion of privacy is a concern in item development. Mael (1991) suggested that items should not be invasive because they are likely to be viewed as intrusive by applicants which may encourage faking and random response. Items dealing with family, criminal behavior, religious and ethnic practices, and sexual behavior are usually viewed as offensive due to their invasive nature (Mumford & Owens, 1987; Mael, 1991). Together Mael's (1991) dimensions can be represented by three more general categories: (1) history, which implies that biodata items should refer to previous events or events that continue to take place, (2) methodological variables, which ensure accuracy of information collected, and (3) legal and moral issues regarding items used for the purpose of selection.

More recently, Mumford and colleagues (2007) have offered suggestions for the development of biodata items. In their discussion of biodata item generation, Mumford and colleagues (2007) identify eight common types of items: situational exposure, situational choice, behavior in a situation, reactions to a situation, other people's reactions to a situation, outcomes of situational exposure, life narratives, and negative life experiences. In addition, Mumford and colleagues (2007) provide specific guidance for generating "good" biodata items that will prompt accurate recall of past behavior and experiences. Specifically, they suggest that good biodata items assess event summaries, reflect goal relevant behavior, provide a temporal organizer, focus on relevant events, and focus on recent events (see Table 2.4).

Table 2.4 Examples of Background Data Items that Encourage Good and Poor Levels of Recall from Mumford et al. (2007)

Item Type
Event summaries • Good Recall: How often were you able to improve your grades in a class when you did poorly? • Poor Recall: How much did you improve your grade on your algebra test?
Goal relevant • Good Recall: How often have you been angry with someone who took advantage of a coworker? • Poor Recall: How often have you been angry?
Event organizers • Good Recall: When meeting new people, how easy is it for you to introduce yourself? • Poor Recall: How easy is it for you to introduce yourself?
Relevant events • Good Recall: How difficult was it for you to learn calculus in college? • Poor Recall: How difficult was it for you to learn addition in elementary school?

Generating Biodata Items

As with biodata item format and content, a variety of options for generating biodata items exists. Because the biodata literature offers a host of suggestions for item generation, this review is not intended to be exhaustive and highlights the work of Mumford and Owens (1987), Gatewood and Field (1990), as well as Carlson and colleagues. (1999). Mumford and Owens (1987) provide guidance regarding the development of biodata items to ensure validity and reliability. They describe six methods of item generation: developmental literature, life history interviews with incumbents, known life history correlates of various job specifications, typical factor loadings of biodata items, biodata items with known predictive validities, and items

generated from the investigators' general psychological knowledge. Russell (1994) suggests the first three sources are more useful in terms of linking biodata items with theory as these methods provide rich sources of information for item development.

Additionally, Mumford and Owens (1987) recommend that items be prescreened to ensure the psychometric adequacy of the items as well as the appropriateness of item content. Specifically, Mumford and Owens (1987) suggest that items first be reviewed for content, then administered to a target population. Following administration, the authors advise that items should be eliminated on the basis of variability, distribution, and intercorrelations.

Later Gatewood and Feild (1990) recommended the following five steps to develop a biodata questionnaire: select a job, analyze the job and define the life history domain, form hypotheses of life history experiences, develop a pool of biodata items, and prescreen and pilot test biodata items. However, following Gatewood and Feild's (1990) approach, scoring keys may not be generalizable (i.e., transferable to another organization). Generalizability is one of the main concerns associated with the use of biodata (Robertson & Smith, 2001), and some research suggests that the validity of biodata is situation specific and that biodata keys are not transportable (e.g., Hunter & Hunter, 1984). Those who believe that biodata scoring keys are situation specific argue that they are not valid predictors when used in other organizational contexts (i.e., a scoring key in one organization would not be valid in a different organization). However, more recent research suggests that a properly constructed biodata instrument developed in a single organization has the potential to be a valid predictor across other organizations

(e.g., Rothstein, Schmidt, Erwin, Owens, & Sparks, 1990; Carlson, Scullen, Schmidt, Rothstein, & Erwin, 1999).

Carlson et al. (1999) suggest that four factors influence the generalizability of biodata: theory, criterion, item level analysis, and sample size. First, Carlson et al. (1999) suggest that there should be a sound theoretical reason that the biodata instrument would generalize to other positions and organizations. Second, the authors note that the validity of the criterion, as well as the reliability of the criterion measure is likely to influence the generalizability of a biodata measure. Third, the authors advise that validity should be established at the item level rather than the scale level. Rather than first developing numerous items and using an empirical scoring technique, each item should be content valid. The work of Rothstein et al. (1990) and Carlson et al. (1999) implies that the generalizability of biodata is contingent upon the development, or construction, of each biodata item. Finally, the authors indicate that sample size may affect the generalizability of a biodata measure. Although biodata instruments may be valid when a small sample exists, large sample sizes are preferable when developing a biodata instrument as they may more accurately reflect a population (Carlson et al., 1999). Therefore, the biodata literature provides guidance regarding ways in which researchers may enhance the generalizability of their biodata measures.

Predictive Validity of Biodata

One of the reasons for the frequent use of biodata as a selection tool is that it demonstrates high predictive validity across a variety of criteria (e.g., Hunter & Hunter, 1984). In fact, numerous meta-analyses have shown biodata to be one of the best methods of selection in terms of predictive validity (Gunter & Furnham, 2001).

According to Hunter and Hunter's (1984) meta-analysis, biodata demonstrated an average validity of .37 when predicting supervisor ratings of job performance and has also proven to be a valid predictor of other important organizational outcomes (see Table 2.5), such as productivity (Schmitt, Gooding, Noe, & Kirsch, 1984), training success (Hunter & Hunter, 1984), career success (Childs & Klimoski, 1986), and organizational commitment (Mael & Ashforth, 1995). Additionally, empirical evidence indicates that biodata has been successful in predicting attrition (Mael & Ashforth, 1995) and college student performance (Oswald, Schmitt, Kim, Ramsay, & Gillespie, 2004).

Table 2.5 Summary of Biographical Data Validation Studies for a Variety of Criteria Adapted from Gatewood and Feild (1990)

Criterion	Source	Number of studies (*K*)	Total Sample Size (*N*)	Average Validity Coefficient (*r* bar)
Job level	Carlson et al. (1999)	5	2,682	.44
Performance Rating	Hunter and Hunter (1984)	12	4,429	.37
Performance Rating	Schmitt et al. (1984)	29	3,998	.32
Productivity	Schmitt et al. (1984)	19	13,655	.20
Promotions	Hunter and Hunter (1984)	17	9,024	.26
Tenure	Hunter and Hunter (1984)	23	10,800	.26
Turnover	Schmitt et al. (1984)	28	28,862	.21
Training Success	Hunter and Hunter (1984)	11	6,139	.30
Salary	Carlson et al. (1999)	14	2,779	.50
Wages	Schmitt et al. (1984)	7	1,544	.53
Achievement/ Grades	Schmitt et al. (1984)	9	1744	.23

Interestingly, in addition to predicting various outcomes, biodata has demonstrated acceptable validity in predicting criteria across a range of occupations. For example, Reilly and Chao (1982) reviewed 58 studies using biographical information as a predictor and found an average validity of .35 across occupations (i.e., military, clerical, management, non-management, sales, and scientific/engineering) and criteria (i.e., tenure, training, ratings, productivity, and salary). Schmitt et al. (1984), who reviewed 99 studies, found that biodata demonstrated an average validity of .28 across occupations (i.e., professional, managerial, clerical, sales, skilled labor, and unskilled labor). In summary, as most comprehensive reviews suggest, biodata is a useful selection tool in predicting a host organizationally-relevant outcomes, as well as for various jobs within an organization (Gatewood & Feild, 1990).

Reliability of Biodata

Reliability, which is the dependability or predictability of a measure (Kerlinger & Lee, 2000), is an important consideration when choosing a selection tool. Two of the commonly used approaches for measuring reliability include test-retest, which involves administration of the same measure to the same subjects twice, and internal consistency, which measures the extent to which items are measuring the same phenomenon (Pedhauzur & Schmelkin, 1991). In general, biodata items have low intercorrelations with each other (i.e., internal consistency). Their heterogeneous nature may lead to low internal consistency reliability estimates (Gatewood & Feild, 1990; Owens, 1976). Biodata internal consistency reliability estimates (e.g., coefficient alpha) often fall between .60 and .80 (e.g., Owens, 1976; Mumford & Owens, 1987). However, while biodata may suffer from low intercorrelation among items, test-retest reliability

coefficients tend to be higher than estimates of internal consistency (Shaffer, Saunders, & Owens, 1986). Because biodata often demonstrate low internal consistency, Owens, Glennon, and Albright (1962) make several recommendations for enhancing biodata reliability. Specifically, Owens and colleagues (1962) recommend keeping questions simple and brief, graduating the response options on a numerical continuum, providing an escape option when all possible alternatives have not been covered by response options, and wording response options and questions in such a way as to provide a pleasant or neutral connotation.

Concerns Regarding Biodata

As with any selection device, several weaknesses and concerns are associated with biodata. One of the most heavily criticized aspects of biodata is that its predictive ability lacks theory (Mitchell & Klimoski, 1982). While many have credited the predictive nature of biodata to "dust bowl empiricism" (Gatewood & Feild, 1990), several researchers have offered theoretical reasoning as to why biodata demonstrates high predictive validity. For example, Mumford, Stokes, and Owens (1990), seeking to provide a theoretical rational for why biodata predicts, developed the ecology model which suggests that the development of an individual is influenced by that person's interaction with his or her environment. The model presents the idea that early activities and experiences directly predict later individual differences and that individuals change with each new experience (Dean, 1999: 5).

Considering that individuals rate interviews and work sample tests less invasive than cognitive ability tests and biodata (Hausknecht, Day, & Thomas, 2004), the potential

invasiveness of biodata is considered a weakness by some (Mael, Connerly, & Morath, 1996). Applicant reactions to selection devices serve as an important consideration in the hiring process. Research indicates that applicant perceptions during the hiring process predict not only views of the organization, but also intentions to accept job offers and recommendations of the employer to others (Hausknecht, Day, & Thomas, 2004). While the invasiveness of biodata may be a concern, it is easily mitigated because biodata items may be written in such a way that they are not invasive (Mael, 1991).

In addition, the accuracy of individual responses to biodata items is a concern (Gatewood & Feild, 1990). Researchers disagree on the effects and likelihood of faking in biodata tests (Kluger & Colella, 1993). However, as with any self-report measure, accuracy of responses is a concern (Reilly & Chao, 1982). The verifiability of items may influence the likelihood that an individual will "fake" a response (Shaffer et al., 1986). Therefore, in an effort to mitigate faking, verifiable biodata items may be developed. Additionally, warning job applicants against faking is likely to mitigate faking behavior (Kluger & Colella, 1993). Mael (1991) suggests that biodata items should be external, objective, firsthand, and verifiable in order to minimize faking. Finally, faking may be less of a concern with biodata measures because there is not a clear indication of how an item should be faked (Shaffer et al., 1986).

Interestingly, temporal stability also appears to be an issue associated with biodata. That is, the validity of a biodata scoring key may decay or attenuate over time (Hunter & Hunter, 1984). Some suggest that periodic revalidation of scoring keys is necessary over time (e.g., Gunter & Furham, 2001). However, Carlson et al. (1999)

present evidence to the contrary. The empirically derived scoring key used in their study yielded substantial validities up to 11 years after the construction of the scoring key. Gunter and Furham (2001) also note that many of the studies that report attenuation over time used turnover as the criterion and that turnover is readily affected by labor market conditions. Therefore, more recent research suggests that attenuation of a properly developed instrument should not be a major concern.

The legality of biodata items is an important consideration when using biodata as a basis for employment decisions. As with any selection device, items should be to job performance and not discriminate against a protected group of job applicants (Gatewood & Feild, 1990). In general, research shows that biodata results in minimal if any adverse impact (Reilly & Chao, 1982; Dean, 1999). While items selected from a purely empirical approach may result in adverse impact, the responses of minority and non-minority responses can be compared; specific items may be deleted if they adversely impact protected groups or may be weighted differently for minority and non-minority applicants (Gatewood & Feild, 1990).

In summary, while there may be several concerns associated with the use of biodata as a selection tool, many of these may be addressed and minimized by properly developing the instrument which can be done by turning to the biodata literature for guidance. Overall, empirical evidence supports the notion that biodata is a widely used as a selection tool due to its practical utility in predicting a wide variety of outcomes relevant to both practitioners and researchers.

General Research Hypotheses

Predicting Proactive Behavior

"Biodata captures systematic, enduring differences between subgroups of people" (Schmitt, Jennings, & Toney, 1999: 169) and is commonly used as a selection tool due to its ability to predict subsequent behavior. However, despite its utility biodata has not yet been used to predict proactive behavior. Therefore, the main purpose of this dissertation is to design and develop a biodata measure which will predict proactive behavior. The use of biodata is based upon the rationale that past behaviors and experiences are the best predictors of future performance (Owens & Schoenfeldt, 1979). Mumford and Stokes (1992) note that "to predict performance through background data items one must acquire a set of background data items one must acquire a set of background data items capable of capturing prior behaviors and experiences impinging on the later expression of criterion performance" (p.66). Two models offer an explanation of biodata's predictive capabilities: the development-integrative model and the ecology model which evolved from the developmental-integrative model (Owens & Schoenfeldt, 1979). According to the development-integrative model which was developed by Owens (1986; 1971), people vary due to differing developmental patterns which result from major life experiences (Owens & Schoenfeldt, 1979). Thus, "individuals learn from prior experiences, and are conditioned to select new situations similar to those previously experienced, and do best in similar situations" (Schmitt et al., 1999: 170). Drawing from the developmental-integrative model, one explanation for the predictive power offered by biodata is that it captures what individuals have done in the past that may be required in a new situation (Mumford & Stokes, 1992).

Following the introduction of the Owens' developmental-integrative model, the ecology model was developed by Stokes, Mumford, & Owens (1989) and Mumford, Stokes, and Owens (1990). The ecology model built upon Owens' developmental-integrative model (Owens & Schoenfedlt, 1979) and focuses on the motivational influences that result in a pattern of situations an individual self-selects (Schmitt et al., 1999: 170). According to the ecology model, "people select situations based on the perceived reinforcement value of outcomes associated with potential courses of action" (Mumford & Stokes, 1992: 77). In other words, individuals select situations which are rewarding and reject situations which are not rewarding (Schmitt et al., 1999: 170), and eventually "a repetitive pattern of choice behavior results" (Mumford & Stokes, 1992: 78).

