

The mediating role of psychological capital in the supportive organizational climate—employee performance relationship

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Summary

Although the value of a supportive organizational climate has been recognized over the years, there is a need for better understanding of its relationship with employee outcomes. This study investigates whether the recently emerging core construct of positive psychological capital (consisting of hope, resilience, optimism, and efficacy) plays a role in mediating the effects of a supportive organizational climate with employee outcomes. Utilizing three diverse samples, results show that employees' psychological capital is positively related to their performance, satisfaction, and commitment and a supportive climate is related to employees' satisfaction and commitment. The study's major hypothesis that employees' psychological capital mediates the relationship between supportive climate and their performance was also supported. The implications of these findings conclude the article. Copyright © 2008 John Wiley & Sons, Ltd.

Introduction

The thesis of Tom Friedman's (2005) best-selling book "The World is Flat" is that "it is now possible for more people than ever to collaborate and compete in real-time with more other people on more different kinds of work from more different corners of the planet and on a more equal footing than at any previous time in the history of the world" (p. 8). Such a new paradigm environment has too often driven today's organizations to compete and even survive on the basis of cutting price and costs through

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reengineering processes and downsizing the number of employees. These stop-gap measures have about run their course in Friedman's so-called "flat world" competition. New thinking and new approaches have become necessary for organizations to survive and to create sustainable growth and development. As the Chairman and CEO of The Gallup Organization, Jim Clifton, noted "in the new world of extreme competition, we are all going down the wrong path unless we discover a new way to manage" (Coffman & Gonzalez-Molina, 2002, p. xii).

The purpose of this article is to propose not only the importance of a supportive organizational climate to counter the negatively oriented downsizing of recent years, but also the importance of understanding a recently proposed positive perspective and strategy to human resource development and managing for performance impact called psychological capital, or simply, PsyCap (Luthans, Avolio, Avey, & Norman, 2007; Luthans, Luthans, & Luthans, 2004; Luthans & Youssef, 2004; Luthans, Youssef, & Avolio, 2007). In endorsing the recent book on *Psychological Capital* (Luthans, Youssef et al., 2007), organizational behavior scholar Denise Rousseau states that it "shows how recent breakthroughs in the positive psychology movement can translate into benefits for companies, managers, and workers." In order to derive the study hypotheses, we first present the theoretical underpinnings of what is meant by this psychological capital and how it may be related to a supportive organizational climate for employee performance impact.

The Meaning of Positive Organizational Behavior

Positive organizational behavior (Luthans, 2002a, 2002b, 2003; Luthans & Youssef, 2007; also see Nelson & Cooper, 2007; Wright, 2003) and its derivative psychological capital or PsyCap (Luthans, Avolio, et al., 2007; Luthans et al., 2004; Luthans & Youssef, 2004; Luthans, Youssef et al., 2007) is largely drawn from the theory and research in positive psychology (Peterson & Seligman, 2004; Seligman and Csikszentmihalyi, 2000; Sheldon & King, 2001; Snyder & Lopez, 2002) applied to the workplace (Luthans & Youssef, in press). Simply put, positive psychology is concerned with people's strengths (rather than weaknesses and dysfunctions) and how they can grow and thrive (rather than be fixed or maintained). Positive psychology does not claim to have discovered the value of positivity, but rather the intent is to simply shift to a more balanced focus of understanding and developing what is also right with people and how they can thrive.

Positive organizational behavior, or simply POB, takes positive psychology to the workplace (Luthans, 2002a, 2002b, 2003; Luthans & Youssef, 2007, in press). More specifically, POB is defined 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" (Luthans, 2002b, p. 59). Thus defined, POB has very specific inclusion criteria. To be included in POB, the construct must not only be a positive strength or psychological capacity, but also must be grounded in theory and research, have valid measures, and perhaps most importantly for differentiating from other positively oriented constructs found in the organizational behavior field over the years, must be state-like (as opposed to trait-like) and therefore open to development and management for performance improvement (Luthans, 2002a, 2002b; Luthans & Youssef, 2007; Luthans, Youssef et al., 2007).

These definitional criteria differentiate what we mean by POB from the popular positively oriented self-development books and the widely recognized largely trait-based positive constructs (such as positive affectivity, conscientiousness, self-esteem, or core self-evaluations) and the University of

Michigan's research group's work on more macro-oriented positive organizational scholarship (Cameron & Caza, 2004; Cameron, Dutton, & Quinn, 2003; Roberts, 2006). Though there is some overlap with this complementary work, POB is mainly different in its "state-like" malleability and focus on performance impact at a more micro-level. For example, in making the distinction between POB and POS Nelson and Cooper (2007, pp. 3–4) note that "Luthans recommended that POB researchers study psychological *states* (italics added) that could be validly measured, and that are malleable in terms of interventions in organizations to improve work performance," whereas "the POS movement seeks to understand human excellence and exceptional organizational performance." Therefore, as defined here, POB is a specific positive approach with implications for human resource development and performance management.

To date, the positive psychological constructs that have been determined to best meet the POB criteria are hope, resiliency, optimism, and self-efficacy (Luthans, 2002a; Luthans et al., 2004; Luthans & Youssef, 2004; Luthans & Youssef, 2007; Luthans, Youssef et al., 2007). However, it should be noted that other positive psychological constructs could and likely will be included in the future. Some representative examples include positive concepts such as work engagement (Schaufeli & Bakker, 2004; Schaufeli & Salanova, 2007), psychological well-being (Wright & Cropanzano, 2000, 2004), psychological ownership (Avey, Avolio, Crossley, & Luthans, in press), wisdom, courage, and forgiveness (e.g., see Luthans, Youssef et al., 2007, Chapters 6 and 7), and Peterson and Seligman (2004) discuss a variety of positive virtues that could also meet the POB criteria to varying degrees. However, the four identified for this study have been determined to best meet the POB inclusion criteria at this time and also theoretically and empirically have been shown to make up the core construct of psychological capital (Luthans, Avolio et al., 2007).

