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Elizabeth Anne McGee
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To the Graduate Council:

I am submitting herewith a dissertation written by Elizabeth Anne McGee entitled "An Examination of the Stability of Positive Psychological Capital Using Frequency-Based Measurement." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Industrial and Organizational Psychology.

David J. Woehr, Major Professor

We have read this dissertation and recommend its acceptance:

M. Lane Morris, Joan Rentsch, Eric Sundstrom

Accepted for the Council:
Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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AN EXAMINATION OF THE STABILITY OF POSITIVE PSYCHOLOGICAL CAPITAL USING FREQUENCY-BASED MEASUREMENT

A Dissertation

Presented for the

Doctor of Philosophy Degree

The University of Tennessee, Knoxville

Elizabeth Anne McGee

May 2011

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DEDICATION

I dedicate this dissertation to my mom, Chris Sanford. Your unconditional support, encouragement, and strength have made this all possible. I carry you in my heart always.

ACKNOWLEDGEMENTS

First, I must thank my dissertation chair and advisor, Dave Woehr, for his guidance through this dissertation and throughout my graduate career at UT. Thank you for putting up with the “hope” stuff and helping me successfully complete this dissertation and my degree. I am forever grateful. Additionally, I would like to thank Lane Morris for always being a friend. Your willingness to listen and provide support when needed will never be forgotten. Furthermore, I would like to thank Joan Rentsch and Eric Sundstrom for time they devoted to this project and for their insightful feedback. I would also like to thank all of the professors who allowed me to collect data in their classes – this project truly would not have happened without your willingness to help!

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In addition, I must thank my friends and family for their continuous support. To my family, thank you for always believing in me and cheering me on until the end. To my friends, thank you for providing an escape from the throes of graduate school and bringing me back down to earth. The many hour-long phone calls full of laughter and fun nights of wine and sushi will always be cherished memories. I love you all very much! Lastly, I must thank Tyler Bacon for being by my side and calming me down whenever I was stressing out. I am excited about what the future will bring!

ABSTRACT

The purpose of this study was to explore the utility of frequency-based measurement as an alternative method for examining the stability of psychological capital, a higher-order construct introduced by Luthans and colleagues (2007), consisting of self-efficacy, hope, resilience, and optimism. Frequency-based measurement is a new approach based on the distributional assessment model (Kane, 1986; 2000) that provides information on the relative frequency of occurrence for specific behaviors over a given period of time, and offers a distribution that depicts the scope of an individual's behavior. One advantage of this approach is that it can provide information on a person's behavior over time in a single administration, allowing researchers to examine the temporal stability of constructs without having to conduct longitudinal studies (e.g., personality, Edwards & Woehr, 2007).

To investigate the usefulness of this new approach, a series of studies was conducted using a sample of students from a large southeastern university. The first study compared a frequency-based measure of psychological capital to the more traditional Likert-type measure. Results indicated that the two are equivalent measures of the central tendency of psychological capital. The frequency-based measure was also compared to the Likert-type measure given across three contexts (family, school, and social settings) in a second study. Results indicated that the two approaches offered similar information in terms of consistency, with both approaches demonstrating some variability in responses over time or across contexts. Thus, this study provided further evidence that frequency-based measurement offers additional information not available in a single administration using a Likert-type measure. The last study investigated agreement between an individual's self-reported psychological capital and ratings of their psychological capital given by an acquaintance. Contrary to my expectations, within-item consistency did not moderate self/other agreement. The implications of these findings are outlined, in addition to suggestions for future research.

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CHAPTER 1

Introduction

Positive organizational behavior (POB) is an area that has gained much attention in recent years. Fred Luthans first wrote about the meaning of and need for POB in a 2002 article, where he detailed how the positive psychology movement could be applied to the workplace, and how its application could help "develop and improve leader effectiveness and employee performance" (p.697). Luthans (2002a) defined POB as "the study and application of positively oriented human resource strengths and psychological capacities that can be measured, developed, and effectively managed for performance improvement in today's workplace" (p. 59). To emphasize the unique contribution of this new approach, Luthans included certain criteria in his definition; namely, that constructs must be measureable and theory-driven, that they must positively impact organizational performance, and they must be state-like and open to development. This last criterion ruled out stable, trait-like variables and served as a key feature of Luthan's explication of POB.

Since this seminal article, Luthans and colleagues have done much research on the area of POB and have demonstrated its relation to numerous organizationally relevant criteria, including employee well-being (Avey, Luthans, Smith, & Palmer, 2010), organizational citizenship behavior (Avey, Luthans, & Youssef, 2010), and job performance and employee satisfaction (Luthans, Avolio, Avey, & Norman, 2007). They have also identified an explicit set of constructs that can be classified as POB: self-efficacy, hope, resilience, and optimism, which together make up the higher order construct of psychological capital (PsyCap). Luthans and colleagues have defined this higher order construct as "an individual's positive psychological state of development [that] is characterized by: (1) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about succeeding now and in the future; (3) persevering toward goals and, when necessary, redirecting paths to goals (hope) in order to succeed; and (4) when beset by problems and

adversity, sustaining and bouncing back and even beyond (resilience) to attain success" (Luthans, Youssef, & Avolio, 2007, p. 3). They have provided evidence of the psychometric properties of their developed measure of psychological capital and shown that it relates to job performance and satisfaction and accounts for more variance than the four constructs individually (Luthans, Avolio, et al., 2007).

However, a lingering issue with POB and psychological capital is the debate over whether the involved constructs are truly state-like, as Luthans and colleagues assume, or whether they are more stable and trait-like. Luthans and colleagues assert that the constructs are relatively malleable and open to development, and that although they are not momentary states, they are less stable and more open to change than trait-like constructs such as the Big Five personality dimensions and core-self evaluations. Luthans, Avolio, et al. (2007) provided some preliminary empirical evidence of this assertion through comparisons of test-retest reliabilities of the PsyCap measure, core-self evaluations, conscientiousness, and positive emotions, finding that core-self evaluations and conscientiousness were more stable than PsyCap and positive emotions, accordingly. Nonetheless, other research on the four included constructs has presented evidence that they can also be construed as more stable dispositions (e.g., Snyder, 2000; Peterson & Seligman, 2004; Seligman, 1998). Given this quandary, Luthans and colleagues, as well as others, have recently called for research investigating the stability of POB (e.g., Avey, Luthans, & Mhatre, 2008; Wright & Quick, 2009; Wright, 2007). Avey, Luthans, et al. (2008) encouraged researchers to study POB longitudinally to investigate its temporal stability, but noted potential obstacles of doing such research, including the long-term perceived interference in organizations and difficulties in analyzing longitudinal data.

Although Luthans and colleagues used comparisons between psychological capital and personality as evidence of the constructs' state-like nature, the notion of personality as a stable disposition is not fully supported, as evidenced by the "person-situation debate" that has dominated the

personality literature for decades (Fleeson, 2004; Kendrick & Funder, 1988; Mischel, 1968, 2004). This debate stems from the distinction between two perspectives: the person perspective and the situation perspective. The person perspective views personality as a stable predictor of behavior and promotes the study of individual differences. It predicts that a single individual will behave the same across multiple situations based on his or her stable personality. The situation perspective, on the other hand, views the situation as more powerful than the individual in predicting behavior, and postulates that an individual's behavior will vary considerably across situations. Many personality psychologists believe that this debate is coming to an end, and that the empirical issues that fueled the debate have been resolved (Lucas & Donnellan, 2009). Nonetheless, there are still tensions among researchers, as is apparent in the recent series of articles in the *Journal of Research in Personality* (2009). One conclusion that can be drawn, however, is that the issue of temporal stability is worth exploring, not only in the personality domain but also in the area of job performance (e.g., Fisher, 2008) and other constructs relevant to organizational behavior (e.g., interpersonal trust, Fleeson & Leicht, 2006). Funder (2009) argued that personality psychologists should strive to account for within-person variance as well as between-person variance, and stated, "To the extent that stable patterns of within-person variance can be detected, and that remains to be seen, the next order of business will be to ask two questions: Where do these patterns come from? How are they important?" (p. 122).

Frequency-based measurement is one alternative that has been used to investigate the temporal stability of personality (e.g., Edwards & Woehr, 2007). This approach is based on the distributional assessment model (Kane, 1986; 2000), which provides information on the relative frequency of occurrence for specific behaviors over a given period of time, and resultantly offers a distribution that depicts the scope of an individual's behavior. This method allows for the calculation of typical descriptive summary measures including central tendency and variability. Edwards and Woehr (2007) used a frequency-based personality measure to examine within-item variability, which they

treated as a measure of temporal stability within situations. The advantage of this approach is that it can provide information on a person's behavior over time in a single administration. This is especially beneficial in situations where longitudinal studies are not feasible, but researchers are still interested in examining a constructs' temporal stability. Thus, this frequency- based approach could serve as a viable alternative for exploring the temporal stability of the construct of interest in this paper, psychological capital, and hence, the purpose of this paper is to explore the utility of this approach.

In the following sections, the development of positive organizational behavior will be outlined, and the four constructs included as POB will be highlighted, with a focus on how and why these constructs meet the POB criteria. Next, psychological capital will be described, with a focus on the uniqueness of this construct and how previous research has shown it to be relevant to the field of organizational behavior. Third, the issue of consistency will be explored, both in relation to psychological capital and personality. Fourth, frequency-based measurement will be described as a potential way to examine the temporal stability of constructs such as personality and psychological capital in a single administration. Hypotheses and related research questions relevant to the temporal stability of psychological capital and the usefulness of frequency-based estimation will be offered. Finally, drawing on the theoretical overview and with special attention to the hypotheses and research questions of this study, the overarching purpose of this examination will be summarized.

CHAPTER 2

Literature Review

Positive Organizational Behavior

The application of positive psychology to the workplace seems especially fitting in light of today's turbulent environment, where organizations and their employees must continually adapt in order to survive. Although, going back to the Hawthorne studies, there was recognition early on that employee positivity could be linked to performance, this recognition and focus shifted over the years to more negative aspects of organizational behavior and problems in the workplace. Despite the shift in the academic literature, the popular media was resplendent with positively-oriented motivational books (e.g., Norman Vincent Peale's *The Power of Positive Thinking*, Steven Covey's *Seven Habits of Highly Effective People,* and Spencer Johnson's *Who Moved My Cheese*). Luthans (2002a) recognized this differentiation and realized that "the time [had] come to build bridges between the academic OB field and the popular business bestsellers" (p. 58). Thus, he developed the notion of positive organizational behavior (POB), utilizing the strengths of his academic discipline by basing his ideas on theory and research, and helping to contribute to more effective managers and human resources in practice.

Luthans (2002a) defined POB as "the study and application of positively oriented human resource strengths and psychological capacities that can be measured, developed, and effectively managed for performance improvement in today's workplace" (p. 59). He recognized the potential criticism of POB being "old wine in new bottle," given that his definition seems to incorporate other OB concepts such as attitudes, personality, motivation, and leadership, and thus made it a point to emphasize the relative uniqueness of his new construct. Luthans (2002b) also recognized other positive research agendas occurring in tandem with his own, including core-self evaluations (CSE; Judge, Erez, & Bono, 1998; Judge & Bono, 2001) and positive organizational scholarship (POS; Cameron, Dutton, & Quinn, 2003), and emphasized how POB is distinct from these areas. As such, to be considered POB,

Luthans (2002a) articulated that constructs must meet certain criteria: they must be measureable and theory-driven, they must positively impact organizational performance, and they must be state-like and open to development.

The first criterion served to differentiate POB from the popular best-selling business books mentioned above. The second criterion also distinguishes POB from books in the popular media that emphasize personal development, as well as differentiating it from POS, which focuses mainly on constructs such as forgiveness, compassion, and virtue as organizational outcomes in themselves. The third criterion serves as the most important aspect of POB, and "is conceptually perhaps the most critical differentiator with positive psychology per se and the other positively oriented concepts of organizational behavior" (Luthans, 2002b, p. 698). This state-like conception differs from the dispositional, trait-like virtues in positive psychology (e.g., Sandage & Hill, 2001; Seligman, 1999), positively oriented Big Five personality traits (Barrick & Mount, 1991), and positive core-self evaluation traits (Judge & Bono, 2001). Luthans (2002b) argued that this open-to-development criterion is especially important for application and relevancy to leadership effectiveness and employee performance improvement initiatives.

Based on these criteria, Luthans (2002a) initially identified five constructs to be included in POB: self-efficacy, hope, optimism, subjective well-being, and emotional intelligence. Luthans (2002b) introduced resilience as another construct that could be classified as POB, and in later works, it is four constructs, namely, self-efficacy, hope, optimism, and resilience, that stand up against his inclusionary criteria, although other possibilities continue to be offered (e.g., emotional intelligence, creativity, wisdom, humor, authenticity, flow, see Luthans, Youssef, et al., 2007). The theoretical background and rationale for why each of these constructs was chosen will now be presented.

Self-Efficacy

Self-efficacy, also referred to as confidence by Luthans (2002a; 2002b), has been argued to be the best match in terms of the POB criteria, and has the most extensive theoretical foundation and research support of all of the POB constructs. Self-efficacy is most often defined as a person's perception or belief of "how well one can execute courses of action required to deal with prospective situations" (Bandura, 1982, p. 122). A more applicable definition for POB comes from a well-known meta-analysis, in which self-efficacy was defined as "an individual's conviction (or confidence) about his or her abilities to mobilize the motivation, cognitive resources, and courses of action needed to successfully execute *a specific task within a given context*" (Stajkovic & Luthans, 1998, p. 66, italics added for emphasis). These definitions highlight the domain specificity of self-efficacy, which is a manifestation of the state-like nature in which it has primarily been supported (Bandura, 1997) and measured (e.g., Maurer & Pierce, 1998; Parker, 1998). Bandura (1997) also explicitly identified how self-efficacy can be developed (e.g., vicarious learning and modeling, mastery experiences, social persuasion), and there are a multitude of studies demonstrating its trainability in the workplace (e.g., Bandura, 2000; Gist, 1989; Gist, Bavetta, & Stevens, 1990). This feature is perhaps what makes self-efficacy such a good match in terms of the POB criteria.

Self-efficacy has also been shown to have a strong positive relationship to work-related performance (Bandura, 1986; 1997). Specifically, a meta-analysis of 114 studies found that self-efficacy had a stronger relationship with work-related performance than other OB constructs such as feedback (Kluger & DeNisi, 1996), goal setting (Wood, Mento, & Locke, 1987), the Big Five personality traits (Barrick & Mount, 1991), and job satisfaction (Judge, Thoresen, Bono, & Patton, 2001). It has also been shown to positively affect goal aspirations and attainment (Bandura, 2000; Bandura & Locke, 2003; Locke & Latham, 1990), and relate to a number of desirable outcomes, including leadership effectiveness (Chemers, Watson, & May, 2000; Luthans, Luthans, Hodgetts, & Luthans, 2001), ethical

decision making (May, Chan, Hodges, & Avolio, 2003; Youssef & Luthans, 2005), creativity (Tierney & Farmer, 2002), and participation in decision making (Lam, Chen, & Schaubroeck, 2002). Additionally, self-efficacy has also been shown to relate to work attitudes across cultures, positively relating to organizational commitment and negatively relating to turnover intentions (Luthans, Zhu, & Avolio, 2006).

Hope

Hope has been identified as the most unique construct included in POB, and although it has not been as thoroughly researched as self-efficacy, it is believed to offer much in the way of contributions to this new area. Snyder and colleagues (Snyder, 1994; Snyder et al., 1991) defined hope as "goal-directed thinking in which people perceive that they can produce routes to desired goals (pathways thinking) and the requisite motivation to use those routes (agency thinking)" (Lopez, Snyder, & Teramoto-Pedrotti, 2003, p. 94). The pathways component of this definition refers to an impression of being able to generate alternative plans to meet goals when impeded, as well as positive self-talk about being able to find these routes. The agency component is motivational and refers to an impression of successful determination in meeting past, present, and future goals. These two components are reciprocal, additive, and positively related, although not the same. Both components are necessary to successfully accomplish goals in one's life, and neither in isolation is sufficient to define hope. Furthermore, accomplishing one's goals involves several iterations of the agency/pathways and pathways/agency assessment throughout the stages of goal-directed behavior, such that hope indicates the collective level of perceived agency and pathways (Snyder et al., 1991).

Although some may question the distinctiveness of hope as a construct, Snyder and colleagues (e.g., Snyder, 2002) have demonstrated the unique contribution of their conceptualization of hope and shown that it has both convergent and discriminant validity. Their research has demonstrated that hope

overlaps with but is distinct from optimism, expectations of success, the wish to exert personal control, self-esteem, problem-solving ability, coping ability, mental health, and both positive and negative affect (Holloren & Snyder, 1990; Sigmon & Snyder, 1990a, 1990b; Snyder et al., 1991). Additional studies have shown that hope has discriminant validity among positive psychological constructs, including optimism, self-efficacy, well-being, and resilience (Bryant & Cvengros, 2004; Carifio & Rhodes, 2002; Luthans & Jensen, 2002; Magaletta & Oliver, 1999; Scioli et al., 1997; Youssef & Luthans, 2007). This determination of the construct validity of hope serves as a critical aspect in including it as POB.

