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RELATIONSHIP BETWEEN POSITIVE PSYCHOLOGICAL CAPITAL AND CREATIVE PERFORMANCE

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Abstract

Despite considerable attention to the creative process and relationship with personal characteristics, to date the relationship between recently emerging positive organizational behavior constructs and creative performance has not been tested. This study addresses this need by advancing hypotheses relating recognized positive psychological resources of efficacy, hope, optimism, and resilience, as well as when combined into the core construct of psychological capital (PsyCap), with measured creative performance on a task exercise. A large heterogeneous sample of working adults (N=899) was utilized. Results indicate all the resources were significantly related to participants' performance on the creative exercise. Furthermore, overall PsyCap predicted creative performance over and above each of the four PsyCap components. Theoretical and practical implications of the results conclude the article.

Keywords: psychological capital; positive organizational behavior; efficacy; hope; optimism; resilience; creativity; creative performance

RELATIONSHIP BETWEEN POSITIVE PSYCHOLOGICAL CAPITAL AND CREATIVE PERFORMANCE

The famous inventor Thomas Edison noted: "genius is one percent inspiration and ninety-nine percent perspiration." Preceded by many, many months of failures, in late 1879, Edison finally succeeded in producing a filament that served as the breakthrough for the electric light bulb. This creative "genius" of course was associated with his personal characteristics of perseverance and hard work – his "perspiration". This heavy imbalance for perspiration (i.e., motivated perseverance and the will to succeed) in the creative process seems just as relevant in meeting the challenges facing modern organizations as it was in Edison's era. Unfortunately, today's practitioners and scholars alike still lament the lack of creative performance within organizations (Sutton, 2002).

Due to its scarcity, creativity is cited as being a major threat to the competitiveness of organizations in the global economy (House, 2003). At the same time, empirical studies have clearly demonstrated the importance of creativity for competitive advantage (Amabile, 1996; Argyris & Schon, 1978; Nonaka, 1991; Oldham, 2002). Better understanding of the personal, psychological antecedents of creativity (Edison's perseverance and "perspiration"), is needed to help meet the challenge of competition, paradigmatic change, and even survival. Amabile (1983; 1996; Amabile, et al., 2004) and others (e.g., Rodan & Galunic, 2004; Tierney & Farmer, 2002; Zhou, 2003) have identified agentic psychological resources such as intrinsic motivation as being key in achieving creative outcomes. This previous research is particularly relevant here as the variables in this study have been referred to as intrinsic motivational propensities (Luthans, Avolio, Avey, & Norman, 2007). Specifically, while there is a

demonstrated linkage between the emerging positive psychological resources to overall workplace attitudes and performance (e.g., Luthans, Avolio et al., 2007), the time has now come to examine whether these resources may also be related specifically to creative performance.

In this article, we propose that the recently recognized positive core construct of psychological capital or PsyCap (Luthans, Avolio et al., 2007; Luthans, Luthans & Luthans, 2004; Luthans, Youssef, & Avolio, 2007) represents the type of psychological resource that may contribute not only to better understanding and prediction, but also the development and management of the process leading to creative performance in general and idea generation in particular. Specifically, the purpose of this study is to extend research in the emerging work on positive organizational behavior in general and PsyCap in particular by empirically testing the relationship between the positive component resources which comprise PsyCap (i.e., efficacy, hope, optimism, and resiliency), as well as the core factor of PsyCap itself, and the performance of working adults on a creative exercise.

Positive Approach to Organizational Behavior

A positively-focused approach continues to gain momentum in the organizational behavior field (Luthans, & Avolio, 2009). While recognition of positive constructs and impact on human potential certainly is not new (e.g., Albee, 1982; Allport, 1961; Bandura, 1989; Maslow, 1971), the recent momentum is due, at least in part, to a re-focus on positively-oriented constructs and especially those that have been generally ignored in the organizational behavior field (e.g., hope, optimism, resilience, compassion, forgiveness, and virtue). This renewed interest has been in part a reaction to a deficit

perspective in management research with studies on stress, for example, significantly outweighing the number of studies on well-being. For example, a recent analysis found a 16 negative to 1 positive ratio in articles in the *Journal of Occupational Health Psychology* (Schaufeli & Salanova, 2007). A focus on the positive aspects of human functioning can create an expanded venue by which organizational behavior scholars can study individual phenomena in organizations (Wright & Quick, 2009b). This positive emphasis may yield unique implications for managerial issues such as training and development (Luthans, Avey & Patera, 2008) and even physical health (Wright, Cropanzano, Bonett & Diamond, 2009).

Specifically, inspired by the introduction of a similar focus in positive psychology (Seligman & Csikszentmihalyi, 2000), a positively-oriented re-focus to the field of organizational behavior was first advocated several years ago by Luthans (2002a, 2002b, also see Wright, 2003). Following this call for at least a re-focus on a positive perspective in organizational behavior, there has been a growing body of research (for recent reviews see Luthans & Avolio, 2009; Luthans & Youssef, 2007; Wright & Quick, 2009a); books (e.g., Cameron, Dutton & Quinn, 2003; Dutton & Ragins, 2007; Luthans, Youssef & Avolio, 2007; Nelson & Cooper, 2007) and, in addition to this special issue in *CJAS* , other recent special issues in the *Journal of Organizational Behavior* (Bakker & Schaufeli, 2008 and Wright & Quick, 2009a), the *American Behavioral Scientist* (Cameron & Caza, 2004), and the *Journal of Applied Behavioral Science* (Cameron & Powley, 2008).