Both the development-integrative and ecology models, used by researchers to explain the predictive capability of biodata, suggest that individuals who have engaged in certain behaviors in the past will continue to do so in the future. Drawing from the models and the general rationale underlying the use of biodata (i.e., past behavior and experience is likely to predict future behavior rand experience), it seems likely that individuals who have been proactive in the past will continue to be proactive in the future. For example, if an employee has frequently spoken up with suggestions for improvement in the workplace in the past, it seems likely that person is likely to do so in the future. On the other hand, if an employee has rarely engaged in proactive behavior in the past, it seems less likely that the person will be proactive in the future. Thus, because biodata offers researchers the ability to inquire about previous patterns of behavior, it presents the potential to distinguish between individuals on the basis of whether or not

they have engaged in proactive behavior by inquiring about previous behaviors and experiences. Therefore, I expect that a proactivity-related biodata measure, hereafter referred to as PROBIO, will predict general forms of proactive behavior, and I hypothesize the following:

Hypothesis 1a: PROBIO will be positively related to voice behavior.

Hypothesis 1b: PROBIO will be positively related to taking charge behavior.

Establishing Validity of PROBIO

In an effort to provide evidence of the validity of the newly constructed PROBIO measure, I plan to compare it to existing predictors of general forms of proactive behavior: proactive personality and cognitive-motivational states. By examining the PROBIO measure along with proactive personality, which has been used previously to predict proactive behavior, I will be able to evaluate whether or not the new measures offers a level of predictive validity similar to, above, or below proactive personality. Bateman and Crant's (1993) proactive personality scale, designed to capture an individual's change-orientation (i.e., Bateman & Crant, 1993), has been useful in predicting proactive behavior (e.g. Fuller et al., 2006; Parker et al., 2006). Therefore, because the PROBIO measure has also been designed to predict proactive behavior, I will examine the relationship between an individual's responses to the PROBIO measure and self-report of proactive personality.

Researchers acknowledge that the domains of biodata and temperament items overlap and that biodata items often capture aspects of personality, in addition to other factors that may affect a person, such as environment (Mael, 1991). Proactive personality is a dispositional tendency to bring about change, and individuals with proactive

personalities tend to be sources of change in their environment (Bateman & Crant, 1993). Because the PROBIO measure is likely to include items that tap into a proactive disposition, as does the proactive personality scale, I expect that an individual's score on the PROBIO measure will be correlated with his or her score on Bateman and Crant's (1993) proactive personality scale. Therefore, I hypothesize the following:

Hypothesis 2: PROBIO will be positively correlated with proactive personality.

Prior research demonstrates that proactive personality is positively related to both voice and taking charge behavior (Fuller et al., 2006; Fuller et al., 2007). That is, individuals who are high in the tendency to affect positive change, engage in proactive behaviors. As such, I expect to replicate those findings and hypothesize the following:

Hypothesis 3a: Proactive personality will be positively related to voice behavior.

Hypothesis 3b: Proactive personality will be positively related to taking charge behavior.

More recent models designed to predict proactive behavior include both proximal and distal predictors of proactive behavior. Previous research reveals that proactive personality, a distal predictor of proactive behavior, actually predicts cognitive-motivational states which, in turn, predict proactive behavior (e.g. Fuller et al., 2006; Parker et al., 2006). Specifically, research illustrates that individuals who engage in proactive behavior tend to feel a responsibility to bring about constructive change and feel capable of performing duties outside of their specified role (i.e., RBSE). Similarly, I expect that the PROBIO measure will predict cognitive motivational states. That is, individuals who have engaged in proactive behaviors in the past are likely to feel

responsible for bringing about positive changes in their organizations and feel capable of performing duties outside of their specified role in the future. Thus, to establish concurrent validity of the PROBIO measure, I hypothesize the following:

> Hypothesis 4a: PROBIO will be positively related to felt responsibility for constructive change.
>
> Hypothesis 4b: PROBIO will be positively related to role breadth self-efficacy.

Also, in an effort to replicate previous findings, I plan to examine the relationship between proactive personality and cognitive-motivational states, hypothesizing that:

> Hypothesis 4c: Proactive personality will be positively related to felt responsibility for constructive change.
>
> Hypothesis 4d: Proactive personality will be positively related to role breadth self-efficacy.

Cognitive Motivational States and Proactive Behavior

As mentioned previously, in an attempt to explain why proactive personality relates to proactive behaviors, researchers have examined cognitive motivational states such as felt responsibility for constructive change and role breadth self-efficacy (e.g. Fuller et al., 2006; Parker, 2000). The work of Parker (2000) and Fuller et al. (2006) indicates that cognitive-motivational states serve as proximal predictors of proactive behavior. That is, these researchers have shown that a cognitive-motivational variable often underlies proactive behavior. For example, research has shown that individuals who feel responsible for bringing about constructive changes in the workplace are more likely to engage in proactive behavior than those who do not (Fuller et al., 2006). Because FRCC reflects the extent to which an individual feels personal responsibility for continually redefining performance (i.e., doing things better), rather than solely

performing his or her own task well according to current performance standards (i.e., doing the job right; Fuller at al., 2006), an individual high in FRCC actually views proactive behavior as a work role responsibility. In addition, Morrison & Phelps (1999) suggest that individuals high in FRCC experience satisfaction and a sense of personal accomplishment from engaging in proactive behavior. Similarly, previous research indicates that RBSE is a cognitive motivational state which underlies proactive work behavior. For instance, Parker (2000) revealed that employees high in RBSE were more likely to engage in proactive behavior than those who were low in RBSE. Individuals who are high in RBSE feel confident that they can successfully carry out tasks beyond their traditional role requirements (Parker, 1998). Examples of tasks encompassed by RBSE include long-term problem solving, developing improved procedures, setting unit-level goals, resolving conflicts, representing the work group with senior management, and interacting with people outside the work group (management, customers, members of other groups; Parker 1998: 836). Based on the idea that cognitive-motivational states underlie proactive behavior, I expect that felt responsibility for constructive change and role breadth self-efficacy will serve as proximal predictors of general proactive behavior (i.e., voice and taking charge); therefore, I hypothesize the following:

> Hypothesis 5a: Felt responsibility for constructive change will be positively related to voice behavior.
>
> Hypothesis 5b: Felt responsibility for constructive change will be positively related to taking charge behavior.
>
> Hypothesis 5c: Role breadth self-efficacy will be positively related to voice behavior.
> Hypothesis 5d: Role breadth self-efficacy will be positively related to taking charge behavior.

Proactive Behavior and Job Performance

As previously noted, prior research has established a relationship between proactive behavior and job performance (e.g., Thompson, 2005; Fuller et al., 2006). Fuller et al. (2006) found that voice was correlated with continuous improvement which was an aspect of a company's performance appraisal. Similarly, Thompson (2002) found that voice was related to higher performance evaluations. Proactive behavior may be related to evaluations of job performance for several reasons. Numerous researchers have noted that organizations increasingly value proactive behavior (e.g., Parker, Williams, & Turner, 2006; Crant, 2000; Frese, Fay, Hilburger, Leng, & Tag, 1997; Frese, Kring, Soose, & Zempel, 1996; Frese & Fay, 2001; Campbell, 2000; Parker, 2000; Frese, Teng, & Wijnen, 1999; Fuller, Marler, & Hester, 2006; Erdogan & Bauer, 2005). For example, Thompson (2005) argues that "organizations particularly value employees who seek to foster productive change of their own volition" (p. 1016). Additionally, because job performance is a subjective evaluation, previous findings suggest that supervisors value proactive behavior. Ultimately, organizations and supervisors value proactive behavior because it results in improved productivity (Frese & Fay, 2001). Both voice and taking charge, general forms of proactive behavior which may occur in many different situations or jobs, are avenues for improving organizational productivity. Therefore, I expect proactive behavior will be positively related to supervisor evaluations of job performance. I seek to test the following hypotheses:

> Hypothesis 6a: Voice will be positively related to job performance.
> Hypothesis 6b: Taking charge behavior will be positively related to job performance.

Proactive Personality, Biodata,
and Job Performance

Empirical work reveals that proactive personality relates to both objective and subjective measures of job performance. In Crant's (1995) study of real estate agents, he found that agents high in proactive personality had higher performance than their less proactive counterparts. He provided the rationale that individuals with a proactive personality create situations and environments conducive to effective performance. Further, even after controlling for experience, general mental ability, conscientiousness, social desirability, and extraversion, proactive personality explained 8 percent of the variance in objective measures performance (i.e., number of homes sold, commission). Thompson (2005) provides additional support for the linkage between proactive personality and job performance. He found that proactive personality was positively related to subjective evaluations of job performance across a variety of job types and occupations. Therefore, based on prior empirical findings, I expect that proactive personality will predict supervisor evaluations of job performance. Similarly, numerous studies indicate that biodata predicts job performance (Reilly & Chao, 1982; Hunter & Hunter, 1984). One reason biodata may predict performance is that it "reflects the prior development of KSAOs and motivational influences concerning entry into, and performance in, certain situations" (Mumford & Stokes, 1992: 88). The PROBIO measure will be designed to gather information regarding an individual's previous proactive behavior. Because research indicates that supervisors value proactive behavior (Fuller et al., 2007b; Thompson, 2005), I expect that an individual's score on the PROBIO measure will be positively related to his or her job performance. Therefore, I hypothesize:

Hypothesis 7a: PROBIO will be positively related to job performance.

Hypothesis 7b: Proactive personality will be positively related to job performance.

Moderating Effects of Supervisor Learning Goal Orientation

While research has shown that proactive behavior relates to job performance, it also suggests that this relationship may be affected by other factors (e.g., Fuller et al., 2007b). That is, proactive behavior may not always be associated with higher job performance. One potential explanation for the relatively weak positive relationship between proactive behavior and job performance is that job performance is actually an evaluation made by a supervisor who may or may not value proactive behavior. Campbell's (1990) model suggests that values or expectations of a supervisor should determine the relationship between behavior and evaluations of job performance. While Fuller et al. (2007b) argue that a supervisor's learning goal orientation may positively or negatively influence his or her evaluation of proactive behavior, they do not explicitly test this proposition. A learning goal orientation involves developing competence by acquiring news skills and mastering new situations (VandeWalle & Cummings, 1997: 391). Individuals with a learning goal orientation exhibit the belief that effort leads to success. Because individuals with motivation to learn are likely to engage in self-development activities which are likely to benefit themselves, as well as their organizations (Major et al., 2006), it seems likely that supervisors with a learning goal orientation will value, and perhaps expect, efforts to improve the workplace from their employees. As such, supervisors are likely to notice and reward general proactive behavior such as identifying opportunities to improve things or efforts geared towards

implementing positive changes in the workplace. However, for supervisors who do not have a learning goal orientation, it seems less likely that they will value an employee's efforts to make suggestions for improvement in the workplace or to bring about meaningful change and that these efforts by the employee are not likely to translate into higher performance ratings. Thus, I expect that a supervisor's learning goal orientation may affect his or her evaluation of proactive behavior (i.e., voice and taking charge). Therefore, I hypothesize the following:

> Hypothesis 8a: Supervisor learning goal orientation will moderate the relationship between employee voice behavior and supervisor ratings of job performance.
>
> Hypothesis 8b: Supervisor learning goal orientation will moderate the relationship between employee taking charge behavior and supervisor ratings of job performance.

Meta-Analytic Review of the Proactive Personality

Because one of the objectives of this dissertation is to compare the predictive validity of the PROBIO measure to that of proactive personality, it is important to establish a benchmark for the level of predictive validity that proactive personality demonstrates. Because there has not yet been a comprehensive quantitative review of the proactivity literature, a meta-analysis will be conducted to provide a benchmark level of predictive validity that the PROBIO measure would need to demonstrate in order to provide utility. Specifically, I will collect studies which examine two relationships: the relationship between proactive personality and proactive behavior and the relationship between proactive personality and job performance.

CHAPTER 3

METHOD

The purpose of this chapter is to present information regarding the participants and procedures used to collect and analyze data for this dissertation. Specifically, this chapter contains information pertaining to the meta-analysis, dissertation sample, survey data collection procedures, the measures used to assess variables, item construction for the PROBIO measure, as well as the statistical techniques used in the analysis of research hypotheses.

Meta-Analysis

The process of locating empirical studies examining the relationship between proactive personality and proactive behavior, as well as proactive personality and job performance involved searches of PsychInfo, ABI-Inform, Business Source Premier, Google Scholar, and Academy of Management Proceedings utilizing the search term "proactive personality." The first inclusion rule was that a study had to utilize a measure of proactive personality based upon the items in Bateman and Crant's (1993) original proactive personality scale. The second rule was that a study had to report a Pearson correlation coefficient, or statistics that could be transformed into a correlation coefficient, for the relationship between proactive personality and the variable of interest. The third rule was the study had to report a sample size.

The application of these rules resulted in the inclusion of 29 studies. Of the 29 studies, 15 examined the relationship between proactive personality and proactive behavior, and 14 studies examined the relationship between proactive personality and job performance. Studies included in the meta-analysis are denoted by an asterisk in the reference section of this dissertation.

Two methods of meta-analysis were used to aggregate the data collected. Because of its predominance in the literature and research supporting its accuracy (e.g., Hall & Brannick, 2002), Hunter and Schmidt's (1990) random-effects model was used as the primary method of analyzing data. This method allows for the correction of sampling error and attenuation due to unreliability in both predictor and criterion and generates sample-weighted estimates of the population correlation. Hunter and Schmidt's (2004) guidelines for maintaining the statistical independence of studies were followed. The proportion of variance accounted for by sampling and measurement error was calculated to provide an estimate of sample population homogeneity. The generally accepted rule of thumb is that when sampling and measurement error accounts for more than 75% of observed variance, then the remaining variance should be accounted for by other artifacts and the sample population should be considered homogeneous. This "omnibus" test provides a more accurate indication of homogeneity than significance tests used to assess homogeneity (Hunter & Schmidt, 2004).

In addition to the inclusion of several dissertations, conference proceedings, and unpublished studies, a "fail-safe N" statistic was generated to address the "file drawer problem" (Hunter & Schmidt, 1990). The fail-safe N provides an estimate of the number of null effect size studies hidden in a file drawer somewhere (i.e., missing from the

current literature search) that would be required to reduce the estimated population correlation to a level of statistical nonsignificance. Larger fail safe Ns are suggestive of results that can be viewed with a greater degree of confidence, while smaller fail-safe Ns are suggestive of results that could change with the addition of relatively few null effect samples. Fail-safe Ns were calculated based upon the observed mean correlation rather than the corrected mean correlation to provide a more conservative estimate of the stability of the results.

In cases where two subgroups were compared (e.g., studies using percept-percept research designs versus studies using multi-source research designs), Hunter and Schmidt's (1990) "Critical Ratio *Z*" test was used to provide a statistical indicator of moderation. This test accounts for second-order sampling error in assessing the difference between mean effect sizes by constructing 95% confidence intervals around each subgroup mean effect size and assessing the extent to which the two confidence intervals overlap.