Hope as a positive psychological strength

Hope is widely used in every day language, but as examined here is most closely associated with the theory and research of positive psychologist C. Rick Snyder. Snyder and colleagues' hope theory (Snyder, Sympson, Ybasco, Borders, Babyak, & Higgins, 1996; Snyder, 2000, 2002) is widely recognized in clinical and positive psychology and has considerable research support. Snyder and his colleagues have specifically defined hope as a "positive motivational state that is based on an interactively derived sense of successful (1) agency (goal directed energy) and (2) pathways (planning to meet goals)" (Snyder et al., 1996). Thus, hope can be viewed as consisting of three distinct but complementary components: agency (will-power), pathways (way-power), and goals.

The agency component of hope can be viewed as being the will to accomplish a specific task or goal (Snyder et al., 1996). Thus, agency includes the motivation or goal-directed energy to succeed at a given task in a specific context. The pathway component is viewed as being the means to accomplish a task or goal. Thus, a pathway is considered to be the way to accomplish a task or goal. Together, they form the will and the way to accomplish a given task or goal. Snyder and colleagues' theory and research suggest having one component by itself is not sufficient. To possess hope as defined and operationalized, one must have both the will to succeed in a given task, as well as a viable means, or way to accomplish that task.

In clinical and positive psychology, hope has been clearly linked to academic and athletic success (Snyder, 2000, 2002), but only recently has it been analyzed in the workplace. In preliminary research in the workplace, hope has been found to be related to Chinese factory workers' supervisory rated performance (Luthans, Avolio, Walumbwa, & Li, 2005), unit financial performance and employee satisfaction and retention (Peterson & Luthans, 2003), and employee performance, satisfaction, happiness, and commitment (Youssef & Luthans, 2007).

Resilience as a positive psychological strength

Resilience theory and research is largely drawn from clinical psychology's work with adolescent children that have succeeded despite great adversity (Masten, 2001; Masten & Reed, 2002). Resilience is often characterized by positive coping and adaptation in the face of significant adversity or risk (Masten & Reed, 2002). As adapted to the workplace, resiliency has been defined as the "positive psychological capacity to rebound, to 'bounce back' from adversity, uncertainty, conflict, failure, or even positive change, progress and increased responsibility" (Luthans, 2002a, p. 702). Therefore, resilience can be characterized by coping responses not only to adverse events, but also to extreme positive events as well.

As with hope, to date research on resilience has been mainly limited to clinical and positive psychology. However, similar to the focus on hope, preliminary research has begun to examine the impact of resiliency in the workplace. For example, a significant relationship was found between the resiliency of Chinese factory workers undergoing significant change and transformation and their supervisory rated performance (Luthans et al., 2005). Resiliency has also been found to be related to work attitudes of satisfaction, happiness, and commitment (Youssef & Luthans, 2007).

Optimism as a positive psychological strength

The theoretical foundation for optimism as a POB strength is largely drawn from the discussions of positive psychologist Martin Seligman (1998). Specifically, he defines optimism as making an internal, relatively stable, and global attribution regarding positive events such as goal achievement, and an external, relatively unstable, and specific cause for negative events like a failed attempt at reaching a goal. To avoid the criticism of false optimism, POB tends to emphasize realistic optimism (Luthans, 2002b; Luthans, Youssef et al., 2007; Schneider, 2001). In other words, optimism is not based on an unchecked process that has no realistic assessment. This realistic optimism as a state (as opposed to a dispositional trait), includes an objective assessment of what one can accomplish in a specific situation, given the available resources at that time, and therefore can vary (see Peterson, 2000).

Similar to the other positive psychological capacities, empirical research on optimism in the workplace is just emerging. Seligman (1998) did find that optimism was significantly and positively related to the performance of insurance sales agents. In addition, in the study of the Chinese factory workers mentioned previously by Luthans et al. (2005), optimism was also found to have a significant relationship with rated performance. The study by Youssef and Luthans (2007) found employees' optimism related to their performance, satisfaction, and happiness.

Efficacy as a positive psychological strength

Meeting the POB criteria perhaps better than any other capacity is self-efficacy. This positive construct is based on the comprehensive theory and extensive research of Bandura (1997) with recent emphasis to linking this construct to positive psychology (Bandura, 2007). Applied to the workplace, Stajkovic and Luthans (1998) defined efficacy as the 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. In a meta-analysis consisting of 114 studies, they found a strong positive relationship between self-efficacy and work-related performance (Stajkovic & Luthans, 1998).

Particularly relevant to the POB developmental criterion, Bandura (1997) has clearly shown that self-efficacy can be enhanced in four very specific ways. First, efficacy is developed when an employee experiences success (task mastery). Second, employees' efficacy can be developed when they vicariously learn how to do something by observing others (i.e., modeling) in their relevant comparison group accomplish a task and be rewarded. Third, efficacy is developed when being persuaded by or receiving positive feedback from respected others. Fourth, efficacy is developed and enhanced through physiological and/or psychological arousal and wellness.

Psychological Capital

Law, Wong, and Mobley (1998) provided a conceptual framework for determining how multidimensional constructs can relate to a core factor. The "latent model" they describe characterizes what we refer to as psychological capital (PsyCap) in that we have specified a higher-level, core construct that underlies the four dimensions of hope, resilience, optimism, and efficacy. The higher-order core construct of PsyCap represents the commonality among the four component dimensions and as noted has both conceptual (Luthans et al., 2004; Luthans & Youssef, 2004; Luthans, Youssef et al., 2007) and empirical (Luthans, Avolio et al., 2007) support.

Very simply, PsyCap can be viewed as "who you are" and "what you can become in terms of positive development" (Avolio & Luthans, 2006) and is differentiated from human capital ("what you know"), social capital ("who you know"), and financial capital ("what you have") (Luthans et al., 2004). PsyCap has been specifically defined 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 (resiliency) to attain success" (Luthans, Youssef et al., 2007, p. 3).