Aside from the clear implications that hope has in the clinical and health fields, there is also growing evidence that it positively impacts academic and athletic performance (Chang, 1998; Curry, Snyder, Cook, Ruby, & Rehm, 1997; Onwuegbuzie & Snyder, 2000). More specifically, an individual's level of hope has been found to relate to goal expectancies, perceived control, and positive affect (Curry et al., 1997). There is also a mounting body of evidence supporting the positive role of hope in the workplace (e.g., Adams et al., 2002; Jensen & Luthans, 2002; Kirk & Koesk, 1995; Larson & Luthans, 2006; Luthans, Avolio, Walumbwa, & Li, 2005; Peterson & Byron, 2008; Peterson & Luthans, 2003; Peterson, Walumbwa, Byron, & Myrowitz, 2009; Simmons & Nelson, 2001; Spencer & Spencer, 1993; Taylor & Brown, 1988; Youssef, 2004; Youssef & Luthans, 2006; Youssef & Luthans, 2007).

More specifically, Peterson and Byron's (2008) recent research found that more hopeful employees, which included sales employees, mortgage brokers, and management executives, have higher job performance, and that the effect remains even after controlling for self-efficacy and cognitive ability. Peterson and Byron also found that management executives with higher hope produced higher quantity and better quality solutions to work-related problems, suggesting that hope may be vital in overcoming obstacles in organizations. Another study examined the impact of CEO positive psychological traits (hope, optimism, and resilience) on transformational leadership and firm performance, and found that more hopeful, optimistic, and resilient leaders are rated as more

transformational which in turn leads to enhanced firm performance(Peterson et al., 2009). Youssef and Luthans (2007) also showed that hope was related to job performance, employee satisfaction, organizational commitment, and work happiness. In fact, among the three positive psychological capacities examined in their study, hope was most strongly related to the work-related outcomes.

Hope also meets the last POB criterion of being state-like and open to development. Although originally developed as a dispositional, trait-like construct, Snyder and colleagues (Snyder et al., 1996) later recognized the potential for hope to also be construed as more state-like, and thus developed a state measure of their original hope scale. Snyder (2000) and colleagues (Snyder et al., 2000) have outlined procedures for developing hope, and Luthans and colleagues (Luthans, Avey, Avolio, Norman, & Combs, 2006; Luthans, Avey, & Patera, 2008) have used these earlier efforts to guide them in their own development of micro-interventions. These approaches include setting challenging "stretch" goals, contingency planning, and reframing goals when necessary to avoid false hope (Luthans, Avey, et al., 2006; Snyder, 2000).

Optimism

Optimism is a term that is commonly used in everyday language, but inadequately understood as a psychological strength. To a layperson, an optimist is seen as a positive thinker who expects good things to happen, while a pessimist expects the worse. Although this superficial understanding is accurate, optimism is much more than just happy thoughts. One common definition that is offered by Seligman (1998) describes optimism as an explanatory style in which individuals attribute positive events to internal, stable, global causes, and attribute negative events to external, unstable, specific causes. In other words, an optimist would see a positive event as the result of his or her actions, with an expectation that these actions would continue to occur in the future and that they would be helpful in handling other situations in his or her life. Although this attribution style can be viewed as a relatively

enduring disposition, Luthans and colleagues recognized that this explanatory process takes place within specific situations, and as such, they view optimism as state-like and open to development, similar to Seligman, whose well-known book is titled *Learned Optimism* (Luthans, Youssef, et al., 2007). Aside from Seligman's attributional definition, there are also other conceptualizations, including Scheier and Carver's (1987) dispositional view of optimism as a personality trait or general tendency of individuals to expect positive events and favorable outcomes to occur in the future more frequently than negative ones. However, this more enduring view of optimism runs counter to the POB criteria of being state-like and open to development, so Luthans and colleagues relied more on Seligman's attributional definition when describing optimism as a POB capacity (Luthans, Youssef, et al., 2007).

Another important caveat is that optimism, as a POB construct, is "not just an unchecked process without realistic evaluation" (Luthans, Avolio, et al., 2007, p. 548). Schneider (2001) called for realistic optimism in which individuals maintain a positive outlook within the constraints of the situation, coupling their hopes and aspirations with a focus on potential opportunities to increase the likelihood of desirable and personally meaningful outcomes. Similarly, Peterson (2000) described "flexible optimism," where a person attempts to appraise the situation and determine if an optimistic explanatory style would be appropriate, based on whether or not the future can be changed by such positive thinking. Luthans, Youssef, et al. (2007) recommend this realistic, flexible optimism as most appropriate within POB, and argue that it "represents a strong lesson in self-discipline, analysis of past events, contingency planning, and preventative care" (p. 96).

Seligman (1998) has shown that optimism has a significant and positive relationship with employee performance when directly applied to the workplace. His comprehensive study at Met Life Insurance found that optimistic insurance agents sold more insurance than pessimistic agents. Luthans and colleagues have also linked optimism to job performance (Luthans et al., 2005; Youssef & Luthans, 2007), job satisfaction, and work happiness (Youssef & Luthans, 2007), as well as leadership authenticity

and effectiveness (Avolio & Luthans, 2006; Jensen & Luthans, 2006; Luthans, Norman, & Hughes, 2006). Similarly, earlier findings found that positive leaders are more interpersonally effective and make higher quality decisions (Staw & Barsade, 1993, also see Wunderley, Reddy, & Dember, 1998). In a recent study, Kluemper, Little, and DeGroot (2009) compared state optimism and trait optimism, and found that state optimism is an important indicator of relevant organizational outcomes, including affective commitment, job satisfaction, task performance and contextual performance. These findings held even after controlling for the effects of positive and negative affect. Thus, these recent efforts linking optimism to workplace performance solidify its inclusion as POB, especially given that optimism clearly fulfills the other POB criteria, including being positive, fairly unique to the OB field, measureable, and capable of being measured and developed for performance improvement (Luthans, 2002a).

Resilience

Resilience is a topic that has received increasing attention in recent years, and as characterized by positive psychology, involves positive coping and adaptation in the face of significant risk or adversity (Masten, 2001; Masten & Reed, 2002). Applying this concept to the workplace, Luthans (2002b) defined resilience as "the positive psychological capacity to rebound, to 'bounce back' from adversity, uncertainty, conflict, failure, or even positive change, progress, and increased responsibility" (p. 702). Although resilience is often described as a reactive process, it can also be viewed as a proactive process in which individuals assess the risks and personal assets that affect employee outcomes (Masten, 2001). Pure risks are defined as any factor that leads to adverse outcomes while having no influence if they are absent (Kraemer et al., 1997). In the workplace, pure risks could include external threats such as economic instability, or internal threats such as harassment or missing an important deadline on a project. Pure personal assets, on the other hand, are defined as any factor that leads to positive outcomes while having no effect if they are not present. In the workplace, pure personal assets could

include promotions, bonuses, recognition, praise, etc. (Masten & Reed, 2002). Luthans, Vogelgesang, and Lester (2006) argued that by increasing an employee's access to knowledge, skills, and/or abilities, or by bolstering their social network, risks can be decreased and personal assets can be increased.

Although resilience is a "just emerging" research topic in the organizational behavior literature, it is particularly relevant given today's turbulent business environment, and thus, Luthans (2002b) found it fitting to include resilience as a POB capacity. Drawing from the clinical and developmental psychology literatures and the extensive theory building that has been done in those disciplines, Luthans (2002b) argued that resilience meets the POB criteria of being open to development (e.g., Bonanno, 2005; Masten, 2001; Masten & Reed, 2002), being measureable (e.g., Block & Kremen, 1996; Wagnild & Young, 1993), and being applicable to performance in the workplace (Coutu, 2002; Harland, Harrison, Jones, & Reiter-Palmon, 2005; Luthans et al., 2005; Luthans, Vogelgesang, & Lester, 2006; Waite & Richardson, 2004; Worline et al., 2002; Zunz, 1998). Furthermore, recent research is mounting and building a case for the importance of resilience in organizations, both theoretically and empirically (e.g., Avolio & Luthans, 2006; Luthans, Avolio, et al., 2007; Luthans et al., 2005; Youssef, 2004; Youssef & Luthans, 2005; Youssef & Luthans, 2007). This importance lies not only at the individual level, but also at the organizational level (e.g., Klarreich, 1998; Worline et al., 2002).

Positive Psychological Capital

After identifying the above four constructs as POB capacities, Luthans and colleagues' continued research efforts led to the identification of positive psychological capital (PsyCap; Luthans, Luthans, & Luthans, 2004; Luthans & Youssef, 2004), which they have described as a higher-order construct made up of the above capacities. They explicated that PsyCap goes beyond the four constructs individually, suggesting that "the whole (PsyCap) may be greater than the sum of its parts (self-efficacy, optimism, hope, and resilience)" (Luthans, Youssef, et al., 2007, p. 19). Their ongoing efforts have continued to

rely on the POB criteria mentioned previously, namely, that PsyCap is positive and uniquely related to the field of organizational behavior, that it is theory and research-based, measurable, state-like or open to development, and related to positive work outcomes (Luthans, 2002a, b). These criteria serve to identify PsyCap as a distinctive construct, especially in comparison to some of the similar areas mentioned earlier, including POS (Cameron et al., 2003) and positively oriented traits, such as CSE (Judge & Bono, 2001) and the Big Five (Barrick & Mount, 1991).

Psychological Capital as a Core Construct

Also important to the recognition of PsyCap as a valid, higher-order construct is evidence of the conceptual independence of the four included constructs, as well as the theoretical commonalities that tie them together. The theoretical backgrounds of each of the four constructs were detailed above, laying the groundwork for their conceptual independence (Bandura, 1997; Luthans & Jensen, 2002; Luthans, Youssef, et al., 2007; Snyder, 2000; 2002). More specifically, research has shown discriminant validity across the individual PsyCap capacities (e.g., see Bryant & Cvengros, 2004; Carifio & Rhodes, 2002; Luthans, Avolio, et al., 2007; Maglaetta & Oliver, 1999) and has demonstrated that each capacity adds unique variance and contributes to PsyCap as a whole. Additionally, both theoretical developments (e.g., see Avolio & Luthans, 2006; Bandura & Locke, 2003; Gillham, 2000; Luthans & Youssef, 2004; Luthans, Avolio, et al., 2007; Snyder, 2000) and budding empirical research on PsyCap (Luthans et al., 2005; Luthans, Avolio, et al., 2007; Youssef, 2004) offer considerable evidence for the convergent validity of the four included constructs.

Luthans, Avolio, et al. (2007) described the underlying commonality among the constructs as the "positive appraisal of circumstances and probability for success based on motivated effort and perseverance" (p. 550). Stated differently, they viewed the common denominator as being represented by a core factor of internalized agency, motivation, perseverance, and success expectancies (Avey et al.,

2010). However, the extent and nature of these influences, mechanisms, and processes varies across the four constructs, making each capacity's contribution unique. Law, Wong, and Mobley (1998) suggested that a second-order factor made up of four constructs, such as PsyCap, is best thought of as being composed of the shared variance between each component. In a recent empirical study, Luthans, Avolio, et al. found preliminary support for PsyCap as a higher-order core construct comprised of self-efficacy, hope, optimism, and resilience, and demonstrated that this higher order factor was a better predictor of job performance and satisfaction than the four individual components.

Additional research has also provided support for the relationship between PsyCap and job performance (Luthans et al., 2005; Luthans, Avey, Clapp-Smith, & Li, 2008; Luthans, Norman, Avolio, & Avey, 2008) and for the relationship between PsyCap and job satisfaction (Luthans, Norman, et al., 2008). Furthermore, studies have shown that it is positively related to employee well-being (Avey, Luthans, Smith, et al., 2010), organizational citizenship behavior (Avey, Luthans, et al., 2008; Avey, Luthans, et al., 2010), emotional engagement (Avey, Wernsing, & Luthans, 2008), authentic leadership (Jensen & Luthans, 2006), and organizational commitment (Luthans & Jensen, 2005; Luthans, Norman, et al., 2008). It has also been shown to be a critical resource in helping employees cope with stressful events or conditions at work (Avey, Luthans, & Jensen, 2009), and is negatively related to organizational cynicism, intentions to quit, and counterproductive work behavior (Avey, Luthans, et al., 2010). Thus, the ever-growing wealth of research on PsyCap demonstrates its usefulness in the area of organizational behavior, as it has been shown to be related to numerous employee attitudinal, behavioral, and performance outcomes.

Psychological Capital as a Malleable Construct

The most important criterion for Luthans and colleagues in developing their PsyCap construct was that the included capacities must be malleable and open to development, and thus they gave it the

label of being "state-like," compared to other constructs (e.g., personality) that are more stable and given the label of "trait-like." It is this criterion that makes PsyCap distinct from other positive research streams such as Judge and Bono's (2001) core-self evaluations (CSEs) and Peterson and Seligman's (2004) signature strengths and virtues (CSVs). Their argument for focusing on malleable constructs was rooted in the reality of today's workforce, which is characterized by high turnover rates and an emphasis on continuous improvement. They argued that more stable traits, such as personality and CSEs, are beneficial to use for recruitment and selection purposes, but that they are not sufficient to sustain a high-quality workforce. They also recognized that there are trait-like constructs (e.g., CSVs) that show some malleability and may be open to development over one's lifespan, but they argued that these constructs are unlikely to change in the short term, and are thus difficult to develop and change in human resource management. Their research on POB and PsyCap focuses on psychological capacities that are more open to development and improvement using relatively brief training interventions, and the utility of such training initiatives has received preliminary support (Luthans, Avey, et al., 2006; Luthans, Avey & Patera, 2008).

In defining psychological capital, Luthans and colleagues (e.g., Luthans & Youssef, 2007; Avey, Luthans, et al., 2010) have argued for a trait-state continuum, in which "state-like" psychological resources are malleable and open to development (e.g., PsyCap), as opposed to "trait-like" constructs that are relatively stable (e.g., CSEs). On the extreme ends of this continuum lie pure positive traits, which are stable over time and across situations (e.g., positive heritable characteristics), and positive states, which are momentary and highly variable (e.g., moods and emotions). Luthans, Avolio, et al. (2007) demonstrated that core-self evaluations and the conscientiousness dimension of the Big Five were more stable than PsyCap, as well as positive emotions, which were the least stable. They determined the degree of stability over time by calculating test-retest reliabilities and making

comparisons among the various constructs, providing preliminary empirical evidence that PsyCap may be "state-like."

It is important to note that Luthans and colleagues' idea of "state-like" focuses on the malleability of constructs and their openness to development. However, the word "state" has somewhat of a negative connotation in our field, and is paired with the notion of instability, and thus, a lack of predictive ability. Further adding to this confusion, an examination of the literature reveals that there are often both state and trait versions of various constructs, including, but not limited to, some of the psychological capital constructs that have already been discussed (e.g., hope and self-efficacy, but also goal orientation, self-esteem, and anxiety). Researchers have postulated that a construct can exist as both a state and a trait, with the trait having a direct effect on the state (e.g., Payne, Youngcourt, & Beaubien, 2007). The distinction between the two is often that the state versions of such constructs typically reflect situationally-specific applications of the trait versions (e.g., state goal orientation is defined as the goal one has *for a given situation*). Thus, such constructs are often defined as being relatively stable, with people demonstrating consistency around a general level that reflects their trait standing on the construct. When the state version of such constructs is introduced, it is argued that a persons' relative standing on the state version will fluctuate around the mean level of the trait version. Based on this argument, people have general levels of hope, for example, but they may have more hope in certain situations than in others, and this variability will be reflected as an interval around their mean level of hope.

Although this variability is seen by some as an indication of a constructs' state-like nature, it may be more accurately viewed as a reflection of a person's general level of consistency, or stability over time and across situations. Research in the personality literature has demonstrated that people vary in their level of consistency, with some people demonstrating greater consistency than others (e.g., Baumeister & Tice, 1988; Baumeister, 1991; Biesanz, West, & Graziano, 1998). Thus, I make the

argument that psychological capital is actually trait-like, and can be defined as a relatively stable, learned characteristic that is malleable through specific developmental efforts. Furthermore, I postulate that the variability in responding to the PsyCap measure reflects a person's consistency, which is an individual difference that warrants attention in our research.