Participants and Procedure

The participants for the hypothesis testing portion of the dissertation were employed by a variety of organizations in the Southeastern United States, including a regional utility company as well as a myriad of other regional businesses (e.g., steel fabrication plant, engineering firm, accounting firm, hospital). Approval was obtained from the Human Use Committee prior to data collection (See Appendix B). In each organization, employees were given time during normal working hours to voluntarily participate by completing surveys. In order to have one data point, three different surveys had to be completed (i.e., employee survey, supervisor survey, and supervisor evaluation

of employee survey). The employee survey contained the PROBIO measure, as well as measures assessing the following constructs: proactive personality, felt responsibility for constructive change, and role breadth self-efficacy (see Table 3.1). Each supervisor completed two surveys, one in which they responded to questions assessing their learning goal orientation, and one in which they evaluated an individual employee's voice and taking charge behavior, as well as task performance and overall job performance (see Table 3.1). In some cases, a supervisor evaluated more than one employee; however, no supervisor evaluated more than three employees. In order to protect the anonymity of respondents, an alphanumeric coding system was used to match employee and supervisor surveys. Surveys were distributed to 142 employees in the regional utility company, and 91 employees completed surveys (72% response); however, these responses resulted in a total of 87 matched data points (i.e., employee survey, supervisor survey, supervisor evaluation of employee). Finally, surveys were distributed to 200 employees in various regional businesses, and 85 employees completed surveys (43% response); however, these responses resulted in a total of 73 matched data points (i.e., employee survey, supervisor survey, supervisor evaluation of employee).

In sum, I obtained 160 matched data points for the final data set. Responses in the final data set were obtained from employees at various levels (i.e., lower, middle, upper) in the participating organizations. Also, the sample is representative of a wide variety of jobs including white collar (e.g., lawyers, accountants), blue collar (e.g., steel workers, police officers), as well as pink collar jobs (e.g., nurses, secretaries). Therefore, the sample is representative of a diverse group of occupations.

Table 3.1 Survey Data Collection

Survey	Variable
Employee Survey	PROBIO – Voice PROBIO – Taking Charge Proactive Personality Felt Responsibility for Constructive Change Role Breadth Self-Efficacy
Supervisor Survey	Learning Goal Orientation
Supervisor Evaluation of Employee Survey	Voice Behavior Taking Charge Behavior Task Performance Overall Job Performance

Employee Demographics

Data were collected from 160 employees. Table 3.2 presents demographic information for the employees who completed surveys. Survey responses indicate this sample was approximately 50% female and 49% male (1% did not indicate gender) with ages ranging from 18 to 69 (MN = 41.5; SD = 11.19). Of the 160 employee respondents, 86% were White, 6% were Black, 1% were American Indian, 2% were Hispanic, and 5% did not indicate their race. Respondents were asked to report the highest level of education they had completed, 24 % reported having completed high school or a GED, 20% reported having attended some college, 17% reported having earned a 2-year college degree, 32% reported having earned a 4-year college degree, 5% reported having earned a master's degree, less than 1% reported having earned a doctoral or professional degree, and 1% did not respond. Employees also reported organizational tenure which ranged from 5 months to 38 years (MN = 11.5, SD = 8.74).

Table 3.2 Employee Demographics

Characteristic	Utility Company	Various Companies	Overall Sample
Sample Size	*N* = 87	*N* = 73	*N* = 160
Gender			
Female	38%	62%	50%
Male	62 %	36%	49 %
No Response	0%	2%	1 %
Age	42 Years	41 Years	41.5 Years
Ethnic background			
White	90%	82%	86%
Black	2%	10%	6%
Hispanic	2%	2%	2%
American Indian	1%	1%	1%
No Response	5%	5%	5%
Level of education			
High School or GED	21%	27%	24%
Some College	18%	22%	20%
2-Year College Degree	10%	23%	16%
4-Year College Degree	40%	24%	32%
Master's Degree	9%	1%	5%
Ph.D. or Professional Degree	0%	1%	1%
No Response	1%	1%	1%
Organizational Tenure	13 Years	10 Years	11.5 Years

Measures

Listed below are all of the previously validated measures used in the study. See Appendix A for a full listing of items.

Proactive Personality

Proactive personality was assessed using an abbreviated version of Bateman and Crant's (1993) 17-item measure. Bateman and Crant's (1993) original proactive personality scale demonstrated an acceptable level of reliabiltiy in their initial studies (Crobach's alpha across three studies ranged from .87 to .89). However, subsequent use by Parker (1998) indicates a coefficient alpha of .85 for the abbreviated, 6-item version of

the scale used in this dissertation. Cronbach's alpha was .92 in this dissertation. Items used a 7-point Likert-type scale where 1 = "Strongly Disagree" to 7 = "Strongly Agree."

Felt Responsibility for Constructive Change

Felt responsibility for constructive change was assessed using Morrison and Phelps (1999) 5-item measure which demonstrated a coefficient alpha of .80 in their study. For this dissertation, Cronbach's alpha was .76. Items used a 7-point Likert-type scale where 1 = "Strongly Disagree" to 7 = "Strongly Agree."

Role Breadth Self-Efficacy

Role-breadth self-efficacy was assessed using an abbreviated version of Parker's (1998) 10-item measure. A 7-item version of the original measure which has been shown to demonstrate acceptable reliability (α= .93) in Parker et al.'s (2006) study was used in this dissertation and had a Cronbach's alpha was .93. Items used a 5-point Likert-type scale where 1 = "Not Confident at All" to 5 = "Very Confident."

Proactive Behavior

Supervisors rated employee voice behavior by completing Van Dyne and LePine's (1998) 7-item measure which has been shown to demonstrate an acceptable level of reliability (α= .89). For this dissertation, Cronbach's alpha was .94. Items used a 7-point Likert-type scale where 1 = "Strongly Disagree" to 7 = "Strongly Agree."

Supervisors also assessed employee taking charge behavior by completing the Morrison and Phelps' (1999) scale which has been shown to demonstrate acceptable reliability (α= .95). For the taking charge measure in dissertation, Cronbach's alpha was .94. The 10-item measure used a 5-point Likert-type scale where 1 = "Very Infrequently" to 5 = "Very Frequently."

Job Performance

Supervisors assessed employee job performance by completing items assessing both task and overall performance. Task performance was assessed using Williams & Anderson's (1991) measure of in-role behavior which used a 5-point Likert-type scale where 1 = "Strongly Disagree" to 5 = "Strongly Agree." Overall performance was assessed using a slightly modified version of Motowidlo and Van Scotter's (1994) 3-item measure where 1 = "Low," 4 = "Average" and 7 = "High." Both scales have demonstrated acceptable levels of reliability in previous studies (e.g., .91 and .96, respectively). In this dissertation, the measure of task performance had a Cronbach's alpha of .92, and the measure of overall performance had a Cronbach's alpha of .96.

Supervisor Learning Goal Orientation

Supervisors completed VandeWalle's (1997) 6-item measure assessing learning goal orientation. This measure has been shown to have an acceptable level of reliability (α= .89) and had a Cronbach's alpha of .82 in this dissertation. Items used a 5-point Likert-type scale with 1 = "Strongly Disagree" to 5 = "Strongly Agree."

Control Variables

Ethnicity

Employees were asked to report their ethnicity. Due to the small number of non-whites participants, respondents were coded as either white or non-white for the purpose of statistical analysis (MN = .90, SD = .29). Because biodata is often preferred as a selection tool due to its low risk of adverse impact (Dean, 1999; Reilly & Chao, 1982), it is important to include ethnicity as a demographic variable in order to be able to assess if any adverse impact occurs as a result of the selection tool. Additionally, previous

research suggests that ethnicity may play a role in predicting voice behavior (e.g., LePine & Van Dyne, 1998).

Gender

Employees were asked to report their gender in order to assess if there were gender effects associated with any of the measures (MN = .49, SD = .51). Because gender may be a moderator of biodata (Asher, 1972), it is important to include as a control variable. Additionally, studies examining voice behavior and performance generally control for gender (e.g., Detert & Burris, 2007; LePine & Van Dyne, 1998) as literature suggests that males may be more likely to engage in voice behavior than females.

Organizational Tenure

Research demonstrates that many studies include tenure as a control variable when predicting general proactive behavior (e.g., Fuller et al., 2006; Detert & Burris, 2007). Specifically, some research suggests that employees who have longer tenure may be more comfortable voicing their ideas for improvement (Stamper & Van Dyne, 2001). Therefore, employees were asked to report how many years they have worked for their current employer (MN = 11.50, SD = 8.74).

Education

Previous studies have consistently included education when attempting to predict general proactive behavior (e.g., LePine & Van Dyne, 1998; Fuller et al., 2006; Fuller et al., 2007a). LePine and Van Dyne (1998) suggest that knowledge attained from education is likely to provide an individual with the confidence to engage in voice behavior. Therefore, this variable is included in this study because this study attempts to

predict voice behavior. Employees were asked to report the highest level of education they have attained (i.e., doctoral or professional degree, master's degree, 4-year college degree, 2-year college degree, some college, high school diploma or a GED; MN = 1.78, SD = 1.33).

Biodata Item Generation

Biodata items were generated using a combination of various methods including life history interviews, a focus group, and a review of the literature. While a variety of item generation methods were employed, the overarching goal, which was to develop items based on the voice and taking charge behavior, remained the same. Because Mumford and Owens (1987) suggest life history interviews with incumbents, I conducted interviews with 7 employees who were identified as proactive by their manager. In order to ensure that managers understood what was meant by the term "proactive," I provided them with the following description of a proactive person: someone who is change-oriented, speaks up with solutions, acts without being told, anticipates problems (and is sometimes able to avoid them), and sees problems and fixes them. Interviews with each individual were conducted via telephone and were semi-structured. I prompted each of the employees with the same questions; however, I asked different follow-up questions according to responses. The amount of time for interviews ranged from 20 to 45 minutes.

Employees were first asked questions about some of their previous work experiences. These questions focused on critical incidents of demonstrating voice and taking charge behavior in the workplace. Specifically, employees were asked to give examples in which they had been successful and unsuccessful speaking up with ideas for improvement in the workplace. Also, they were asked to give examples of instances in

which they voluntarily took initiative and were successful in their efforts to bring about positive change. Conversely, employees were asked about situations in which they were unsuccessful in their efforts to bring about positive organizational change. In addition, employees were asked to discuss how they handled a project or work situation which had started off poorly.

Employees were also asked questions about some of their life experiences. Specifically, after prompting each employee to think about experiences during childhood and adulthood, I asked them to discuss times in their lives when they demonstrated voice and taking charge behavior. Also, employees were asked to discuss what they thought gave them the ability to effectively bring about changes. Finally, they were asked to discuss their past or current level of involvement in organizations other than the workplace (e.g., church, community-centered organizations).

Also, in addition to the conducting life history interviews, I conducted a focus group which consisted of 6 graduate students. Prior to meeting with students, they were each given an overview of biodata, as well as a description of how it would be used in this dissertation. The agenda for the focus group was the following: an introduction to biodata, a discussion of characteristics of good versus bad biodata items, the discussion of the use of biodata for the purpose of this dissertation, a discussion of construct definitions and the implications of each for life history, and a discussion the target population (i.e., employees with some work experience). After these discussions, a variety of ideas for items were generated by the group. Finally, after conducting the focus group, I conducted a literature review of voice and taking charge behavior.

Hence, from the life history interviews, focus group suggestions, and literature review, I generated a set of biodata items to predict voice behavior and a set of items to predict taking charge behavior. In addition, several PROBIO items designed to predict voice were adapted from Van Dyne and LePine's (1998) scale which assesses voice behavior. Similarly, several of the PROBIO items designed to predict taking charge were adapted from Morrison and Phelps' (1999) scale which assesses taking charge behavior. Both sets of items were screened by two subject matter experts to ensure content validity as recommended by Mumford and Owens (1987). After making a variety of revisions, a final set of proactivity-related biodata (i.e., PROBIO) items was compiled with a total of twenty-one final items intended to predict voice and twenty-nine to predict taking charge.

Analysis

Biodata Item Scaling

After biodata items have been generated and completed by a set of respondents, the items should be scaled in order to determine which items should remain in the final instrument (Mumford et al., 2007). There is no consensus on the best method of scaling, or keying, biodata items; however, there are four generally accepted approaches to scaling biodata items (Stokes, Mumford, & Owens, 1994; Schmitt, et al., 1999): empirical, rational, factor analytic, and subgrouping. Historically, biodata items were selected and weighted using the empirical method (Hogan, 1994). The use of empirical keying involves assigning weights to each response based on its mean score on the criterion of interest (Mael & Hirsch, 1993: 719). While the method of empirical scoring maximizes predictive efficiency (Mumford et al., 2007), this approach has been heavily criticized (e.g., Mumford & Owens, 1987). The major criticism of the empirical

approach is that it lacks a theoretical rational. In other words, while empirically scored biodata items often demonstrate high predictive validity, there is little explanation as to why the items relate to the criterion of interest (Baehr & Williams, 1967). Also, the empirical method often results in a key which is sensitive to sample-specific characteristics. The rational approach was introduced as a more theoretically-reasoned method of scoring biodata (Mitchell & Klimoski, 1982). Following this approach, items are written specifically to capture manifestations of particular individual differences (Mumford et al., 2007). "Scores on construct-oriented scales are then used to predict performance on various criteria of interest. Thus, constructs, rather than items, serve as predictors in the rational scaling approach" (Mumford et al., 2007: 223). The factor analytic scaling approach is similar to the rational approach and has grown in popularity. It enables researchers to gain an understanding of the interrelationships among items, as well as achieving a parsimonious biodata measure (Schoenfeldt & Mendoza, 1994). The factorial scaling approach, which aids researchers in identifying underlying constructs, is often use when there is no theoretical basis for scaling (Mumford et al., 2007). A variety of studies have shown that factorially derived biodata offer acceptable predictive validity (e.g., Morrison, Owens, Glennon, & Albright, 1962; Morrison, 1977; Schoendeldt, 1999). Finally, the subgrouping approach has emerged as a new approach in which individuals with similar response profiles are grouped together (Hein & Wesley, 1994). Differences in subgroups across certain characteristics are then used to predict differences in performance (Nickels, 1994). However, subgrouping requires a large sample size (i.e., N = 300 to 1,000) which may be problematic. In summary, a variety of approaches are available for scoring biodata measures.

It is not uncommon for researchers to use a combination of approaches when scaling biodata items (Hough & Paullin, 1994). To scale items developed for the PROBIO measure, two of the above approaches were employed. Because items were generated with specific constructs in mind (i.e., voice and taking charge behavior), a rational approach was followed; however, factorial scaling was also used to verify that items loaded on particular constructs.

Principal Components was the method of extraction as it is commonly used for factorial scaling biodata items (e.g., Chait, Carraher, & Buckley, 2000; Schoenfeldt & Mendoza, 1994; Allworth & Hesketh, 1999; Eberhardt & Muchinsky, 1982; Lautenschlager & Shaffer, 1987). Because the objective was to develop theoretically-based biodata scales, Direct Oblimin rotation was used as it is recommended for developing theoretical meaningful scales (Hair, Anderson, Tatham, & Black, 1992). For each set of items, Bartlett's test of sphericity and Kaiser-Meyer Olkin Measure of sampling Adequacy (KMO) were examined prior to factor analysis to ensure the factorability of the intercorrelation matrix. After ensuring the appropriateness of factorability of the items, the scree plot, Eigenvalues, and pattern matrix were examined to determine the appropriate number of underlying factors. Generally, a biodata item is retained if its loading on a factor is .30 or greater (e.g., Morrison et al., 1962; Chait et al., 2000). In this case, items were retained if their item loading exceeded ± .50. In addition, a decision rule was established for cross-loading items. In order for an item to be retained, its highest loading had to be greater than ± .20 from any other loading. If items did not load on factors according to the decision rules established a priori, they were

examined for relevancy and ambiguity, and dropped one at a time. Once factors were determined, reliability analysis using coefficient alpha was conducted.

