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The Psychological Capital of Chinese Workers: Exploring the Relationship with Performance

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Abstract

Everyone knows about China's huge population and the fast-growing economy. Although macro-level sociological and economic analyses have given some attention to the linkage between the two, at the micro level, the relationship between human resources and, more specifically, psychological capital of Chinese workers and their performance has been largely ignored. Within the context of three factories (two private and one state-owned) in the People's Republic of China, this exploratory study examined the relationship of a sample ($n=422$) of Chinese workers' positive psychological capital states and their performance. Results indicated the workers' positive states of hope, optimism, and resiliency, separately and when the three were combined into a core construct of psychological capital, significantly correlated with their performance, as rated by their supervisors. An analysis of workers in one of the factories ($n=272$) also found a significant relationship between the workers' positive psychological capital and the performance outcome of relative merit-based salary. Limitations, future research, and practical implications conclude the article.

中國工人的心理資本:探索其與工作績效的美系

摘要

美于中國，女所周知的是其令多的人口和快過增長的經濟。且然宏視居面的社含辛和經濟半分析注意到了兩者詞的朕系，但在微視居面，人力資源，更具体地愣，中國工人的心理資本勻其工作績效的美系在很大程度上是被忽視了。本項探索性研究通述考察中國的三家工r(兩家小体企血和一家固有企~) ，探計了中國工人的心理資本狀態(取樣人教 N= 422) 和其工作領效的美系。研究結果且示，中國工人的希望、主長親、以及堅韌性三項心理狀態指杯，元捨是單項j不是合并方一小核心心理資本交量，都勻他們的工作績效(由其主管i平{介)有且著相夫。通述文才其中一家工r(取梓人數N= 272) 的分析逐友現，中國工人的心理資本勻基于~績工資制的領效表現有看里著的美系。本文指出了該研究的局限，未末的研究方向以及財笑肢的意火。

As China is the most populous country on earth, the role of human capital in fueling the Chinese economy is highly interesting and important. Although Chinese human resource management is beginning to receive increased attention, some of the new developments in psychology and organizational behavior have been largely absent. At this critical juncture of the development of Chinese organizations when they are preparing to compete in the global economy, a better understanding and beginning empirical analysis of the newly emerging concept of psychological capital would be particularly relevant.

Although recognized through the years, recently renewed attention has been given in the field of organizational behavior to the important role that placing emphasis on the positive nature and strengths of employees can have on their performance. However, most of the research attention to date has been given to testing the relationship of positively-oriented self-evaluation traits such as self-esteem, generalized self-efficacy, internal locus of control, and emotional stability (Judge and Bono, 2001), as well as 'Big Five' personality traits such as conscientiousness (Mount, Barrick, and Stewart, 1998) to performance. Research on the impact of positive psychological states (as opposed to the dispositional, relatively fixed traits) on employee performance has been virtually ignored by the field of organizational behavior.

We have recently called for a positive organizational behavior (POB) approach largely based on positive psychological states (Luthans, 2002a, 2002b, 2003; Luthans and Avolio, 2003) and recognition of the value of what we call overall positive psychological capital, or PsyCap, consisting of states such as hope, optimism, and resiliency (Luthans, Luthans, and Luthans, 2004; Luthans and Youssef, 2004). Combined with the continued call for more organizational behavior research in other cultural contexts (Adler, 2002), the purpose of this article is to stimulate research on positive psychological states in the workplace by reporting the results of an exploratory study conducted on a sample of Chinese factory workers. Specifically, we examined the relationship of a sample ($n=422$) of Chinese workers' positive psychological states (hope, optimism, and resiliency) both individually and combined into a core factor of psychological capital and their performance as measured by supervisory ratings and relative merit-based salary levels. After first making clear the distinction between states and traits, briefly reviewing the meaning of positive psychological capital and the reasons for choosing the positive states used for this study, and discussing the Chinese cultural context, we present our study's methods, preliminary results, and implications for future research.