Consistency in Personality

Recognition of within-person variability in personality and the added value this consistency information may bring, in addition to a person's mean level or relative standing on personality traits, has generated considerable research (Baird, Le, & Lucas, 2006; Baumeister & Tice, 1988; Bem & Allen, 1974; Biesanz & West, 2000; Biesanz et al., 1998; Brown & Moskowitz, 1998; Cervone, 2004; Fleeson, 2001, 2007; Fleeson & Leicht, 2006; Fleeson, Malonos, & Achille, 2002; Funder & Colvin, 1991; Mischel & Shoda, 1998). Among these studies, variability and consistency have been defined in a number of ways, but the basic idea is that a particular person behaves differently on different occasions. Fleeson (2001) offered the density-distributions approach to determine these differences, which was based on several earlier approaches (e.g., Buss & Craik, 1983; Epstein, 1979; Funder & Colvin, 1991; Shoda, Mischel, & Wright, 1994). His approach describes personality as "the accumulation of the everyday behavior of an individual" (Fleeson & Leicht, 2006, p. 8) and involves collecting a large sample of a person's behavior that can be used to generate a frequency distribution.

The density distributions approach recognizes the importance of personality states, which Fleeson (2001) defined as descriptive assessments of what a person is doing at the present moment. His approach also hypothesizes that traits are manifest in states. In other words, states are hypothesized to be the form in which traits become present and realized. Thus, this approach suggests that an "individual's 'standing' on a particular trait may be best conceived of as the entire distribution of state

levels rather than just one of the levels" (Fleeson & Leicht, 2006, p. 10). Fleeson argued that what differentiates individuals is their frequencies in each of the states.

Fleeson's research utilizing the density distributions approach (e.g., Fleeson, 2001; Fleeson & Leicht, 2006) has served to delineate and integrate the study of variability and consistency in personality, thus supporting his belief that both sides of the person-situation debate can be correct and that both are necessary to fully explain personality. Specifically, Fleeson (2001) had college students carry Palm Pilots with them for a few weeks and record their current behavior as it related to the Big Five every couple of hours. Fleeson found that the typical participants' distribution was almost as wide as the distribution of all states produced by all participants, meaning that knowing the particular individual who was acting added little information about how he or she was behaving at any given time. Furthermore, the typical participants' distribution was about as wide as the distribution of means across participants, meaning that participants differed from themselves as much as they differed from others. Thus, Fleeson concluded that trait-relevant behavior is much less predictable and more variable than generally believed.

Nonetheless, Fleeson (2001) also found that behavior was highly predictable and highly stable. Although each individual differed significantly over time, they also each had a focal point or tendency around which they differed, and this central point remained stable from week to week. Additionally, individuals varied not only in this central tendency, but also in the size or amount of variability in their distribution. Thus, Fleeson concluded that behavioral variability or consistency is a potentially important part of personality (Berdie, 1969; Eid & Diener, 1999; Fiske, 1961; Larsen, 1989; Nesselroade, 1991). Fleeson and Leicht (2006) applied the density distributions approach to interpersonal trust, and found results similar to those found with the Big Five personality dimensions, providing further support for this approach as a potentially fruitful way to study variability and stability in a delineated and integrated manner.

Another stream of research has focused on searching for moderators of the relationship between personality and performance in order to explain the relatively weak association often found (e.g., Baumeister & Tice, 1988; Bem & Allen, 1974; Biesanz et al., 1998). This approach hypothesizes that accurate measurement of personality requires information on a person's level of a particular trait, as well as whether or not that trait will shape the person's behavior (e.g., Bem & Allen, 1974). This is often referred to as a person's level of traitedness, with more traited individuals demonstrating more consistent behavior related to a particular trait than less traited individuals (Baumeister & Tice, 1988; Baumeister, 1991). Biesanz et al. (1998) examined this consistency in relation to personality, and found that as hypothesized, more traited individuals produced stronger personality-behavior relationships. Specifically, Biesanz et al. found that the level of self/other agreement on the Big Five dimensions of conscientiousness and extraversion was moderated by the individual's response consistency. These results implied that greater levels of consistency of behavior within situations could improve the predictability of the personality dimensions by outside observers.

Yet another approach to examining the relatively low criterion-related validities of personality scales has been to contextualize the items, providing respondents with a common frame of reference. Empirical research has supported the so-called "frame-of-reference effect" and found that contextualizing items does in fact improve the criterion-related validity of personality scales (e.g., Bing, Whagner, Davison, & VanHook, 2004; Holtz, Ployhart, & Dominguez, 2005; Hunthausen, Truxillo, Bauer, & Hammer, 2003; Robie, Schmit, Ryan, & Zickar, 2000; Schmit, Ryan, Stierwalt, & Powell, 1995). This approach recognizes that there are two dimensions to be considered when discussing personality variability/consistency: temporal stability and cross-situational consistency. Temporal stability assesses stability over time, while holding the effect of the situation constant, whereas cross-situational consistency focuses on stability across different situations. Research examining the variability and consistency of personality across contexts has found that while there is significant cross-context

variability, there is also a core of consistency (Robinson, 2009). This finding is in line with Fleeson's (2004) view of traits as distributions of behavior around a fixed central tendency.

Researchers examining contextualized personality have utilized several different approaches. The first, more traditional approach, involves explicitly asking participants to rate their personality across several different contexts. Another approach is similar to the experience sampling methodology used by Fleeson (2001), and involves participants recording their "state" personality levels continuously in a diary while they are actually occupying particular contexts (Heller, Watson, Komar, Min, & Perunovic, 2007). Although this approach generates a wealth of valuable information, it requires participants to respond multiple times a day, often for an extended period of time, which can be especially cumbersome and often impractical. Thus, it would be useful to have a personality assessment system that offers a measure of temporal stability or cross-situational consistency in a single testing administration. As suggested by Edwards and Woehr (2007), frequency-based personality measurement offers a prospective resolution to this problem.

Frequency-Based Measurement

Similar to Fleeson's (2001) conceptualization of personality as a distribution, Kane (1996) defined performance as "the record of outcomes achieved in carrying out a specified job aspect during a specified period" (p. 125). Kane (1986; 2000) developed a measurement system based on this performance distribution that required individuals to report the relative frequency with which specific outcomes or behaviors occurred over a given period of time. Thus, the resulting frequency distribution would depict the apparent range of an individual's behavior, and allow for the derivation of typical descriptive summary measures including central tendency and variability.

Research has demonstrated that individuals are in fact able to recall event frequencies quite accurately and are sensitive to even minute shifts in such frequencies (Cosmides & Tooby, 1996; Kane &

Woehr, 2006; Steiner, Rain, & Smalley, 1993). Cosmides and Tooby (1996) suggested that the greater levels of accuracy and sensitivity detected in frequency-based estimation ratings may be due to the fact that the process mirrors the way in which people naturally encode, store, recall, and process information. Thus, frequency estimation may reduce the cognitive load involved in making assessments by rendering it easier for individuals to recall event frequencies rather than mentally calculating an average trait level across time (as necessitated by Likert-type formats). Researchers have found support for this assertion, indicating that individuals can assess behavioral frequencies with a reasonably high degree of accuracy and thus, frequency-based rating formats may be less susceptible to rating errors than traditional rating formats (e.g., Kane & Woehr, 2006; Woehr & Miller, 1997). Furthermore, researchers have presented evidence that various cognitive heuristic-based biases (e.g., Tversky & Kahneman, 1973; 1974) practically vanish when judgments are made in terms of frequencies rather than probabilities (Gigerenzer, 1991; Sedlmeier, Hertwig, & Gigerenzer, 1998). The major advantage of frequency-based estimation over traditional Likert-type formats, however, is that ratings from frequency-based estimates offer a more complete picture of the underlying trait distribution by allowing for the derivation of within-item variability, which can serve as a metric of temporal stability within situations.

Although the majority of research done on frequency-based estimation has focused on organizational performance appraisal ratings (Deadrick & Gardner, 1997; Jako & Murphy, 1990; Kane, 1986; 1996; 2000; Kane & Lawler, 1979; Steiner et al., 1993; Woehr & Miller, 1997), recent research has begun focusing on other areas of measurement (e.g., Edwards & Woehr, 2007; Fleisher, Woehr, & Edwards, 2007; Fleisher, Woehr, Edwards, & Cullen, 2010). Edwards and Woehr (2007) applied the frequency-based response format to the assessment of personality. Specifically, they assessed the usefulness of employing a frequency-based format as an alternative to Likert-type response formats to attain a measure of temporal stability on the Big Five personality dimensions. They argued that Likert-

type response formats require individuals to generate summative indexes about their personality and the extent to which statements accurately describe their behavior over time. While a four out of five on a Likert-type scale can indicate that a person "agrees" that a statement (e.g., "I am the life of the party") describes his or her behavior, it gives no indication as to the extent to which the individual's behavior may vary over time. Edwards and Woehr contended that the same item stem could be used with a frequency-based response format, and thus, created a frequency-based measure of the Big Five personality dimensions pulled from the International Personality Item Pool (Goldberg, 1999; IPIP, 2008). Examples of the frequency-based and Likert-type items are offered in the Appendix for illustrative purposes. As can be seen from these examples, the frequency-based format asks respondents to estimate the relative frequency to which each of the response categories describes their behavior with regard to the item stem over the past six months. For example, in relation to the "I am the life of the party" item, a person could indicate that this statement was very accurate of their behavior 30% of the time, but neither accurate nor accurate 50% of the time, and very inaccurate 20% of the time.

Edwards and Woehr (2007) operationalized both overall mean performance level and temporal consistency (e.g., within-item variability) based on the distribution indicated by the percentages assigned to each response category. They calculated a weighted mean score for each item by assigning weights to each response category and summing the set of weighted frequency estimates, which resulted in a score from 1 to 5 (the same scale used in the Likert-type response format). Individual's scores on each personality dimension were found by summing the ten items corresponding to each of the five dimensions. Edwards and Woehr also calculated a standard deviation for each item based on the distribution of scores indicated by the frequency estimates. Temporal consistency was operationalized as the mean within-item standard deviation across items measuring a particular personality dimension.

To evaluate the merit of their approach, Edwards and Woehr (2007) compared the psychometric characteristics (e.g., reliability and validity) of the frequency-based personality measurement to that of the more commonly used Likert-type response format. They found that the two formats had similar psychometric properties, but conducted a further study to evaluate whether frequency-based formats added any relevant information to the assessment of personality beyond that offered in a single administration of Likert-type scales. Accordingly, Edwards and Woehr found that the measure of temporal stability obtained via the frequency-based format, which was not available with the Likert-type format, moderated self/other agreement for extraversion, agreeableness, and emotional stability. Thus, by showing that this new response format added to the prediction of external criteria through its moderating effect, Edwards and Woehr demonstrated the value added. Moreover, their results were consistent with earlier research that demonstrated that personality can predict behavior more strongly for more 'traited' individuals who exhibit more behavioral consistency across items and across time (e.g., Baumeister & Tice, 1988; Bem & Allen, 1974; Biesanz et al., 1998).

In a later study, Woehr, Fleisher, Edwards, and Cullen (2010) compared the measure of variability calculated with a frequency-based measure of personality to within-person cross-situational variability collected via numerous administrations of a contextualized Likert-type measure. Their results indicated that the two types of variability offered similar information, with people demonstrating variance in their personality across the various contexts and in reporting their behavior in terms of frequencies. Their results offered support for the recent trend of examining behavioral consistency in addition to mean-level performance (e.g., Fleeson, 2001). Furthermore, they concluded that both frequency-based measurement and contextualized personality measurement offer advantages over traditional single administrations of Likert-type measures that explore only mean-level performance. Frequency-based measurement, however, has the added bonus of offering information on a person's

level of consistency in a single administration, and may help explain variance across contexts, as well as over time.

Summary

In sum, the recent surge of interest in applying positive psychological principles to organizations has prompted further investigation into the nature of these constructs (Avey, Luthans, et al., 2008; Wright & Quick, 2009). However, despite calls for further research investigating the stability of positive organizational behavior, few attempts have been made to empirically explore this issue in the extant literature. The current study contributes to this cause by exploring frequency-based measurement as an alternative to obstacle-laden longitudinal studies, while still investigating the temporal stability of psychological capital. Furthermore, this study adds to the literature by examining the within-item variability of individual's responses on the psychological capital measure and its relation to self/other agreement, examining whether variability moderates the relationship. Specifically, this study investigates how self/other agreement relates to psychological capital, which could offer implications for managers who are deciding which of their employees would benefit from training.

The research questions and hypotheses of this study are presented on the following page. These questions were addressed through a series of studies. The first step was a pilot study to assess the equivalence of an altered version of the psychological capital measure that reframed the items in non-work specific terms. This pilot study was necessary given that the sample consisted of university students who may or may not have had work experience. After this initial test, the main studies of this project were investigated. Namely, in the first study, a frequency-based measure was compared to the more traditional Likert-type measure of psychological capital, addressing the first research question and hypothesis. In Study 2, the frequency-based measure of psychological capital was compared to the Likert-type measure given across three contexts (family, school, and social settings), examining the

second research question and hypotheses. Lastly, in a third study, self/other agreement was examined by comparing an individual's self-reported psychological capital and ratings of their psychological capital given by an acquaintance. This study addressed the third research question and hypothesis. In the chapters that follow, each study will be addressed in turn, with a detailed description of the methods and analyses used in each study, followed by the results, and a discussion of the findings. This will be followed by a general discussion of the entire study, including implications of the findings, as well as limitations and suggestions for future research.

Summary of Research Questions and Hypotheses

The primary goal is to study the viability of a frequency-based measure of PsyCap. Such a measure allows for both an assessment of central tendency and within-individual variability. Consequently, the present study addresses the following research questions and hypotheses:

Research question 1: Does a frequency-based measure of PsyCap provide equivalent measurement of the central tendency of psychological capital as reflected in the traditional Likert-type measure?
Hypothesis 1: A frequency-based measure of PsyCap will be an equivalent measure of the central tendency of psychological capital compared to a Likert-type measure, and will provide similar reliability estimates and relations with the individual measures of the PsyCap constructs (hope, optimism, self-efficacy, resilience).

Research question 2: Does a frequency-based measure of Psycap capture within-individual variability as reflected in the Likert-type measure given over three different contexts?
Hypothesis 2(a): Individual scores on the frequency-based PsyCap measure will have within-item variability and thus demonstrate that they vary over time.
Hypothesis 2(b): Individual scores on the PsyCap measure will vary across administrations of the measure over different contexts (home, school, and social settings).
Hypothesis 2(c): Within-person variability across contexts will be related to within-person variability provided by the frequency-based measure of PsyCap. Specifically, hope standard deviation (SD) across contexts will correlate positively with hope within-item SD (WSD) provided by the frequency-based PsyCap measure; optimism SD across contexts will correlate positively with optimism WSD; self-efficacy SD across contexts will correlate positively with self-efficacy WSD; resilience SD across contexts will correlate positively with resilience WSD; and PsyCap SD across contexts will correlate positively with PsyCap WSD.

Research question 3: Does within-item consistency moderate self/other agreement between an individual's self-reported PsyCap and ratings of their PsyCap given by an acquaintance?
Hypothesis 3: Lower levels of within-item variability will be associated with higher levels of self/other agreement, such that individuals who report more consistent behavior patterns will have higher levels of agreement with others' ratings.

CHAPTER 3

Study 1

Preliminary Pilot Study Findings

Given that the sample used in this study was drawn from university students who may or may not have had significant work experience, a pilot study was necessary to test the equivalence of an altered version of the psychological capital measure that reframed the items in non-work specific terms. All efforts were made to keep the content of the items intact, with only the contextual information removed from each item. In addition, the tense of the items was changed to past tense, and participants were asked to think of themselves in general over the past six months. For example, the item "Right now I see myself as being pretty successful at work" was changed to "I saw myself as being pretty successful in life". The instructions asked participants to rate their level of agreement with the statements using a six-point Likert scale (1 =strongly disagree; 6 = strongly agree). Additional changes necessary to de-contextualize the measure included changing the self-efficacy items entirely, given that the original self-efficacy scale (Parker, 1998) used by Luthans, Avolio, et al. (2007) was specific to the work domain. The new items came from Chen, Gully, and Eden's (2001) general self-efficacy measure. All eight items from this measure were retained for the PsyCap measure, changing the total number of items from 24 to 26. For reference purposes, both the original PsyCap measure and the altered measure are presented in the Appendix.

Participants in the pilot study were university students (N = 55) recruited to participate in return for partial fulfillment of course requirements or extra course credit. There were 23 males and 32 females. The mean age of the participants was 23.45 (SD = 4.75). Participants were emailed a link to an online survey administered using SPSS's mrInterview 3.0 software (SPSS, Inc., 2005). The survey included the altered measure of PsyCap, as well as basic demographic questions (e.g., gender, age, year in

college). Participation was voluntary, all responses were anonymous, and informed consent was obtained from all study participants prior to the completion of the measures.