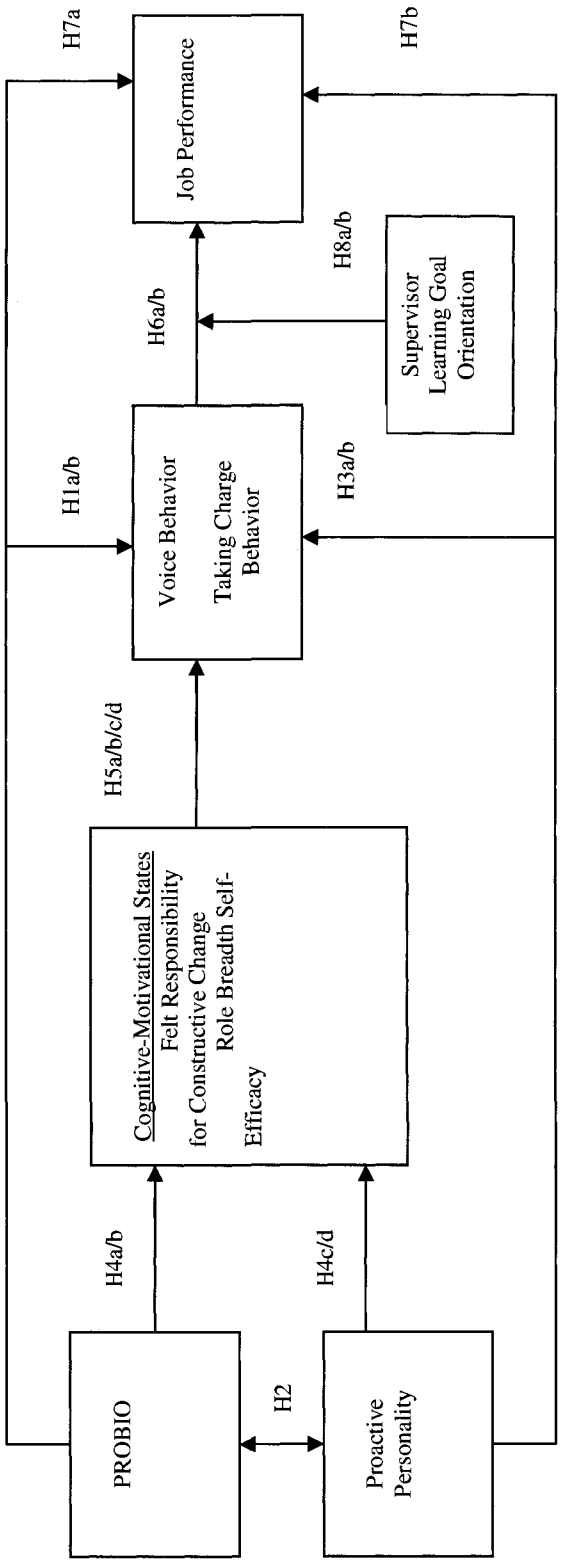
Power Analysis

Because low statistical power often leaves researchers unable to detect meaningful effects in their data (Cashen & Geiger, 2004), a power analysis was conducted to ensure that enough statistical power existed to detect meaningful differences in the data. Statistical power is determined by three elements: level of significance (i.e., alpha), estimated sample size, and effect size (Cohen, 1992). For the present power analysis, the value of alpha was set at the .05 level which is the most commonly used value (Cohen, 1992). A total of 160 data points were included in the final analysis. Finally, to estimate the effect size, I reviewed articles in which proactive personality was examined as a predictor of proactive behavior and job performance and conducted a meta-analysis to estimate the average strength of the relationship between the variables. Assuming a medium effect size, statistical power was at least .80 for each of the following analyses.

Hypothesis Testing

Table 3.3 contains the hypothesized model. To test Hypothesis 2, the correlation table was examined to determine if the PROBIO measure was significantly correlated with proactive personality. For direct effect hypotheses (Hypotheses 1, 3, 4, 5, 6, and 7), hierarchical multiple regression was employed. Specifically, I entered control variables in the first step and independent variable(s) in a block in the second step. By entering the variables in separate steps, I was able to determine whether or not the incremental change in R^2 achieved statistical significance.

Table 3.3 Hypotheses



For hypotheses testing interaction effects (Hypotheses 8a & 8b), I employed moderated regression. In the first step, I entered the control variables. In the second step, I entered the independent variables as a block. Finally, in the third step, I entered the product of the independent variables and the moderator variable. In order to assess the statistical significance of the interaction, I observed whether or not the incremental change in R^2 was significant. Prior to the analysis, the independent variables and interaction term were centered as suggested by Cohen, Cohen, West, & Aiken (2003).

CHAPTER 4

RESULTS

The purpose of this chapter is to present the results of the data analysis described in the previous chapter. Specifically, the results include a discussion of the factorial scaling process used for the PROBIO items, reliability of measures, correlations, meta-analysis, and hypothesis testing.

Results of PROBIO Factorial Scaling

After following a rational approach to item generation, items which were developed to capture manifestations of an employee's past voice and taking charge behavior were administered to current employees of the participating organizations. Following the administration of the PROBIO measure, factorial scaling was used to develop a more parsimonious measure and to further explore subfactors of the PROBIO measure.

Voice Biodata

Bartlett's test of sphericity and Kaiser-Meyer Olkin Measure of sampling adequacy (KMO) were examined prior to factor analysis to ensure the factorability of the intercorrelation matrix. Both of these tests aid in determining the appropriateness of the factor analytic model. Bartlett's test of sphericity tests the null hypothesis that

the sample intercorrelation matrix is an identity matrix (Hair et al., 1992). In other words, it provides an indication that the items are correlated and factor analysis is appropriate. Kaiser-Meyer Olkin Measure of sampling Adequacy examines the amount of variance extracted by the factors. The KMO ranges from 0 to 1, with a desirable level being above .50. For the voice-related PROBIO items, Bartlett's test of sphericity was significant at the .0001 level which rejects the null hypothesis that the sample intercorrelation matrix is an identity matrix. Also, the Kaiser-Meyer Olkin Measure of sampling Adequacy was .88.

After ensuring the appropriateness of factorability of the items, factor analysis was conducted using Principal Components extraction and Direct Oblimin rotation. Eigenvalues, the scree plot, and pattern matrix were then examined. Twenty-one items were initially generated for this scale. The scree plot, Eigenvalues, and pattern matrix all indicated that three factors subsumed most of the variance explained in these items (cumulative variance explained in the Eigenvalues of these three factors was 64.10%). After removing items based on the decision rules described in Chapter 3, sixteen items remained and loaded on three factors (see Table 4.1). *Past Suggestions* (11 items; α = .93) describes a respondent's prior experience engaging in voice behavior in a specific workplace situation. For example, these items inquired about how often an individual made suggestions for workplace improvement to supervisors or how often he or she spoke up in situations in which there is a risk of upsetting interpersonal relationships. *General Voice* (2 items; α = .64) also describes a respondent's past experiences engaging in voice behavior at work; however, these items were more general in nature than items loading on the *Past Suggestions* factor. For example, one item inquired

Table 4.1 PROBIO Items Developed to Predict Voice Behavior

PROBIO Item	Past Suggestions	General Voice	Educational Experience
Eigenvalue	6.96	2.14	1.16
% of Variance	43.48 %	13.38 %	7.24 %
How many times have you made a suggestion to improve your workplace?	**.85**	.02	.01
How many times have you presented an idea for workplace improvement to your *supervisor*?	**.86**	.06	.06
How many times have you presented an idea for workplace improvements to a *coworker*?	**.81**	.29	.18
How many times have you spoken up with suggestions for change in the workplace even though you felt that you might upset interpersonal relationships?*	**.77**	.02	.16
How often have you voiced your ideas to improve procedures in your workplace?	**.76**	-.17	.05
How often have you challenged the status quo (the current way of doing things) at work?	**.76**	-.15	.01
How often have you spoken up with ideas to improve the quality of work life in your organization? *	**.78**	-.01	-.08
How often have you made suggestions to improve workflow in your organization?	**.85**	-.07	-.09

Table 4.1 (Continued)

PROBIO Item	Past Suggestions	General Voice	Educational Experience
How often have you been concerned that your ideas to improve your organization might *not* be successful?	**.71**	.07	-.14
How often has your past work experience given you the confidence to "speak up" with your suggestions in your current workplace?	**.57**	-.29	.11
How often have you given others suggestions about how their work should be done?	**.69**	-.09	-.09
How frequently have you been successful convincing people that you have good ideas?	.01	**.74**	.06
Compared to others, how frequently have you spoken up with suggestions when working in a group?	.07	**.82**	.03
In your educational experience, how often have you brought an instructor's mistake to his/her attention during class?	.06	.21	**.78**
In your educational experience, how often did others at school ask you to be their spokesperson or advocate when speaking to a teacher or administrator?	.01	-.14	**.79**
Relative to other people, how often have you spoken up in a classroom setting in the past?	-.11	-.34	**.68**

* denotes an item that was adapted from Van Dyne and LePine's (1998) measure of voice behavior.

about the frequency of a respondent's past voice behavior compared to others in their workgroup. *Educational Experience* (3 items; $\alpha = .68$) indicated a respondent's past voice behavior in an educational setting. For example, one item asked respondents how frequently an individual had brought a mistake to an instructor's attention during class.

Taking Charge Biodata

For the PROBIO items developed to capture an individual's experiences taking charge in the past, Bartlett's test of sphericity was significant at the .0001 level which rejects the null hypothesis that the sample intercorrelation matrix is an identity matrix. Also, the Kaiser-Meyer Olkin Measure of sampling Adequacy was .81. Twenty-nine items were initially generated for this scale. After removing items based on the decision rules described in Chapter 3, twenty items remained (see Table 4.2) and loaded on five factors which explained 63.28% of the variance in these items. *Past Problem Solving* (7 items; $\alpha = .82$) describes a respondent's prior initiative to take charge and solve problems in the workplace. For example, one item asks a respondent how frequently they have been able to anticipate problems in the past. *Efficiency Improvement* (4 items; $\alpha = .88$) describes a respondent's prior efforts to bring about change to improve efficiency in his or her workplace. *Others' Jobs* (4 items; $\alpha = .78$) describes a respondent's experience taking charge in situations that were the responsibility of others. For instance, one item asks an individual how often s/he has had to "get the ball rolling" when others should have. *Interpersonal Experience* (3 items; $\alpha = .63$) describes some of a respondent's past interpersonal experiences that involve taking charge. For example, one item asks a respondent how often they have stepped into someone else's conflict to offer a solution.

Table 4.2 PROBIO Items Developed to Predict Taking Charge

PROBIO Item	Others' Jobs	Past Problem Solving	Learning	Efficiency Improvement	Interpersonal Experience
Eigenvalue	1.32	2.20	1.27	5.94	1.96
% of variance	6.60%	11.02%	6.30%	29.69%	9.67%
How many times have you given a *coworker* a suggestion for solving a problem?	**-.60**	.02	-.04	.22	.04
How many times have you offered a *supervisor* a suggestion for solving a problem?	**-.71**	.20	-.10	.10	-.08
How many times have you had to "get the ball rolling" on projects when someone else should have?	**-.79**	-.06	.05	.01	.03
How many times have you found yourself taking on tasks that others should have already accomplished?	**-.85**	-.07	.12	-.14	.03
How often have you continued to pursue an idea that was not initially well received?	.08	**.52**	.11	.23	.01
How often have you implemented a new way of doing routine activities in your current workplace?	.01	**.55**	.08	.31	.08
In your work experience, how often have you challenged existing rules with the goal of improvement in mind?*	.03	**.76**	-.03	.12	.01
In your work experience, how often have you ignored existing rules to do a job in a more efficient way?*	-.04	**.65**	.03	-.30	.00

Table 4.2 (Continued)

PROBIO Item	Others' Jobs	Past Problem Solving	Learning	Efficiency Improvement	Interpersonal Experience
In your work experience, how often have you corrected faulty procedures in your organization? *	.04	**.80**	.11	.00	-.04
In your work experience, how often have you eliminated unnecessary procedures in your workplace?*	-.10	**.65**	-.09	.20	.07
In your work experience, how frequently have you been able to - anticipate problems before they occurred?	-.30	**.57**	-.05	-.01	.11
How often have you spent time outside of work to learn new things to better perform your job?	-.06	.08	**.88**	-.02	-.13
How often have you taken the time to learn something new that would benefit your organization?	.04	.04	**.86**	.13	.14
How often have you successfully implemented change in your current workplace?	.00	.27	.05	**.65**	-.09
How often have you improved efficiency within your *job*?*	-.06	.00	.18	**.75**	.05
How often have you improved efficiency within your *department* at work?*	-.16	-.09	.05	**.87**	.04
How often have you improved efficiency within your *organization*?*	-.11	.02	-.01	**.79**	.01

Table 4.2 (Continued)

PROBIO Item	Others' Jobs	Past Problem Solving	Learning	Efficiency Improvement	Interpersonal Experience
How often have you felt that if you wanted something done right, you had to do it yourself?	-19	-.11	.18	-.08	**.72**
When going to dinner with friends, how often have you been the one to make the final decision for the restaurant?	.10	-.04	-.02	.05	**.85**
How often have you stepped into someone else's conflict to offer a solution?	.04	.26	-.18	.01	**.66**

* denotes an item that was adapted from Morrison and Phelps' (1999) measure of taking charge behavior.

Learning (2 items; $\alpha = .80$) describes a respondent's prior efforts to engage in learning which would benefit the organization or improve his or her job performance.

Reliability of Measures

Reliability is the dependability or predictability of a measure (Kerlinger & Lee, 2000). In order to determine the reliability of measures, coefficient alpha was utilized. Table 4.3 presents the level of reliability for each measure used in this study. Each of the previously validated measures demonstrated levels of reliability greater than .80 with the exception of Morrison and Phelps' (1999) measure of felt responsibility for constructive change ($\alpha = .76$). However, the level of reliability for Morrison and Phelps' (1999) measure is similar to that found in other studies (e.g., Fuller et al., 2006, $\alpha = .76$). Of the voice PROBIO factors, *Past Suggestions* was the only to demonstrate a high level of reliability ($\alpha = .93$). *General Voice* and *Educational Experience* had coefficient alphas of .64 and .68, respectively. This result is not surprising because biodata measures have a tendency to demonstrate lower levels of reliability due to the heterogeneous nature of items (Gatewood & Feild, 1990; Owens, 1976). Also, coefficient alpha often falls between .60 and .80 for biodata measures (e.g., Owens, 1976; Mumford & Owens, 1987). Of the five taking charge PROBIO factors, three demonstrated levels of reliability above .80 (i.e., *Past Problem Solving*, *Efficiency Improvement*, and *Learning*). *Others' Jobs* and *Interpersonal Experience* had coefficient alphas of .78 and .63, respectively.