Positive organizational behavior, or simply 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" (Luthans, 2002b, p. 59). The inclusion criteria for constructs in this defined domain of POB are not only a positive orientation, but also based on theory and research, state-like and therefore open to development, and having performance impact (Luthans, 2002a; 2002b). To date, through growing theory-building and empirical research, Luthans and colleagues have identified the constructs of efficacy, hope, resilience, and optimism as best meeting the inclusion criteria for POB. However, they emphasize that other constructs may also meet the criteria in the future (Luthans, Youssef, & Avolio, 2007). With this definitional framework for POB serving as a point of departure, we now turn to a brief review of creative performance, followed by theoretically linking and deriving hypotheses relating the individual POB constructs of efficacy, hope, optimism, resiliency, and overall psychological capital, with creative performance.

The Creative Process and the Impact of Positive Psychological Resources

Creativity in organizations has been simply described as the process of "coming up with fresh ideas for changing products, services, and processes so as to better achieve the organization's goals" (Amabile, Barsage, Mueller, & Staw, 2005). Creative performance then involves the behaviors through which one's creative potential is manifest. There has been much interest in the study of creativity, with thousands of published works on creativity in the past four decades alone (Runco, Nemiro, & Walberg, 1998). During this time, creativity has been found to be a source of innovation within organizations (Amabile, Conti, Coon, Lazenby, & Herron, 1996), as something that is needed for nearly all jobs (Shalley, Gilson, & Blum, 2000), is consistent across a variety

of disciplines (Sternberg, 1985), and is regarded as key to positive performance in today's competitive work environment (Oldham & Cummings, 1996).

As indicated in the introductory comments, creativity has a long history of being researched as it relates to personal characteristics such as affect and personality dimensions (Amabile, 1996; George & Zhou, 2001; Oldham & Cummings, 1996). Despite this long history of research on the personal antecedents of creativity, relatively less attention has been devoted to creativity as it relates to an individual's psychological resources such as those identified in the POB literature summarized above.

However, there is some support in the motivation literature (e.g., see Ambrose & Kulik, 1999) of a positive agentic process serving as a theoretical linking mechanism for the relationship between such psychological resources and creative performance. We now turn our attention to an examination of such motivational mechanisms for creativity that we propose are embodied in the positive psychological resources of efficacy, hope, optimism, and resiliency, and the overall core construct of psychological capital.

Efficacy and Creativity

Efficacy relates to an individual's perceived capacity for carrying out a task (Bandura, 1997). Specifically, applied to the workplace it can be defined as "one'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). Efficacy is not related to a person's actual skills, but rather the beliefs one possesses regarding what he or she can do with those skills (Bandura, 1997). Efficacy is a generative capability that impacts performance through the use of inventiveness and resourcefulness (Bandura, 1986). In

other words, higher levels of efficacy has been found to relate to increased creative performance (Amabile, 1996) and past research also indicates the influence of efficacy upon an individual's creativity in general (Tierney & Farmer, 2002), with Prabhu, Sutton, and Sauser (2008) arguing for the mediating role of intrinsic motivation in this process. Thus, the mechanisms of the relationship between efficacy and creative performance seems to be related to the motivational impact efficacy has upon creative action (Ford, 1996; Bandura, 1986, 1997).

Creativity itself may be a high risk activity because the generation of novel and useful ideas often fails (Carmeli & Schaubroeck, 2007). Those higher in efficacy are more likely to undertake risky, challenging activities such as creative task engagement (Bandura, 1997). In this way, choice of activities is guided by an individual's efficacy (Gist & Mitchell, 1992). Furthermore, efficacious individuals approach such challenging activities as tasks to be mastered (Bandura, 1997). In this way, not only is motivation enhanced, but efficacy also enables a more creative approach to the process of problem solving (Phelan & Young, 2003). This previous theory-building and research leads to the first study hypothesis:

H1: Efficacy has a positive relationship with creative performance.

Hope and Creativity

Hope, as defined by Snyder, Irving, and Anderson (1991, p. 287), is 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)." Thus, individuals high in hope not only have the willpower and motivation but also have the ability to both determine a pathway to achieve their goal and are able to generate multiple pathways and

adapt their plans as needed. This hope enables those who possess it to continue toward goal attainment, even when faced with obstacles and problems along the way.

Hope as defined by Snyder primarily differs from efficacy in terms of what he refers to as the waypower or pathway generation mechanisms. More specifically, while efficacy relates to people's belief about what they can do with their skills, hope relates to the willpower to use those skills along with the ability to generate multiple paths to accomplishing the same goal (Luthans, Youssef, & Avolio, 2007). In other words, efficacy may address the question of "can I do this?" whereas hope addresses the question of "how many different ways can I think of doing this and do I have the energy or willpower to accomplish it?" Efficacy and hope may be generally correlated (e.g., in multiple samples in a recent study at about .5, see Luthans, Avolio et al., 2007). However, any given individual, for example, may be higher in hope by being able the generate multiple pathways to accomplishing a given goal but lower in efficacy as they do not believe they can effectively implement any of the pathways.