This purpose of this study was to test the psychometric properties of the altered version of the psychological capital measure. Analyses revolved around typical scale development practices and item analysis. Given that Luthans and colleagues (2007) originally developed the psychological capital measure with great precision and rigor, the goal of this study was to find convergence between their initial developmental findings and my results with the decontextualized measure. Initial analyses for this pilot study included examining estimates of reliability for this new measure and examining mean scores on the items for each of the four subscales and for the PsyCap measure as a whole.

Results offered support for the altered measure of psychological capital. Specifically, reliability estimates for each of the four measures included in the modified PsyCap measure showed that the altered measure demonstrated relatively high levels of internal consistency. The Cronbach's alphas were as follows: self-efficacy (.89); hope (.87); resilience (.83); optimism (.81); and the overall PsyCap (.95). These estimates of reliability mirrored the pattern of results found in Luthans, Avolio, et al.'s (2007) initial developmental research, with some of the estimates found in this study actually being higher than those reported by Luthans and colleagues. However, an examination of the items included in the altered PsyCap measure revealed one problematic item from the resilience subscale: "When I had a setback, I had trouble recovering from it, moving on." This item was initially included in Luthans and colleagues original measure as "When I have a setback at work, I have trouble recovering from it, moving on." This item was reverse scored, which may have contributed to the problems found in this study, and its' deletion led to an increase in reliability for the resilience subscale and the PsyCap measure as a whole. Thus, this item was excluded from analyses for the remaining studies, and all subsequent results are those found with a 25-item measure of psychological capital.

Accordingly, since the preliminary findings from the pilot study provided support for the altered measure of psychological capital, this measure was used in the subsequent studies. The first study, which investigated the utility of using a frequency-based measurement format for assessing PsyCap, will be discussed in the ensuing sections. The goal of this study was to evaluate the usefulness of a frequency-based measurement format in measuring the central tendency of psychological capital as compared to the traditional Likert-type format.

Study 1

This study used a factorial design based on a mixed model. Participants were randomly assigned to the experimental and control groups, and their responses were compared to assess the influence of the treatment condition, following a between-subjects after-only design. The experimental groups completed the frequency-based measure of PsyCap, whereas the control group completed the Likert-type measure. Thus, the influence of the frequency-based measure was examined. However, all participants also completed the individual measures of the PsyCap constructs, and thus, this study also followed a within-subjects design.

Participants and Procedure

Participants in Study 1 were university students (N = 128) recruited to participate in return for partial fulfillment of course requirements or extra course credit. There were 71 males and 57 females. The mean age of the participants was 23.81 (SD = 5.69). To accomplish the goals of this study, participants completed the non-contextualized measure of PsyCap (either frequency-based or Likert), as well as the four measures of the individual constructs. They also completed the demographic questions and a measure of self-monitoring. These measures are discussed in the next section and can be found in the Appendix.

Participants were randomly assigned to one of two conditions. In both conditions, all participants completed the individual measures of the PsyCap constructs (self-efficacy, hope, resilience, and optimism) and the PsyCap measure. However, for the PsyCap measure, participants in one condition completed the measure using the frequency-based format and participants in the other condition used the Likert-type response format. Participants completed these measures through an online survey using SPSS's mrInterview 3.0 software (SPSS Inc., 2005). Participants were emailed a link to the survey, and had to enter their student ID to begin the survey. The software randomly assigned participants to one of the two conditions for the PsyCap measure.

In the Likert-type response format condition, participants were asked to indicate their level of agreement about how accurately each of the statements described them over the past six months using a six-point Likert-type scale (1 = strongly disagree; 6 = strongly agree). A participant's score was obtained by summing their responses to each of the 25 items. Sub-scores were also generated for each capacity (self-efficacy, hope, resilience, and optimism) by summing the responses to the questions for each facet.

In the frequency-based measurement format condition, participants were asked to estimate the relative frequency that each of the three response categories (very inaccurate, neither inaccurate nor accurate, very accurate) reflected their behavior or belief with respect to the item stem over the past six months. Participants were required to assign percentage values to each response level so that the total summed to 100%. The three percentages were combined into a single score for each item. To do this, each response level was assigned a weight (very inaccurate = .01, neither inaccurate nor accurate = .035, very accurate =.06), and each set of weighted percentages was summed. The resulting scores for each item ranged from 1 to 6 (the same scale used with the Likert-response format). Participant's overall PsyCap scores were obtained by summing the 25 items, with sub-scores also generated for each capacity obtained by summing the items from each facet.

Measures

All of the measures employed in this study were drawn from previous research, and thus, have documented support in the literature for their reliability and validity. The complete set of measures can be found in the Appendix.

Psychological Capital

Psychological capital was measured using the altered version of Luthans and colleagues (2007) measure discussed in the pilot study. An initial examination of the reliability of this measure offered supportive results (Cronbach's alpha = .95). Additionally, a frequency-based measure was developed using the item stems from this altered measure. Directions for this frequency-based measure can be found in the Appendix. Furthermore, the main purpose of the first study was to assess the psychometric properties of this new frequency-based measure.

Hope

Hope was measured using Snyder et al.'s (1991) 12-item scale, although only the eight hope items were included, not the four filler items. Snyder et al. (1991) conceptualized hope as having two components: pathways and agency, and accordingly, each component has four items. Participants responding to this scale were asked to rate each item on the extent to which it applied to them, based on a four-point scale, from 1 (definitely false) to 4 (definitely true). Sample items from this scale include "Even when others get discouraged, I know I can find a way to solve the problem," and "I meet the goals that I set for myself." Snyder et al. (1991) reported coefficient alphas for the agency subscale ranging from .71 to .76, and .63 to .80 for the pathways subscale. In this study, the coefficient alpha was .73 for the overall scale.

Optimism

Optimism was measured with Scheier and Carver's (1985) Life Orientation Test, which consists of eight items, plus four filler items. Participants were asked to indicate the extent to which they agree with the items on a scale from 0 (strongly disagree) to 4 (strongly agree). Sample items include, "I always look on the bright side of things," and "If something can go wrong for me, it will" (reverse scored item). Previous research has found an adequate level of internal consistency, coefficient alpha = .76 (Scheier & Carver, 1985). The alpha level in the present study was also .76.

Resilience

Resilience was measured with Wagnild and Young's (1993) 25-item measure. Participants were asked to indicate the degree to which they agree with statements, such as, "I usually take things in stride," and "I usually manage one way or another," on a scale from 1 (strongly disagree) to 7 (strongly agree). This measure has demonstrated reliability, with coefficients consistently above .88 (Wagnild & Young, 1993; Wagnild, 2009). Similarly, in this study, coefficient alpha was .88.

Self-efficacy

Self-efficacy was measured with Chen et al.'s (2001) eight-item measure of generalized self-efficacy. This measure asks participants to indicate the extent to which they agree with the items based on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Sample items include, "I will be able to achieve most of the goals that I have set for myself" and "When facing difficult tasks, I am certain that I will accomplish them." Chen et al. (2001) reported acceptable internal consistency of their measure, with Cronbach's alphas ranging from .85 to .95. In the present study, coefficient alpha was .86.

Self-Monitoring

Self-monitoring was measured using Snyder's (1974) 25-item measure. This scale was originally developed to measure self-observation and self-control guided by situational cues to social appropriateness. It asks participants to consider their personal reactions to a number of different situations, and respond as to whether the statements are true or false as applied to them. Sample items include, "I find it hard to imitate the behavior of other people" and "I may deceive people by being friendly when I really dislike them." Snyder (1974) reported test-retest reliability as being .83. The coefficient alpha in this study was .67.

Analyses

The primary goal of Study 1 was to determine if a frequency-based measure of PsyCap is an equivalent measure of the central tendency of psychological capital, compared to the Likert-type measure. Toward this goal, analyses focused on reliability estimates of scale scores and intercorrelations within and across dimensions for both the PsyCap measure (frequency-based format and Likert-type format) and the individual measures of the PsyCap constructs. Additionally, to assess the possible moderating effect of scale format on these correlations, a multi-sample application of LISREL 8.7 was used to test the equivalence of the two correlation matrices among the PsyCap constructs. These analyses were used to examine hypothesis 1, which stated that a frequency-based measure of PsyCap would be an equivalent measure of the central tendency of psychological capital compared to a Likert-type measure, and would provide similar reliability estimates and relations with the individual measures of the PsyCap constructs (self-efficacy, hope, resilience, and optimism).

Results

Hypothesis 1

Scale-level descriptive statistics for all Study 1 variables are presented in Table 1. Results from this study indicated that using the frequency-based response format, a) all reliability estimates were equal to or greater than .67, and b) reliability estimates derived from the frequency-based response format were similar to, if not better than, those obtained using the Likert-type format. Internal consistency reliability estimates for the PsyCap measure and each of its subscales are presented in Table 2. Furthermore, the frequency-based measure of PsyCap correlated similarly with the individual measures of the PsyCap constructs (self-efficacy, hope, resilience, and optimism), compared to the Likert-type measure. These correlations are presented in Table 3. Additionally, independent sample t-tests were conducted to compare mean scores on the PsyCap subscales in the frequency-based measure and in the Likert-type measure, and results indicated that there were no differences between the two measures. However, the intercorrelations among the subscales differed for a few of the subscales. These correlations, along with the means and standard deviations for each subscale, are presented in Table 4.

Table 1. *Scale-Level Descriptive Statistics (Study 1)*

	N	Mean	Variance	SD	α
PsyCap (Likert)	65	115.85	169.35	13.01	.90
PsyCap (Frequency)	63	118.86	224.31	14.98	.93
Hope	128	26.34	8.6	2.93	.73
Optimism	128	30.31	18.80	4.33	.76
Resilience	128	142.50	202.79	14.24	.88
Self-Efficacy	128	29.46	11.34	3.37	.86
Self-Monitoring	128	12.13	15.92	3.99	.67

Table 2. *Internal Consistency Reliability Estimates for PsyCap Measure and Subscales (SS)*

	Hope SS	Optimism SS	Resilience SS	Self-Efficacy SS	PsyCap
Likert Format (Pilot Study, n=55)	.87	.81	.83	.89	.94
Likert Format (Study 1, n=65)	.85	.76	.72	.85	.90
Frequency Format (Study 1, n=63)	.81	.67	.79	.90	.93
Frequency Format (Study 2, n= 126)	.87	.83	.78	.93	.94
Frequency Format (Study 3, n=249)	.88	.69	.76	.90	.93

Table 3. *Correlations between PsyCap scale (Likert and Frequency) and Individual PsyCap Constructs – (Study 1)*

	Self-Efficacy	Hope	Resilience	Optimism
PsyCap_Likert	.54**	.61**	.55**	.47**
SelfEfficacy_Likert	.52**	.46**	.44**	.27*
Hope_Likert	.44**	.59**	.45**	.36**
Resilience_Likert	.29*	.34**	.45**	.13
Optimism_Likert	.40**	.47**	.39**	.66**
PsyCap_Freq	.48**	.40**	.48**	.50**
SelfEfficacy_Freq	.48**	.29*	.36**	.38**
Hope_Freq	.50**	.43**	.45**	.31*
Resilience_Freq	.41**	.43**	.57**	.25
Optimism_Freq	.26*	.26*	.30*	.77**

**Correlation is significant at the .01 level. *Correlation significant at the .05 level.

Table 4. *Intercorrelations among PsyCap Subscales*

	Mean	SD	Self-Efficacy	Hope	Resilience	Optimism	PsyCap
Self-efficacy							
Likert Format (Pilot)	38.15	5.69	*.89*	.89**	.84**	.73**	.99**
Likert Format (Study 1)	38.00	4.91	*.85*	.91**	.40*	.61**	.99**
Frequency Format	39.02	4.98	*.90*	1.00**	.79**	.79**	1.00**
Hope							
Likert Format (Pilot)	27.18	4.57	.78**	*.87*	.80**	.77**	.98**
Likert Format (Study 1)	27.83	4.36	.77**	*.85*	.36*	.68**	.99**
Frequency Format	29.13	4.19	.87**	*.81*	.65**	.71**	1.00**
Resilience							
Likert Format (Pilot)	22.78	3.79	.72**	.68**	*.83*	.73**	.95**
Likert Format (Study 1)	23.37	3.32	.31*	.28*	*.72*	.42*	.70**
Frequency Format	24.08	3.90	.67**	.52**	*.79*	.74**	.97**
Optimism							
Likert Format (Pilot)	25.07	5.04	.62**	.65**	.60**	*.81*	.93**
Likert Format (Study 1)	26.65	4.08	.49**	.55**	.31*	*.76*	.92**
Frequency Format	26.63	4.32	.61**	.52**	.54**	*.67*	.99**
PsyCap							
Likert Format (Pilot)	113.18	16.64	.91**	.89**	.84**	.81**	*.94*
Likert Format (Study 1)	115.85	13.01	.87**	.87**	.56**	.76**	*.90*
Frequency Format	118.86	14.98	.93**	.90**	.83**	.78**	*.93*

**Correlation is significant at the .01 level. *Correlation significant at the .05 level.
Alphas are in italics along the diagonal. Corrected correlations are presented on the upper half.

To assess the possible moderating effect of scale format on the correlations presented in Tables 3 and 4, a multi-sample application of LISREL 8.7 was used to test the equivalence of the two correlation matrices among the PsyCap constructs. Specifically, the correlations among the PsyCap subscales and the individual measures of the PsyCap constructs for both the Likert format data and the frequency format data were compared, in essence, testing the equivalence of the two correlation matrices. This single omnibus test is beneficial in that it allows multiple fit indices to be provided, as well as allowing for the incorporation of reliability estimates for each of the PsyCap constructs, which provides a test of equivalence that is based on correlations corrected for measurement error. This can be seen in the path diagram presented in Figure 1, where the loadings for each scale are the reliability estimates described previously. The results supported a high level of equivalence across the two matrices (i.e., $\chi^2_{(36)} = 43.51$, *ns*; RMSEA = .06, CFI = .98). In addition to the traditional chi-square based significance test, two additional indices that are less dependent on sample size (Root Mean Square Error of Approximation (RMSEA) and the Comparative Fit Index (CFI)) were also offered. Taken together, the results of this study suggest that a frequency-based measure of psychological capital provides an equivalent assessment of the central tendency of psychological capital compared to the traditional Likert-type measure, offering support for hypothesis 1.

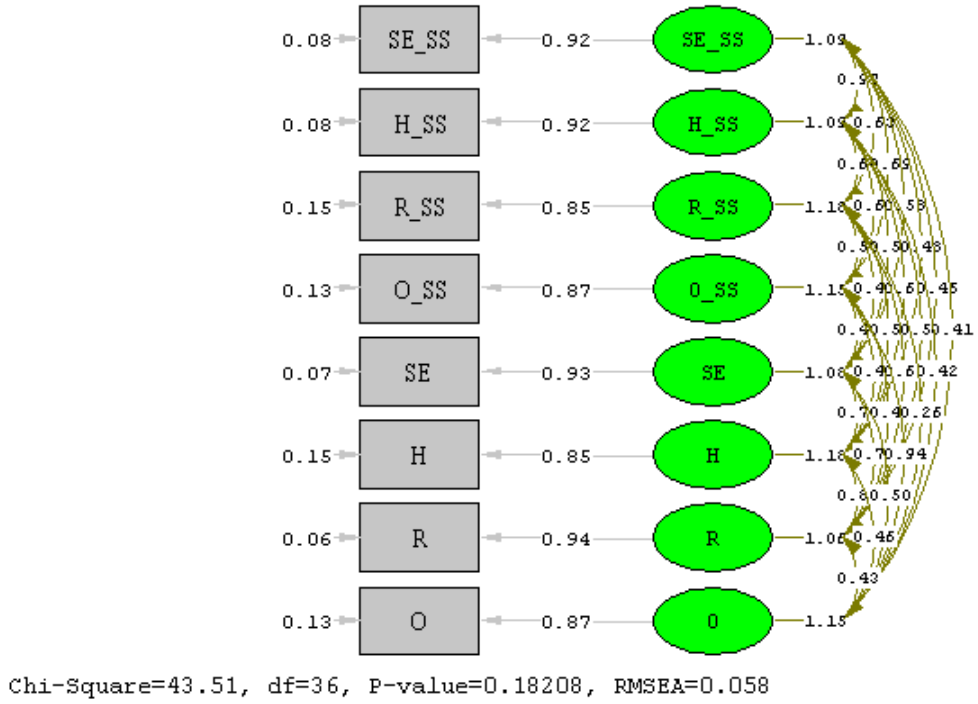

Figure 1. LISREL Path Diagram

Discussion

The hypothesis for Study 1 was supported in that the psychometric properties of the frequency-based format were similar to those of the Likert-type format. Reliability estimates derived from the frequency-based response format were similar to, if not better than, those obtained using the Likert-type format. Furthermore, the frequency-based measure correlated similarly with the individual measures of the psychological capital constructs (self-efficacy, hope, resilience, and optimism), compared to the Likert-type measure. These findings are in line with previous studies that explored the utility of frequency-based measurement and support previous assertions that frequency-based measurement is a valuable alternative (e.g., Edwards & Woehr, 2007). Nonetheless, the real benefit of using frequency-based measurement is the estimation of temporal stability (e.g., within-item, cross-time measure of behavioral consistency). Therefore, the demonstration that the psychometric properties are similar to those obtained using Likert-type response formats is only the first step in demonstrating the usefulness of this new approach. The next step is to examine the additional information provided on behavioral consistency. Thus, the purpose of Study 2 was to examine this additional information in comparison to within-individual variability information gained by administering the Likert-type measure over three different contexts.