Table 4.3 Reliability of Measures

Measure	Cronbach's Alpha
Voice PROBIO	
Past Suggestions	.93
General Voice	.64
Educational Experience	.68
Taking Charge PROBIO	
Past Problem Solving	.82
Efficiency Improvement	.88
Others' Jobs	.78
Interpersonal Experience	.63
Learning	.80
Proactive Personality	.92
Role Breadth Self-Efficacy	.93
Felt Responsibility for Constructive Change	.76
Voice	.94
Taking Charge	.94
Task Performance	.92
Overall Performance	.96
Supervisor Learning Goal Orientation	.82

Correlations among Study Variables

Table 4.4 presents means, standard deviations, and correlations among the study variables. While significant correlations among study variables ranged from .17 to .87, most variables demonstrated a low to moderate level of correlation which indicates that distinct constructs are being measured (Hair et al., 2006).

The highest correlation which was .87 is not a concern due to the fact that it is between task performance and overall performance which are likely to be related. Additionally, the two general forms of proactive behavior included in the study, voice and taking charge, have a strong positive correlation (i.e., $r = .77$, $p < .01$) which is to not surprising due to the similarity of these behaviors. Correlations among the eight

PROBIO factors ranged from .20 to .62. The highest correlation among the PROBIO factors (i.e., $r = .62$, $p < .01$) was between the voice factor *Past Suggestions* and taking charge factor *Efficiency Improvement*. *Past Suggestions* was also moderately correlated with *Past Problem Solving* and *Others' Jobs* which were taking charge factors (i.e., $r = .54$, $p < .01$; $r = .53$, $p < .01$, respectively). This finding suggests than an individual who has voiced suggestions at work in the past has also engaged in general problem solving, perhaps acting upon some of those suggestions. Also, this finding indicates that previous voice behavior is related to taking initiative in situations involving others at work. Further, one broader explanation for this finding is that individuals who engage in one proactive behavior are likely to engage in others. In addition to the finding that an individual's previous voice behavior correlated with his or her previous taking charge behavior, supervisory evaluations of an individual's voice behavior were related to ratings of taking charge behavior (i.e., $r = .77$, $p < .01$).

The results indicate that two of the three voice factors *Educational Experience* and *General Voice* are positively correlated with voice behavior which provides initial support for Hypothesis 1a. Of the five taking charge factors, *Past Problem Solving* and *Learning* are positively correlated with taking charge behavior; therefore, some support is provided for Hypothesis 1b.

Hypothesis 2, which predicted that PROBIO would be positively related to proactive personality, was tested using correlation analysis. Results indicated that each of the eight PROBIO factors was positively correlated with proactive personality (see Table 4.4).

Table 4.4 Means, Standard Deviations, and Correlations

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Proactive Personality	4.76	1.00	-									
2. FRCC	4.83	1.04	.50**	-								
3. RBSE	3.65	.84	.47**	.44**	-							
4. Voice	4.98	1.24	.05	.15	.25**	-						
5. Taking Charge	3.56	.76	.11	.09	.14	.77**	-					
6. Task Performance	4.08	.65	-.02	.07	.05	.61**	.61**	-				
7. Overall Performance	5.64	1.26	.06	.11	.10	.68**	.72**	.87**	-			
8. Learning Goal Orientation	4.24	.51	.09	.12	.11	.15	.20*	.09	.09	-		
9. PROBIO Past Suggestions	2.25	1.07	.37**	.48**	.36**	.12	.17*	.07	.09	.14	-	
10. PROBIO Educational Experience	1.71	.92	.29**	.25**	.36**	.25**	.16*	.14	.15	.08	.16	-
11. PROBIO General Voice	2.75	.69	.32**	.40**	.47**	.30**	.15	.11	.16*	.20*	.31**	.34**

Table 4.4 (Continued)

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10
12. PROBIO Past Problem Solving	2.21	.63	.47**	.46**	.50**	.28**	.24**	.11	.14	.12	.54**	.31**
13. PROBIO Efficiency Improvement	2.11	1.04	.37**	.44**	.39**	.17*	.15	.06	.10	.06	.62**	.18*
14. PROBIO Others' Jobs	2.61	.98	.30**	.31**	.33**	.18*	.10	.13	.22**	.13	.53**	.15
15. PROBIO Interpersonal Experience	2.60	.78	.34**	.36**	.17*	.09	.05	.04	.07	.04	.16*	.31**
16. PROBIO Learning	2.21	1.22	.21**	.25**	.25**	.20*	.18*	.00	.08	.03	.20*	.19*
17. Gender	.49	.51	-.05	-.09	-.12	.03	.08	.03	.00	-.03	-.21**	-.09
18. Ethnicity	.90	.29	.05	.15	.07	.06	.02	.06	.08	.03	.10	.10
19. Tenure	11.50	8.74	.05	.18*	.03	-.03	.03	-.05	.00	-.06	.20*	-.11
20. Education	1.78	1.33	-.15	-.05	.13	.05	-.08	.01	-.09	.00	-.14	.04

Table 4.4 (Continued)

Variable	Mean	SD	11	12	13	14	15	16	17	18	19	20
21. PROBIO Past Problem Solving	2.21	.63	.53**	-								
22. PROBIO Efficiency Improvement	2.11	1.04	.34**	.48**	-							
23. PROBIO Others' Jobs	2.61	.98	.25**	.32**	.43**	-						
24. PROBIO Interpersonal Experience	2.60	.78	.28**	.27**	.15	.26**	-					
25. PROBIO Learning	2.21	1.22	.23**	.25**	.41**	.21**	.06	-				
26. Gender	.49	.51	-.02	-.15	-.07	-.13	.03	.03	-			
27. Ethnicity	.90	.29	¤	.15	.06	.21*	.10	.12	-.04	-		
28. Tenure	11.50	8.74	-.10	.07	.19*	.10	-.07	-.05	-.09	-.12	-	
29. Education	1.78	1.33	.15	.13	-.04	-.03	.01	.06	-.18*	.12	-.18	-

Note: $N = 152 - 160$. $^{*}p < 0.05$, $^{**}p < 0.01$

Correlations between PROBIO factors and proactive personality ranged from .21 to .47. Of the eight factors, the *Past Problem Solving* factor had the strongest relationship with proactive personality ($r = .47, p < .01$). On the other hand, the *Learning* factor had the lowest correlation with proactive personality ($r = .21, p < .01$). Therefore, results support Hypothesis 2.

Proactive personality was not significantly correlated with either voice or taking charge in this study. This result does not provide support for Hypotheses 3a or 3b. However, proactive personality was positively correlated with both cognitive-motivational states (i.e., FRCC and RBSE) which provides initial support for Hypothesis 4c and 4d. Finally, Hypothesis 7b predicted that proactive personality would be positively related to supervisory evaluations of job performance. However, proactive personality was not significantly correlated with task or overall performance; therefore, the correlation analysis does not lend support for Hypothesis 7b.

All PROBIO factors were positively correlated with FRCC which provides initial support for Hypothesis 4a. Similarly, six of the eight factors were positively correlated with RBSE which provides initial support for Hypothesis 4b. None of the PROBIO factors were significantly correlated with task performance which does not lend support for Hypothesis 7a. However, two of the PROBIO factors were positively correlated with overall performance which provides some initial support for Hypothesis 7a.

Of the two cognitive-motivational states, only RBSE was positively correlated with taking charge behavior. Therefore, Hypothesis 5d does receive some initial support. However, Hypotheses 5a, 5b, and 5c do not receive initial support. Both proactive

behaviors (i.e., voice and taking charge) were positively correlated with task performance as well as overall performance which provides some support for Hypotheses 6a and 6b.

None of the control variables were correlated with any of the outcome variables with the exception of organizational tenure which was positively correlated with FRCC. This finding suggests the longer an individual works for an organization the more responsibility for bringing about positive change the person will feel. Several control variables were correlated with PROBIO factors. Organizational tenure was correlated with *Past Suggestions* and *Efficiency Improvement.* These correlations suggest that the longer an employee's tenure, the more likely it is for that person to have given suggestions for positive change and to have made changes to improve efficiency. Gender was negatively correlated with *Past Suggestions.* Females were coded as "1" and males were coded as "0"; therefore, this correlation suggests that females are less likely to have made suggestions for positive change in the past. Finally, ethnicity was positively correlated with *Others' Jobs.* White participants were coded as 1 and non-white participants were coded as 0; therefore, the white participants were more likely to have taken initiative in a situation that involved another person's job.

Results of Meta-Analysis

Table 4.5 presents the results of the meta-analysis assessing the relationship between proactive personality and proactive behavior. Overall, results indicate that proactive personality is positively related to proactive behavior (p = .33). In the case of studies examining only general proactive behaviors, results indicate a relationship of similar strength (p = .32). Because previous meta-analytic research has demonstrated that correlations between variables tend to be smaller for multi-source research designs than

single-source (e.g., Fuller, Patterson, Hester, & Stringer, 1995), a subgroup analysis based upon type of research design was conducted. However, subgroup analysis based on type of report (i.e., self-report versus other-report) indicates predictive validities smaller in magnitude than that in the overall analysis. The predictive validity for self-report is .37 and decreases to .20 for research designs using other-reports. The confidence intervals of these homogeneous subgroups do not overlap which is an indication of the presence of a moderator as does the Critical Ratio *Z*. Similarly, when the same subgroup analysis is performed for studies examining voice behavior, non-overlapping confidence intervals and the Critical Ratio *Z* indicate that type of report is a moderator of the relationship between proactive personality and general proactive behavior.

Additionally, results indicate that proactive personality is positively related to the two general proactive behaviors examined in this dissertation: voice and taking charge. The Critical Ratio *Z* calculated for these homogeneous subgroups provides an indication of a moderator which suggests that proactive personality may demonstrate different predictive validity depending upon the type of proactive behavior (i.e., voice $p = .20$; taking charge $p = .29$).

Table 4.6 presents the results of the meta-analysis examining the relationship between proactive personality and job performance. Results indicate that proactive personality is positively related to job performance ($p = .33$). While at first glance the relationship between proactive personality and job performance appears to have a moderate effect size, subgrouping the studies by performance measure indicates that the strength of the relationship between proactive personality and job performance may

depend upon the type of measure used to assess performance (i.e., task versus overall). The strongest correlation is between proactive personality and overall job performance (p = .48). On the other hand, the correlation between proactive personality and task performance is the weakest corrected correlation (p = .16). The non-overlapping confidence intervals are an indication of a moderating effect due to the type of measure used to assess job performance. In addition, the Critical Ratio Z indicates the presence of a moderating effect due to the type of performance measure used (i.e., overall versus task). However, when the same subgroup analysis is performed solely on multi-source studies, the confidence intervals overlap. Additionally, the Critical Ratio Z does not support a moderating effect.

Results of Hypothesis Testing

Main effects hypotheses were tested using hierarchical regression analysis, and moderated effects were examined with moderated hierarchical regression analysis. While there was only one significant correlation between the control variables and outcomes variables, the following control variables were included in each analysis based on a theoretical rationale and findings from previous studies: gender, ethnicity, organizational tenure, and education. The control variables were entered in the first step when testing for both main effects and moderating effects. When testing the hypotheses which included PROBIO, separate regressions were conducted for the voice PROBIO factors and taking charge PROBIO factors. Table 4.7 presents results for voice PROBIO factors, and Table 4.8 presents results for taking charge PROBIO factors.

Table 4.5 Meta-Analytic Results for Relationships between Proactive Personality and Proactive Behavior

Variable	*K*	*N*	*r* bar	*p*	Observed Variance	Sample Error Variance	% Variance Accounted	95% Confidence Interval	Fail Safe *N*	Critical Ratio *Z*
Overall	19	6082	.24	.33	.009564	.002784	49%	(.29 .38)	436	
General	15	5639	.24	.32	.004363	.002375	65%	(.28 .35)	341	
Self-report	5	4172	.27	.37	.001211	.001036	100%	(.35 .40)	128	
Other-report	10	1467	.16	.20	.004262	.006535	100%	(.15 .25)	146	6.58[a]
Voice	7	4121	.24	.32	.002577	.001516	79%	(.29 .36)	159	
Self-report	2	3372	.26	.37	.000618	.000518	100%	(.34 .40)	49	
Other-report	5	749	.15	.20	.001678	.006431	100%	(.13 .27)	69	6.70[b]
Other Reports										
Voice	5	749	.15	.20	.001678	.006431	100%	(.13 .27)	69	
Taking Charge	2	241	.24	.29	.000100	.007435	100%	(.18 .41)	46	4.58[c]

Note: *K* = number of studies; *N* = total sample size; *r* bar = average observed effect size; *p* = *r* bar corrected for measurement error in both the predictor and the criterion; Critical Ratio *Z* is a *Z*-score. A value of 1.64 or greater indicates a statistically significant difference, $p < .05$.
[a] = comparison of self-report (*K*=5) and other-report (*K*=10) general proactive behavior subgroups.
[b] = comparison of self-report (*K*=2) and other-report (*K*=5) voice behavior subgroups.
[c] = comparison of voice (*K*=5) and taking charge (*K*=2) other-report subgroups.

Table 4.6 Meta-Analytic Results for Relationships between Proactive Personality and Job Performance

Variable	*K*	*N*	*r* bar	*p*	Observed Variance	Sample Error Variance	% Variance Accounted	95% Confidence Interval	Fail Safe *N*	Critical Ratio *Z*
Job Performance	14	2279	.26	.33	.037116	.005367	16%	(.23 .43)	352	
Overall	6	1278	.37	.48	.035662	.003516	13%	(.33 .63)	216	
Task	5	622	.13	.16	.006751	.007843	100%	(.09 .24)	59	3.75[a]
Multi-Source										
Overall	5	661	.19	.25	.003521	.007071	100%	(.17 .32)	91	
Task	4	553	.15	.20	.003665	.006969	100%	(.12 .28)	55	1.24[b]

Note: *K* = number of studies; *N* = total sample size; *r* bar = average observed effect size; *p* = *r* bar corrected for measurement error in both the predictor and the criterion; Critical Ratio *Z* is a *Z*-score. A value of 1.64 or greater indicates a statistically significant difference, $p < .05$.

[a] = comparison of overall ($K = 6$) and task ($K = 5$) measures of job performance (single source and multi-source).

[b] = comparison of overall ($K = 5$) and task ($K = 4$) multi-source measures of job performance.