With high willpower (i.e., taking motivated action) and high waypower (i.e., generating alternative pathways), those with high hope would tend to incorporate more motivated effort and generate pathways into the mental strategies in creative problem solving and in turn increase their potential for creative performance. Amabile (1996) indicates that such a process may be key to creative performance. Moreover, the willpower and waypower components of hope may have the potential to create a positive upward spiral where the components build on each other (Luthans, Youssef & Avolio, 2007). Through this continuous hope-filled reiteration between the willpower of

performing creatively and the waypower of creatively exploring alternatives, overall cognitive activity and effort toward goal attainment is increased (Snyder, 1994).

Hopeful individuals are generally independent thinkers and highly autonomous (Luthans, Youssef, & Avolio, 2007). This may also result in creative activity spawned by resourcefulness, nontraditional thinking, and even apparent chaos and disorganization as those high in hope explore and take creative pathways to a goal. This leads to the second study hypothesis:

H2: Hope has a positive relationship with creative performance.

Optimism and Creativity

As defined by Carver and Scheier (2002, p. 231), "optimists are people who expect good things to happen to them; pessimists are people who expect bad things to happen to them." In addition to this positive expectation, optimism is also depicted as an explanatory style whereby positive events are attributed to personal and permanent characteristics by the individual, and negative events are attributed to external, temporary factors of the situation (Seligman, 1998). Thus, optimists feel success can be replicated and controlled. However, in order for this optimism to be effective, it must be realistic (Seligman & Csikszentmihalyi, 2000).

While hope and optimism can occur together (Peterson & Seligman, 2004), the two are considered conceptually distinct (Snyder, 1994). For example, whereas optimism involves the expectation of positive outcomes, hope is more directed toward the pragmatic willpower and waypower required in order to reach these desired outcomes. That is, hope relates to the behavior of carrying out specific steps and the motivation needed to achieve a desired outcome. In contrast, optimism relates to the expectation and

an explanatory style of positive outcomes for the individual, regardless of the specific willpower or waypower behaviors needed to achieve those outcomes.

Through an expectancy framework, the approach to the task and outcomes are influenced by optimism, with realistically optimistic individuals expecting success when confronted with challenges. The same for an optimistic explanatory style, it leads to those who feel in control of their destiny. Such an optimistic explanatory style produces a self-fulfilling prophecy whereby positive explanations become reality (Peterson & Chang, 2002). While there is little research directly relating optimism with creativity, a theoretical linkage can be found in the relation of optimism to expectations, and the positive expectations of creative outcomes related to creative performance through a self-fulfilling prophecy (Peterson & Seligman, 2004). Thus, the study's third hypothesis:

H3: Optimism has a positive relationship with creative performance.

Resiliency and Creativity

Resilience is defined as a "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). Central to this definition of resiliency is being able to positively adapt to, and move past, significant change and/or adversity. Resilience enables an individual to not only survive, but to potentially thrive on positive adjustment to change (Masten & Reed, 2002). For example, resilience enables an individual to feel at ease outside of their normal comfort zone. This allows resilient individuals to challenge personal assumptions and build further resilient capacities through positive adaptation (Luthans, Youssef & Avolio, 2007; Weick, Sutcliffe, & Obstfeld, 1999; Wildavsky, 1988). Importantly, this is not just a simple process of

achieving linear homeostasis. Rather, resilience is a cumulative and interactive process which enables individuals to go beyond what is normal, to move to a positive disequilibrium and positive deviance (Luthans, Youssef & Avolio, 2007; Cameron, 2008).

Creative performance requires a persevering internal force to move beyond the challenges and setbacks inherent in creative work, as well as to adapt to a changing environment in general (Amabile, 1983). Resiliency may provide the needed mechanism by which one can persevere in the face of change and the need for creative problem solving (Luthans, Youssef & Avolio, 2007). Thus, resiliency may enable one to harness the latent power of their individual potential, and to persevere in accomplishing creative work. In this regard, resiliency is conceptually distinct from efficacy, hope, and optimism in its relation to creativity. Specifically, resiliency is more reactive in nature, sustaining creativity rather than initiating it as would be more the case of efficacy, hope, and optimism (Luthans, Youssef & Avolio, 2007). Hence, while the previous hypotheses related more to the mechanisms by which creativity was generated, the mechanism by which resiliency impacts creative performance may be in relation to sustaining existing creative performance, adapting to a changing environment. Thus, the fourth study hypothesis:

H4: Resilience has a positive relationship with creative performance.

Psychological Capital and Creativity

As indicated, psychological capital, or simply PsyCap, is a recently recognized positive core construct and is defined as:

> an individual's positive psychological state of development characterized by: (1) having confidence (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).

The common theoretical thread running through the four components of PsyCap (i.e., efficacy, optimism, hope and resilience) is the "positive appraisal of circumstances and probability for success based on motivated effort and perseverance" (Luthans, Avolio et al., 2007, p. 550). Conceptually (see Luthans, Youssef & Avolio, 2007) and empirically (see Luthans, Avolio et al., 2007) psychological capital has been demonstrated to be a second-order, core factor. Due to the combined motivational effects being broader and more impactful than a simple aggregation of the individual constructs, PsyCap has predictive power beyond the simple addition of the individual constructs from which it is comprised (Luthans, Avolio et al., 2007).