On the surface and as used in everyday language, hope, resiliency, optimism, and efficacy seem very similar and interchangeable. However, the positive psychology literature (e.g., Snyder, 2000, 2002; Snyder & Lopez, 2002) and POB (e.g., Luthans & Youssef, 2007; Luthans, Youssef et al., 2007) has clearly differentiated these positive capacities and empirically based analyses have found discriminant validity among them (Bryant & Cvenegros, 2004; Carifio & Rhodes, 2002; Luthans, Avolio et al., 2007; Magaletta & Oliver, 1999; Youssef & Luthans, 2007). Thus, each of these four positive components has been shown to be conceptually and psychometrically distinct.

By the same token, there is also empirical evidence of convergent validity among them (e.g., Bryant & Cvenegros, 2004; Carifio & Rhodes, 2002; Luthans, Avolio, et al., 2007; Magaletta & Oliver, 1999; Youssef & Luthans, 2007). A proposed benefit of combining these similar, yet distinct capacities is that they likely share an underlying component or psychological resource (see Hobfoll, 2002 for a comprehensive review) that allows for individuals that possess higher levels of these resource capacities to perform at consistently higher levels than would be possible with higher levels of just one of these components alone (Luthans, Avolio, et al., 2007).

Another linkage for the theoretical foundation for PsyCap compatible with psychological resource theories comes from positive psychologist Fredrickson's (1998, 2001) broaden-and-build theory of positive emotions. She has found that basic research on positivity builds out not only intellectual (e.g., problem solving and creativity), physical (e.g., coordination, coping with stress, and cardiovascular

health), and social (e.g., relationships, networks, and friends) resources, but it is also important to the theoretical understanding of PsyCap and what she calls psychological resources (Fredrickson, 2001; also see Isen, 1987). Research on positive emotions using this framework has suggested that individuals and groups of people operate at more optimal levels of cognitive and emotional functioning when reporting higher levels of positive emotions (Fredrickson & Losada, 2005). While emotions studied under this framework are distinct from the positive cognitions examined in PsyCap, research suggests a strong link between cognitions and emotions (Lazarus, 1993) supporting the underlying premise that positivity in general, and positive emotions and cognitions in particular, are likely to help support theoretical explanation and better understanding of psychological capital and its impact on performance.

In addition to the theoretical framework, another important requirement for PsyCap is its state-like developable capacity. As was brought out in the discussion of each of the four capacities, they are all, to varying degrees, demonstrated to be state-like and thus open to change and development. The term *state-like* is deliberately used to recognize that, with the possible exception of efficacy (Bandura, 1997), each has been treated in the literature as both trait-like, dispositional, as well as state-like, developable.

In proposing that PsyCap is state-like, we draw from Conley (1984) who noted that “self-opinion constructs” are more malleable than personality traits or intelligence, but are still relatively stable over time. Recent research has also shown that after disattenuating for internal reliability, over time the corrected test-retest reliability for trait-like conscientiousness and core self-evaluations had higher stability than did the measure for state-like PsyCap (Luthans, Avolio et al., 2007). Thus, drawing from this prior research, we are suggesting that PsyCap is “state-like,” i.e., moderately stable but not dispositional or fixed like personality or core self-evaluation traits and can be changed by experience and developed in training.

Just as each positive capacity has evidence for discriminate and convergent validity it is more accurate to treat these four on a trait-state continuum rather than a pure state. Further adding to defining these constructs as state-like, there is preliminary evidence that PsyCap can be developed in a short, highly focused intervention in a group training session (see Luthans, Avey, Avolio, Norman, & Combs, 2006) and on-line (Luthans, Avey, & Patera, in press).

In sum, PsyCap is presented here as an emerging higher order, core construct that organizations can invest in and develop in their workforce to achieve veritable, sustained growth and performance. Indeed, we are proposing that PsyCap may help provide and contribute to the call for a new perspective and approach to managing for competitive advantage in the “flat world” environment. However, PsyCap cannot operate in vacuum and this is why we propose that a supportive organizational climate may play a role.

Supportive Organizational Climate

As pointed out by Luthans and Avolio (2003), both PsyCap and a positive, supportive context are needed for human resources to achieve sustainable growth and performance. Over the years, supportive climate researchers have taken different paths. Some have considered as an individual performance equation, which includes a multiplicative combination of ability, support and effort (Schermerhorn, Gardner, & Martin, 1990). That is, employees’ performance is the product of their ability, the support received to adequately perform their job, and the motivation to perform at high levels. Therefore, one key component of employees’ performance is the amount of support they receive.

Another approach is more directly concerned with supportive organizational climate. For example, Mercer and Bilson (1985) reported a positive relationship between supportive organizational climate and employee outcomes such as organizational commitment and job satisfaction. Similarly, Rogg, Schmidt, Shull, and Schmitt (2001) found that supportive organizational climate was related to desired organizational outcomes such as customer satisfaction. Although the Rogg et al. (2001) study was conducted at the organizational level rather than at the individual level of analysis as examined here, their results offered the initial foundation for follow up studies to examine the impact of a supportive organizational climate on other desirable outcomes such as performance, job satisfaction, and commitment. In addition, Rogg et al.'s (2001) measure of supportive climate was found to be reliable with adequate evidence for construct validity.

We recognized these varied approaches when examining supportive climate in the current study. For example, Eisenberger and colleagues (Eisenberger, Fasolo, & Davis-LaMastro, 1990; Rhoades, Eisenberger, & Armeli, 2001) have examined supportive climate in terms of the amount of perceived organizational support that one believes is present. Similarly, some theoretical models assert that the values supported and reinforced within an organization influence the types of HR systems that are in place within that organization and then these systems, in turn, affect the organization's climate. This resulting climate then has been shown to positively impact employee attitudes and behavior, as well as individual and organizational performance (Ferris, Arthur, Berkson, Kaplan, Harrell-Cook, & Frink, 1998).