Hypothesis 1a predicted that the PROBIO measure would be positively related to voice behavior such that employees who reported more proactive behavior in the past would receive higher supervisory evaluations of voice behavior. Of the three voice PROBIO factors, *General Voice* and *Educational Experience* were positively related to voice behavior ($\beta = .23$, $p < .01$; $\beta = .14$, $p < .10$, respectively). Therefore, Hypothesis 1a was partially supported. Hypothesis 1b predicted that PROBIO would be positively related to taking charge behavior, such that employees who reported more proactive behavior in the past would receive higher supervisory ratings of taking charge. Of the five taking charge PROBIO factors, *Past Problem Solving* and *Learning* were positively related to supervisory evaluations of taking charge behavior. Therefore, Hypothesis 1b was partially supported. Results indicated that *Past Problem Solving* had a stronger relationship with taking charge ($\beta = .26$, $p < .01$) than did *Learning* ($\beta = .20$, $p < .05$).

Hypotheses 3a and 3b predicted that employees high in proactive personality would receive higher evaluations of both voice and taking charge behavior. Results of regression analysis revealed that self-reported proactive personality was not related to supervisory evaluations of voice or taking charge behavior (see Table 4.9). While Hypothesis 3 did not receive support; this result is not surprising considering that the results of the meta-analysis indicated a significantly weaker relationship between proactive personality and proactive behavior when it involved an other report of proactive behavior rather than a self report.

Interestingly, in this study several of the PROBIO factors offered a similar or higher predictive validity compared to the predictive validity of proactive personality in the meta-analysis. *General Voice,* which had a positive relationship with voice behavior

(β = .23, p <.01), demonstrated a higher correlation with voice than did proactive personality in studies using other reports of voice behavior in the meta-analysis (r = .30, p < .01; r bar = .15, respectively). Similarly, *Educational Experience*, which had a positive relationship with voice behavior at the .10 level, also had a stronger correlation with voice behavior compared to the uncorrected correlation for proactive personality (r = .25, p < .01; r bar = .15, respectively). Of the taking charge PROBIO factors, only *Past Problem Solving,* which predicted supervisory ratings of taking charge behavior (β = .26, p <.01), demonstrated a similar relationship with taking charge (r = .24, p < .01) compared to proactive personality. The meta-analysis indicated an uncorrected correlation of .24 for proactive personality when predicting other reports of taking charge behavior. Additionally, when predicting supervisory reports of taking charge behavior, the *Learning* factor had a positive relationship with taking charge (β = .20, p < .05). However, its correlation with taking charge behavior was .18 (p < .05) which is weaker than the uncorrected correlation reported in the meta-analysis.

Hypothesis 4a predicted that PROBIO would be positively related to felt responsibility for constructive change (FRCC), such that employees who reported proactive behavior in the past would report feeling responsible for constructive change in their current organization. Similarly, Hypothesis 4b stated that PROBIO would be positively related to role breadth self-efficacy (RBSE). Results indicated that each of the voice PROBIO factors was positively related to both FRCC and RBSE (see Tables 4.7 and 4.8).

Table 4.7 Results of Hierarchical Regression for Voice PROBIO Factors

PROBIO Subscale	Voice	FRCC	RBSE	Task Performance	Overall Performance
	β	β	β	β	β
Step 1					
Gender	.01	-.03	-.13	.00	-.03
Race	.05	.16†	.10	.07	.10
Tenure	-.03	.17*	.05	-.06	-.02
Education	.02	.01	.10	-.05	-.14†
R^2	.00	.05	.04	.01	.03
Step 2					
Gender	.05	.05	-.04	.02	-.01
Race	-.01	.06	-.02	.05	.07
Tenure	.00	.16*	.05	-.06	-.02
Education	.00	.01	.10	-.04	-.15†
Past Suggestions	.05	.31***	.26***	.10	.05
General Voice	.23**	.29***	.37***	.06	.14
Educational Experience	.14†	.13†	.19**	.04	.05
Change in R^2	.10**	.28***	.35***	.02	.03
F value	2.31*	9.40***	12.36***	.62	1.20
df	(7, 136)	(7, 136)	(7, 135)	(7, 136)	(7, 136)

Note: $p^{\dagger} < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$. The predictor variables are italicized. β is a standardized beta coefficient.

Table 4.8 Results of Hierarchical Regression for Taking Charge PROBIO Factors

PROBIO Subscale	Taking Charge	FRCC	RBSE	Task Performance	Overall Performance
	β	β	β	β	β
Step 1					
Gender	.07	-.03	-.12	.00	-.03
Race	.03	.15†	.10	.07	.10
Tenure	.01	.18*	.05	-.06	-.02
Education	-.11	.00	.09	-.05	-.14†
R^2	.02	.05	.04	.01	.03
Step 2					
Gender	.09	-.02	-.07	.03	-.01
Race	-.04	.08	.01	.03	.04
Tenure	-.01	.15*	-.02	-.07	-.03
Education	-.16†	-.05	.03	-.06	-.16†
Past Problem Solving	.26**	.24**	.44***	.11	.11
Efficiency Improvement	-.08	.21*	.18*	-.05	-.10
Others' Jobs	.05	.00	.12	.18†	.25**
Learning	.20*	.10	.04	-.02	.08
Interpersonal Experience	-.02	.27***	.08	-.03	-.01
Change in R^2	.12**	.29***	.38***	.04	.08†
F value	2.29*	7.56***	10.69***	.73	1.67†
df	(9,133)	(9,133)	(9,132)	(9,133)	(9,133)

Note: $p^{\dagger} < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$. The predictor variables are italicized. β is a standardized beta coefficient.

Table 4.9 Results of Hierarchical Regression for Proactive Personality

	Voice	Taking Charge	FRCC	RBSE	Task Performance	Overall Performance
	β	β	β	β	β	β
Step 1						
Gender	.01	.06	-.03	-.13	-.01	-.03
Race	.05	.03	.16†	.10	.07	.10
Tenure	-.03	.00	.17*	.05	-.06	-.02
Education	.02	-.11	.01	.10	-.05	.14†
R^2	.00	.02	.05	.04	.01	.03
Step 2						
Gender	.01	.06	-.04	-.13†	-.01	-.03
Race	.05	.04	.18*	.16*	.07	.11
Tenure	-.03	.00	.17*	.05	-.06	-.02
Education	.03	-.09	.06	.16*	-.05	-.14
Proactive Personality	.07	.14†	.49***	.55***	.00	.07
Change in R^2	.01	.02	.23***	.30***	.00	.01
F value	.27	1.04	10.75***	13.95***	.30	.90
df	(5, 138)	(5, 138)	(5, 138)	(5, 137)	(5, 138)	(5, 138)

Note: $p^{\dagger} < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$. The predictor variables are italicized. β is a standardized beta coefficient.

Of the voice PROBIO factors, *Past Suggestions* had the strongest relationship with FRCC (β = .31, p <.001), and *General Voice* had the strongest relationship with RBSE (β = .37, p <.001). When predicting RBSE, only two of the taking charge PROBIO factors were significant.

Of the taking charge PROBIO factors,*Interpersonal Experience* had the strongest relationship with FRCC (β = .27, p <.001), and *Past Problem* Solving demonstrated strongest relationship with RBSE (β = .44, p <.001). Therefore, results partially supported Hypotheses 4a and 4b.

Recent research has revealed that proactive personality is positively related to cognitive-motivational states which have been shown to be a proximal predictor of proactive behavior (e.g., Parker et al., 2006; Fuller et al., 2006). Hypotheses 4c and 4d predicted that an employee's self-report of proactive personality would be positively related to his or her self-reported FRCC and RBSE. These results indicated that proactive personality is positively related to both cognitive-motivational states (see Table 4.9). Therefore, Hypotheses 4c and 4d received full support.

Hypotheses 5a and 5b predicted that FRCC would be related to both voice and taking charge behavior, such that employees who reported higher levels of FRCC would receive higher supervisory evaluations of voice and taking charge behavior. Similarly, Hypotheses 5c and 5d predicted that RBSE would be positively related to both forms of proactive behavior. In other words, it was hypothesized the employees who reported higher levels of RBSE would receive higher supervisory evaluations of proactive behavior. While FRCC was neither related to voice nor taking charge behavior (see

Table 4.10), RBSE was positively related to both voice and taking charge (see Table 4.11).

Table 4.10 Results of Hierarchical Regression for Felt Responsibility for Constructive Change (FRCC)

	Voice	Taking Charge
	β	β
Step 1		
Gender	.01	.06
Race	.05	.03
Tenure	-.03	.00
Education	.02	-.11
R^2	.00	.02
Step 2		
Gender	-.02	.07
Race	.02	.02
Tenure	-.06	-.02
Education	.02	-.11
FRCC	.17*	.11
Change in R^2	.03*	.01
F value	.94	.80
df	(5, 138)	(5, 138)

Note: $p^{\dagger} < .10$, * $p < .05$, **$p < .01$, ***$p < .001$. The predictor variable is italicized. β is a standardized beta coefficient.

Table 4.11 Results of Hierarchical Regression for Role Breadth Self-Efficacy (RBSE)

	Voice	Taking Charge
	β	β
Step 1		
Gender	.01	.06
Race	.05	.03
Tenure	-.02	.00
Education	.02	-.11
R^2	.01	.02
Step 2		
Gender	.05	.10
Race	.02	.00
Tenure	-.04	-.01
Education	.02	-.14
RBSE	.33***	.25**
Change in R^2	.10***	.07**
F value	3.33**	2.34*
df	(5, 137)	(5, 137)

Note: $p^{\dagger} < .10$, * $p < .05$, **$p < .01$, ***$p < .001$. The predictor variable is italicized. β is a standardized beta coefficient.

Therefore, Hypotheses 5a and 5b did not receive support, while Hypotheses 5c and 5d were fully supported.

In order to better understand the relationship between managerial perceptions of employee proactive behavior and evaluations of employee performance, the hypothesis that proactive behavior would be positively related to job performance was examined. Specifically, Hypotheses 6a and 6b predicted that voice and taking charge behavior would be positively related to evaluations of job performance, such that employees who received higher supervisory evaluations of proactive behavior would receive higher evaluations of job performance. Two measures were used to capture job performance: a measure of task performance and a measure of overall performance. Table 4.12 and Table 4.13 illustrate that voice and taking charge were positively related to both types of performance fully supporting Hypotheses 6a and 6b.

Hypothesis 7a predicted that PROBIO would be positively related to job performance. In other words, it was hypothesized that employees who reported higher levels of past proactive behavior would receive higher supervisory evaluations of job performance. None of the voice PROBIO factors were positively related to supervisory evaluations of task performance. This result is not surprising considering the results of the meta-analysis which indicate that proactive personality more strongly predicts evaluations of overall performance than task performance (see Table 4.6).

One of the taking charge PROBIO factors had a positive relationship with overall performance (see Table 4.8). Specifically, results indicated that the taking charge PROBIO factor *Others' Jobs* was positively related to overall performance ($\beta = .25$, $p < .01$). However, the overall model and incremental change in R^2 were only significant at

Table 4.12 Results of Hierarchical Regression for Voice Behavior

	Task Performance	Overall Performance
	β	β
Step 1		
Gender	.00	-.03
Race	.07	.10
Tenure	-.06	-.02
Education	-.05	-.14†
R^2	.01	.03
Step 2		
Gender	-.02	-.05
Race	.05	.07
Tenure	-.05	-.01
Education	-.06	-.16*
Voice	.58***	.66***
Change in R^2	.34***	.44***
F value	14.53***	24.11***
df	(5, 138)	(5, 138)

Note: $p^{\dagger} < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$. The predictor variable is italicized. β is a standardized beta coefficient.

Table 4.13 Results of Hierarchical Regression for Taking Charge Behavior

	Task Performance	Overall Performance
	β	β
Step 1		
Gender	-.01	-.03
Race	.08	.10
Tenure	-.06	-.02
Education	-.05	-.14†
R^2	.01	.03
Step 2		
Gender	-.05	-.08
Race	.06	.08
Tenure	-.06	-.07
Education	.02	-.03
Taking Charge	.59***	.70***
Change in R^2	.35***	.49***
F value	15.05***	28.89***
df	(5, 138)	(5, 138)

Note: $p^{\dagger} < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$. The predictor variable is italicized. β is a standardized beta coefficient.

the .10 level. Interestingly, the correlation between *Others' Jobs* and overall performance was stronger than the uncorrected correlation between proactive personality and overall performance ($r = .22$, $p < .01$; r bar = .19, respectively).

However, the overall model and change in R^2 was only significant at the .10 level. Therefore, Hypothesis 7a received partial support. Additionally, Hypothesis 7b stating that proactive personality would be positively related to job performance was not supported.

Results of Moderated Hierarchical Regression Analysis

Hypotheses 8a and 8b predicted that a supervisor's learning goal orientation would moderate the relationship between proactive behavior (i.e., voice and taking charge) and job performance such that for supervisors with a strong learning goal orientation the relationship between proactive behavior and job performance would be stronger. Therefore, moderated hierarchical regression analysis was used to test for the moderating effects of learning goal orientation. The results do not indicate a significant interaction between voice and learning goal orientation when predicting either task performance or overall performance (see Table 4.14). Therefore, Hypothesis 8a did not receive support. Additionally, results did not indicate a significant interaction between taking charge and voice behavior when predicting either task or overall performance (see Table 4.15). Therefore, Hypothesis 8b was not supported.

Post Hoc Analysis

In order to evaluate whether or not the PROBIO factors offered any incremental predictive validity beyond proactive personality, regression analysis was used to examine the relationship between the PROBIO factors and proactive behavior while controlling

for proactive personality. Control variables were entered in the first step, proactive personality in the second step, and PROBIO factors in the third step.

Table 4.14 Results of Moderated Hierarchical Regression for Voice and Learning Goal Orientation (LGO)

	Task Performance	Overall Performance
	β	β
Step 1		
Gender	-.01	-.03
Race	.07	.10
Tenure	-.06	-.02
Education	-.05	-.14
R^2	.01	.03
Step 2		
Gender	-.01	-.04
Race	.05	.07
Tenure	-.05	-.01
Education	-.06	-.16*
Voice	.57***	.66***
Learning Goal Orientation	.04	.01
Change in R^2	.34***	.44***
Step 3		
Gender	-.01	-.05
Race	.05	.07
Tenure	-.04	-.01
Education	-.06	-.16*
Voice	.57***	.66*
LGO	.02	.02
Voice x LGO	-.06	.04
Change in R^2	.00	.00
F value	10.41***	17.06***
df	(7,136)	(7,136)

Note: $p^{\dagger} < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$. The predictor variables are italicized. β is a standardized beta coefficient.

Table 4.15 Results of Moderated Hierarchical Regression for Taking Charge and Learning Goal Orientation (LGO)

	Task Performance	Overall Performance
	β	β
Step 1		
Gender	-.01	-.03
Race	.07	.10
Tenure	-.06	-.02
Education	-.05	-.14†
R^2	.01	.03
Step 2		
Gender	-.05	-.08
Race	.06	.08
Tenure	-.06	-.03
Education	.02	-.07
Taking Charge	.59***	.71***
Learning Goal Orientation	-.01	-.05
Change in R^2	.34***	.49***
Step 3		
Gender	-.04	-.08
Race	.06	.08
Tenure	.06	-.03
Education	.02	-.07
Taking Charge	.57***	.67***
LGO	-.01	-.03
Taking Charge x LGO	.04	.06
Change in R^2	.00	.00
F value	10.62***	20.61***
df	(7,136)	(7,136)

Note: $p^{\dagger} < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$. The predictor variables are italicized. β is a standardized beta coefficient.

