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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 its relationship with personal characteristics, there is no published study focused directly on the relationship between the recently recognized core construct of psychological capital (PsyCap) and creative performance. Drawing from a large ( $N = 899$ ) and heterogeneous sample of working adults, this study investigates PsyCap and its components (i.e., efficacy, hope, optimism, and resilience) as predictors of creative performance. Overall PsyCap predicted creative performance over and above each of the four PsyCap components. Theoretical and practical implications of these findings are considered.

Malgré la grande attention accordée à la démarche créatrice et à sa relation avec les caractéristiques personnelles, il n'existe pas encore, à ce jour, de travaux publiés consacrés exclusivement au lien entre le concept récemment reconnu de capital psychologique (PsyCap) et la performance créatrice. La présente étude se propose, à partir d'un grand ( $N = 899$ ) échantillon hétérogène d'adultes actifs, d'examiner le PsyCap et ses composantes (à savoir l'efficacité, l'espoir, l'optimisme et la résilience) en tant que prédicteurs de performance créative. L'article montre que le PsyCap prévoit une performance créative supérieure à chacune de ses composantes. Il s'achève par un examen des implications théoriques et pratiques de l'étude.

**Keywords:** psychological capital, positive organizational behavior, efficacy, hope, optimism, resilience, creativity, creative performance capital psychologique, comportement organisationnel positif, efficacité, espoir, optimisme, résilience, créativité, performance créative

Thomas Edison noted: “genius is one percent inspiration and ninety-nine percent perspiration.” After many months of failures, in late 1879, Edison succeeded in producing a filament that served as the breakthrough for the electric light bulb. That is, Edison’s creative “genius” resulted from much perseverance and hard work (i.e., “perspiration”), characteristics as important to achieving creative outcomes today.

Lack of creativity on all levels can seriously undermine an organization’s competitiveness (House, 2003). Studies have clearly demonstrated the importance of creativity for

competitive advantage (Amabile, 1996; Argyris & Schon, 1978; Nonaka, 1991; Oldham, 2002). An enhanced understanding of the personal, psychological antecedents of creativity (e.g., Edison’s perseverance and “perspiration”) can inform efforts to create and nurture creativity in organizations. Amabile (1983, 1996; Amabile, Schatzel, Moneta, & Kramer, 2004) and others (e.g., Rodan & Galunic, 2004; Tierney & Farmer, 2002; Zhou, 2003) identified agentic psychological resources (e.g., intrinsic motivation) as instrumental to achieving creative outcomes. These studies are

particularly relevant here as the variables we investigated have been referred to as intrinsic motivational propensities (Luthans, Avolio, Avey, & Norman, 2007). Specifically, while there is empirical evidence of a positive association between emerging positive psychological resources and overall workplace attitudes and performance (e.g., Luthans, Avolio, et al., 2007), their relationship with creative performance has not been directly tested.

We propose that psychological capital or PsyCap (Luthans, Avolio, et al., 2007; Luthans, Luthans, & Luthans, 2004; Luthans, Youssef, & Avolio, 2007) can help explain and predict creative performance in general, and idea generation in particular. Specifically, the current study extends research on positive organizational behaviour in general (and PsyCap in particular) by empirically investigating the relationship between PsyCap (and its defining components: efficacy, hope, optimism, and resilience) and creative performance.

### **A Positive Approach to Organizational Behavior**

The influence of positive psychology appears to be gaining attention in the organizational behavioral sciences (Luthans & Avolio, 2009). While the recognition of positive constructs and their possible impact on human potential certainly is not new (e.g., Albee, 1982; Allport, 1961; Bandura, 1989; Maslow, 1971), the more recent momentum in this area is due partly to an emerging interest in the positively-oriented constructs of hope, optimism, resilience, compassion, forgiveness, and virtue. Such interest may be a reaction to the “human deficit perspective” that has dominated management research. Specifically, an analysis published in the *Journal of Occupational Health Psychology* found a 16–1 ratio of articles focusing on negative rather than positive psychological states (Schaufeli & Salanova, 2007). A refocusing on the positive aspects of human functioning provides an expanded venue for scholars of organizational behavior to study individual phenomena in organizations (Wright & Quick, 2009b). A shifting of focus within the organizational sciences to the positive psychological characteristics of individuals is likely to contribute to increasing the effectiveness of management policies and practices (Luthans, Avey, Avolio, & Peterson, 2010; Luthans, Avey, & Patera, 2008) and improve the psychological and physical well-being of organizational members (Wright, Cropanzano, Bonett, & Diamond, 2009).