Drawing from this previous theory-building and research, supportive organizational climate as examined in this study can be defined as the overall amount of perceived support employees receive from their immediate peers, other departments, and their supervisor that they view as helping them to successfully perform their work duties. We also propose that this perceived supportive climate relates to desired outcomes.

A conceptual linkage between supportive organizational climate and performance can be drawn from research by Renn and Vandenberg (1995). Their study examined Hackman and Oldham's (1980) widely recognized job characteristics model. Specifically, they examined the mediating role that the critical psychological states (CPS—experienced meaningfulness, experienced responsibility for outcomes of the work, and knowledge of the results of one's work) has between the core job dimensions (i.e., skill variety, task identity, task significance, autonomy, and feedback) and individual performance (Renn & Vandenberg, 1995). Their findings generally supported the mediating role of CPS and may provide some support for our proposed mediating role that PsyCap plays between positive, supportive climate and individual employee performance. More specifically, in order for a variable that is more outside of the individual to affect individual performance (like the core job dimensions in the Renn and Vandenberg, 1995 study, or the unit's supportive organizational climate in the current study), there may be an important role for a mediating variable that is specific to the individual (like the critical psychological states in the Renn and Vandenberg (1995) study or PsyCap in the current study).

Conventional wisdom might conclude that the amount of support that individuals receive from their organization would directly lead to higher performance. Some research has indeed shown a direct relationship between these variables (e.g., Eisenberger et al., 1990). However, if someone does not have the aptitude or individual capacity to perform a task, all of the support possible would not necessarily yield a consistent level of success. Therefore, though the relationship between support and performance has some evidence, the results have not been consistent and the process needs further investigation for better understanding and prediction.

Research by Gardner and colleagues (Gardner & Schermerhorn, 2004; Schermerhorn et al., 1990) also supports the importance of individual factors (e.g., ability and effort) in the link between organizational support and individual performance. Hopefully by examining these mediating links, we

can begin to explain prior research conducted in the area of supportive climate that has produced an inconsistent relationship with performance (Delaney & Huselid, 1996; Becker & Gerhart, 1996). Therefore, based on this previous research, the current study does not hypothesize a direct relationship between supportive climate and individual employee performance, but does propose that psychological capital may play a mediating role in this relationship.

Although the relationship between organizational support and performance has not been consistently demonstrated in the past, prior research has shown a direct relationship between supportive climate and other desirable individual and organizational outcomes. For example, the research previously mentioned by Rogg and colleagues (Rogg et al., 2001) verified the importance of supportive organizational climate and measures of customer satisfaction. Eisenberger et al. (1990) found a relationship between perceived organizational support and measures of employee diligence, commitment, and innovation. Rhoades et al., (2001) reported a direct relationship between perceived organizational support and commitment to the organization. Therefore, past research supports the relationship between the amount of organizational support that one perceives and their commitment to that organization.

We also propose that perceptions of a supportive climate may create the positive conditions necessary for PsyCap to flourish. For example, when employees feel supported, they are more likely to use the pathway generation characteristic of hope to try unproven or new methods to accomplish tasks within the organizational context. Likewise, given that resiliency is defined in terms of assets and resources, a supportive climate will likely act as a contextual resource for individuals to quickly “bounce back” after setbacks. For example, when a setback occurs due to an employee mistake, those in a supportive climate will likely experience higher levels of resiliency as they would not be in fear of reprisal or punishment due to their mistake. They can remain focused on the task at hand, putting the setback behind them and effectively responding in a positive way following a setback.

Still another example of how a supportive climate may contribute to individual levels of PsyCap can be understood in terms of optimistic attributions. For example, when experiencing a supportive climate, mistakes are more likely attributed to external, unstable, and specific issues; i.e., encouraging employees to be optimistic in their attributions. For instance, if employees make mistakes in a supportive climate, they will continue to feel supported in terms of their abilities allowing them to attribute failures to external circumstances *versus* low personal knowledge, skills and abilities. Even if attributed to the individual, in a supportive climate one would expect the message to be, let’s try this again a different way.

Based on theory and research on both the newly emerging psychological capital core construct, and the more established supportive organizational climate reviewed above, we derive the following hypotheses:

Hypothesis 1. Psychological capital is positively related with employee performance, satisfaction, and commitment.

Hypothesis 2. Supportive climate is positively related with employee satisfaction and commitment.

To test the role that psychological capital may play in the supportive climate—employee performance relationship, the study’s major hypothesis is the following:

Hypothesis 3. Psychological capital mediates the relationship between supportive climate and employee performance.

Organizational Context

Services firm

The services firm sample in Study 2 has been in existence for approximately 30 years and provides technical and administrative services to insurance firms and individual customers. There are currently 1200 people employed in the division where this study took place. With the exception of a small group (<25) of computer programmers, all non-management employees are non-exempt and the company offers traditional benefits to all employees. The insurance service specialists that participated in this study work in an environmentally controlled office located in a medium-sized city in the middle of the U.S. The firm uses only one shift (i.e., 8:00A.M.–5:00P.M.) and all employees are located in the same building. Employees receive telephone calls and e-mails from both commercial (insurance firm) and individual clients. The majority of working hours is devoted to the use of a database to serve and process insurance claims or make changes to policies based on customer requests. Employees generally interface with their manager and coworkers throughout the day in between phone calls and on scheduled work breaks.

High-technology manufacturing firm

The high technology manufacturing firm sample in Study 3 has been in existence since 1916 when its founder bought a shipyard in the state of Washington in the U.S. The firm now employs over 100 000 people and is one of the largest military contractors for the United States Department of Defense. The major divisions in the organization include commercial manufacturing, military manufacturing, space exploration, and satellite services. Employees who participated in this study are electrical design engineers and technicians for the commercial division. Specifically, the employees design wire bundle assemblies for the electrical subsystems of the products. They are generally highly compensated and work in an office building with frequent visits to the factory floor where they personally attend to design issues while products are being manufactured. In addition, the work day consists of team meetings and designing components at computerized design stations using engineering software. They are generally highly educated and commonly work autonomously and simultaneously on multiple projects.