Theoretical Foundation

In the field of psychology, there has been concern and debate throughout the years on the relative emphasis and conceptualization of the situationally based, state-like psychological capacities versus the relatively fixed, trait-like personality constructs (e.g. Allen and Potkay, 1981). However, in organizational behavior, this concern and distinction has received relatively little attention, with a few exceptions (e.g. Chen, Whiteman, Gully, and Kilcullen, 2000) because of the dominance of dispositional personality and motivational constructs. To date, there have been only a couple of studies examining the role that individual positive psychological states such as hope (e.g. Peterson and Luthans, 2003) or optimism (e.g. Seligman, 1998a) can have on employees' performance, and there has been no research on the role that overall psychological capital can play in predicting the performance of workers. Moreover, there are no studies we are aware of that examine these positive states and psychological capital in non-US samples.

Drawing from positive psychology (Seligman, 1998b; Seligman and Csikszentmihalyi, 2000; Snyder and Lopez, 2002), the positive organizational behavior (POB) approach (Luthans, 2002a, 2002b, 2003) incorporates overlooked state-like positive psychological strengths and capacities such as hope, optimism, and resiliency. These positive states, which in aggregate are referred to as a core factor of psychological capital (Luthans, Luthans, and Luthans, 2004; Luthans and Youssef, 2004), may have important implications for employee work motivation (Stajkovic, 2003) and authentic leadership (Avolio, Gardner, Walumbwa, Luthans and May, 2004; Gardner, Avolio, Luthans, May, and Walumbwa, 2005; Luthans and Avolio, 2003).

Luthans (2002b, p. 59) specifically defines POB as 'the study and application of positively-oriented human resource strengths and psychological capacities that can be measured, developed, and effectively managed for performance improvement in today's workplace'. Thus, to be considered as a POB state contributing to psychological capital, the following criteria must be met: (1) positive, strength-based, and relatively unique to the organizational behavior field; (2) theory and research-based; (3) valid measures; and most importantly, (4) state-like and thus open to development and performance management (see Luthans, 2002a, 2002b, 2003). These inclusion criteria separate the POB states from the positively-oriented popular literature (e.g., Steven Covey's *Seven Habits* or Spencer

Johnson's *Who Moved My Cheese*) and the more macro-oriented positive organizational scholarship (Cameron, Dutton, and Quinn, 2003). The POB states are also distinct from the dispositional, relatively fixed self-evaluation constructs (Judge, Erez, Bono, and Thoresen, 2002; Judge and Bono, 2001), the 'Big Five' personality traits (Barrick and Mount, 1991; Mount, Barrick, and Stewart, 1998), self-esteem (Judge and Bono, 2001), positive affectivity (Erez and Isen, 2002), and emotional intelligence (Goleman, 1995; Mayer, Salovey, and Caruso, 2000).

Personality traits such as conscientiousness or self-esteem are strength-based and positive, and have a strong theory and research foundation with valid measures. However, they are also trait-like, i.e. relatively dispositional and fixed, and thus not easily open to development and change. Recently emerging strengths such as Fredrickson's (2001) work on positive emotions and possibly courage (Peterson and Seligman, 2004; Putnam, 1997), and even humility (Tangney, 2000; Vera and Rodriguez-Lopez, 2004;) may meet POB criteria for future research in the workplace. Self-efficacy was also excluded because there is already considerable research evidence on its strong relationship with workplace performance (see meta-analysis of 114 studies by Stajkovic and Luthans, 1998) and it is a task-specific state. The three POB states in this study are non-task specific and thus may be generalizable to different task situations. The current study explored the concept of psychological capital in the form of hope, optimism, and resilience of factory workers performing different tasks within the overall cultural context of the People's Republic of China. Before summarizing the cultural context, we will provide further background and theoretical foundation for what is meant by psychological capital.

The Background and Meaning of Psychological Capital

Although modern psychology started with the charge to not only help people with problems but also identify and build strengths in people, through the years virtually all the attention has been devoted to mental illness – what is wrong with people and how to repair the damage. Several years ago, the president of the American Psychological Association (APA) and a well-known research psychologist, Martin Seligman, proactively started the positive psychology movement in his address to the APA (Seligman, 1998b). He charged the field of psychology to use scientific methods to study and discover the strengths that allow individuals, groups, organizations, and communities to thrive and prosper (Seligman

and Csikszentmihalyi, 2000). At this time, the Gallup Organization, best known for its polls, but also with a fast-growing consulting practice based on strength-based management, partnered with Seligman and colleagues to sponsor the annual Positive Psychology Summits starting in 1999. As an outgrowth of these conferences, Luthans (2002a, 2002b) extended this seminal work in positive psychology to the work place and called it positive organizational behavior or POB. A parallel development by a group of researchers at the University of Michigan also began to draw from the positive psychology movement at the more macro, organizational level and called it positive organizational scholarship or POS (Cameron, Dutton, and Quinn, 2003).