CHAPTER 4

Study 2

The primary goal of Study 2 was to compare the within-individual variability information gained from a single administration of a frequency-based measure of PsyCap with the variability information gained from administering the Likert-type measure over three different contexts. This study used a within-subjects after-only design, in that all participants completed all of the measures of interest in this study.

Participants and Procedure

Participants in Study 2 were university students (*N* = 126) recruited to participate in return for partial fulfillment of course requirements or extra course credit. There were 74 males and 52 females. The mean age of the participants was 23.24 (*SD* = 4.42). In this study, participants completed the frequency-based PsyCap measure using the same instructions as those used in Study 1. Additionally, they also completed three Likert-type PsyCap measures applied to different contexts (family, school, and social settings). Scales were administered across two points in time for each participant. The first administration consisted of the demographic questions and the frequency-based measure of PsyCap. Approximately one week after participants completed the first session, participants were emailed the link to the second session, which included the three contextualized PsyCap measures.

Survey administration was counterbalanced in two ways: 1) half of the participants completed the frequency-based PsyCap measure and the demographic questions first, followed by the contextualized measures, while the other half completed the contextualized measures first, followed by the frequency-based PsyCap measure and the demographic questions; and 2) the order of presentation of the contextualized measures (family, school, and social settings) was altered for each participant. Data from the two administrations were linked by having participants sign in using their student ID. This

information was used solely to link data across administrations and assign credit in classes. Once these goals were accomplished, identifying information was deleted from the dataset. Furthermore, no one other than the principal investigator had access to the data.

Measures

The frequency-based PsyCap measure and instructions used in Study 2 were identical to those used in Study 1. The contextualized Likert-type PsyCap measure was administered to each participant three times, each time with different instructions regarding the context to which they were to refer when responding to the items. Respondents were asked to rate their level of agreement with the items using a six-point Likert scale (1 = strongly disagree; 6 = strongly agree). Instructions for each context can be found in the Appendix.

Analyses

Both the frequency-based measure and the Likert-type measure applied to different contexts allowed for an examination of the consistency of PsyCap responses, which was the focus of research question 2. The frequency-based format allows for the measurement of within-item variability, which was calculated following the steps recommended by Kane (1986). First, the standard deviation of the three percentages (i.e., very inaccurate, neither inaccurate nor accurate, very accurate) was calculated for each item, reflecting the distribution implied by the percentages assigned to each category. For example, if percentages were assigned to an item such that the participant implied that 50% of their behavior was not at all accurately described by the item and 50% of their behavior was very accurately described by the item, this would suggest that over 100 different occasions, that person would score a 1 on that item 50 times, and a 6 on that item the other 50 times. Therefore, the standard deviation of that distribution, where half of the scores were 1's and half of the scores were 6's, would reflect the within-

item variability. Next, the mean within-item standard deviation across the items for each subscale was calculated, and this mean within-item standard deviation served as the measure of consistency for each subscale, or dimension, of psychological capital (self-efficacy, hope, resilience, optimism). A mean within-item standard deviation was also calculated across all of the items to offer a measure of consistency for the PsyCap scale as a whole. This analysis allowed for the examination of hypothesis 2(a), which stated that individual scores on the frequency-based measure of PsyCap would have within-item variability, demonstrating that they vary over time.

For the Likert-type measure applied over three different contexts (family, school, and social settings), consistency was assessed using generalizability theory (G theory). G theory offers an alternative to classical test theory and allows for the examination of multiple potential sources of error in a given measure. Here, G theory was used to examine three potential sources of variance: person, item, and context, representing a two-facet crossed person x item x context G-study design. Item and context were the two facets, which were potential sources of error, and person was the object of measurement, which was not considered a source of error due to the fact that people do vary and true score differences are real, systematic, and of profound interest to researchers (Eason, 1991; Kieffer, 1999). This crossed design allowed for the examination of variance associated with each of these factors, as well as their interactions. Of particular interest in this study was the main effect of context, as well as the interaction between person and context, which gave information on the extent to which a participant's score on the PsyCap measure differed from one administration to another. This analysis allowed for the examination of hypothesis 2(b), which stated that individual scores on the PsyCap measure would vary across administrations of the measure over the three different contexts. G theory also provides a summary coefficient, called a generalizability coefficient, which reflects the level of dependability of a measure, similar to a traditional reliability coefficient (Shavelson & Webb, 1991).

To examine hypothesis 2(c), which stated that within-person variability across contexts would be related to within-person variability provided by the frequency-based measure of PsyCap, variability (SD) was calculated at the item level and then aggregated up to the dimension level for each participant. This method is similar to the process used to calculate within-person variability with the frequency-based measure and also allows for the calculation of an estimate of reliability. The correlations between the two measures of variability were then examined to assess their degree of association.

Results

Hypothesis 2(a)

Hypothesis 2(a) postulated that individual scores on the frequency-based measure would have within-item variability, demonstrating that they vary over time. The average within-item variability (SD) for the PsyCap measure as a whole was 1.63, based on a scale from one to six, thus, hypothesis 2(a) was supported. Furthermore, this average variation from the mean for each item did not differ greatly for the four PsyCap subscales, with the mean within-item SD for self-efficacy being 1.60, 1.64 for hope, 1.56 for resilience, and 1.62 for optimism. Table 5 provides descriptive statistics and internal consistency reliability estimates for all study 2 variables.

Table 5. *Descriptive Statistics (Study 2)*

	N	Mean	SD	α
SelfEfficacy_Freq	126	38.70	5.52	0.93
SelfEfficacy_Family	126	38.87	5.37	0.92
SelfEfficacy_School	126	38.44	5.80	0.93
SelfEfficacy_Social	126	38.44	5.53	0.91
SelfEfficacy_Avg	126	38.58	4.74	0.95
Hope_Freq	126	28.59	4.56	0.87
Hope_Family	126	28.86	4.17	0.89
Hope_School	126	28.25	4.38	0.87
Hope_Social	126	28.63	4.37	0.88
Hope_Avg	126	28.58	3.73	0.92
Resilience_Freq	126	23.63	3.90	0.79
Resilience_Family	126	22.79	3.67	0.75
Resilience_School	126	23.13	3.60	0.79
Resilience_Social	126	23.10	3.57	0.74
Resilience_Avg	126	23.01	3.23	0.81
Optimism_Freq	126	26.09	5.36	0.83
Optimism_Family	126	25.78	4.57	0.73
Optimism_School	126	25.67	4.28	0.67
Optimism_Social	126	26.02	4.74	0.77
Optimism_Avg	126	25.82	4.09	0.78
PsyCap_Freq	126	117.01	16.37	0.94
PsyCap_Family	126	116.29	14.87	0.93
PsyCap_School	126	115.49	15.63	0.94
PsyCap_Social	126	116.19	15.52	0.94
PsyCap_Avg	126	115.99	13.97	0.95
SE_WSD	126	1.60	0.41	0.90
HOPE_WSD	126	1.64	0.38	0.80
RES_WSD	126	1.56	0.42	0.75
OPT_WSD	126	1.62	0.47	0.84
PSYCAP_WSD	126	1.63	0.33	0.93
SelfEfficacy_SD	126	0.50	0.30	0.85
Hope_SD	126	0.50	0.30	0.80
Resilience_SD	126	0.49	0.30	0.67
Optimism_SD	126	0.54	0.32	0.70
PsyCap_SD	126	0.51	0.25	0.91

Hypothesis 2(b)

Generalizability theory was used to examine hypothesis 2(b), which postulated that individual scores on the PsyCap measure would vary across administrations of the measure over different contexts (family, school, and social settings). A two-facet crossed person x item x context G-study design was employed, allowing for the examination of three potential sources of variance: person, item, and context, as well as the interactions among the three. Results of this analysis are presented in Table 6. Examination of variance estimates indicated a pattern that partially supported hypothesis 2(b). As would be expected, the person main effect accounted for 23-37% of the variance across all four subscales, indicating that individual PsyCap scores vary across individuals. The context main effect accounted for very little, if any, of the variance across all four subscales (less than 1%). However, of more importance, the interaction between person and context accounted for 5-22% of the variance across the four subscales. This interaction accounted for the most variance in the self-efficacy subscale, 22%, and the hope subscale, 17%, indicating that scores on these dimensions varied across the three different contexts to a greater extent than scores on the resilience subscale (8% of the variance) and the optimism subscale (5% of the variance). Furthermore, for the resilience subscale and the optimism subscale, the person by item interaction accounted for a large percentage of the variance, 25% and 32%, respectively. This finding indicates that for these two subscales, more so than the other two, a person's response differs on one item compared to the other items in the subscale. In other words, these subscales are less reliable than the other two. This conclusion is also supported by the estimates of reliability calculated for each of the subscales (e.g., the average reliability across contexts was 0.81 for resilience and 0.78 for optimism, compared to 0.95 for self-efficacy and 0.92 for hope).

Table 6. *Variance Component Estimates*

Subscale	Source of Variation	Variance Component Estimate	% Total Variance
Self-efficacy	Person	.278	36
	Context	-.001	0
	Item	.001	0
	Person*Context	.166	22
	Person*Item	.047	6
	Context*Item	.000	0
	Error	.273	36
Hope	Person	.308	37
	Context	.001	<1
	Item	.007	1
	Person*Context	.145	17
	Person*Item	.095	11
	Context*Item	.001	0
	Error	.283	34
Resilience	Person	.313	30
	Context	.000	0
	Item	.018	2
	Person*Context	.082	8
	Person*Item	.266	25
	Context*Item	.000	0
	Error	.369	35
Optimism	Person	.335	23
	Context	-.001	0
	Item	.071	5
	Person*Context	.078	5
	Person*Item	.459	32
	Context*Item	.003	0
	Error	.487	34

Hypothesis 2(c)

Table 7 provides bivariate correlations among all study 2 variables. Correlations in boxes provide convergent validity information between mean level subscale scores obtained from the frequency-based and Likert-type scales and between mean WSD from the frequency-based scale and mean SD across the contextualized Likert-type scales. The correlations indicated that frequency-based self-efficacy, hope, resilience, optimism, and PsyCap scale scores converged with mean scores reported via the Likert-type measure, both within contexts and more strongly when the Likert-type responses were aggregated across contexts. Table 7 also confirms the mean-level finding that people do not vary much across context, i.e., within-dimension, cross-context correlations are fairly large (.47-.80). With respect to hypothesis 2(c), the relationships between frequency-based WSDs and variability across context (i.e., family, school, and social settings) for the Likert-type responses were: for self-efficacy (r = .23, p = .01), hope (r = .14, *ns*), resilience (r = .32, p < .001), optimism (r = .06, *ns*), and PsyCap (r = .26, p < .01). Corrected for measurement error, these coefficients were r = .26, r = .18, r = .45, r = .08, r = .28, respectively. Thus, these constructs share up to 20% common variance. These results provide partial support for hypothesis 2(c).

Table 7. *Bivariate Correlations among Study 2 Variables*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 SE_Freq	--															
2 Hope_Freq	.73	--														
3 Res_Freq	.54	.56	--													
4 Opt_Freq	.66	.65	.52	--												
5 PsyCap_Freq	.89	.87	.75	.86	--											
6 SE_WSD	-.74	-.57	-.53	-.62	-.73	--										
7 Hope_WSD	-.48	-.43	-.35	-.42	-.50	.69	--									
8 Res_WSD	-.47	-.34	-.59	-.48	-.55	.59	.64	--								
9 Opt_WSD	-.33	-.18	-.26	-.44	-.37	.57	.61	.60	--							
10 PsyCap_WSD	-.64	-.51	-.54	-.62	-.69	.88	.86	.81	.80	--						
11 SE_Fam	.56	.56	.40	.56	.63	-.47	-.26	-.25	-.16	-.38	--					
12 Hope_Fam	.51	.59	.29	.52	.58	-.39	-.26	-.19	**-.09**	-.32	.79	--				
13 Res_Fam	.38	.47	.45	.39	.49	-.37	-.24	-.35	**-.11**	-.36	.58	.48	--			
14 Opt_Fam	.47	.44	.33	.66	.58	-.39	-.24	-.29	-.18	-.36	.62	.61	.41	--		
15 PsyCap_Fam	.58	.62	.44	.65	.69	-.49	-.30	-.32	**-.17**	-.43	.92	.87	.72	.81	--	
16 SE_Sch	.47	.48	.34	.42	.51	-.39	-.28	-.30	**-.13**	-.35	.66	.64	.56	.47	.70	--
17 Hope_Sch	.48	.53	.26	.50	.54	-.38	-.31	-.22	**-.11**	-.33	.69	.69	.52	.53	.73	.82
18 Res_Sch	.41	.47	.47	.37	.50	-.40	-.24	-.34	**-.15**	-.36	.56	.49	.73	.33	.62	.70
19 Opt_Sch	.47	.49	.27	.64	.57	-.40	-.28	-.29	-.23	-.39	.61	.55	.38	.75	.70	.61
20 PsyCap_Sch	.53	.57	.38	.55	.61	-.45	-.32	-.33	**-.17**	-.41	.73	.69	.62	.60	.80	.93
21 SE_Soc	.49	.61	.32	.53	.58	-.41	-.27	-.22	**-.14**	-.35	.63	.59	.52	.46	.66	.47
22 Hope_Soc	.41	.53	.24	.45	.49	-.35	-.30	-.21	**-.17**	-.32	.55	.63	.41	.42	.60	.43
23 Res_Soc	.35	.43	.44	.35	.46	-.28	-.23	-.26	**-.09**	-.28	.54	.50	.63	.30	.58	.58
24 Opt_Soc	.43	.48	.33	.63	.57	-.39	-.29	-.26	-.27	-.39	.55	.58	.29	.71	.65	.42
25 PsyCap_Soc	.50	.61	.38	.59	.62	-.43	-.32	-.28	-.20	-.40	.67	.68	.53	.57	.74	.55
26 SE_Avg	.59	.65	.42	.59	.67	-.49	-.32	-.30	**-.17**	-.42	.89	.79	.65	.60	.89	.84
27 Hope_Avg	.54	.63	.30	.56	.61	-.43	-.33	-.24	**-.14**	-.37	.78	.89	.54	.60	.85	.73
28 Res_Avg	.43	.51	.50	.42	.54	-.39	-.26	-.35	**-.13**	-.37	.63	.55	.88	.39	.72	.69
29 Opt_Avg	.50	.52	.35	.71	.63	-.44	-.30	-.31	-.25	-.42	.66	.65	.40	.91	.80	.55
30 PsyCap_Avg	.59	.66	.44	.65	.70	-.50	-.35	-.34	-.20	-.45	.85	.82	.69	.72	.93	.80

Table 7 continued.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
31 SE_SD	-.20	-.25	-.33	-.22	-.29	.23	**.16**	.25	**.12**	.23	-.26	**-.06**	-.32	-.19	-.25	-.20
32 Hope_SD	-.28	-.30	-.29	-.34	-.36	.29	**.14**	.19	.12	.24	-.30	-.21	-.33	-.30	-.34	-.23
33 Res_SD	-.26	-.28	-.34	-.24	-.32	.27	.19	.32	**.09**	.27	**-.17**	**-.05**	-.37	-.23	-.24	-.18
34 Opt_SD	**-.17**	-.21	-.19	-.21	-.23	**.17**	**.09**	**.13**	**.06**	**.15**	-.19	**-.05**	**-.14**	-.20	-.18	**-.09**
35 PsyCap_SD	-.27	-.31	-.35	-.30	-.36	.28	**.17**	.26	**.12**	.26	-.28	**-.11**	-.34	-.27	-.30	-.21

	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
17 Hope_Sch	--															
18 Res_Sch	.60	--														
19 Opt_Sch	.66	.51	--													
20 PsyCap_Sch	.90	.80	.80	--												
21 SE_Soc	.58	.56	.53	.61	--											
22 Hope_Soc	.56	.49	.49	.56	.80	--										
23 Res_Soc	.55	.74	.36	.64	.65	.60	--									
24 Opt_Soc	.52	.32	.70	.57	.60	.64	.44	--								
25 PsyCap_Soc	.65	.61	.62	.70	.92	.90	.76	.80	--							
26 SE_Avg	.82	.71	.68	.89	.82	.70	.69	.62	.84	--						
27 Hope_Avg	.87	.61	.65	.83	.76	.85	.63	.67	.86	.88	--					
28 Res_Avg	.62	.92	.47	.77	.64	.56	.88	.39	.71	.77	.66	--				
29 Opt_Avg	.63	.43	.90	.72	.59	.57	.41	.90	.74	.70	.71	.46	--			
30 PsyCap_Avg	.84	.74	.78	.91	.80	.76	.73	.74	.89	.96	.93	.80	.83	--		
31 SE_SD	-.19	-.21	-.22	-.24	-.26	**-.14**	-.24	-.23	-.26	-.28	**-.15**	-.28	-.24	-.27	--	
32 Hope_SD	-.28	**-.17**	-.30	-.29	-.29	-.26	-.23	-.32	-.33	-.32	-.29	-.27	-.34	-.35	.78	--
33 Res_SD	**-.13**	-.24	-.28	-.24	-.19	**-.13**	-.22	-.16	-.20	-.21	**-.12**	-.31	-.25	-.25	.60	.61
34 Opt_SD	**-.12**	**-.09**	-.28	**-.17**	**-.10**	**-.02**	**-.05**	-.23	**-.12**	**-.15**	**-.07**	**-.10**	-.26	**-.17**	.50	.53
35 PsyCap_SD	-.22	-.21	-.32	-.28	-.26	**-.16**	-.22	-.29	-.28	-.29	-.19	-.29	-.32	-.31	.90	.89

Table 7 continued.