Methods

Separate samples were used to test the hypothesized relationships. Study 1 utilized a sample ($N = 404$) that were all the students from designated management classes at two Midwestern universities. It should be noted this sample was also used for other purposes (i.e., not testing hypotheses as in the present study) in previous research (Luthans, Avolio et al., 2007). These participants had an average age of 21.10 years ($SD = 2.66$) and 58 per cent were male. Although the emerging adult population is an interesting population for the future of organizations (Arnett, 2000), for better generalization, Studies 2 and 3 used two separate field samples including organizations that represent both service and high-tech manufacturing industries (see Organizational Context for specifics on these two firms).

The sample in Study 2 was made up of 163 out of about 200 employees in the policy and claims processing group (82 per cent), who volunteered to participate in the study. They represented all the

various functions and levels of a midsize insurance services firm (i.e., they service insurance policies and claims from other firms). It should be noted that an iteration of this sample was used in previous research to lend support to the relationship between PsyCap and performance and satisfaction (Luthans, Avolio et al., 2007). Therefore, this sample was not used to test Hypothesis 1 in this study regarding the relationship between PsyCap and performance/satisfaction, but since this study's variable of supportive climate was not used in the previous research, this sample is used to test the second and third hypotheses. The demographics for employees in this sample had an average age of 33.79 years ($SD = 10.85$), a mean of 2.07 ($SD = 2.08$) years of experience in the organization, and 57 per cent were female.

The sample for Study 3 consisted of engineers and technicians from a very large (Fortune 100, over 100 000 employees) high-tech manufacturing firm. It should again be noted that previous research (Luthans, Avolio et al., 2007) also used a sample from this same firm, but the sample from this firm used in the present study is a different group of participants collected several months later than the sample used in the previous research. Therefore, the sample in this study is used to test all three hypotheses. Out of the 288 who were recruited to participate, 170 volunteered (59%). They had an average age of 44.74 years ($SD = 8.76$), mean organizational tenure of 15.9 ($SD = 7.8$), and 80 per cent were male.

Supportive climate measure

To measure the supportive climate we used the Rogg et al. (2001) questionnaire that has demonstrated considerable psychometric support. Using all 12 items from 2 out of the 4 factors, this shortened scale contained aspects of climate most relevant to this study (managerial consideration and employee cooperation/coordination factors). The reliabilities for this supportive climate scale utilized in the three samples were as follows: Study 1, .93; Study 2, .93; Study 3, .89. Sample items included: "Managers consistently treat everyone with respect" and "Departments cooperate to get the job done effectively and efficiently" with response categories from 1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = somewhat agree, 5 = agree, and 6 = strongly agree.

PsyCap measure

The measure of PsyCap was the psychological capital questionnaire or PCQ (Luthans, Youssef et al., 2007). This PCQ draws from widely recognized published standardized measures for each of the positive constructs that make up PsyCap as follows: (1) hope (Snyder et al., 1996); (2) resiliency (Wagnild & Young, 1993); (3) optimism (Scheier & Carver, 1985); and (4) self-efficacy (Parker, 1998) and the PCQ has demonstrated reliability and construct validity (Luthans, Avolio et al., 2007).

The 24-item PCQ (6 items for each subscale of hope, resilience, optimism, and efficacy) has responses put into a six-point Likert-type scale with categories ranging from 1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = somewhat agree, 5 = agree, 6 = strongly agree. To reflect the state-like quality of PsyCap, the questions were framed to ask the participants how they felt "right now." Further, questions were adapted to make the target context specific to the workplace. For example, 21 out of the 24 items contained the terms work, company, or job. The entire instrument can be found in Luthans, Youssef et al. (2007, pp. 237–238). Sample items include: "At the present time, I am energetically pursuing my work goals" (hope); "I can get through difficult times at work because I've experienced difficulty before" (resiliency); "I feel confident contacting people outside the company (e.g., suppliers, customers) to discuss problems" (self-efficacy); and "When things are uncertain for me at work I usually expect the best" (optimism). To get a composite PsyCap score, all six responses for each of the four subscales were summed and averaged to first get a subscale composite average for each of the four subscales. Then, the averages for each of the four subscales were added

together and averaged to get a composite average for each subject's PsyCap score. This PCQ measure of overall PsyCap had reliabilities for the present studies as follows: Study 1, .89; Study 2, .89; and Study 3, .91.

Although this measure of PsyCap has been given previous research attention (see Luthans, Avolio et al., 2007), since it is still relatively new, to further examine the psychometric properties of the PCQ for this study, we conducted a confirmatory factor analysis (CFA). A CFA was deemed the appropriate technique versus an exploratory factor analysis as CFAs are used when there is theoretical rationale for an *a priori* factor structure. Given that each subscale has been derived from recognized theories and measures on hope, resilience, optimism, and efficacy in positive psychology, the PCQ clearly had a rationale for a four factor structure, and, as discussed in the theoretical foundation above, for a latent higher order PsyCap factor.

Using maximum likelihood techniques, we found adequate indices for the four-factor structure with each dimension's six items loading significantly ($p < .01$) on their respective dimension (e.g., resiliency). Specifically, the item loadings ranged from .89–.98 and were all statistically significant at $p < .01$. In addition, each dimension loaded very high on the latent factor PsyCap with hope, resilience, optimism, and efficacy all loading at .99. Specifically, the $\chi^2(246) = 1532.84$, CFI (.97), RMSEA (.08), and SRMR (.01) were well within Hu and Bentler's (1999) combinatorial recommendations for adequate indices. In addition, we compared this second-order factor structure with a single latent factor (e.g., all 24 items loading on a single latent factor) using a χ^2 significance test and determined the four factor second-order structure to be the best fitting model ($\Delta\chi^2(7) = 1831.14$, $p < .001$).