Although the intent here is not to review the rapidly expanding literature on PsyCap (see Luthans & Avolio, 2009; Luthans & Youssef, 2007 and Luthans, Youssef & Avolio, 2007 for recent comprehensive reviews) let it be simply said that a widening stream of research clearly supports the relationship between PsyCap and performance/ attitudinal outcomes (see Avey, Luthans, Smith & Palmer, 2009; Avey, Wernsing & Luthans, 2008; Luthans, Avey, Clapp-Smith & Li, 2008; Luthans, Avolio et al., 2007;

Luthans, Norman, Avolio & Avey, 2008) and that it can be developed (Luthans, Avey & Patera, 2008). However, the relationship between PsyCap and creative performance has not yet been tested. Given the hypothesized relationships described in H1-H4 as well as the demonstrated predictive powers of PsyCap beyond the simple individual effects of efficacy, hope, optimism, and resiliency, the final study hypothesis is as follows:

H5: The core factor of psychological capital (PsyCap) - comprised of efficacy, hope, optimism, and resilience - has a stronger relationship with creative performance than any of the individual components.

Method

Sample and Procedure

The sample for this study included 899 working adults from a wide cross section of organizations, levels and jobs. They agreed to participate in a large U.S. Midwestern university sponsored research project on leadership and motivation. There were 459 males and 417 females with the rest not indicating gender. Age ranged from 18 to 84 years old with a standard deviation of 13.33 years. Tenure in the current organization ranged from 1 to 30 years with an average of 7.43 (s.d. = 7.26). Overall, 374 individuals listed annual salary of less than $30,000, 292 individuals indicated salary between $30,000 and $50,000, 141 indicated annual salary between $50,000 and $100,000 and the rest indicated making over $100,000 annually. Participants were from a variety of industries with the largest being general services (30%), education (12%), finance (11%), manufacturing (7 %), marketing (6%) and social work (4%).

After consenting to participate in the study, participants were sent a link to a web-based survey which asked for demographic information and included the PsyCap

questionnaire. One week later, they were asked to complete online a widely used creative exercise (detailed below). Separating the collection of independent and dependent variables in this manner was done in order to minimize same source bias (Podsakoff, MacKenzie, Lee & Podsakoff, 2003).

Measures

Psychological capital was measured using the 24 item Psychological Capital Questionnaire (PCQ) developed (see Luthans, Youssef & Avolio, 2007, pp. 237-238 for the entire PCQ and permission free for research can be obtained from www.mindgarden.com) and validated by Luthans and colleagues (see Luthans, Avolio et al., 2007 for construct validity analysis) and has demonstrated strong psychometric properties in a growing number of studies (e.g., Avey, Luthans, & Jensen, 2009; Avey, Luthans et al., 2009; Avey, Luthans & Youssef, 2009; Avey, Wernsing & Luthans, 2008; Luthans, Norman et al., 2008). Specifically, the PCQ contains six items for each of the four components adapted from published measures (efficacy - Parker, 1998; optimism – Scheier & Carver, 1985; hope – Snyder et al., 1996; resilience – Wagnild & Young, 1993). Items are measured on a 6-point Likert scale. Representative items include: "I feel confident helping to set targets/goals in my work area" (efficacy); "When things are uncertain for me at work, I usually expect the best" (optimism); "If I should find myself in a jam at work, I could think of many ways to get out of it" (hope, pathways); "Right now I see myself as being pretty successful at work "(hope, agency); "I feel I can handle many things at a time at this job" (resilience) and "I usually take stressful things at work in stride" (resilience). In line with its use in previous research, the reliability for the PCQ in this study was $\alpha = .93$.

In terms of confirmatory factor analysis, PsyCap is considered a second order factor (see Law, Wong & Mobley, 1998), meaning each item loads on its respective component and each of the four components is fitted to the overall latent PsyCap factor. Thus, PsyCap is the shared variance of the four components. Results from a CFA on the data in this study using maximum likelihood techniques yielded strong support for the validity of the measure replicating previous work (e.g., see Luthans, Avolio et al., 2007). Specifically, the data demonstrate a CFI = .95, RMSEA = .05 and SRMR = .05; each index being at or better than traditional cutoffs indicated by Hu and Bentler (1999).

Creative performance was measured by an exercise utilized in organizational behavior creativity research by Harrison and colleagues (2003). This exercise is called "unusual uses" and focuses primarily on the ideation component of creativity. Amabile (1996) argues that creativity can be thought of as both idea generation and feasibility of those ideas. In this study, and consistent with the previous research using this approach (e.g., Harrison et al, 2003), we focused on the ideation component of creativity. More specifically, in the early stages of problem solution, the idea of brainstorming multiple options may be more important than determining the feasibility of each option. If ideation is limited, there are fewer or zero options to even begin a feasibility or scrutinization process.

For this exercise, participants had a specified period of time (30 seconds) to derive the highest number of uses for common household items. Consistent with work by Harrison and colleagues (2003) we used the items of a mug, wire hanger and shoelace. A textbox on this online exercise was provided with ample room for the response (no participant exhausted the room available). Representative examples of uses for these

items included a reminder finger tie (shoelace), a belt (shoelace), a paper weight (mug), a pencil holder (mug), a marshmallow roaster (wire hanger) and a spear (wire hanger). As with other research using this exercise, the number of uses was counted in terms of frequency to represent creative performance.

Results

Table 1 shows the means, standard deviations and correlations for all study variables. As indicated, each of the four components of hope ($r = .19$, $p < .001$), efficacy ($r = .21$, $p < .001$), resilience ($r = .23$, $p < .001$) and optimism ($r = .24$, $p < .001$) were positively related to creative performance. Thus, Hypotheses 1-4 were supported.