Of the voice PROBIO factors, *General Voice* explained additional variance in supervisory evaluations of voice (see Table 4.16). Additionally, *Educational Experience* had a positive relationship with voice at the .10 level ($\beta = .16$, $p = .07$). Of the taking charge PROBIO factors, *Past Problem Solving* and *Learning* also explained additional variance in supervisory evaluations of taking charge (see Table 4.17). The post hoc analysis controlling for proactive personality indicates that PROBIO does have explanatory power beyond that of proactive personality. A summary of all hypotheses is shown in Table 4.18.

Table 4.16 Results of Post Hoc Analysis with Voice PROBIO Factors

	Voice
	β
Step 1	
Gender	.01
Race	.05
Tenure	-.03
Education	.02
R^2	.00
Step 2	
Gender	.01
Race	.05
Tenure	-.03
Education	.03
Proactive Personality	.07
Change in R^2	.09
Step 3	
Gender	.06
Race	-.03
Tenure	.00
Education	-.01
Proactive Personality	-.10
Past Suggestions	.07
General Voice	.25**
Educational Experience	.17†
Change in R^2	.10**
F value	2.15*
df	(8, 135)

Note: $p^{\dagger} < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$. The predictor variables are italicized. β is a standardized beta coefficient.

Table 4.17 Results of Post Hoc Analysis with Taking Charge PROBIO Factors

	Taking Charge
	β
Step 1	
Gender	.07
Race	.03
Tenure	.01
Education	-.11
R^2	.02
Step 2	
Gender	.07
Race	.04
Tenure	.00
Education	-.10
Proactive Personality	.13
Change in R^2	.02
Step 3	
Gender	.09
Race	-.04
Tenure	-.01
Education	-.16†
Proactive Personality	-.04
Past Problem Solving	.28**
Efficiency Improvement	-.08
Others' Jobs	.05
Learning	.21*
Interpersonal Experience	-.01
Change in R^2	.10**
F value	2.07*
df	(10,132)

Note: $p^{\dagger} < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$. The predictor variables are italicized. β is a standardized beta coefficient.

Table 4.18 Summary of Results

	Correlation Analysis	Regression Analysis
Hypothesis 1a: PROBIO will be positively related to voice behavior.	Partially Supported	Partially Supported
Hypothesis 1b: PROBIO will be positively related to taking charge behavior.	Partially Supported	Partially Supported
Hypothesis 2: PROBIO will be positively correlated with proactive personality.	Fully Supported	N/A
Hypothesis 3a: Proactive personality will be positively related to voice behavior.	Not Supported	Not Supported
Hypothesis 3b: Proactive personality will be positively related to taking charge behavior.	Not Supported	Not Supported
Hypothesis 4a: PROBIO will be positively related to felt responsibility for constructive change.	Fully Supported	Partially Supported
Hypothesis 4b: PROBIO will be positively related to role breadth self-efficacy.	Fully Supported	Partially Supported
Hypothesis 4c: Proactive personality will be positively related to felt responsibility for constructive change.	Fully Supported	Fully Supported
Hypothesis 4d: Proactive personality will be positively related to role breadth self-efficacy.	Fully Supported	Fully Supported

(Table 4.18 Continued)

	Correlation Analysis	Regression Analysis
Hypothesis 5a: Felt responsibility for constructive change will be positively related to voice behavior.	Not Supported	Not Supported
Hypothesis 5b: Felt responsibility for constructive change will be positively related to taking charge behavior.	Not Supported	Not Supported
Hypothesis 5c: Role breadth self-efficacy will be positively related to voice behavior.	Fully Supported	Fully Supported
Hypothesis 5d: Role breadth self-efficacy will be positively related to taking charge behavior.	Not Supported	Fully Supported
Hypothesis 6a: Voice will be positively related to job performance.	Fully Supported	Fully Supported
Hypothesis 6b: Taking charge behavior will be positively related to job performance.	Fully Supported	Fully Supported
Hypothesis 7a: PROBIO will be positively related to job performance.	Partially Supported	Partially Supported
Hypothesis 7b: Proactive personality will be positively related to job performance.	Not Supported	Not Supported
Hypothesis 8a: Supervisor learning goal orientation will moderate the relationship between employee voice behavior and supervisor ratings of job performance.	Correlation Analysis	Regression Analysis
Hypothesis 8b: Supervisor learning goal orientation will moderate the relationship between employee taking charge behavior and supervisor ratings of job performance.	N/A	Not Supported

CHAPTER 5

DISCUSSION

The purpose of this chapter is to provide a discussion of the results of this dissertation and their contribution to the extant literature. Additionally, limitations and avenues for future research will be discussed.

Research Findings

The primary purpose of this dissertation was to develop a proactivity-related biodata measure (PROBIO) to predict proactive behavior. The secondary purpose was to explore the relationship of the newly constructed PROBIO instrument with established predictors of proactive behavior: proactive personality and cognitive-motivational states. In order to compare the predictive validity of the newly constructed PROBIO measure with that of proactive personality, a meta-analysis was conducted. Additionally, this dissertation examined the relationship between proactive behavior and managerial evaluations of performance. Finally, in an effort to better understand the proactive behavior/job performance relationship, the moderating effects of supervisor learning goal orientation were examined.

Proactivity-Related Biodata

A proactivity-related biodata measure (PROBIO) was developed to predict proactive behavior based on the general rationale underlying the use of biodata which is that individuals' past behavior provides some indication of what behavior is likely in the future (Childs & Klimoski, 1986; Nickels, 1994; Owens & Schoenfeldt, 1979; Mumford & Owens, 1987). One set of PROBIO items was generated specifically to predict voice behavior, and another set was generated specifically to predict taking charge behavior. Items were generated following the procedures discussed in Chapter 3. Several items in each set were adapted from scales assessing voice and taking charge behavior (i.e., Van Dyne & LePine, 1998; Morrison & Phelps, 1999). A factorial scaling approach resulted in three factors underlying the voice-related PROBIO items: *Past Suggestions, General Voice,* and *Educational Experience.*

Items loading on *Past Suggestions* and *General Voice* related to past workplace experiences. The items which loaded on the *Past Suggestions* factor inquired about the frequency of an individual's previous voice behavior in specific workplace situations such as giving suggestions for workplace improvement to coworkers or supervisors. Similar to *Past Suggestions*, the *General Voice* factor described a respondent's prior voice behavior of a more general nature, rather than in specific situations. Items loading on the *Educational Experience* factor pertained to a respondent's past voice behavior in an educational setting.

There were five factors underlying the taking charge-related PROBIO items (i.e., *Past Problem Solving, Efficiency Improvement, Others' Jobs, Learning,* and *Interpersonal Experience*). The first four factors were related to a respondent's past

behavior and experiences in the workplace. Items loading on the *Past Problem Solving* factor inquired about the frequency of a respondent's prior initiative to take charge or solve problems in the workplace. Items loading on the *Efficiency Improvement* factor pertained to a respondent's prior efforts to bring about change to improve efficiency in his or her workplace. *Others' Jobs* described a respondent's experience taking charge in situations involving others in the workplace. More specifically, these items described how often an individual took charge in situations in which others were responsible for the outcome. *Interpersonal Experience* captured several of a respondent's past interpersonal experiences that involved taking charge. The *Learning* factor described a respondent's prior efforts to engage in learning which would improve his or her job performance or benefit his or her organization.

Antecedents of Proactive Behavior

To provide evidence of the validity of the newly constructed PROBIO measure, its relationship with existing predictors of general forms of proactive behavior (i.e., proactive personality and cognitive-motivational states) was examined. It was hypothesized that PROBIO would be related to proactive personality based on the rationale that someone who has a proactive personality would also have engaged in proactive behavior in the past. As hypothesized, individuals who were high in proactive personality were more likely to have been proactive in the past than more passive individuals.

Of the eight PROBIO factors, each had a low to moderate positive correlation with proactive personality (r =. 21 to .47). Biodata often captures an underlying disposition; therefore, the domain of biodata and temperament may overlap (Mael, 1991).

Thus, low to moderate positive correlations between PROBIO and proactive personality are not surprising given that an individual who has engaged in proactive behavior in the past is also likely to have a proactive tendency. However, this level of correlation suggests that PROBIO is distinct from proactive personality and that the domains of the two measures have a low degree of overlap. In other words, it suggests that the PROBIO measure is capturing the past proactive behavior that has taken place rather than solely capturing an individual's proactive temperament.

Proactive individuals often feel a responsibility to bring about positive change in their workplace and as a result engage in proactive behavior. Results indicated that proactive personality had a positive relationship with the cognitive-motivational states FRCC and RBSE which supports the hypothesized relationships and is consistent with findings in previous research (e.g., Fuller et al., 2006; Parker et al., 2006). Similarly, individuals who reported being proactive in the past according to their responses to the PROBIO measure reported higher levels of both RBSE and FRCC. That is, individuals who had been proactive in the past felt an obligation to bring about meaningful change in their current workplace (i.e., FRCC) and felt that they could effectively do so (i.e., RBSE). Specifically, *Past Suggestions, General Voice,* and *Educational Experience* each had a positive relationship with both cognitive-motivational states (see Table 4.7). This finding suggests that when individuals have voiced suggestions for workplace improvement in various situations, spoken up in the workplace in general, and made suggestions during an educational experience, they are likely to feel responsible for bringing about positive changes in their current organization and feel capable of performing duties outside of their current specified role in the future. The finding that

Past Problem Solving, Efficiency Improvement, and *Interpersonal Experience* predicted FRCC suggests that individuals who have taken the initiative to solve problems in the workplace on their own accord, who took steps to improve efficiency in their job or organization, and who took initiative in interpersonal situations were more likely to feel responsible for making constructive changes in their current workplace. Additionally, *Past Problem Solving* and *Efficiency Improvement* predicted RBSE which suggests that taking initiative in the past leads to a feeling that one is capable of taking initiative in his or her current workplace. These findings support the notion that PROBIO may be useful in the hiring process. The initial results indicate that individuals who have been proactive in the past are likely to experience cognitive-motivational states which have been shown to predict proactive behavior. Therefore, the finding that PROBIO is related to FRCC and RBSE contributes to the existing proactivity literature and has implications for HR practitioners in the selection process.

Proactive Personality Meta-Analysis

In order to establish a benchmark for the predictive validity that the PROBIO measure would need in order to be useful, a quantitative review of the proactivity literature was necessary. Therefore, a meta-analysis was conducted to examine the relationship between proactive personality and proactive behavior as well as proactive personality and job performance. Before comparing the predictive validity of the PROBIO measure to proactive personality, several findings from both meta-analyses merit discussion.

The results of the meta-analysis examining proactive personality and proactive behavior have a variety of implications for researchers in the proactivity area. First, the

strength of the relationship between proactive personality and proactive behavior may be influenced according to whether a self-report or other-report of proactive behavior is employed in a study. The correlation between proactive personality and proactive behavior was weaker for other-reports of proactive behavior (p = .20) than for self-reports (p = .37). Similarly, when considering studies in which proactive personality predicted voice behavior, the correlation between the two variables which was .37 for self-reports of voice behavior decreased to .20 for other reports of voice behavior. Therefore, this is an important finding which may provide guidance for future studies designed to predict proactive behavior. Namely, the use of single source research designs to relate proactive personality with proactive behavior results in substantially larger correlations than when multi-source research designs are used. A second notable finding from the meta-analysis is that proactive personality may predict certain types of proactive behavior better than others. Specifically, proactive personality had a higher predictive validity for taking charge (p = .29) compared to voice (p = .20; Critical Ratio Z = 4.58, $p < .01$) which is an interesting finding because both are general proactive behaviors that may occur across circumstances and within various levels of an organization (Crant, 2000). This finding suggests that researchers should not expect proactive personality to offer an equal predictive validity for all proactive behaviors, even if they are similar.

The meta-analysis examining the relationship between proactive personality and job performance indicates that the predictive validity of proactive personality for job performance may depend upon the type of performance measure being used. The results of the meta-analysis show that proactive personality had a higher predictive validity when an overall measure of performance (p = .48) was being used than when a measure of task

performance was being used (p = .16). This finding may also provide guidance for the design of future studies in which proactive personality is a predictor of job performance. Researchers using proactive personality to predict job performance should note that the use of a measure of task performance, rather than overall performance, may result in a substantially lower correlation.

Predictive Validity of PROBIO

Findings from this study indicate that several PROBIO factors predicted proactive behavior. Individuals who reported speaking up more than others in the workplace were more likely to receive a high supervisory evaluation of voice behavior. Similarly, individuals who reported solving problems in the past and who reported learning specifically to improve their performance were more likely to receive high supervisory ratings of taking charge behavior. Therefore, the results of this dissertation provide initial evidence of the utility of PROBIO as a predictor of proactive behavior.

The results suggest that the voice PROBIO factor *General Voice* offers a higher validity when predicting voice behavior than does proactive personality. *General Voice* was positively correlated with voice (r = .30) and had a beta coefficient of .23 ($p < .01$) when predicting voice behavior. The results of the meta-analysis revealed an uncorrected correlation of .15 between proactive personality and other reports of voice behavior. Therefore, in addition to providing initial evidence of the utility of PROBIO as a predictor of voice behavior, these findings suggest that PROBIO is a better predictor of voice behavior than proactive personality.

Because research has illustrated that biodata offers substantial incremental predictive validity when used in conjunction with other selection tools (e.g., Mount et al.,

2000), a post hoc analysis was conducted to determine whether or not PROBIO offered any incremental predictive validity beyond that accounted for by proactive personality. The post hoc analysis indicated that *General Voice* explained variance beyond that accounted for by proactive personality ($\beta = .25$, $p < .01$). The post hoc analysis also revealed that *Past Problem Solving* and *Learning* explained variance beyond that accounted for by proactive personality ($\beta = .28$, $p < .01$; $\beta = .21$, $p < .05$, respectively). Consequently, this dissertation provides some evidence that the PROBIO measure is even useful when combined with proactive personality. Further, this finding suggests that PROBIO may be useful when used in conjunction with other selection tools such as personality inventories or structured interviews.

A great deal of previous research indicates that biodata offers a high predictive validity for the criterion job performance (Hunter & Hunter, 1984). Therefore, in addition to examining the relationship between PROBIO and proactive behavior, its relationship with supervisory evaluations of job performance was also examined. There was little evidence supporting PROBIO as a predictor of either task or overall performance. However, the PROBIO measure was developed specifically for the purpose of predicting two forms of proactive behavior, voice and taking charge, rather than evaluations of job performance.