Inspired by positive psychology (Seligman & Csikszentmihalyi, 2000), a shift in the organizational sciences to focusing on the positive psychological characteristics of individuals was first advocated by Luthans several years ago (2002a, 2002b, also see Wright, 2003). There has also been a fast accumulating body of research on positive organizational behaviour appearing in both peer-reviewed journals (see Luthans & Avolio, 2009; Luthans & Youssef, 2007;

Wright & Quick, 2009a) and books (e.g., Cameron, Dutton, & Quinn, 2003; Dutton & Ragins, 2007; Luthans, Youssef, & Avolio, 2007; Nelson & Cooper, 2007). In addition to this special issue in the *Canadian Journal of Administrative Sciences*, special issues on the topic have also appeared in the *Journal of Organizational Behavior* (Bakker & Schaufeli, 2008; Wright & Quick, 2009a), the *American Behavioral Scientist* (Cameron & Caza, 2004), and the *Journal of Applied Behavioral Science* (Cameron & Powley, 2008).

Positive organizational behaviour, 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). According to Luthans (2002a, 2002b), positive psychological characteristics of individuals worthy of study must be firmly grounded in theory, research, and valid measurement; must be “state like” and therefore open to development; and must have an impact on performance. Constructs in POB that best satisfy these criteria, according to Luthans and his colleagues, include efficacy, hope, resilience, and optimism. It is likely that, with time, this list will be expanded (Luthans, Youssef, & Avolio, 2007).

### **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 behaviours 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), something needed for nearly all jobs (Shalley, Gilson, & Blum, 2000), and key to organizational competitiveness (Oldham & Cummings, 1996).

Creativity has a long established research literature, much which has investigated individual predictors of creativity, including affect and personality (Amabile, 1996; George & Zhou, 2001; Oldham & Cummings, 1996). Yet, little attention has been given to the association between creativity and an individual’s psychological resources, such as PsyCap and its components. The motivation literature (e.g., see Ambrose & Kulik, 1999), however, suggests that a positive agentic process underlies the relationship between psychological resources and creative performance. Accordingly, we now consider the motivational mechanisms underlying creativity, which we believe embody PsyCap and its constituent parts.

## 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 are associated with increased creative performance (Amabile, 1996) and an individual's creativity in general (Tierney & Farmer, 2002). Prabhu, Sutton, and Sauser (2008) have argued for the mediating role of intrinsic motivation in this process. Thus, the mechanisms that underlie the relationship between efficacy and creative performance seem to be related to the motivational impact that efficacy has upon creative action (Bandura, 1986, 1997; Ford, 1996).

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). Accordingly:

*H1: Efficacy relates positively to 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 determine a pathway to achieve their goal and are able to generate multiple pathways and adapt their plans as needed. Those with hope continue toward goal attainment even when faced with obstacles and problems along the way.

Hope as defined by Snyder et al. (1991) primarily differs from efficacy in terms of what they refer to as the way power 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 to generate multiple pathways to accomplish 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 way power (i.e., generating alternative pathways), those with high hope tend to incorporate a more motivated effort and generate pathways into the mental strategies of creative problem solving and in turn increase their potential for creative performance. Amabile (1996) indicated that such a process may be key to creative performance. Moreover, the willpower and way power 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 way power 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. Hence:

*H2: Hope relates positively to 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 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 way power

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 way power 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. An optimistic explanatory style leads to individuals feeling in control of their destiny; it produces a self-fulfilling prophecy wherein positive explanations become reality (Peterson & Chang, 2002). While there is a recognized need for research directly relating optimism with creativity (Peterson & Seligman, 2004), the two have been linked theoretically with respect to the relation between optimism and expectations—that is, positive expectations of achieving creative outcomes being realized through a self-fulfilling prophecy (Peterson & Seligman, 2004). Thus:

*H3: Optimism relates positively to creative performance.*

## Resilience 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 resilience 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 people to feel at ease outside of their normal comfort zone. This enables them to challenge personal assumptions and build further resilience through positive adaptation (Luthans, Youssef, & Avolio, 2007; Weick, Sutcliffe, & Obstfeld, 1999; Wildavsky, 1988). Importantly, this is not merely a simple process of achieving linear homeostasis. Rather, resilience is a cumulative and interactive process that enables individuals to go beyond what is normal and to move to a positive disequilibrium and positive deviance (Cameron, 2008; Luthans, Youssef, & Avolio, 2007).