Initially, the theory-building for POB identified and supported confidence (or self-efficacy), hope, optimism, subjective well-being (or happiness), resiliency, and emotional intelligence as meeting the POB criteria of being not only positive, but also unique to the organizational behavior field, based on theory and research with valid measures, and state-like openness to development, change, and management for performance improvement (Luthans, 2002a, 2002b, 2003). Subsequent POB theory building, research, and applications have focused mostly on hope, resiliency, confidence, and optimism and their relationship to leadership (Avolio, Gardner et al., 2004; Luthans and Avolio, 2003; Luthans, Luthans, Hodgetts, and Luthans, 2002; Luthans, Van Wyk, and Walumbwa, 2004; Peterson and Luthans, 2003).

Considerable prior theory and research (e.g. Bryant and Cvenegros, 2004; Luthans and Jensen, 2002; Magaletta and Oliver, 1999; Snyder, 2000; Snyder, Rand, and Sigmon, 2002) have clearly demonstrated each of these positive psychological constructs to be conceptually independent with discriminately valid measures. Recent work by Luthans and colleagues (e.g., Luthans, Luthans, and Luthans, 2004; Luthans and Youssef, 2004) have combined or bundled POB states conceptually into the higher-order core construct of what they call 'positive psychological capital' or PsyCap. They propose that psychological capital goes beyond the now widely recognized human capital (i.e. what you know, see O'Leary, Lindholm, Whitford, and Freeman, 2002) and social capital (i.e., who you know, see Adler and Kwon, 2002), and is basically 'who you are' (Luthans, Luthans, and Luthans, 2004; Luthans and Avolio, 2003). At the individual level, psychological capital is a psychological resource that may fuel growth and performance. At the organizational level, similar to human and social capital, psychological capital may provide leverage, return

on investment, and competitive advantage through improved employee performance.

Specifically, psychological capital is defined as *a core psychological factor of positivity in general, and POB criteria meeting states in particular, that go beyond human and social capital to gain a competitive advantage through investment/development of 'who you are'* (Luthans, Luthans, and Luthans, 2004; Luthans and Youssef, 2004). The key points of psychological capital are: (1) based on the positive psychology paradigm (i.e. the importance of positivity and human strengths); (2) includes psychological states based on positive organizational behavior or POB criteria (i.e., unique, theory/research, valid measurement, and state-like); (3) goes beyond human capital (i.e. what you know) and social capital (i.e. who you know) to 'who you are'; and (4) involves investment and development (i.e. such as economic/financial capital) for a return yielding performance improvement and resulting competitive advantage.

To date, there have been a few preliminary, as yet unpublished, studies on psychological capital, with positive results on both performance and work attitudes, but no research has been performed outside the USA. Thus, to begin to fill the void, this study explored not only the POB states of hope, optimism, and resiliency, but also combined them into the core construct of psychological capital, to empirically determine whether they are related to Chinese workers' performance. The following briefly summarizes the theory and research of the three POB criteria meeting states of hope, resiliency, and optimism that make up the psychological capital examined in this study.