[Insert Table 1 about here]

Hypothesis 5 predicted PsyCap would have a stronger relationship with creative performance than any of the four individual components comprising PsyCap. Although, PsyCap did have a slightly higher bivariate relationship with creative performance ($r = .25$, $p < .001$), simple correlation is not an adequate test for this hypothesis. Thus, following the example of previous research by Judge and colleagues (Erez & Judge, 2001; Judge, Erez, Bono, & Thoresen, 2003), as well as more direct research in PsyCap (Luthans, Avolio et al., 2007), we conducted what has been termed a usefulness analysis (Darlington, 1990).

A usefulness analysis is a series of regressions where one variable (in this case PsyCap) is compared to other variables (in this case, hope, efficacy, resilience and optimism) to see which is the most "useful" in terms of predicting variance in the criterion variable(s) (in this case, creative performance). The analysis is set up in two stages. First, the comparison variable is loaded in a regression model, and then in step 2

the next variable is loaded into the regression model to see if it predicts significant variance beyond the first. Then, the process is reversed.

As seen in Table 2, when PsyCap was added to any regression model with an existing component, it predicted significant variance beyond the component. These ranged (in multiple R) from .02 to .09. In addition, when reversed and the component was added to the regression model, efficacy, optimism, nor resilience added any variance beyond overall PsyCap. Only the hope variable predicted variance in creative performance in addition to PsyCap. Overall, in 7 out of the 8 regressions in the usefulness analysis, PsyCap emerged by far as the most useful predictor of creative performance and thus there is general support for Hypothesis 5.

[Insert Table 2 about here]

Discussion

Summary

The purpose of this study was to examine the relationship between working adults' specific positive psychological resources (i.e., efficacy, hope, optimism, and resiliency), and their overall level of psychological capital, with their performance on a creative exercise. The findings supported all the study hypotheses, i.e., there was a significant positive relationship between all the components of PsyCap individually and as an overall core construct. In addition, usefulness analysis indicated, with the possible exception of hope, PsyCap predicted over and above the individual component constructs of efficacy, optimism and resilience. To explain the hope result, it may be that both the agentic, motivational dimension of willpower and the proactive pathway component lend

themselves as particularly important psychological resources to draw from during idea generation for the creative process.

Contributions to Scholarship

The results have important implications for theory-building. Specifically, the results provide initial evidence that one's psychological capital may influence creative performance. Although there has been some previous research relating each of the component constructs with creativity, this study is the first to relate the recently emerging core construct of psychological capital with creativity. In particular, these results help to build a bridge between the rich body of research on creativity and the relatively nascent fields of positive organizational behavior, the topic of this special issue of *CJAS*.

Applied Implications

This study provides not only empirical support for a theoretical process linking PsyCap and creative performance, but also has important practical implications because PsyCap is state-like and thus open to development and performance management (Luthans, Youssef & Avolio, 2007; Luthans, Avey & Patera, 2008). Thus, given this initial evidence of the relationship between PsyCap and creative performance, it follows that creative performance could potentially be influenced and positively impacted through the development of employees' PsyCap.

Previous research has suggested that resilience (Masten & Reed, 2002), (learned) optimism (Seligman, 1998), efficacy (Bandura, 1997) and hope (Snyder, 1994) can all be developed through training interventions. Further, prior research has found PsyCap to be developable through even 1-3 hour training interventions (see Luthans, Avey, Avolio, Norman & Combs, 2006; Luthans, Avey & Patera, 2008; Luthans, Youssef & Avolio,

2007). These PsyCap training modules are not only designed to develop component constructs (i.e., efficacy, optimism, hope and resilience) and overall PsyCap, but also to serve in generating greater awareness and sensitivity to one's strengths. We propose this awareness could be a further generative mechanism in increasing creative performance. However, more research is needed to understand the potential impact of these and other PsyCap training implications upon creative performance.

Limitations and Future Research Directions

Despite the significance of the findings of this study relating PsyCap and its component constructs to creative performance, some limitations must be noted. First, while the relationship was examined between one of the components of PsyCap of job efficacy and creative performance, creative efficacy was not specifically examined. Creative efficacy is a construct developed by Tierney and Farmer (2002) and based on the conceptual framework of work-related efficacy developed by Gist and Mitchell (1992). While creative efficacy has been found to predict creative performance above and beyond job efficacy, job efficacy itself was found to be the best predictor of creative efficacy (Tierney & Farmer, 2002). Additionally, given that job efficacy in a given domain is a prerequisite to creative performance in that domain (Amabile, 1996), it follows that job self-efficacy is a predecessor to creative efficacy within that domain (Tierney & Farmer, 2002). Given these additional nuances of creative efficacy, its inclusion seems needed in future research, especially examining the relationship between creative efficacy, psychological capital, and creative performance.

Although theoretical support for the relationship between PsyCap and creativity was included in the derivation of the study hypotheses, the empirical tests focused on the

relationship between the four components and overall PsyCap and creativity. For example, we argued that hope would enable creativity by multiple pathway generation and efficacy would facilitate creativity by persistent effort. However, pathway generation and effort were not directly measured. Thus, future research needs to take into account measuring the mechanisms used in the theoretical arguments linking these constructs with the creative process.

Methodologically, this study utilized a cross-sectional design which included neither random assignment nor experimental manipulations. Thus, causality cannot be inferred, only correlation. It is possible, for example, that both PsyCap and creative performance are predicted by a third construct or that creative performance leads to PsyCap. Additionally, self-selection bias of study participants could have influenced the results. Future research needs to leverage random sampling and random assignment to manipulated conditions – such as inclusion in a PsyCap experimental intervention – in order to provide for causal interpretability of the results.