	33	34	35
33 Res_SD	--		
34 Opt_SD	.44	--	
35 PsyCap_SD	.77	.75	--

Note. Correlations in bold are non-significant. All other correlations are significant at the $p < .05$ level.

Discussion

The main purpose of Study 2 was to compare a frequency-based measure of psychological capital with a Likert-type measure given over several different contexts in terms of providing information about a person's behavioral consistency. Results showed that the two provide similar information, with both approaches indicating some variability in individual responses over time or across contexts. As previously mentioned, a chief benefit of using frequency-based measurement is that you can calculate within-item variability, which serves as a measure of temporal stability. As described by Kane (1986), this measure of variability was calculated as the standard deviation of the distribution of an item indicated in the percentages assigned. In the current study, the hypothesis that individual scores would have within-item variability was supported; the average within-item variability (SD) for the PsyCap measure as a whole was 1.63, based on a scale from one to six. This within-item variability provides a concrete interval around the mean where a person's score on each item would fluctuate. Furthermore, as can be seen in Figure 1, this variability reflects consistency in responding across individuals, and as demonstrated in previous research, people vary in their level of consistency, with some demonstrating greater consistency than others (e.g., Baumeister & Tice, 1988; Baumeister, 1991; Biesanz, West, & Graziano, 1998). Thus, this study provides further evidence that frequency-based measurement offers additional information that is not available in a single administration using a Likert-type measure.

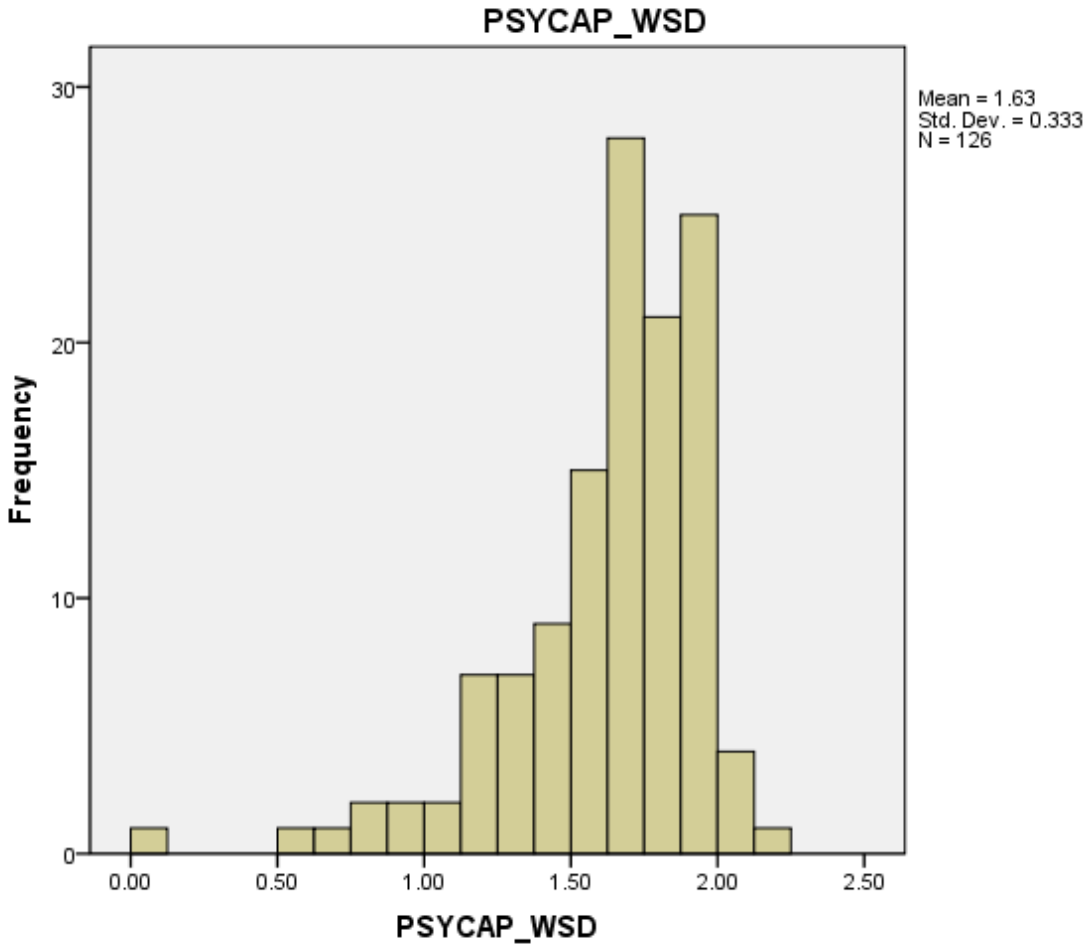

Figure 2. Distribution of PsyCap Within-Item Standard Deviations

The Likert-type measure given over several different contexts also offered results suggesting that people may vary their responses to the psychological capital measure based on the context. Although at first glance the means across the various settings were not very different, generalizability theory was used to further examine three potential sources of variance: person, item, and context, as well as the interactions among the three. Of most importance was the interaction between person and context, which provided information on the extent to which a participant's score on the psychological capital measure differed across the various contexts. Results indicated that this interaction accounted for a great amount of the variance in the self-efficacy subscale and the hope subscale, but not as much for the resilience subscale or the optimism subscale. Although differences were not expected across the four subscales, the differences that were found reflect the level of reliability estimated for each subscale, and are also somewhat supported by the literature. The self-efficacy and hope subscales demonstrated high levels of reliability in this study, which was also apparent by the low amount of variance accounted for by the person by item interaction. The resilience and optimism subscales, on the other hand, were less reliable, and a large percentage of the variation in responses on these subscales was accounted for by the person by item interaction. In other words, it could be that the low reliability of these subscales prevented the true differences among the various contexts to be seen.

The lack of variation across contexts could also be due to some constructs being more stable, and less context-dependent. Although the literature on all four constructs is indistinct regarding whether each is trait-like and stable or more state-like and open to development, some general trends can be identified for each construct that are in line with the findings of this study. For example, the literature on self-efficacy frequently highlights its domain specificity (e.g., Bandura, 1997; Stajkovic & Luthans, 1998) to a greater extent than its stability. Similarly, Snyder and colleagues, the founding researchers who initially defined hope as a disposition, identified the strong likelihood that individual levels of hope will fluctuate depending on the current situation with their development of a state hope

scale (e.g., Snyder et al., 1996). Optimism, on the other hand, is more often described as a relatively enduring disposition, or attribution style (e.g., Seligman, 1998). Furthermore, Luthans and colleagues recognized that optimism is often depicted as dispositional and trait-like, but noted that "in order to meet the criteria of PsyCap optimism, [they] emphasize its state-like, developmental properties" (Luthans, Youssef et al., 2007, p. 101). Resilience, the "youngest" of the psychological capital constructs, has the least support in the literature for its stability, or lack thereof, but it makes intuitive sense to think that a person who is resilient in one context will be resilient in another context.

The variability information offered by these two different methods also displayed fairly moderate levels of convergent validity for two of the four subscales and for the PsyCap scale as a whole. In particular, variability in responses to the self-efficacy subscale across the two measurement methods shared about 7% common variance, whereas variability on the resilience subscale across the two methods shared about 20% common variance. Furthermore, frequency-based within-item variability and variability across contexts for the entire PsyCap scale also shared about 7% common variance. However, there is not much variation accounted for here in comparison to other literatures (e.g., other's ratings in personality, performance appraisal). Additionally, the correlations between the variability indices for optimism and hope were not statistically significant. It could be that the variability in the frequency-based measures of optimism and hope assesses general variability, where as variability for contextualized family, school, and social measures of optimism and hope is more specific and thus possibly restricted.

Nonetheless, these findings bode well for the validity of psychological capital variability offered by frequency-based measurement. Frequency-based measurement also has the distinct advantage of requiring only one measurement, unlike Likert-type measurements given across several different contexts, thus reducing the number of items and administrations necessary to collect information on the mean level and variability of psychological capital. The positive results from this study add to the

growing body of research that stresses the importance of measuring consistency in addition to mean level performance (e.g., Edwards & Woehr, 2007; Fleeson, 2001; Woehr et al., 2010). Still, it is important to look at what relevant information within-person variability measurement adds to the prediction of external criteria, either directly or indirectly by moderating the relationship between psychological capital and the criteria. Frequency-based measurement provides information on temporal stability as well as behavioral consistency, and this information could help explain some of the variance in consistency (or inconsistency) of behavior as measured by knowledgeable acquaintances. Therefore, a third study was conducted to examine if the frequency-based measure of psychological capital offers additional information on behavioral consistency as defined by ratings from an acquaintance.

CHAPTER 5

Study 3

The goal of Study 3 was to examine agreement between an individuals' self-reported PsyCap using frequency-based measurement and ratings of their PsyCap given by an acquaintance. Specifically, within-item variability from the frequency-based measure was examined as a possible moderator of self/other agreement. This study used a non-equivalent control group design, with both an experimental and a control group, but subjects were not randomly assigned.

Participants and Procedure

Participants in Study 3 were university students (*N* =249) recruited to participate in return for partial fulfillment of course requirements or extra course credit. There were 134 males and 115 females. The mean age of the participants was 21.42 (*SD* = 2.34). Participants completed the non-contextualized frequency-based measure of PsyCap, as well as answering the demographic questions. To examine the role of self/other agreement, as done by Biesanz et al. (1998), participants were also asked to bring one or two acquaintances to the laboratory in exchange for extra credit toward fulfillment of their course requirements. The acquaintances completed a Likert-based measure of PsyCap and were asked to describe the target participant as accurately as possible. The instructions asked them to describe the target participant over the last six months. The acquaintances were physically separated from the target participant during the testing session to avoid confounding of results. They were also asked to answer questions about how long they had known the participant and how they would describe their relationship (friend, classmate, relative, significant other, etc.).

Measures

The frequency-based PsyCap measure and instructions used in Study 3 were identical to those used in Study 1 and 2. The Likert-type measure completed by participants' acquaintances asked the respondents to describe the participant using a six-point Likert scale (1 = strongly sisagree; 6 = strongly agree). The instructions for the acquaintance measure of PsyCap can be found in the Appendix. The items for this measure were also altered to reflect the fact that the person completing the measure was not the person of interest. For example, "I was able to achieve most of the goals that I set for myself" was changed to, "He/she was able to achieve most of the goals that he/she set for him/herself."

Analyses

To examine the possible moderation of self/other agreement, separate hierarchical multiple regression analyses were performed for each PsyCap construct. In each regression analysis, scores based on the friends' ratings served as the dependent variable. The independent variables were the participants' scale scores from the frequency-based response format, the mean within-item standard deviation derived from the frequency-based response format, and the product term representing the scale score by construct mean within-item standard deviation interaction. Scores on the independent variables were mean centered prior to conducting the regression analyses. A major purpose of centering independent variables is to ease multicollinearity problems in the data by potentially reducing the correlations among independent variables. This procedure is always recommended when interaction terms are going to be analyzed, since these terms are especially prone to multicollinearity (Cohen & Cohen, 1983).

After centering the data, hierarchical multiple regression analyses were conducted to examine the hypothesized relationships. Hierarchical regression involves a series of simultaneous analyses, all on the same criterion. Each analysis involves the addition of one or more predictors on top of the

predictor(s) already included. The order of entry is highly important, and should be driven by theory, since the effects of variables entered in earlier steps are partialed from relationships involving variables entered in later steps. F-tests are used to compute the significance of each added variable (or set of variables) and the change in R^2 between consecutive analyses in the series represents the proportion of variance in the criterion that is shared exclusively with the newly added variables (Licht, 1995).

Multiple regression also allows for the analysis of the possible moderation of self/other agreement. To do so, interaction terms were added to the model to incorporate the joint effect of two variables on a dependent variable over and above their separate effects. Interaction terms were calculated by creating a new interaction variable, which was the crossproduct of the two variables of interest (e.g., SE_Interaction = SE_Freq * SE_WSD). After creating the interaction variables, hierarchical regression analyses were conducted, with the last step in the analysis including the interaction terms in addition to the individual variables (e.g., Step 1: SE_Freq, Step 2: SE_Freq and SE_WSD, Step 3: SE_Freq, SE_WSD, SE_Freq*SE_WSD Interaction). The F-values for each step were then examined and compared to the previous step(s), in addition to the change in R^2. The change in R^2 was examined to determine if a significant proportion of variance in the criterion was explained by the addition of the variables at each step after controlling for the variables entered at the previous step(s).

Results

Hypothesis 3

Table 1 presents the reliability estimates (coefficient alpha) for scores on each of the PsyCap subscales assessed with the Likert-type response format (from the pilot study and Study 1) and the frequency-based response format (from Study 1, Study 2, and Study 3). In general, the reliability estimates for the frequency-based format from Study 3 replicated those found in Study 1 and Study 2. Additionally, the reliabilities for self-ratings from the Likert-type scale (from Study 1) and friend-ratings

were similar. Tables 8 and 9 present descriptive statistics for all study 3 variables, with Table 9 breaking down the different types and lengths of relationships reported by acquaintances. Although ratings were very similar, acquaintances generally rated the participants slightly higher than the participants rated themselves. Furthermore, relatives and classmates rated the participants higher than significant others and friends, although these differences were not statistically significant, and acquaintances who reported knowing the participant for 6 months to 1 year rated them higher than those who had known them for more than 1 year ($t(64.85) = 2.67$, $p = .01$). Table 10 presents the self/other correlations between participants' self-ratings on the frequency-based PsyCap measure and friend-ratings on the Likert-type PsyCap measure for each of the PsyCap dimensions, as well as the scale as a whole. Results indicated significant self/other correlations (in the diagonal) on three of the four subscales (self-efficacy, hope, and optimism), as well as on the PsyCap measure as a whole.

The main goal of study 3 was to examine the possible moderation of self/other agreement, with the hypothesis that lower levels of within-item variability would be associated with higher levels of self/other agreement. To examine this hypothesis, separate hierarchical multiple regression analyses for each PsyCap subscale were conducted, with scores based on the friends' ratings serving as the dependent variable. The independent variables were the participants' scale scores from the frequency-based response format, the mean within-item standard deviation derived from the frequency-based response format, and the product term representing the scale score by construct mean within-item standard deviation interaction. Results of the regression analyses are presented in Table 11. These results indicated that none of the interactions were significant, suggesting that individuals who reported more consistent behavioral patterns did not have higher levels of agreement with others' ratings. Thus, hypothesis 3 was not supported.