The Hope State

In positive psychology, hope is generally defined as the perceived capability to derive pathways to desired goals and motivate oneself via agency thinking to use those pathways (Snyder et al., 2002). It has also been hypothesized as an emotion (e.g. Farran, Herth, and Popovich, 1995) and as a dispositional and/or state like cognitive process (e.g. Snyder, 2000). However, as used in POB, hope is conceptualized as state-like and is derived from the work of Snyder and colleagues as being '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, Irving, and Anderson, 1991, p. 287). Although there is considerable research evidence that hope has a positive impact on academic

and athletic performance (Curry, Snyder, Cook, Ruby, and Rehm, 1997; Snyder, 2000; Snyder et al., 2002), there have been only a few attempts to link hope to performance in the workplace (see Adams, Snyder, Rand, King, Sigmon, and Pulvers, 2003; Luthans and Jensen, 2002; Peterson and Luthans, 2003). These studies suggest that those who are hopeful are likely to be motivated and more confident in taking on a task, and are likely to have alternative pathways when obstacles are met, resulting in higher performance. Applied to Chinese workers in today's work context, such hope would seem to be a valuable contribution to their psychological capital and have a positive impact on their performance.

The Resiliency State

In POB, resiliency is defined as the 'positive psychological capacity to 'bounce back' from adversity, uncertainty, conflict, failure, or even positive change, progress and increased responsibility' (Luthans, 2002a, p. 702). Work in clinical and positive psychology (e.g. Block and Kremen, 1996; Coutu, 2002; Masten, 2001) suggests that highly resilient individuals tend to be more effective in a variety of life experiences, including adjustment and development under a variety of life-course threatening conditions. In the workplace, resiliency has been given only surface attention (Hamel and Välikangas, 2003; Horne and Orr, 1998; Reivich and Shatte, 2002). Recently, there have been a few attempts to conceptually link resiliency to workplace performance (Coutu, 2002; Sutcliffe and Vogus, 2003; Youssef and Luthans, 2005). As part of psychological capital, we propose that resiliency will be positively related to performance. This is because highly resilient individuals are likely to be creative, adaptive to change, and persistent in dealing with adversity, resulting in improved performance in the rapidly transforming workplace. Such rapid transformation is perhaps most characteristic of China today, and therefore the resiliency of Chinese workers would be especially critical to their psychological capital and related to their performance.

The Optimism State

Traditionally in psychology, optimism has been conceptualized as a goal-based construct that occurs when an outcome has substantial value (Scheier and Carver, 1985). Tiger defined optimism as being 'a mood or attitude associated with an interpretation about the social or material

– one which the evaluator regards as socially desirable to his [or her] advantage, or for his [or her] pleasure’ (1971, p. 18). Unlike the other POB states, there is some research demonstrating that optimism is directly related to work performance (Schulman, 1999; Seligman, 1998a). Consistent with this work, psychological capital proposes that people who have ‘realistic’ optimism (Peterson, 2000) are likely to remain committed, leading to higher performance (Luthans and Youssef, 2004). This is because individuals are likely to use various attributional explanatory styles as a way of adapting to the situation at hand (Peterson, 2000; Seligman, 1998a). Thus, to the optimist, setbacks are not necessarily seen as failures, but as challenges and opportunities that can be improved on for success. In the Chinese work context included in this study, such realistic optimism would seem to be especially relevant to the workers’ psychological capital and related to their performance.

Combined, these three states of hope, resiliency and optimism are used in this study to represent the positive psychological capital of a sample of Chinese factory workers.

The Chinese Context of the Study and Research Questions

The environment or context is widely recognized as an important dimension influencing the strategy, structure, and behavioral processes of any organized endeavor. For example, cultural values embraced in the broad social environment of a country have been found to profoundly affect the attitudes, behavior, and performance of organizational participants (e.g. Adler, 2002; House, Wright, and Aditya, 1997). Studies (Bass, 1990; House et al., 1997) have demonstrated that national culture influences individual and collective behavior. Thus, taking the psychological capital states across cultures requires at least a broad understanding of the historical legacy and cultural environment of the context in which one is conducting research, which for this study is China.

Very few countries have experienced the magnitude of changes that have occurred in recent Chinese history. During the Republican Era (1911–1948), Confucianism flourished and a Western presence was prominent in commercial areas such as Shanghai. The following Communist Revolution Era (1949–1965) and Cultural Revolution (1966–1976) were epitomized by violent purges against the educated and an attempt to supplant Confucian ideas with hard-line Marxist/Leninist/Maoist Communist doctrine. During that period, anything Western was viewed negatively. The Economic

Development Era after 1976, initiated and led by Deng Xiao Peng, saw a movement back to the acceptance of Confucian cultural values and the return to commerce with other countries. In addition, there was a more accepting attitude toward modern economic values (Fu and Tsui, 2003).