A final limitation was the general nature of the creative exercise that was used. Related to the above distinction between job efficacy and creative efficacy, a creative task more closely aligned with the respondent's job efficacies may better assess creative performance in the workplace. Future research should draw from alternative measures of creative performance, including measures that are domain-specific. For example, respondents with job-related efficacy in information technology functions might be assessed using a task designed to elicit ideas for novel and useful implementation of new advanced technologies and applications.

Despite these limitations, there are significant strengths to the design of this study. First, the large, heterogeneous sample of employees in a broad cross-section of industries and functions provides for greater generalizability than smaller, more homogenous samples. Second, the distinct methods for collecting independent and dependent variables reduces common method bias issues in the relationship between predictor and outcome variables. The same for the time separation between the data collection on independent variables and dependent variables, as was outlined in the study procedures, helps to minimize same source bias (Podsakoff et al., 2003).

Conclusion

Overall, the results of this study demonstrate a significant relationship between the recently emerging positive core construct of psychological capital, its component resources of efficacy, optimism, hope and resilience, and performance on a creative exercise. Employee creativity is a widely recognized ingredient in producing needed innovation for today's organizations (Amabile, 1996). This process of creative performance leading to the implementation of innovative ideas is central to establishing and maintaining competitive advantage both individually and organizationally (Amabile, 1996; Argyris & Schon, 1978; Nonaka, 1991; Oldham, 2002).

In conclusion. this study provides initial empirical evidence for the important role that employees' psychological capital may play in their creative performance. To again paraphrase the words of Thomas Edison, perhaps genius is one percent creative inspiration and at least some of the ninety-nine percent of the perspiration and perseverance needed for creativity and innovation can be drawn from one's psychological

capital and other positive, agentic personal resources that can be developed and leveraged.

References

Albee, G. W. (1982). Preventing psychopathology and promoting human potential. *American Psychologist, 37*, 1043-1050.

Allport, G.W. (1961). *Pattern and growth in personality*. New York: Holt, Rinehart, & Winston.

Amabile, T. M. (1983). The social psychology of creativity: A componential conceptualization. *Journal of Personality and Social Psychology, 45,* 357-376.

Amabile, T. M. (1996). *Creativity in context.* Boulder, CO: Westview.

Amabile, T. M., Barsage, S. G., Mueller, J. S., & Staw, B. M. (2005). Affect and Creativity at Work. *Administrative Science Quarterly, 50,* 367.

Amabile, T. M., Conti, R., Coon, H., Lazenby, J., & Herron, M. (1996). Assessing the work environment for creativity. *Academy of Management Journal, 39,* 1154–1184.

Amabile, T. M., Schatzel, E. A., Moneta, G. B., & Kramer, S. J. (2004). Leader behaviors and the work environment for creativity: Perceived leader support. *Leadership Quarterly, 15,* 5–32.

Ambrose, M. L., & Kulik, C. T. (1999). Old friends, new faces: Motivation research in the 1990s. *Journal of Management, 25,* 231–292.

Argyris, C., & Schon, D. (1978). *Organizational learning*. Reading, Mass.: Addison Wesley.

Avey, J. M., Luthans, F., & Jensen, S. M. (2009). Psychological Capital: A Positive Resource for Combating Employee Stress and Turnover. *Human Resource Management*, in press.

Avey, J.M., Luthans, F., Smith, R., & Palmer, N. (2009). The Impact of positive psychological capital on employee well-being over time. *Journal of Occupational Health Psychology*, in press.

Avey, J.B., Luthans, F., Youssef, C.M. (2009). The additive value of positive psychological capital in predicting work attitudes and behaviors. *Journal of Management,* in press.

Avey, J.B., Wernsing, T.S., & Luthans, F. (2008). Can positive employees help positive organizational change? Impact of psychological capital and emotions on relevant attitudes and behaviors. *Journal of Applied Behavioral Science*, *44*, 48-70.

Bakker, A.B., & Schaufeli, W.B. (2008). Positive organizational behavior: Engaged employees in flourishing organizations. *Journal of Organizational Behavior*, *29*, 147-154.

Bandura, A. (1986). *Social foundations of thought and action.* Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist, 14*, 175-184.

Bandura, A. (1997). *Self-Efficacy: The exercise of control*. New York: Freeman.

Cameron, K. (2008). *Positive leadership.* Sam Francisco: Berrett-Koehler.

Cameron, K.S., & Caza, A. (2004). Contributions to the discipline of positive organizational scholarship. *American Behavioral Scientist*, *47,* 731-739.

Cameron, K. S., Dutton, J., & Quinn, R. (Eds.). (2003). *Positive organizational scholarship.* San Francisco: Berrett-Koehler.

Cameron, K.S., Powley, E.H. (2008). Special Issue: Positive Organizational Change. *The Journal of Applied Behavior Science, 44.*

Carmeli, A., Schaubroeck, J. (2007). The influence of leaders' and other referents' normative expectations on individual involvement in creative work. *The Leadership Quarterly, 18,* 35-48.

Carver, C. S., & Scheier, M. F. (2002). Optimism. In C.R. Snyder & S. Lopez (Eds.), *Handbook of positive psychology* (pp. 231-243). Oxford, UK: Oxford University Press.