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). Resilience 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, resilience may enable people to harness the latent power of their individual potential, and to persevere in accomplishing creative

work. In this regard, resilience is conceptually distinct from efficacy, hope, and optimism in its relation to creativity. Specifically, resilience is more reactive in nature, sustaining creativity rather than initiating it as is more the case with efficacy, hope, and optimism (Luthans, Youssef, & Avolio, 2007). Hence, while the previous hypotheses relate more to the mechanisms by which creativity is generated, resilience is likely to positively impact creative performance by way of ensuring that high levels of effort toward achieving creative performance are sustained, which includes adaptation to changing environments. Accordingly:

*H4: Resilience relates positively to creative performance.*

## Psychological Capital and Creativity

As indicated, PsyCap is a recently recognized positive core construct 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 identified as a second-order core factor. Due to the combined motivational effects being broader and having more impact than any of the individual constructs by itself (Luthans, Avolio et al., 2007), PsyCap has also been demonstrated to have a significant added value to desirable outcomes beyond demographics, self-evaluation traits, and personality dimensions (Avey, Luthans & Youssef, 2010).

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) a widening stream of research clearly supports a positive relationship between PsyCap and performance/attitudinal outcomes (see Avey, Luthans, Smith, & Palmer, 2010; Avey, Wernsing, & Luthans, 2008; Luthans, Avey, Clapp-Smith & Li, 2008; Luthans, Avolio et al., 2007; Luthans, Norman, Avolio, & Avey, 2008) and suggests that PsyCap can be developed (Luthans et al., 2010;

Luthans, Avey, & Patera, 2008). However, the relationship between PsyCap and creative performance has not been examined empirically. Building on H1-H4 and the established prediction that PsyCap offers over its component parts (Luthans, Avolio et al., 2007) as well as explaining additional variance beyond established predictors (Avey, Luthans & Youssef, 2010), we hypothesize:

*H5: PsyCap (comprised of efficacy, hope, optimism, and resilience) relates more positively to creative performance than does any of its 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. Participants agreed to participate in a large US Midwestern university sponsored research project on leadership and motivation. There were 459 males and 417 females with the remainder not indicating gender. Age ranged from 18 to 84 years old with a standard deviation of 13.33 years. Organizational tenure 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 remainder indicated earning 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 that asked for demographic information and included the PsyCap questionnaire. One week later, they were asked to complete a widely used creative exercise online (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

PsyCap was measured using the 24 item Psychological Capital Questionnaire (PCQ) (see Luthans, Youssef, & Avolio, 2007, p. 237 for the entire PCQ; permission for free use of this instrument for research purposes can be obtained from [www.mindgarden.com](http://www.mindgarden.com)). The PCQ, validated by Luthans and colleagues (Luthans, Avolio et al., 2007), has shown strong psychometric properties in a growing number of studies (e.g., Avey, Luthans, & Jensen, 2009; Avey, Luthans et al., 2010; Avey, Luthans, & Youssef, 2010; Avey et al., 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 were 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, with 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 behaviour creativity research by Harrison and colleagues (Harrison, Mohammed, McGrath, Florey, & Vanderstoep, 2003). This exercise is called “unusual uses,” and focuses primarily on the ideation component of creativity. Amabile (1996) has argued 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), items used were a mug, wire hanger, and shoelace. A textbox on this online exercise was provided with ample room for the response (no participant exhausted the space available for the response). Representative examples of uses for these items included a reminder finger tie (shoelace), a belt (shoelace), a paperweight (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) as an index of creative performance.

**Results**

Table 1 shows the means, standard deviations, and correlations for all study variables. As indicated, the components 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, consistent with hypotheses 1–4.

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 research by Judge and colleagues (Erez & Judge, 2001; Judge, Erez, Bono, & Thoresen, 2003) as well as more direct research on 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 in the regression model to see whether it predicts significant variance beyond the first. The process is then 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, neither efficacy, optimism, or resilience justified variance beyond that explained by overall PsyCap. Only hope predicted variance in creative performance beyond that explained by PsyCap. Overall, in seven of the eight 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.

**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. CreativePerformance	3.38	2.16	.21	.19	.23	.24	.25

All relationships significant at  $p < .001$ ;  $N = 899$ .