Many of these transformational changes in China have altered not only government and economic policies, but also the thinking and psychological make-up of the Chinese workforce. Recent empirical evidence has revealed that the Chinese people, particularly the younger generation, are increasingly becoming individualistic (Ralston, Egri, Stewart, Terpstra, and Kaicheng, 1999), or what Triandis (1995) has called 'vertical collectivists'—the idea that people can be very collectivist in terms of family values and orientation, but when it comes to business, they can be very entrepreneurial and individualistic. These individual values have appeared in business enterprises in the form of supervisory ratings and merit salary compensation based on individual performance outputs.

A recent cover story in *The Economist* (August 21–27, 2004) was titled: 'China's Growing Pains'. In attaining 'the most dramatic burst of wealth creation in human history' (p. 11), the story concludes that there are not only huge benefits (i.e. '400 million people have been lifted out of severe poverty') but also huge social challenges, including controlling pollution and a collapsing healthcare system. At the organizational level, there are also daunting challenges. China has now reached the state of development that can no longer depend on just what economist Paul Krugman has called the 'push' for growth from an unlimited supply of cheap labor and natural resources. At this stage, growth must come from leveraging technology and human resources for productivity improvement. The state-owned enterprises are meeting these productivity challenges by engaging in unprecedented downsizing, laying-off large numbers of workers (Tsui and Lau, 2002). The growth and success of the private enterprises in part benefited from the use of a large number of migrant workers (workers from Chinese inner cities) with minimum wages and oppressive work conditions (Chang, 2004).

With globalization and the WTO now a reality, China can no longer afford to ignore either the role, or their treatment of, human resources in their still-dominant state-owned enterprises (SOEs), the newly emerging international joint ventures, the private, and the village–township enterprises (Burton, Lan, Lu, Yu, Wang, and Shenkar, 2000). All enterprises throughout China must now compete in the world economy, which means they must better understand and leverage their workers' human, or what we would suggest, their psychological capital.

Bandura (1997) notes that employees will have feelings of uncertainty and stress because of heightened nervous activation resulting from job loss, frequent change, or transfer – all realities of current Chinese SOEs and newly emerging private enterprises. Ambrose and Kulik (1999) also argue that a failure to resolve increasing concern or negative psychological arousal results in employee dissatisfaction, lowered commitment, and ineffective performance. Importantly, such feelings of uncertainty, stress, and anxiety are closely related to the employee's self-doubt about coping with the changing environment such as is occurring in China today. As Hill, Smith, and Mann (1987) argued in the case of rapidly changing technology, employees resist a new technology, not because of their fear of the technology itself, but because of their lack of confidence in their psychological capacity to successfully use the technology and to perform adequately. We would argue that this scenario is currently playing out in Chinese firms, not only in terms of technology, but also the dramatically changing social and economic environment. The psychological capital states of hope, resiliency, and optimism would seem to be particularly relevant to today's Chinese workers' performance.

Our study was designed to examine the relationship between Chinese workers' positive states and overall psychological capital with their performance. Although there have been some preliminary studies with positive results on the individual states, there has been no research so far on the overall impact of positive psychological capital. Thus, our two major questions for this exploratory study are the following:

- 1 Do the positive organizational behavior states of hope, optimism, and resiliency of Chinese workers relate to their performance as measured by supervisor ratings and relative merit-based salary?
- 2 When the positive organizational behavior states of hope, optimism, and resiliency of Chinese workers are combined into the higher order, core-factor of psychological capital, is there a relationship with their performance as measured by supervisory ratings and relative merit-based salary?

Method

Data for this study were obtained via translated standardized questionnaires from a sample of 422 Chinese workers in three representative factories (two private and one state-owned). The performance data were

obtained from ratings by direct supervisors in all three factories and also merit-based salary data that were available for 272 workers in one of the factories.