Table 8. *Descriptive Statistics (Study 3)*

	N	Mean	SD	α
SelfEfficacy_Freq	249	38.18	5.42	.92
SelfEfficacy_Acq	249	39.75	5.92	.91
Hope_Freq	249	28.67	4.41	.86
Hope_Acq	249	29.06	4.53	.86
Resilience_Freq	249	23.68	3.80	.76
Resilience_Acq	249	23.06	3.82	.76
Optimism_Freq	249	25.31	4.64	.69
Optimism_Acq	249	25.51	4.98	.75
PsyCap_Freq	249	115.83	15.77	.93
PsyCap_Acq1	249	117.37	16.44	.93
SE_WSD	249	1.66	.34	.89
HOPE_WSD	249	1.64	.35	.78
RES_WSD	249	1.58	.42	.78
OPT_WSD	249	1.70	.38	.81
PSYCAP_WSD	249	1.66	.30	.93

Table 9. *Descriptives for Different Relationships*

		Self Efficacy		Hope		Resilience		Optimism		PsyCap	
	N	M	SD	M	SD	M	SD	M	SD	M	SD
Type of Relationship											
Classmate	14	40.86	5.35	30.43	4.24	24.21	3.47	27.43	4.73	122.93	15.57
Friend	173	38.97	6.22	28.69	4.72	22.62	3.83	25.30	5.12	115.58	17.08
Sign. Other	48	41.35	4.91	29.46	4.03	23.96	3.93	25.48	4.61	120.25	14.75
Relative	13	43.00	3.46	31.15	3.67	24.46	2.82	26.39	4.79	125.00	10.53
Other	1	39.00	-	29.00	-	21.00	-	24.00	-	113.00	-
Length of Relationship											
6 months	15	42.67	4.82	31.47	3.09	25.53	2.85	28.07	4.74	127.73	12.20
6 months-1 yr	22	41.23	4.39	29.86	2.59	23.50	3.58	28.68	4.31	123.27	11.32
1-2 years	51	38.35	7.21	28.06	5.21	22.24	4.49	24.86	5.04	113.51	19.60
> 2 yrs	161	39.71	5.64	29.05	4.55	23.03	3.62	25.04	4.86	116.83	15.78

Correlations among PsyCap subscales for self-ratings and friend-ratings

	SE_Acq	Hope_Acq	Res_Acq	Opt_Acq	PsyCap_Acq
SE_Freq_Self	.18*				
Hope_Freq_Self	.17**	.21**			
Res_Freq_Self	.14*	.15*	.11		
Opt_Freq_Self	.04	.06	.04	.23**	
PsyCap_Freq_Self	.15*	.17**	.08	.17**	.17**

Note. Diagonals represent within dimension self/other agreement.
**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table 11. *Results of moderated multiple regression*

Dependent variable (Friend rating)	Independent variables (Self rating)	R	R^2	ΔR^2
Self-efficacy	Self-efficacy	.179	.032	.032**
	Self-efficacy mean within item SD	.184	.034	.002
	Self-efficacy x within item SD	.195	.038	.004
Hope	Hope	.208	.043	.043**
	Hope mean within item SD	.224	.050	.007
	Hope x within item SD	.241	.058	.008
Resilience	Resilience	.111	.012	.012
	Resilience mean within item SD	.141	.020	.018
	Resilience x within item SD	.187	.035	.015
Optimism	Optimism	.226	.051	.051**
	Optimism mean within item SD	.246	.061	.010
	Optimism x within item SD	.249	.062	.001
PsyCap	PsyCap	.167	.028	.028**
	PsyCap mean within item SD	.167	.028	.000
	PsyCap x within item SD	.182	.033	.005

Note. * $p < .05$. ** $p < .01$.

Discussion

Study 3 investigated the level of agreement between an individual's self-reported psychological capital and ratings of their psychological capital given by an acquaintance. The correlations between self and other ratings for three of the four subscales (self-efficacy, hope, and optimism), as well as for the PsyCap measure as a whole, were significant, meaning that acquaintances rated the individuals similarly to how they rated themselves. Although ratings were very similar, acquaintances generally rated the participants slightly higher than the participants rated themselves, and although most of the correlations were significant, they were relatively small, indicating a minor level of agreement. The correlation for the resilience subscale was non-significant. This could be explained because resilience may not as visible or readily viewed by others. Resilience is often described as a response to some sort of conflict or failure, so it may be necessary for an acquaintance to witness the rebound in order to fully understand a person's level of resilience. The likelihood of witnessing such an event would obviously be greater for more intimate relationships or relationships that have spanned a longer period time. To that end, a post-hoc examination of the self/other correlations for only people who reported knowing each other for more than two years revealed a significant relationship between an individual's self-reported level of resilience and that indicated by their acquaintance, although the effect was still small (.18).

Within-item consistency calculated from the frequency-based measure was also explored as a moderator of the relationship between self and other ratings, although results indicated a lack of support for the hypothesized relationships. These results suggest that individuals who reported more consistent behavioral patterns did not have higher levels of agreement with others' ratings. This finding is contrary to my expectations as well as to the findings of previous research (e.g., Biesanz et al., 1998; Edwards & Woehr, 2007). The lack of a moderating effect could be due to the fact that psychological capital is not highly visible to or readily viewed by others. Psychological capital, and the four constructs that make it up, may not be associated with specific behavioral expressions (e.g., extraversion is

associated with talking) such that temporal stability would lead to higher self/other agreement because consistent display of certain behavioral expressions would be salient to their acquaintances. It might be more relevant to look at how consistency in psychological capital is related to job performance or employee satisfaction, two organizationally relevant criteria that have been shown to be related to mean levels of psychological capital (Luthans, Avolio, et al., 2007).

CHAPTER 6

General Discussion

The main purpose of this study was to explore the utility of frequency-based measurement as an alternative way of examining the stability of psychological capital, a higher-order construct introduced by Luthans and colleagues (2007), consisting of self-efficacy, hope, resilience, and optimism. In their definition of psychological capital, Luthans and colleagues asserted that this positive psychological state of development is relatively malleable, and thus defined it as "state-like." Although Luthans, Avolio, et al. (2007) did some initial research comparing psychological capital to more stable constructs, such as the Big Five personality dimensions and core self-evaluations, they later recognized the need to further investigate the stability of psychological capital, and encouraged researchers to study psychological capital longitudinally, although they noted the potential obstacles of doing such research (Avey, Luthans, et al., 2008). In the current study, frequency-based measurement was investigated as an alternative to these obstacle-laden longitudinal studies. Frequency-based measurement is a new approach based on the distributional assessment model (Kane, 1986; 2000) that provides information on the relative frequency of occurrence for specific behaviors over a given period of time, and offers a distribution that depicts the scope of an individual's behavior. One advantage of this approach is that it can provide information on a person's behavior over time in a single administration. This allows researchers to examine the temporal stability of constructs without having to conduct longitudinal studies (e.g., personality, Edwards & Woehr, 2007).

To investigate the usefulness of this new approach, a series of studies was conducted using a sample of students from a large southeastern university. First, a pilot study was conducted to assess the equivalence of an altered version of the psychological capital measure that reframed the items in non-work specific terms. This pilot study was necessary given that the sample of university students may or may not have had work experience. Next, a frequency-based measure was compared to the more

traditional Likert-type measure of psychological capital. Then, the frequency-based measure of psychological capital was compared to the Likert-type measure given across three contexts (family, school, and social settings). Last, self/other agreement was examined by comparing an individual's self-reported psychological capital and ratings of their psychological capital given by an acquaintance. Overall, results indicated that the frequency-based measure was a useful alternative, and provided additional information not available with the Likert-type measure.

Summary of Results

The first step in the current research was to assess the equivalence of a non-contextualized measure of psychological capital. Results of the initial pilot study provided support for my altered measure, and thus, the questions of interest in this study were examined using this measure. The first research question focused on the equivalence of a frequency-based measure of psychological capital with a Likert-type measure, and results supported the equivalency of these two in measuring the central tendency of psychological capital. The true benefit of frequency-based measurement, however, comes from the additional information provided about an individual's consistency or variability. Frequency-based measurement allows for the calculation of within-item variability, which offers a measure of consistency and provides information on a person's behavior over time in a single administration. To get this information with the Likert-type measure, it would be necessary to give the psychological capital measure across different contexts or over an extended period of time.

Thus, the second question of interest in this study asked if frequency-based measurement would capture within-individual variability as that which is reflected in the Likert-type measure given over three different contexts (family, school, and social settings). Results indicated that the two approaches offer similar information in terms of consistency, with both approaches demonstrating some variability in responses over time or across contexts. Thus, this study provides further evidence that

frequency-based measurement offers additional information that is not available in a single administration using a Likert-type measure. The last question of interest in this study pertained to within-item consistency serving as a moderator of self/other agreement. This was investigated by examining the level of agreement between an individual's self-reported psychological capital and ratings of their psychological capital given by an acquaintance. Contrary to my expectations, individuals who reported more consistent behavior patterns did not have higher levels of agreement with others' ratings, thus, within-item consistency did not moderate self/other agreement. A more in-depth discussion of the findings from each of the studies was given in previous chapters, along with alternative explanations for results that did not support the proposed hypotheses. Below are implications related to the results of this research, followed by limitations of the study and suggestions for future research.

Implications

Foremost, these results provide further evidence of the usefulness of frequency-based measurement, demonstrating that a frequency-based measure of psychological capital is an equal if not superior measure of the central tendency of psychological capital as compared to the traditional Likert-type measure. Furthermore, the frequency-based measure provided additional information not available with the Likert-type measure, and allowed for the calculation of a measure of temporal stability, which gave information on a person's behavioral consistency over time. This variability information was similar to that from a Likert-type measure applied to several different contexts, but had the advantage of providing this information in a single administration of the measure.

Thus, these results offer important empirical support for the assertion that frequency-based measurement can serve as a viable alternative to longitudinal studies for examining stability and can simplify researchers' endeavors by reducing the number of items or administrations necessary to gain information on consistency. The results of this study also add to the growing body of research that

emphasizes the value of measuring consistency in addition to mean level performance (e.g., Edwards & Woehr, 2007; Fleeson, 2001; Woehr et al., 2010). Information on a person's behavioral consistency can enhance our ability to predict future performance or other relevant criteria by giving us a more complete picture of his or her standing on a particular construct, such as psychological capital.

This study is one of the first to extend frequency-based measurement to a construct other than personality, as recommended by Woehr et al. (2010). Psychological capital was a suitable construct to examine with frequency-based measurement due to the fact that there have been calls in the literature for further examination of its temporal stability (e.g., Avey, Luthans, et al., 2008; Wright & Quick, 2009; Wright, 2007). Moreover, Luthans was initially interested in identifying constructs "that can be measured, developed, and effectively managed for performance improvement" (Luthans, 2002a, p. 59). He and his colleagues focused on malleable, state-like resources, those which are open to development through intervention, arguing that such resources provide the greatest opportunity for enhancing employee performance, satisfaction, and well-being (Avey et al., 2010). Thus, Luthans was interested in the degree of stability in the measurement of psychological capital as a way to examine its openness to change and development.

Although longitudinal studies are often recommended to explore this stability, the current study used frequency-based measurement, which proved to be a useful alternative for examining consistency in psychological capital. The frequency-based measure of psychological capital displayed variability in responses, suggesting that a person's level of psychological capital may vary over time. However, I believe this variability reflects consistency in responding across individuals, with some people demonstrating greater consistency than others. Thus, I argue that psychological capital is actually trait-like, as opposed to state-like as argued by Luthans and colleagues, and should be defined as a relatively stable, learned characteristic that is malleable through specific developmental efforts. Furthermore, consistency in psychological capital is an important individual difference that should be taken into

consideration. Results of the current study support this assertion: scores on the overall psychological capital measure appeared to be relatively stable across contexts, evidenced by the similar mean scores across the three contexts and on the frequency-based measure. Additionally, the correlations between the frequency-based measure and the contextualized measures ranged from .61 to .80. Even still, the scores on the frequency-based measure in both Study 2 and Study 3 displayed differences in variability across individuals. So while psychological capital did not vary much by context, suggesting that it is relatively stable, there was variability in responses on the frequency-based measure, indicating individual differences in consistency.

Although the results for the psychological capital measure as a whole were generally supportive, results for the four subscales had some mixed results. Resilience and optimism were the least reliable of the four subscales, a finding that mirrors Luthans and colleagues initial work (Luthans, Avolio, et al., 2007). However, these two subscales appeared more stable than self-efficacy and hope when examined across three different contexts. In fact, the optimism subscale demonstrated a high degree of association between the Likert-type measure given across various contexts and the frequency-based measure of psychological capital, with correlations ranging from .63 to .71. Nonetheless, the measures of consistency calculated from the frequency-based measures revealed that the four subscales all demonstrated similar levels of variability (WSDs ranged from 1.56 to 1.64). These results suggest that some of the measures included in the psychological capital scale may have some measurement issues, and that investigating these issues may further strengthen the case for the importance of this construct. Luthans, Avolio, et al. (2007) actually called for future researchers to explore whether new items could improve the measurement properties of their psychological capital instrument, as well as using a boarder range of sample contexts. I believe the current study contributed to this cause with the development of the new non-contextualized measure and the addition of self-efficacy items from Chen et al.'s (2001) measure, which demonstrated great psychometric properties in the current study. This

newly developed measure of general psychological capital may be useful for non-work situations and extend to a broader range of contexts.

Further, Luthans and colleagues' research has shown that the higher-order, composite construct of psychological capital is more consistently related to both performance and satisfaction than each of the individual components (Luthans, Avey, et al., 2007). They argue that the combined motivational effects for psychological capital as a whole are broader and more impactful than any one of the constructs alone (Luthans, Youssef et al., 2007). Thus, even though there may be measurement issues with the individual subscales, previous research has supported the validity of this higher order construct (Luthans, Avey, et al., 2007; Luthans, Avolio, et al., 2006; Luthans, Youssef et al., 2007).

Although this was a measurement study, there are also some practical implications that can be taken from the results of this study. Foremost, the evidence of variability in responding to the frequency-based measure of psychological capital could have great implications for training interventions designed to increase individual levels of psychological capital. Luthans and colleagues have developed micro-interventions, relatively short, highly focused interventions, varying from 1-3 hours in duration, that have examined participants' levels of psychological capital before and after the intervention. Results from these early micro-intervention studies have shown that participants' psychological capital scores increased on average about 2% (Luthans, Avey, et al., 2006; Luthans, Avolio, et al., 2006). If information on variability shows that some people are just more consistent in responding than others, this would have implications for determining the usefulness of their training interventions and examining how impactful they are on organizationally relevant outcomes. Their current research does not fully investigate the unique impact of their training interventions (Luthans, Avey, Avolio, & Peterson, 2010). Nevertheless, the actual act of measuring consistency using frequency-based measurement would be beneficial and could actually help determine the usefulness of training

interventions by allowing researchers to control for within individual variability when analyzing the effectiveness of the training.

Additionally, results of this study indicate that individuals who reported more consistent behavioral patterns did not have higher levels of agreement with others' ratings. Furthermore, although there was some agreement between self and other ratings, the magnitude of the agreement was quite small. In other words, it seems that psychological capital is not highly visible to others. Moreover, the subjective nature of psychological capital may make it difficult for managers to determine who would benefit most from psychological capital training interventions. This lack of visibility may also make it difficult to see who has benefited from these training interventions after the fact, making it more difficult to assess the utility of the training and justify the expense to upper management.

Moreover, a frequency-based measure of psychological capital could also be useful for training interventions due to the fact that it picks up information on variability and may shed some light on the trainability of different individuals. Previous literature on personality (e.g., Caspi, 2005) suggests that some individuals may be so stable that they would be unresponsive to training. However, the majority of people display some variability in responding, variability information that can be gathered using frequency-based measurement, and these individuals may be more trainable when it comes to personality or psychological capital. Thus, organizations could really have an effect on increasing their employees' level of psychological capital and show upper management the return on investment for such training interventions. Additionally, frequency-based measurement is less prone to rating errors and biases (e.g., Kane & Woehr, 2006; Woehr & Miller, 1997), which further enhances its' appeal to those wishing to utilize this approach in the workplace.

Limitations and Suggestions for Future Research

Despite the implications of these findings, there are several limitations that must be discussed. First and foremost is the student sample that was used and the resultant need to reframe the items in non-work terms. Decontextualizing the items at first seemed to be a step in the wrong direction, given that Luthans and colleagues (2007) spent considerable time developing this measure and selected items from previously developed measures specifically to have relevance to the workplace. However, given that the students in my sample may or may not have had significant work experience, framing the items in non-work terms was necessary, and the psychometric properties of the altered measure were very similar to those of the original measure. Furthermore, every effort was made to keep the content of the items intact, with only contextual information removed from the items, allowing students to think of how the items applied to their lives. Additionally, taking the workplace context away from the measure did not detract from one of the main purposes of this study, which was to assess the value of a new measurement method. Nonetheless, this is a definite limitation of this study, and future research should address the questions examined in this study using the original measure of psychological capital with a sample of working adults.

Another limitation has to do with the contextualized measure of psychological capital. This measure was applied to three different contexts: family, school, and social settings, and all three measures were given to participants to complete in one administration. Although participants were asked to describe themselves as they are in the particular setting or context (i.e., "in a social setting with friends"), they may have had difficulty differentiating between the three contexts and may have viewed the questions as redundant since they had to complete the same 26 items three times in a row. However, every effort was made to remind participants of the setting or context (i.e., the text was formatted to make it more noticeable, the context or settting was included at the top of every page of the survey) to encourage differentiation. Nevertheless, given that the actual items in all of the measures were identical, and the fact that the three measures were completed in one administration, it is easy to

see how participants, especially college students, may have lost interest in trying to differentiate between the various contexts. Furthermore, although traditional assessment of contextualized personality has used the same approach as that used in this study, (e.g., Donahue & Harary, 1998; Heller & Watson, 2005; Roberts & Donahue, 1994; Sheldon, Ryan, Rawsthorne, & Ilardi, 1997), it may have been more successful in this study if the participants had completed each contextualized measure at a separate time, instead of all at once.