Darlington, R.B. (1990). *Regression and linear models.* New York: McGraw-Hill.

Dutton, J.E., & Ragins, B.R. (Eds.). (2007). *Exploring positive relationships at work*. Mahwah, NJ: Lawrence Erlbaum.

Erez, A., & Judge, T.A. (2001). Relationship of core self-evaluations to goal setting, motivation, and performance. *Journal of Applied Psychology*, *86*, 1270-1279.

Ford, C. (1996). A theory of individual creative action in multiple social domains. *Academy of Management Review, 21,* 1112−1142.

George, J. M., & Zhou, J. (2001). When openness to experience and conscientiousness are related to creative behavior: An interactional approach. *Journal of Applied Psychology, 86,* 513–524.

Gist, M. E., & Mitchell, T. R. (1992). Self-efficacy: A theoretical analysis of its determinants and malleability. *Academy of Management Review, 17,* 183−211.

Harrison, D.A., Mohammed, S., McGrath, J.E., Florey, A.T., & Vanderstoep, S.W. (2003). Time matters in team performance: Effects of member familiarity, entrainment, and task discontinuity on speed and quality. *Personnel Psychology, 56,* 633-669.

House, D. (2003). The top five profit drains and how to plug them. *Journal of Business Strategy, 24,* 32–35.

Hu, L., & Bentler, P.M. (1999). Cutoff criteria for fit indices in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 61*, 1-55.

Judge, T.A., Erez, A., Bono, J.E., & Thoresen, C.J. (2003). The core self-evaluation scale: Development of a measure. *Personnel Psychology, 56*, 303-331.

Law, K.S., Wong, C., & Mobley, W.H. (1998). Toward a taxonomy of multidimensional constructs. *Academy of Management Review, 23*, 741-755.

Luthans, F. (2002a). The need for and meaning of positive organizational behavior. *Journal of Organizational Behavior, 23,* 695-706.

Luthans, F. (2002b). Positive organizational behavior: Developing and managing psychological strengths. *Academy of Management Executive*, *16(*1), 57-72.

Luthans, F., Avey, J.B., Avolio, B.J., Norman, S.M., & Combs, G.M. (2006). Psychological capital development: Toward a micro-intervention. *Journal of Organizational Behavior*, *27*, 387-393.

Luthans, F., Avey, J.B., Clapp-Smith, R. & Li, W. (2008). More evidence on the value on Chinese workers' psychological capital. *The International Journal of Human Resource Management, 19*, 818-827.

Luthans, F., Avey, J.B., & Patera, J.L. (2008). Experimental analysis of a web-based intervention to develop positive psychological capital. *Academy of Management Learning and Education*, *7*, 209-221.

Luthans, F., & Avolio, B.J. (2009). The 'point' of positive organizational behavior. *Journal of Organizational Behavior*, *30*, 291-308.

Luthans, F., Avolio, B.J., Avey, J.B., & Norman, S.M. (2007). Psychological capital: Measurement and relationship with performance and job satisfaction. *Personnel Psychology*, *60*, 541-572.

Luthans, F., Luthans, K., & Luthans, B. (2004). Positive psychological capital: Going beyond human and social capital. *Business Horizons*, *47*, 45-50.

Luthans, F., Norman, S.M., Avolio, B.J. & Avey, J.B. (2008). The Mediating role of psychological capital in the supportive organizational climate-employee performance relationship. *Journal of Organizational Behavior, 29*, 219-238.

Luthans, F., & Youssef, C.M. (2007). Emerging positive organizational behavior. *Journal of Management, 33,* 321-349.

Luthans, F., Youssef, C.M., & Avolio, B.J. (2007). *Psychological capital: Developing the human competitive edge*. Oxford, UK: Oxford University Press.

Maslow, A. (1971). *The farthest reaches of human nature*. New York: Viking.

Masten, A.S., & Reed, M.G.J. (2002). Resilience in development. In C. R. Snyder & S. Lopez (Eds.), *Handbook of positive psychology* (pp. 74-88). Oxford, UK: Oxford University Press.

Nelson, D., & Cooper, C.L. (Eds.). (2007). *Positive organizational behavior: Accentuating the positive at work*. Thousand Oaks, CA: Sage.

Nonaka, I. (1991). The knowledge-creating company. *Harvard Business Review, 69*, 96–104.

Oldham, G. R. (2002). Stimulating and supporting creativity in organizations. In S. Jackson, M. Hitt, & A. DeNisi (Eds.), *Managing knowledge for sustained competitive advantage* (pp. 243–273). San Francisco: Jossey-Bass.

Oldham, G. R., & Cummings, A. (1996). Employee creativity: Personal and contextual factors at work. *Academy of Management Journal, 39,* 607−634.

Parker, S. (1998). Enhancing role-breadth self efficacy: The roles of job enrichment and other organizational interventions. *Journal of Applied Psychology, 83*, 835-852.

Peterson, C., & Chang, E. (2002). Optimism and flourishing. In C. Keyes & J. Haidt (Eds.), *Flourishing: Positive psychology and the life well-lived* (pp. 55-79). Washington, DC: American Psychological Association.

Peterson, C., & Seligman, M. E. P. (2004). *Character strengths and virtues: A handbook and classification.* New York: Oxford University Press/Washington, DC: American Psychological Association.