Performance measures

Although only the performance measure in Study 1 was self-reported, it was still gathered at a later time than when the predictor variables were gathered in order to minimize single (self) source effects/bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). This measure utilized in Study 1 requested participants to rate their overall performance as related to their peers ("How would you rate your performance/effectiveness as compared with your peers?" 1 = bottom 10%, 2 = 10–20%, . . . 10 = top 10%). Since the sample utilized in Study 1 were emerging adults, this measure was framed in terms of asking them to compare their performance in a current (or most recent if not working now) job or in a real and relevant project or assignment that they are currently involved in, so they were answering in work-related contexts.

Study 2 with service employees utilized actual performance evaluation data on the participants obtained from their organizations' human resources department. Participants' performance was determined by their managers completing the company evaluation process, which is done every quarter. The performance evaluation was provided to the researchers in a composite form. Throughout the quarter, managers had access to employees' number of claims processed and customer service ratings. At the end of each quarter, the managers were asked to give their employees a rating based on the following three factors: the amount of claims processed (quantity), customer service (quality), and the manager's rating of "overall performance." The performance composite used as a measure in Study 2 was on a scale of 1–5. It was designed and used over the years for performance feedback, merit increases, and promotion decisions in this service firm.

For the high-tech firm in Study 3, participants' managers derived a composite performance index based on rating their performance in terms of the following four factors: quality, quantity, teamwork, and contributing to the organization's mission. Each factor was rated on a scale of 1–10 and was provided by the human resources department to the researchers as an overall composite that served as the performance measure for this study. Similar to the performance metrics in the service firm in Study

2, this performance evaluation at the high-tech manufacturing firm has been used over the years for performance feedback, merit increases, and promotion decisions. This was the existing performance evaluation process and was conducted bi-annually. Studies 2 and 3 allowed the methodological advantages of time separations between survey data collection and the independent, unobtrusive ratings of performance.

Satisfaction and commitment measures

In addition to performance, these studies also examined the relationship between supportive climate and the work attitudes of satisfaction and commitment. As is commonly used in other organizational behavior research (e.g., Judge & Bono, 2001), all three studies used a three item satisfaction scale adapted from Hackman and Oldham (1980) using the same 1–6 rating as was utilized for the psychological capital measure. Participants rated their satisfaction using a six-point Likert-type scale with categories ranging from 1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = somewhat agree, 5 = agree, 6 = strongly agree. A sample item is “I am generally satisfied with the kind of work I do in this job.” As with the self-reported performance measure utilized in Study 1, the job satisfaction data were gathered at a later point in time from the predictor climate and PsyCap measures in order to minimize bias (Podsakoff et al., 2003). Reliabilities for this satisfaction measure were as follows: Study 1, .87; Study 2, .86; Study 3, .83.

The organizational commitment measure used the most relevant affective scale from the Allen and Meyer (1990) instrument. Again, responses were put into a six-point Likert scale ranging from 1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = somewhat agree, 5 = agree, 6 = strongly agree. A sample item is “I feel emotionally connected to the company for which I work.” Once again the organizational commitment data were gathered at a later point in time from the predictor scales in order to minimize rating bias. Reliabilities for this commitment measure were as follows: Study 1, .83; Study 2, .91; Study 3, .79.

Procedures

In Study 1, management students consented to participate in an “Organizational Behavior and Leadership” project and were provided a web address in order to register. They were then electronically sent a unique password via e-mail that enabled them to log onto the site and take the questionnaire survey at two points in time. As Podsakoff and colleagues (2003, p. 887) have suggested, this “makes it impossible for the mindset of the source or rater to bias the observed relationship between the predictor and criterion variables, thus eliminating the effects of consistency motifs, implicit theories, and social desirability tendencies.” The first session of the survey contained the predictor study variables of climate and PsyCap and, after taking this initial survey, participants waited about a week before they were able to go back to the site, log in, and complete session two of the survey which included the satisfaction, commitment, and performance study variables. It should be noted that the survey questions were not altered for the student sample in order to keep the data collection as consistent as possible across samples. However, as indicated in the discussion of the Study 1 performance measure above, the instruction to the student participants was to frame the questions in terms of their current (or most recent) job or in a relevant class project or assignment so that they were answering in a work-related context.

The on-line method was also used in Study 2 to gather survey data on the predictor variables from employees in the insurance service firm. Again following Podsakoff and colleagues’ (2003) recommendations, the actual performance measure of the participants in this sample was gathered from

records in the human resources department of that organization at a different point in time. In addition to this temporal strategy of data collection, we also cross-checked against company records to confirm the accuracy of the self-reported demographic data and found no inconsistencies.

For the high tech manufacturing firm in Study 3, members of the electrical design engineering group were sent an invitation to participate in an “Organizational Behavior and Leadership” project. Participation was encouraged but was voluntary. Those who chose to participate were sent an e-mail with a URL on a secure server to complete the first survey session which included the climate and PsyCap questionnaires. After one week they were sent a second URL to complete the final survey which included the satisfaction and commitment questions. Again, like Sample 2, the actual performance measure for these Study 3 participants was gathered from the organization’s human resources department records representing another point in time.

Analyses

To test the study hypotheses, various analyses as reported in Tables 1 and 2 were utilized. The primary analysis technique used for testing the main hypothesis on PsyCap mediation of the climate–performance relationship was Baron and Kenny’s (1986) technique, as revised by Kenny, Kashy, and Bolger (1998). This approach requires estimating three regression equations. In the first equation, the dependent variable (performance) was regressed on the independent variable (supportive climate). In the second equation, the mediating variable (PsyCap) was regressed on the independent variable (supportive climate). In the third equation, the dependent variable (performance) was regressed on both the independent variable (supportive climate) and the mediating variable (PsyCap).