Another issue with asking participants explicitly to rate themselves using the same list of adjectives or statements separately for each one of multiple roles indicated in the instructions is that this approach may create demand characteristics by encouraging participants to show different patterns across the different contexts, essentially creating artificial variability between the roles. Conversely, this approach could actually reduce the extent to which participants describe themselves differently across various contexts, given that we have a strong Western cultural ideal of consistency and stability of identity and behavior in the U.S. (Heller et al., 2007; Kanagawa, Cross, & Markus, 2001; Suh, 2002). Both of these issues relate to inherent problems with self-report measures, where information on intraindividual variability may reflect incomplete self-perceptions that do not in fact mirror a person's "real" contextual personality (Heller et al., 2007; Robinson, 2009). Thus, Heller et al. (2007) encouraged researchers to examine the convergent and discriminant validity of contextualized measures in relation to ratings generated by knowledgeable acquaintances in the various contexts (e.g., comparing self work ratings with ratings generated by supervisors). Future research investigating the cross-situational consistency of psychological capital could surely benefit from following this recommendation.

One additional issue has to do with the distinction often made in the literature between temporal stability and cross-situational consistency. Temporal stability assesses stability over time, while holding the effect of the situation constant, whereas cross-situational consistency focuses on stability across different situations. The current study was limited in that it only looked at cross-situational

consistency with the contextualized Likert-type measures. Although the frequency-based measure offered a measure of temporal stability, it would have been useful to also have a Likert-type measure administered several times over an extended period to compare the two in terms of stability over time. While one of the benefits of frequency-based measurement is that it offers information on temporal stability in a single administration and can negate the need for longitudinal studies, a necessary first step for proving this is to actually compare information gained from a longitudinal study with that gained from a frequency-based measure. Thus, future research should examine this comparison. Moreover, a study that compared a Likert-type measure given over several different time periods, a Likert-type measure applied to several different contexts, and a frequency-based measure would be especially beneficial, and would allow us to see the true value of the variability information gained with frequency-based measurement.

An additional suggestion for future research involves examining how consistency in psychological capital relates to job performance or job satisfaction. Although the current study attempted to examine how within-person variability related to levels of self/other agreement, no support was found for the hypothesized moderating relationship. The rationale behind exploring this research question was that information on a person's behavioral consistency can enhance our ability to predict future performance or other relevant criteria. The lack of a moderating relationship may have been due to the fact that psychological capital is not highly visible to others. This viewpoint is also supported by Luthans and colleagues. In a recent paper, they contend that psychological capital is subjective in nature, and therefore best evaluated by the self-referent (Avey et al., 2010). Thus, it might be more relevant to look at how consistency in psychological capital is related to other criteria, such as job performance and job satisfaction, both of which have been shown to be related to mean levels of psychological capital (Luthans, Avolio, et al., 2007).

Furthermore, Luthans and colleagues have said on numerous occasions that the four included constructs are only those that have been identified as fitting the criteria for inclusion, and that they are not meant to represent an exhaustive list. They have offered several additional constructs that might meet the criteria, including creativity, wisdom, well-being, flow, humor, gratitude, forgiveness, emotional intelligence, spirituality, authenticity, and courage, and have expressed an expectation to add to the list of current psychological capital constructs in the future (Luthans, Youssef et al., 2007). Thus, future research should continue to investigate additional possibilities.

Conclusions

In summary, the goal of this study was to investigate the usefulness of frequency-based measurement for exploring the stability of psychological capital. Results indicate that a non-contextualized measure of psychological capital using a frequency-based response format was an equivalent measure of the central tendency compared to a measure utilizing the more traditional Likert-type response format. Furthermore, frequency-based measurement had the added advantage of providing additional information not available with a single administration of the Likert-type measure. Namely, the frequency-based measure provided information on individual's level of consistency in responding to the psychological capital. This information was similar to variability information gained from a Likert-type measure given over three different contexts (family, school, and social settings). The results of this study also add to the growing body of research that emphasizes the value of measuring consistency in addition to mean level performance (e.g., Edwards & Woehr, 2007; Fleeson, 2001). Although it was expected that within-item consistency would moderate agreement between an individual's self-reported psychological capital and ratings of their psychological capital given by an acquaintance, this relationship was not found. Nonetheless, future studies should investigate how

consistency in psychological capital is related to other more relevant criteria, such as job performance and job satisfaction, to show the true benefit of frequency-based measurement.

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APPENDIX

Example Item for the Likert-Type Response Format

Response Options

1: Very Inaccurate
2: Inaccurate
3: Somewhat Inaccurate
4: Neither Inaccurate nor Accurate
5: Somewhat Accurate
6: Accurate
7: Very Accurate

I am the life of the party.	① ② ③ ④ ⑤ ⑥ ⑦

Example Item for the Frequency-Based Response Format

The first statement is "I am the life of the party". Of all the opportunities you've had to display this behavior in the past 6 months, think of how frequently this statement was descriptive of your actual behavior at each of the three levels. If you feel that "I am the life of the party" was very descriptive of your behavior 50% of the time, somewhat descriptive of your behavior 35% of the time, and not at all descriptive of your behavior 15% of the time, then your response would look like:

	% very inaccurate	**% neither inaccurate nor accurate**	**% very accurate**
I am the life of the party.	15	35	50
Scoring weights:	*.01*	*.035*	*.06*

(15 x *.01* = **.15**, 35 x *.035* = **1.225**, 50 x *.06* = **3**)

Total score for this item (.15 + 1.225 + 3) = 4.375

The Hope Scale - Snyder et al. (1991)

Directions: Read each item carefully. Using the scale shown below, please select the number that best describes YOU and put that number in the blank provided. 1 = Definitely False 2 = Mostly False 3 = Mostly True 4 = Definitely True.

1. I can think of many ways to get out of a jam.
2. I energetically pursue my goals.
3. There are lots of ways around any problem.
4. I can think of many ways to get the things in life that are most important to me.
5. Even when others get discouraged, I know I can find a way to solve the problem.
6. My past experiences have prepared me well for my future.
7. I've been pretty successful in life.
8. I meet the goals that I set for myself.

Life Orientation Test - Scheier and Carver (1985)

Directions: Please indicate the extent to which you agree with the following items on a scale from 0 (Strongly Disagree) to 4 (Strongly Agree).

1. In uncertain times, I usually expect the best.
2. It's easy for me to relax. (Filler item)
3. If something can go wrong for me, it will. R
4. I always look on the bright side of things.
5. I'm always optimistic about my future.
6. I enjoy my friends a lot. (Filler item)
7. It's important for me to keep busy. (Filler item)
8. I hardly ever expect things to go my way. R
9. Things never work out the way I want them to. R
10. I don't get upset too easily. (Filler item)
11. I'm a believer in the idea that "every cloud has a silver lining".
12. I rarely count on good things happening to me. R

R = These items are reversed prior to scoring.

Resilience Measure - Wagnild and Young (1993)

Directions: Please read the following statements and indicate on a scale from 1 (Strongly Disagree) to 7 (Strongly Agree) your feelings about that statement. For example, if you strongly disagree with a statement, choose "1". If you are neutral, choose "4", and if you strongly agree, choose "7", etc.

1. When I make plans I follow through with them.
2. I usually manage one way or another.
3. I am able to depend on myself more than anyone else.
4. Keeping interested in things is important to me.
5. I can be on my own if I have to.
6. I feel proud that I have accomplished things in life.
7. I usually take things in stride.
8. I am friends with myself.
9. I feel that I can handle many things at a time.
10. I am determined.
11. I seldom wonder what the point of it all is.
12. I take things one day at a time.
13. I can get through difficult times because I've experienced difficulty before.
14. I have self-discipline.
15. I keep interested in things.
16. I can usually find something to laugh about.
17. My belief in myself gets me through hard times.
18. In an emergency, I'm someone people can generally rely on.
19. I can usually look at a situation in a number of ways.
20. Sometimes I make myself do things whether I want to or not.
21. My life has meaning.
22. I do not dwell on things that I can’t do anything about.
23. When I'm in a difficult situation, I can usually find my way out of it.
24. I have enough energy to do what I have to do.
25. It’s okay if there are people who don’t like me.

General Self-Efficacy Measure - Chen, Gully, & Eden (2001)

Directions: Please indicate the extent to which you agree with the following items using the 5-point scale from strongly disagree (1) to strongly agree (5).

1. I will be able to achieve most of the goals that I have set for myself.
2. When facing difficult tasks, I am certain that I will accomplish them.
3. In general, I think that I can obtain outcomes that are important to me.
4. I believe I can succeed at most any endeavor to which I set my mind.
5. I will be able to successfully overcome many challenges.
6. I am confident that I can perform effectively on many different tasks.
7. Compared to other people, I can do most tasks very well.
8. Even when things are tough, I can perform quite well.

Self-Monitoring Scale - Snyder (1974)

Directions: The statements on the following pages concern your personal reactions to a number of different situations. No two statements are exactly alike, so consider each statement carefully before answering. If a statement is TRUE or MOSTLY TRUE as applied to you, select T. If a statement is FALSE or NOT USUALLY TRUE as applied to you, select F. It is important that you answer as frankly and as honestly as you can. Your answers will be kept in the strictest confidence.

1. I find it hard to imitate the behavior of other people. (T) (F)
2. My behavior is usually an expression of my true inner feelings, attitudes, and beliefs. (T) (F)
3. At parties and social gatherings, I do not attempt to do or say things that others will like. (T) (F)
4. I can only argue for ideas which I already believe.(T) (F)
5. I can make impromptu speeches even on topics about which I have almost no information. (T) (F)
6. I guess I put on a show to impress or entertain people. (T) (F)
7. When I am uncertain how to act in a social situation, I look to the behavior of others for cues. (T) (F)
8. I would probably make a good actor. (T) (F)
9. I rarely need the advice of my friends to choose movies, books, or music. (T) (F)
10. I sometimes appear to others to be experiencing deeper emotions than I actually am. (T) (F)
11. I laugh more when I watch a comedy with others than when alone. (T) (F)
12. In a group of people I am rarely the center of attention. (T) (F)
13. In different situations and with different people, I often act like very different persons. (T) (F)
14. I am not particularly good at making other people like me. (T) (F)
15. Even if I am not enjoying myself, I often pretend to be having a good time. (T) (F)
16. I'm not always the person I appear to be. (T) (F)
17. I would not change my opinions (or the way I do things) in order to please someone else or win their favor. (T) (F)
18. I have considered being an entertainer. (T) (F)
19. In order to get along and be liked, I tend to be what people expect me to be rather than anything else. (T) (F)
20. I have never been good at games like charades or improvisational acting. (T) (F)
21. I have trouble changing my behavior to suit different people and different situations. (T) (F)
22. At a party I let others keep the jokes and stories going. (T) (F)
23. I feel a bit awkward in company and do not show up quite as well as I should. (T) (F)
24. I can look anyone in the eye and tell a lie with a straight face (if for a right end). (T) (F)
25. I may deceive people by being friendly when I really dislike them. (T) (F)

PsyCap Questionnaire (PCQ) - Luthans, Youssef et al. (2007)

Directions: Below are statements that describe how you may think of yourself right now. Use the following scale to indicate your agreement or disagreement with each statement.
1= Strongly Disagree, 6 = Strongly Agree

1. I feel confident analyzing a long-term problem to find a solution.
2. I feel confident in representing my work area in meetings with management.
3. I feel confident contributing to discussions about the company's strategy.
4. I feel confident helping to set targets/goals in my work area.
5. I feel confident contacting people outside the company (e.g., suppliers, customers) to discuss problems.
6. I feel confident presenting information to a group of colleagues.
7. If I should find myself in a jam at work, I could think of many ways to get out of it.
8. At the present time, I am energetically pursuing my work goals.
9. There are lots of ways around any problem.
10. Right now I see myself as being pretty successful at work.
11. I can think of many ways to reach my current work goals.
12. At this time, I am meeting the work goals that I have set for myself.
13. When I have a setback at work, I have trouble recovering from it, moving in. (R)
14. I usually manage difficulties one way or another at work.
15. I can be "on my own," so to speak, at work if I have to.
16. I usually take stressful things at work in stride.
17. I can get through difficult times at work because I've experienced difficulty before.
18. I feel I can handle many things at a time at this job.
19. When things are uncertain for me at work, I usually expect the best.
20. If something can go wrong for me work-wise, it will. (R)
21. I always look on the bright side of things regarding my job.
22. I'm optimistic about what will happen to me in the future as it pertains to work.
23. In this job, things never work out the way I want them to. (R)
24. I approach this job as if "every cloud has a silver lining."

Modified PsyCap Items

1. I was able to achieve most of the goals that I set for myself.
2. When faced with difficult tasks, I felt certain that I would accomplish them.
3. In general, I thought that I could obtain outcomes that were important to me.
4. I believed that I could succeed at most any endeavor to which I set my mind.
5. I was able to successfully overcome many challenges.
6. I was confident that I could perform effectively on many different tasks.
7. Compared to other people, I could do most tasks very well.
8. Even when things were tough, I could perform quite well.
9. When in a jam, I was able to think of many ways to get out of it.
10. I energetically pursued my goals.
11. I believed that there were lots of ways around any problem.
12. I was able to think of many ways to get the things in life that were most important to me.
13. I saw myself as being pretty successful in life.
14. I met the goals that I set for myself.
15. When I had a setback, I had trouble recovering from it, moving on.
16. I usually was able to manage difficulties one way or another.
17. I could be "on my own," so to speak, if I had to.
18. I usually took stressful things in stride.
19. I was able to get through difficult times because I'd experienced difficulty before.
20. I felt I could handle many things at a time.
21. When things were uncertain for me, I usually expected the best.
22. If something could go wrong for me, it did.
23. I always looked on the bright side of things.
24. I was optimistic about what would happen to me in the future.
25. I felt that things never worked out the way I wanted them to.
26. I was a believer in the idea that "every cloud has a silver lining."

Instructions for Various PsyCap Measures

Likert-Type Measure:
Below are statements that describe how you may think of yourself in general over the past six months. Use the following scale to indicate your agreement or disagreement with each statement. *1= Strongly Disagree, 6 = Strongly Agree*

Frequency-Based Measure:
Over the past six months, think of how frequently the following statements accurately described your behavior or beliefs. For example, if you feel that "I energetically pursued my goals" was very descriptive of your behavior 50% of the time, somewhat descriptive of your behavior 35% of the time, and not at all descriptive of your behavior 15% of the time, then your response would look like:

	% Very Inaccurate	% Neither Inaccurate nor accurate	% Very accurate
I energetically pursued my goals	15	35	50

Likert-Type Measure (Family Context):
Below are statements that describe how you may think of yourself in general over the past six months. Describe yourself as you see yourself when you are with your family at home. Please describe yourself as you actually are when you are with your family, not as you wish to be in the future.
Use the following scale to indicate your agreement or disagreement with each statement.
1= Strongly Disagree, 6 = Strongly Agree

Likert-type measure (School Context):
Below are statements that describe how you may think of yourself in general over the past six months. Describe yourself as you see yourself when you are at school. Please describe yourself as you actually are when you are at school, not as you wish to be in the future.
Use the following scale to indicate your agreement or disagreement with each statement.
1= Strongly Disagree, 6 = Strongly Agree

Likert-type measure (Social Context):
Below are statements that describe how you may think of yourself in general over the past six months. Describe yourself as you see yourself when you are in a social setting with friends. Please describe yourself as you actually are when you are with friends, not as you wish to be in the future.
Use the following scale to indicate your agreement or disagreement with each statement.
1= Strongly Disagree, 6 = Strongly Agree

Likert-type measure (Acquaintance):
Please use this set of statements to describe [participant's name] as accurately as possible. Describe [participant's name] as you've seen [him/her] in general over the past six months, compared to other persons you know of the same sex and roughly the same age. Use the following scale to indicate your agreement or disagreement with each statement. *1= Strongly Disagree, 6 = Strongly Agree*

Vita

Elizabeth Anne McGee was born in Phoenix, Arizona. She grew up in Newport News, Virginia and graduated from Menchville High School in 2002. She then went to Harrisonburg, Virginia to attend James Madison University where she received her Bachelor of Science degree in Psychology in 2006. Next she moved to Knoxville, Tennessee to pursue her Ph.D. in Industrial/Organizational Psychology. Her Doctor of Philosophy degree from the University of Tennessee was conferred in the spring of 2011. Elizabeth has presented the results of her research at several academic meetings. She is pursuing a career as an applied consultant, and is currently employed as a Research Consultant with Russell Reynolds Associates in Atlanta, Georgia.