Phelan, S., & Young, A. M. (2003). Understanding creativity in the workplace: An examination of individual styles and training in relation to creative confidence and creative self-leadership. *Journal of Creative Behavior, 37,* 266−281.

Podsakoff, PlM., MacKenzie, S.C., Lee, V., & Podsakoff, N.P. (2003). Common method biases in behavioral research. *Journal of Applied Psychology, 88*, 879-903.

Prabhu, V., Sutton, C., & Sauser, W. (2008). Creativity and certain personality traits: understanding the mediating effect of intrinsic motivation. *Creativity Research Journal, 20,* 53-66.

Rodan, S., & Galunic, C. (2004). More than network structure: How knowledge heterogeneity influences managerial performance and innovativeness. *Strategic Management Journal, 25,* 541–562.

Runco, M.A., Nemiro, J., & Walberg, H.J. (1998). Personal Explicit Theories of Creativity. *Journal of Creative Behavior, 32,* 1-17.

Schaufeli, W., & Salanova, M. (2007). Work engagement. In S.W. Gilliland, D.D. Steiner, & D.P. Starlicki (Eds.), *Managing social and ethical issues in organizations* (pp. 135-177). Charlotte, NC: Information Age Publishing.

Scheier, M.F. & Carver, C.S. (1985). Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. *Health Psychology, 4*, 219-247.

Seligman, M.E.P. (1998). *Learned optimism*. New York: Pocket Books.

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist, 55,* 5-14.

Shalley, C. E., Gilson, L. L., & Blum, T. C. (2000). Matching creativity requirements and the work environment: Effects of satisfaction and intentions to leave. *Academy of Management Journal, 43,* 215–223.

Snyder, C. R. (1994). *The psychology of hope: You can get there from here.* New York: Free Press.

Snyder, C.R., Irving, L.M., & Anderson, J.R. (1991). Hope and health. In C. R. Snyder (Ed.), *Handbook of social and clinical psychology* (pp. 295-305). Oxford, UK: Oxford University Press.

Snyder, C.R., Sympson, S., Ybasco, F., Borders, T., Babyak, M. & Higgins, R. (1996). Development and validation of the state hope scale. *Journal of Personality and Social Psychology, 70*, 321-335.

Stajkovic, A.D., & Luthans F. (1998). Social cognitive theory and self-efficacy. *Organizational Dynamics, 26*, 62-74.

Sternberg, R.J. (1985). *Beyond IQ: A triarchic theory of human intelligence.* Cambridge, England: Cambridge University Press.

Sutton, R. I. (2002). *Weird ideas that work: 11 1/2 practices for promoting, managing, and sustaining innovation.* Free Press, New York.

Tierney, P., & Farmer, S. M. (2002). Creative self-efficacy: Potential antecedents and relationship to creative performance. *Academy of Management Journal, 45*, 1137–1148.

Wagnild, G.M. & Young, H.M. (1993). Development and psychometric evaluation of the resiliency scale. *Journal of Nursing Management, 1*(2), 165-178

Weick, K.E., Sutcliffe, K.M., & Obstfeld, D. (1999). Organizing for high reliability: Processes of collective mindfulness. In Sutton, R., & Staw, B. (Eds.), *Research in organizational behavior; vol. 21*. Greenwich, CT: JAI.

Wildavsky, A. (1988). *Searching for safety.* New Brunswick, NJ: Transaction Books.

Wright, T.A. (2003). Positive organizational behavior: An idea whose time has truly come. *Journal of Organizational Behavior*, *24*, 437-442.

Wright, T. A., Cropanzano, R., Bonett, D. G., & Diamond,W. J. (2009). The role of employee psychological well being in cardiovascular health: When the twain shall meet. *Journal of Organizational Behavior, 30*, 193–208.

Wright, T.A., & Quick, J.C. (2009a). The emerging positive agenda in organizations: Greater than a trickle, but not yet a deluge. *Journal of Organizational Behavior*, 30, 147-160.

Wright, T.A., & Quick, J.C. (2009b).The role of positive-based research in building the science of organizational behavior. *Journal of Organizational Behavior*, *30*, 329-336.

Zhou, J. (2003). When the presence of creative coworkers is related to creativity: Role of supervisor close monitoring, developmental feedback, and creative personality. *Journal of Applied Psychology, 88*, 413–422.

TABLE 1

Inter-correlations among Study Variables

	Mean	S.D.	1.	2.	3.	4.	5.
1. Efficacy	4.66	.82	1.0				
2. Hope	4.63	.76	.75	1.0			
3. Resilience	4.63	.71	.67	.64	1.0		
4. Optimism	4.28	.69	.55	.60	.65	1.0	
5. PsyCap	4.55	.64	.88	.88	.86	.81	1.0
6. Creative Performance	3.38	2.16	.21	.19	.23	.24	.25

All relationships significant at $p < .001$

TABLE 2

Usefulness Analysis of Overall PsyCap Compared to Individual Components

	Creative performance
1. Hope	.18
2. PsyCap	.09*
1. PsyCap	.26
2. Hope	.01*
1. Resilience	.22
2. PsyCap	.04*
1. PsyCap	.26
2. Resilience	0
1. Optimism	.24
2. PsyCap	.02*
1. PsyCap	.26
2. Optimism	0
1. Efficacy	.21
2. PsyCap	.05*
1. PsyCap	.26
2. Efficacy	0

Table entries are multiple correlations (Multiple R). Numbers in second stage are change in multiple correlations (ΔR).

* $p < .001$