**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 resilience) and their overall level of psychological capital with their performance in a creative exercise. The findings supported all of the study hypotheses. Specifically, PsyCap and each of its components related positively to creative performance. In addition, usefulness analysis indicated that (with the exception of hope) PsyCap provided incremental prediction of creative performance beyond that explained by its components. With respect to hope, perhaps the agentic motivational dimension of willpower and the proactive pathway aspect of hope are particularly important psychological resources from which to draw during idea generation of the creative process.

**Contributions to Scholarship**

This study’s results have important implications for theory building. As indicated, PsyCap has been empirically demonstrated to relate to desired employee attitudes

**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 ( $\Delta R$ ).

\*  $p < .001$ ;  $N = 899$

such as job satisfaction (Luthans, Avolio et al., 2007), organizational commitment (Luthans, Norman et al., 2008) and well-being (Avey, Luthans, Smith et al., 2010), and to behaviours such as organizational citizenship (Avey, Luthans, & Youssef, 2010) as well as multiple measures of performance (Luthans et al., 2010; Luthans, Avey, Clapp-Smith et al., 2008; Luthans, Avolio et al., 2007; Luthans, Norman et al., 2008). However, the relationship between PsyCap and complex processes such as creativity has to date not been investigated.

The results of this study provide beginning evidence that PsyCap may be related to at least the idea generation phase of creativity and thus contribute to the better understanding of the psychological resource mechanisms underlying the creative process. Specifically, the earlier mentioned theoretical mechanisms of making a positive appraisal of circumstances and probability of success based on motivated effort and perseverance (see Luthans, Avolio et al., 2007) found among the PsyCap components of efficacy, hope, optimism, and resilience may help to better understand what contributes to the effectiveness of idea generation. The study results indicate the potential that emerging positive organizational behaviour in general and PsyCap in particular may be able to contribute to the better understanding of well-established, important, complex processes such as creativity.

### Applied Implications

Besides the scholarly contributions, this study also has important practical implications because PsyCap is state-like and thus receptive to development and performance management (Luthans et al., 2010; Luthans, Avey, & Patera, 2008). Specifically, the findings suggest that creative performance may be enhanced through developing employees' PsyCap.

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, PsyCap can be developed in as little as one to three hours of training (see Luthans, Avey, Avolio, Norman, & Combs, 2006; Luthans et al., 2010; Luthans, Avey, & Patera, 2008; Luthans, Youssef, & Avolio, 2007). PsyCap training modules help develop the PsyCap components (i.e., efficacy, optimism, hope, and resilience) as well as overall PsyCap. Additional research is needed to examine the impact of these and other PsyCap training interventions on creative performance.

### Limitations and Future Research Directions

There are a few notable limitations to the current study. First, our referent in measuring efficacy as one of the components of PsyCap was the "job" rather than creativity per

se. 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 shown to predict creative performance above and beyond job efficacy, job efficacy has been 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 is 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 that efficacy would facilitate creativity by persistent effort. However, pathway generation and effort were not directly measured. Thus, future research should directly measure the hypothesized mechanisms linking these constructs with the creative process.

Methodologically, we used a cross-sectional design, which included neither random assignment nor experimental manipulations. Thus, only correlation, and not causality can be inferred. It is possible, for example, that both PsyCap and creative performance are predicted by another construct not controlled or that creative performance leads to PsyCap. Additionally, self-selection bias of study participants could have influenced the results. Future research needs to control for potential relevant variables and 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 is 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 our study. Firstly, the large, heterogeneous sample of employees in a broad cross-section of industries and functions provides for greater generalizability than smaller, more homogenous samples. Secondly, the distinct methods for collecting independent and dependent



variables reduces common method bias issues in the relationship between predictor and outcome variables. Moreover, the time separation between collecting data on independent and dependent variables 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 PsyCap, its component resources of efficacy, optimism, hope, and resilience, and performance on a creative exercise. Employee creativity is a widely recognized ingredient of innovation in 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).

This study has provided initial support for the important role that employees' PsyCap may play in their creative performance. To again paraphrase the words of Thomas Edison, perhaps genius is one percent creative inspiration. At least some of the 99% of the perspiration and perseverance needed for creativity and innovation can be drawn from one's psychological capital and other positive psychological resources. PsyCap can be developed and leveraged, not only for desired attitudes, behaviours, and performance, but also for enhanced creativity.

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