Cognitive-Motivational States, Proactive Behavior, and Job Performance

A small amount of research suggests that individuals actually experience cognitive-motivational states which serve as motivation for proactive behavior. An individual's desire to bring about positive changes in the workplace (i.e., FRCC) has been linked to supervisory ratings of voice behavior (Fuller et al., 2006). Similarly, research

reveals that employees who experience a high level of RBSE are more likely to engage in proactive behavior (Parker, 2000). One explanation for this finding is that individuals high in RBSE are confident in their ability to carry out tasks beyond their job definition (Parker, 1998). The results of this dissertation provided some support for the idea that cognitive-motivational states underlie proactive behavior. While the linkage between FRCC and proactive behavior was not supported in this dissertation, RBSE was positively related to supervisory evaluations of both voice and taking charge behavior. Individuals who reported higher levels of RBSE received higher evaluations of both voice and taking charge behavior from their supervisor.

As proactive behavior becomes increasingly important to organizations (Parker et al., 2006; Frese & Fay, 2001; Erdogan & Bauer, 2005), it is likely that this type of active performance will be valued and will result in higher evaluations of job performance. Therefore, one of the objectives of this dissertation was to gain a greater understanding of the relationship between proactive behavior and supervisory evaluations of job performance. The results indicated that proactive behavior was positively related to supervisor evaluations of both task and overall performance. This finding replicates previous research (e.g., Thompson, 2005; Fuller et al., 2006) and provides additional evidence that higher performance evaluations are associated with an employee's proactive behavior.

Drawing from Campbell's (1990) model of performance, supervisors are likely to differ in their evaluations of proactive behavior based upon the utility they attach to such behavior. Therefore, it is likely that supervisor expectations of employees moderate the relationship between proactive behavior and job performance. In this dissertation, the

learning goal orientation of a supervisor was expected to moderate the proactive behavior/job performance relationship. Because a learning goal orientation involves developing competence by acquiring new skills and mastering new situations (VandeWalle & Cummings, 1997: 391), it was expected that supervisors with a learning goal orientation would notice and reward general proactive behavior with higher performance evaluations. However, results did not provide support for the moderating effects of learning goal orientation. One possible explanation for this finding is that an individual's learning goal orientation may not translate into his or her expectations of others to engage in behavior such as voice or taking charge.

Contributions

This dissertation offers several contributions that merit discussion. First, a biodata measure was developed specifically to predict proactive behavior which has become increasingly popular among researchers and desirable to organizations. Interestingly, several of the PROBIO factors in this study offered a similar predictive validity for predicting proactive behavior compared to proactive personality in the meta-analysis. Further, the results indicate that four of the eight PROBIO factors provide incremental predictive validity for proactive behavior as a criterion above that obtained by proactive personality. These findings indicate that biodata is a fruitful area for both researchers and practitioners seeking to predict proactive behavior. In addition to predicting proactive behavior, the PROBIO measure also predicted FRCC and RBSE which are the cognitive-motivational states thought to underlie proactive behavior. Therefore, the PROBIO measure is likely to offer practical utility for HR practitioners seeking to hire individuals who will be proactive in the workplace.

A second notable contribution to the proactivity literature is that the first meta-analytic review of proactive personality was conducted. Results of the proactivity meta-analysis have several implications for research in the area. Findings indicated that the predictive validity of proactive personality may differ based upon the type of proactive behavior chosen as the criterion of interest. As such, when seeking to predict proactive behavior, researchers and practitioners should carefully consider the specific behavior they are seeking to predict. Further, certain behaviors may be considered more proactive than others. For example, because voice involves giving suggestions for workplace improvement, rather than acting on those suggestions, it may be less proactive than a behavior like taking charge which involves an action. In addition, results indicated that the correlation between proactive personality and proactive behavior was significantly higher when the behavior was self-reported rather than provided by another source. This means that research design may play an important role in the results of future research projects that utilize proactive personality as a predictor of proactive behavior. Consequently, researchers expect lower correlations when using self-reported proactive personality as a predictor of proactive behavior reported by another source. Finally, proactive personality demonstrated a significantly lower predictive validity for task performance than for overall performance. This finding further suggests that criterion measures should be carefully selected because proactive personality may be more likely to demonstrate a stronger relationship with evaluations of overall performance.

A third contribution of this dissertation is that the results of the meta-analysis support the use of proactive personality as a selection tool. Le, Oh, Shaffer and Schmidt (2007) note that "findings obtained using meta-analysis have increasingly gained

acceptance in the courts" (p. 9). In their review of the frequency of litigation associated with nine different selection procedures, Terpstra, Mohamed and Kethley (1999) found that selection procedures that were supported by meta-analytic evidence are less likely to be challenged and more likely to prevail in U.S. Federal courts. Le et al. (2007) also note that the use of meta-analysis as the basis for selection systems was upheld in Canada as well (p. 9). Of particular importance, the results indicate proactive personality is a predictor of performance which is robust to varying types of performance measures. In short, the results of this meta-analysis provide the strongest support yet presented in the literature for the use of proactive personality as a selection tool.

Limitations

There are a variety of limitations associated with the study conducted for this dissertation. Participants who completed the survey with biodata items were job incumbents rather than job applicants. Using job incumbents for validation of factorially scaled biodata may be problematic and could lead to scales that are more appropriate for current employees as opposed to job applicants (Mumford et al., 2007: 212). Also, the motivation of job applicants and job incumbents is likely to differ when completing survey. However, in the development of a new selection tool, initial validation with job incumbents enables an organization to develop a valid and reliable selection tool before it is used with job applicants.

Several PROBIO factors demonstrated low levels of reliability in this dissertation. In fact, the most useful PROBIO predictor of voice which was *General Voice* had a low reliability (α = .64). Typically, researchers offer the explanation that biodata measures demonstrate low levels of internal consistency due to their heterogeneous nature

(Gatewood & Feild, 1990; Owens, 1976); however, in this case, items were relatively homogeneous. Also, this factor only contained two items; therefore, the development of additional biodata items for *General Voice* may improve the reliability of this PROBIO measure.

Several characteristics of this study may limit the generalizability of its findings. Data collection was limited to a region within the Southeastern U.S. Therefore, findings from this study may not be generalizable to individuals in other areas of the country. The predominately white sample may also limit the generalizability of these findings. Also, surveys were administered to employees and managers at the same point in time. A longitudinal design may provide greater evidence of the predictive validity of PROBIO as a selection tool. The number of matched data points (N = 160) may be viewed as a limitation by some due to the fact that the analysis involved scale development (Carlson et al., 1999). Finally, because of the non-experimental design of this study, causality within the examined relationships should not be inferred from these findings.

Future Research

Overall, results suggest that biodata is useful in predicting proactive behavior in the workplace. The PROBIO scales developed in this study should be further examined in terms of both validity and reliability. In order to provide additional evidence of the reliability of the newly constructed PROBIO measure, test-retest reliability analysis should be performed in the future. Biodata measures often demonstrate low internal consistency, yet high test-retest reliability (Gatewood & Feild, 1990; Owens, 1976). Also, it is likely that an individual may have a variety of proactive behavior and experiences that are not captured by the current set of items in the PROBIO measure.

Therefore, adding items to the scales developed in this dissertation, as well as exploring other factors underlying a person's past proactive behavior may lead to an improved PROBIO measure which would better predict proactive behavior.

While there was no support for a supervisor's learning goal orientation as a moderator of the relationship between evaluations of proactive behavior and job performance, previous research suggests other unexamined moderators may influence this relationship. For example, an individual's political skill may enable him or her to be proactive in a more effective way. The findings of Chan (2006) suggest that an individual can be more effective in their proactive efforts if they use judgment effectively in various situations. Further, there is a paucity of research examining the potential influence organizational-level and team-level moderators might have on the proactive behavior of employees. Building on the idea that climate may foster innovation (Burningham & West, 1995; Scott & Bruce, 1994), it seems likely that both team-level and organizational-level variables may either foster or deter proactive behavior among employees. For example, organizations with a strong innovation climate may be more likely to foster proactive behavior among their employees.

Finally, the meta-analysis conducted for this dissertation provided additional insight into proactive personality's relationship with both proactive behavior and job performance. However, proactive personality has been studied in conjunction with a variety of other personality traits and dispositional constructs such as the Big Five (Major et al., 2006; Crant & Bateman, 2000), self-esteem (Brown et al., 2006), and self-monitoring (Allen, Weeks, & Moffit, 2005). Also, in addition to being a predictor of job performance, proactive personality also predicts several forms of career success (e.g., Ng,

Eby, Sorensen, & Feldman, 2005). Therefore, conducting a broader proactivity meta-analysis in the future would potentially provide greater insight into the relationship between proactive personality and other constructs. Further, a broad meta-analysis would more clearly establish the nomological network of proactive personality.

APPENDIX A

SURVEY INSTRUMENT

Employee Survey

Proactive Personality (Bateman & Crant, 1993)
1 = Strongly Disagree, 7 = Strongly Agree

1. I am constantly on the lookout for new ways to improve my life.
2. Wherever I have been, I have been a powerful force for constructive change.
3. Nothing is more exciting than seeing my ideas turn into reality.
4. If I see something I don't like, I fix it.
5. No matter what the odds, if I believe in something I will make it happen.
6. I love being a champion for my ideas, even against others' opposition.
7. I excel at identifying opportunities.
8. I am always looking for better ways to do things.
9. If I believe in an idea, no obstacle will prevent me from making it happen.
10. I can spot a good opportunity long before others can.

Role Breadth Self-Efficacy (Parker, 1998)
1 = Not Confident at All, 5 = Very Confident

How confident would you feel?

1. Analyzing a long-term problem to find a solution
2. Representing your work area in meetings with senior management
3. Designing new procedures for your work area
4. Making suggestions to management about ways to improve the working of your section
5. Contributing to discussions about the company's strategy
6. Writing a proposal to spend money in your work area
7. Helping to set targets/goals in your work area
8. Contacting people outside the company (e.g., suppliers, customers) to discuss problems
9. Presenting information to a group of colleagues
10. Visiting people from other departments to suggest doing things differently

Felt Responsibility for Constructive Change (Morrison & Phelps, 1999)
1 = Strongly Disagree, 7 = Strongly Agree

1. I feel a personal sense of responsibility to bring about change at work.
2. It's up to me to bring about improvement in my workplace.
3. I feel obligated to try to introduce new procedures where appropriate.
4. Correcting problems is really not my responsibility. (R)
5. I feel little obligation to challenge or change the status quo. (R)

Supervisor Evaluation of Employee Survey

In-role Performance (Williams & Anderson, 1991)
1 = Strongly Disagree, 5 = Strongly Agree

1. Adequately completes assigned duties
2. Fulfills responsibilities specified in job description
3. Performs tasks that are expected of him/her
4. Meets formal performance requirements of the job
5. Engages in activities that will directly affect his/her performance
6. Neglects aspects of job he/she is obligated to perform (R)
7. Fails to perform essential duties (R)

Overall Performance (Adapted from Motowidlo & Van Scotter, 1994)
1 = Low, 4 = Average, 7 = High

1. How would you rate this employee on his/her overall performance?
2. How does this subordinate perform compared with others of the same rank?
3. How much does this subordinate contribute to unit effectiveness compared to most members of the work unit?

Voice (Van Dyne & Le Pine, 1998)
1 = Strongly Disagree, 7 = Strongly Agree

1. This particular subordinate develops and makes recommendations concerning issues that affect this work group.
2. This particular subordinate speaks up and encourages others in this group to get involved in issues that affect this group.
3. This particular subordinate communicates his/her opinions about work issues to others in this group even if his/her opinion is different and others in this group disagree with him/her.
4. This particular subordinate keeps well informed about issues where his/her opinion might be useful to this work group.
5. This particular subordinate gets involved with issues that affect the quality of life here in this group.
6. This particular subordinate speaks up in this group with ideas for new projects or changes in procedures.

Taking Charge (Morrison & Phelps, 1999)
1 = Very Infrequently, 5 = Very Frequently

1. This person tries to adopt improved procedures for doing his or her job.
2. This person often tries to change how his or her job is executed in order to be more effective.
3. This person often tries to bring about improved procedures for the work unit or department.
4. This person often tries to institute new work methods that are more effective for the company.
5. This person often tries to change organizational rules or policies that are nonproductive or counterproductive.
6. This person often makes constructive suggestions for improving how things operate within the organization.
7. This person often tries to correct a faulty procedure of practice.
8. This person often tries to eliminate redundant or unnecessary procedures.
9. This person often tires to implement solutions to pressing organizational problems.
10. This person often tries to introduce new structures, technologies, or approaches to improve efficiency.

Supervisor Survey

Learning Goal Orientation Scale (VandeWalle, 1997)
1 = Strongly Disagree, 5 = Strongly Agree

1. I often read materials related to my work to improve my ability.
2. I am willing to select a challenging work assignment that I can learn a lot from.
3. I often look for opportunities to develop new skills and knowledge.
4. I enjoy challenging and difficult tasks at work where I'll learn new skills.
5. For me, development of my work ability is important enough to take risks.
6. I prefer to work in situations that require a high level of ability and talent.

APPENDIX B

HUMAN USE COMMITTEE REVIEW

LOUISIANA TECH
UNIVERSITY

OFFICE OF UNIVERSITY RESEARCH

MEMORANDUM

TO: Ms. Laura Marler and Dr. Bryan Fuller

FROM: Barbara Talbot, University Research

SUBJECT: HUMAN USE COMMITTEE REVIEW

DATE: December 4, 2007

In order to facilitate your project, an EXPEDITED REVIEW has been done for your proposed study entitled:

"A Selection Perspective"

HUC-433

The proposed study's revised procedures were found to provide reasonable and adequate safeguards against possible risks involving human subjects. The information to be collected may be personal in nature or implication. Therefore, diligent care needs to be taken to protect the privacy of the participants and to assure that the data are kept confidential. Informed consent is a critical part of the research process. The subjects must be informed that their participation is voluntary. It is important that consent materials be presented in a language understandable to every participant. If you have participants in your study whose first language is not English, be sure that informed consent materials are adequately explained or translated. Since your reviewed project appears to do no damage to the participants, the Human Use Committee grants approval of the involvement of human subjects as outlined.

Projects should be renewed annually. ***This approval was finalized on November 30, 2007 and this project will need to receive a continuation review by the IRB if the project, including data analysis, continues beyond November 30, 2008.*** Any discrepancies in procedure or changes that have been made including approved changes should be noted in the review application. Projects involving NIH funds require annual education training to be documented. For more information regarding this, contact the Office of University Research.

You are requested to maintain written records of your procedures, data collected, and subjects involved. These records will need to be available upon request during the conduct of the study and retained by the university for three years after the conclusion of the study. If changes occur in recruiting of subjects, informed consent process or in your research protocol, or if unanticipated problems should arise it is the Researchers responsibility to notify the Office of Research or IRB in writing. The project should be discontinued until modifications can be reviewed and approved.

If you have any questions, please contact Dr. Mary Livingston at 257-4315.

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