According to Baron and Kenny (1986), there is support for mediation if the following are obtained: (1) the first regression equation shows that the independent variable relates to the dependent variable; (2) the second equation shows that the independent variable relates to the mediating variable; and (3) the third regression shows that the mediating variable relates to the dependent variable and the

Table 1. Means, standard deviations, and inter-correlations among study variables

	Mean	SD	1	2	3	4	5
1. Support clim ^a	4.32	.79	1.0				
2. PsyCap ^a	4.33	.41	.23**	1.0			
3. Job sat ^a	4.42	.88	.58**	.39**	1.0		
4. Performance ^a	8.45	1.60	.04	.25**	.18**	1.0	
5. Commitment ^a	3.88	1.03	.62**	.31**	.67**	.15**	1.0
1. Support clim ^b	5.83	.84	1.0				
2. PsyCap ^b	4.82	.47	.50**	1.0			
3. Job sat ^b	4.72	.86	.49**	.54**	1.0		
4. Performance ^b	3.19	.34	.07	.21*	.22*	1.0	
5. Commitment ^b	4.28	1.09	.60**	.44**	.68**	.22*	1.0
1. Support clim ^c	4.38	.66	1.0				
2. PsyCap ^c	4.67	.51	.52**	1.0			
3. Job sat ^c	4.79	.77	.54**	.72**	1.0		
4. Performance ^c	8.16	1.50	.02	.25**	.18*	1.0	
5. Commitment ^c	4.40	1.01	.55**	.48**	.53**	.04	1.0

* $p < .05$ (two-tailed).

** $p < .01$ (two-tailed).

^aStudy 1 ($N = 404$), management students/emerging adults.

^bStudy 2 ($N = 163$), insurance service firm employees.

^cStudy 3 ($N = 170$), engineers/technicians in high-tech manufacturing.

Table 2. Regression results for PsyCap on supportive climate for all three samples criterion of performance

	Performance β	
	Step 1	Step 2
Supportive climate ^a	.04	-.02
PsyCap ^a		.25**
ΔR^{2a}		.06*
Supportive climate ^b	.07	-.05
PsyCap ^b		.26**
ΔR^{2b}		.05*
Supportive climate ^c	.02	-.12
PsyCap ^c		.32**
ΔR^{2c}		.07*

* $p < .05$.** $p < .01$.^aStudy 1 ($N = 404$), management students/emerging adults.^bStudy 2 ($N = 163$), insurance service firm employees.^cStudy 3 ($N = 170$), engineers/technicians in high-tech manufacturing.

relationship of the independent variable with the dependent variable is significantly lower in magnitude in the third equation than in the second. For full mediation, the independent variable must not relate to the dependent variable when the mediating variable is added to the equation. However, as revised by Kenny et al. (1998), condition one is no longer required for mediation as long as the other two conditions are met. That is, in testing the PsyCap mediation hypothesis, according to Kenny et al. (1998) it is not required for supportive climate to be significantly related to the dependent variable (performance) in their bi-variate relationship. They note as long as steps two and three are met, the path to the dependent variable is implied, and therefore, condition one is no longer required to statistically demonstrate mediation.

Sobel (1982) tests were also conducted to further support the mediation model as proposed. This test is designed to assess whether a mediating variable (PsyCap) carries the effects of the independent variable (supportive climate) to a dependent variable (performance). The computed statistic measures the indirect effect of the independent variable on the dependent variable by way of the mediator. Reported p -values are obtained from the unit normal distribution under the assumption of a two-tailed test of the hypothesis that the mediated effect equals zero in the population using ± 1.96 as the critical values which contain the central 95 per cent of the unit normal distribution (Preacher & Hayes, 2004). Under this test, a significant p -value indicates support for mediation. Finally, the classic Aroian (1944/1947) test of mediation was used to further verify the results.

Results

The means, standard deviations, and correlations among all variables for all three studies are shown in Table 1. As shown, there is full support for Hypothesis 1 that PsyCap is significantly related to performance, satisfaction, and commitment in both Study 1 ($r = .25$, $p < .01$ for performance; $r = .39$, $p < .01$ for satisfaction; and $r = .31$, $p < .01$ for commitment) and Study 3 ($r = .25$, $p < .01$ for performance; $r = .72$, $p < .01$ for satisfaction; and $r = .48$, $p < .01$ for commitment). As indicated in Table 1, these relationships are also significant in Study 2, but, as indicated earlier, since a version of

this service employee sample and variables were used in previous research, these Study 2 results were excluded in testing Hypothesis 1 in the present study.

Table 1 also shows support for Hypothesis 2, that supportive climate is significantly related to satisfaction and commitment. These relationships held across all three studies (in Study 1 for satisfaction $r = .58, p < .01$ and for commitment $r = .62, p < .01$; in Study 2 for satisfaction $r = .49, p < .01$ and for commitment $r = .60, p < .01$; and in Study 3 for satisfaction $r = .54, p < .01$ and for commitment $r = .55, p < .01$).

Although the positive results for the relationship of both PsyCap with performance, satisfaction, and commitment and supportive climate with satisfaction and commitment replicate much of the previous research, most important to this study is the full support found for this study's major Hypothesis 3. PsyCap mediated the relationship between supportive climate and employee performance. Regression results for each sample are shown in Table 2.

Regression coefficients for supportive climate were non-significant for each sample when performance was regressed on supportive climate ($\beta = .04, p = .42$ for Sample 1; $\beta = .07, p = .46$ for Sample 2; and $\beta = .02, p = .79$ for Sample 3). However, regression coefficients for supportive climate were significant for all three samples when PsyCap was regressed on supportive climate ($\beta = .23, p < .01$ for Sample 1; $\beta = .50, p < .01$ for Sample 2; and $\beta = .52, p < .01$ for Sample 3). Lastly, when performance was regressed on both PsyCap and supportive climate, PsyCap was the only variable that contributed significantly to the equation (for PsyCap, $\beta = .25, p < .01$ for Sample 1; $\beta = .26, p < .05$ for Sample 2; and $\beta = .32, p < .01$ for Sample 3). Furthermore, the already weak relationship between supportive climate and performance weakened further to become slightly negative ($\beta = -.02, p = .72$ for Sample 1; $\beta = -.05, p = .63$ for Sample 2; and $\beta = -.12, p = .24$ for Sample 3), indicating full mediation.

In sum, conditions two and three of Baron and Kenny's (1986) tests for mediation were satisfied while condition one was not. Nevertheless, based on the revised criteria (Kenny et al., 1998), Hypothesis 3 is supported that PsyCap fully mediates the relationship between supportive climate and employee performance.

In addition, Sobel (1982) tests were conducted for each sample as a means of further examining evidence for mediation above and beyond procedures recommended by Kenny and colleagues (Baron & Kenny, 1986; Kenny et al., 1998). Results of three separate Sobel tests supported PsyCap mediating the relationship between supportive climate and performance. The Sobel test was significant in all three samples; in Sample 1, $z = 3.24, p < .01$; in Sample 2, $z = 2.23, p < .05$; and in Sample 3, $z = 2.83, p < .01$.

Results of the Sobel tests also parallel those using the Aroian tests which were found to be significant in all three samples: in Sample 1, $z = 3.21, p < .01$; in Sample 2, $z = 2.20, p < .05$; and in Sample 3, $z = 2.81, p < .01$. The Aroian tests do not make the assumption that the products of the standard errors of both regression coefficients used in the calculation is "vanishingly" small (Aroian, 1944/1947; also see Baron & Kenny, 1986; Preacher & Hayes, 2004). This Aroian test is being used by researchers as an additional way for testing mediation. Thus, all of the statistical tests supported PsyCap as mediating the relationship between supportive climate and performance and thus provides full support for the study's major hypothesis.

Discussion

As found in previous research, across two heterogeneous samples in the present study, psychological capital was found to be positively related to performance, satisfaction, and commitment. Also supporting previous research, across three heterogeneous samples in the present study, supportive

climate was found to be positively associated with both satisfaction and commitment. Given the value placed on replication and convergence and the heterogeneity among study samples, these results suggest strong external validity for a positive relationship of individual employees' reported PsyCap and their performance, satisfaction, and commitment, as well as their perceptions of a supportive climate and their commitment and satisfaction.

Beyond providing additional support for earlier findings, this study's major finding and contribution involved the role positive psychological capital may play as an important mediating link between supportive organizational climate and employee performance. Specifically, this study provides initial evidence that in concert with a supportive climate, positivity in general and psychological capital in particular, may have a desired impact on employees' actual performance.

Although recent research has indicated that psychological capital is positively related to performance (Luthans, Avolio et al., 2007; Luthans et al., 2005), satisfaction (Larson & Luthans, 2006; Luthans, Avolio et al., 2007), and negatively with absenteeism (Avey, Patera, & West, 2006), this is the first study to examine the role that psychological capital may play in the supportive climate–performance relationship. Also, arguably more influential to the direction of future research, this study contributes to the theoretical understanding and empirical support from three diverse samples as to the conditions in which PsyCap may manifest itself. Specifically, employees who perceive the climate in their organizations to be more supportive may be more likely to experience higher levels of PsyCap which in turn positively impacts their performance in both service and high-tech manufacturing. Given the seeming importance of PsyCap in predicting employee outcomes, these studies demonstrate the utility of a supportive climate and the importance of the relationship between these perceptions and employees' PsyCap and performance. However, before conclusions can be drawn, the limitations of this study must be recognized.

One limitation is found in Study 1 that depends on management student survey data including self-reported performance. To help minimize this potential problem, the predictor variables were separated in time from the dependent variables. Moreover, Study 1 can be considered as a pilot because we followed up with two studies that utilized employee samples from both service and high-tech manufacturing firms, both of which had organizational performance measures gathered independent of the study. Importantly for reliability and generalizability, results were identical across all three of these diverse samples.

Another potential limitation that needs to be recognized concerns the nature of cross-sectional research. While replication and diverse samples are strengths of the current study, causal inferences that supportive climate and PsyCap causes employee performance cannot be made. We depended on existing theory and prior research to describe the phenomena and did find that the predicted relationships exist. However, the direction of the relationship can not be determined without establishing temporal precedence and experimental manipulations. In other words, the direction of causality has not been established with this study and the possibility of alternative hypotheses (e.g., high performance leads to PsyCap and a supportive climate) cannot be ruled out.

In addition, common method variance within (as well as between) independent or dependent variables may lead to artificially high correlations. For example, Studies 2 and 3 showed a strong correlation between PsyCap and supportive climate. While these constructs have clear discriminant validity and this correlation leads us to conclude they only potentially share about 25 percent of common variance, there still may be common method bias that could have impacted the pattern of results observed in these three studies. Similar limitations may exist with the high correlations between satisfaction and commitment. However, once again, it is important to note that the major contribution of this study, i.e., the mediation role of PsyCap between supportive climate and performance, did include temporal separation between the predictor and criterion variables which can potentially help reduce the common method bias limitation of such relationships.

Implications and Conclusion

Several practical implications emerge from the results of the study. First, this study provides further evidence of the important role that PsyCap may play in positively impacting the performance and work attitudes of employees and potentially may contribute to an organization's competitive advantage. In other words, although important, it is not enough just to provide a positive or supportive organizational climate to get optimal impact on performance. This study would suggest that it may be important to recognize that the level of an employees' psychological capital may also play a role in leveraging what a positive or supportive organizational climate can contribute to performance. An implication for both better theoretical understanding and effective practice concerning the supportive climate–performance impact relationship is the role of PsyCap as an important psychological resource for today's organizations.

In conclusion, the results of this study not only suggest the seeming value of employees' psychological capital at all levels within organizations, but also the benefits that may result from organizations providing positive, supportive climates. Since psychological capital is “state-like” and there is at least preliminary evidence that it can be developed (e.g., Luthans et al., 2006, in press), investing in and developing employees' psychological capital may be an example of the new thinking and new approaches that are needed for the “flat world” environment facing today's organizations and their leaders.

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