Study Sites and Sample

The state-owned enterprise (SOE) study site was a large factory located in central China. With downsizing from about 15,000 employees to the current 10,000 employees over a five-year period, this factory has been publicly recognized as a so-called reformed SOE. This reform process included not only downsizing, but also modern technology implementation, total quality management, and attainment of ISO 9000. These types of change initiatives are what most Chinese manufacturers are presently undertaking. Based on anecdotal evidence, we would argue that this large factory is probably representative of current Chinese manufacturing SOEs undergoing dramatic change and transition to the market-based economy.

Similar to most SOEs, this Chinese factory is a self-contained community. Around the factory are stores, schools, a day-care facility, hospital, apartments and dormitories, a recreation center, an auditorium, a social/cultural center, and a sanitarium. Originally, Russian engineers helped China build this factory in 1956. There are eight sub-factories that make up each process needed for the metallurgical products. The 48 semi-skilled and skilled workers participating in this study from this SOE were from the three major production process sub-factories. The reason for the small sample was that these workers were the only ones that had available direct supervisory performance ratings. These workers filled out the questionnaire on company time in one sitting.

The other two factories in the sample were located in eastern China and both manufactured leather shoes. Unlike the SOE factory, these two were smaller and privately owned, but were undergoing competitive pressures and transition to the fast-changing Chinese economic climate. One was founded 17 years ago and employed approximately 1,000 workers and the other was established 16 years ago and employed approximately 3,000 workers. The human resources department helped to administer the questionnaires and obtain the performance measures on each employee. Those included in the sample volunteered for the study and were assured confidentiality by returning their questionnaires in a sealed envelope directly to the researchers or human resource manager within three days.

Re-Translation Method Used on the Standardized Questionnaires

A major concern with cross-cultural research is the translation accuracy from the US-based measurements to other cultures and languages. To avoid or minimize the cultural difference and interpretations as much as possible, we followed the Brislin (1980) guidelines on the re-translation method. One of the researchers (a native speaker of the Chinese language) who received his MBA and Ph.D. in English language programs translated the English questionnaires into Chinese. The Chinese version of the questionnaire was then re-translated back to English by a Chinese graduate student majoring in English. The original and the re-translated versions of the questionnaires were then carefully compared and discrepancies in terminology or intent were discussed and reconciled. The questionnaire was also piloted with several native Chinese speakers, and any questions or concerns raised were resolved. This re-translation method was used in the study for all the measures.

Positive Psychological States Measures

Hope. The state hope measure used in the study was developed by Snyder, Symptom, Ybasco, Borders, Babyak, and Higgins (1996). This scale has been widely used in various contexts, including the workplace (Peterson and Luthans, 2003), and has been demonstrated to be largely uninfluenced by social desirability (Magaletta and Oliver, 1999). The six items utilize an 8-point Likert scale (1='Definitely false' to 8='Definitely true') and instructs the respondent to answer how you think about yourself 'right now'.

Optimism. We used ten items drawn from the Life Orientation Test (LOT) by Scheier and Carver (1985) to measure optimism. It is a widely used standardized measure of optimism and uses a 5-point Likert scale (1='Strongly disagree' to 5='Strongly agree').

Resiliency. The resiliency measure comes from the widely recognized work of Block and Kremen (1996) and Klonhlen (1996). The measure uses a 4-point Likert scale (1='Does not apply at all to me' to 4='Applies very strongly to me').

Psychological capital. To measure psychological capital, we summed the standardized scores of the three individual scales described above. The complete measure of the three scales can be found in the Appendix.

Performance Measures

The first performance measure used for all study participants was the direct supervisor's evaluations using a 10-point Likert scale, and was based upon the criteria of the worker's productivity (quantity, quality, and efficiency) and cooperation with team members. In addition to the supervisory rating, we were able to obtain the merit-based salaries of the participants ($n=272$) in one of the two private factories. The salary levels of the worker (with age, gender, education, and tenure controlled for) permitted us to determine if the results obtained by the supervisory ratings were replicated by this merit salary measure of performance.

Results

Table 1 presents descriptive statistics (overall means and standard deviations) and the correlation matrix for the study variables. As shown, the mean for hope was 5.17 ($SD=1.14$) on an 8-point scale, optimism was 3.36 ($SD=0.44$) on a 5-point scale, and resiliency was 2.81 ($SD=0.50$) on a 4-point scale. The mean scores suggested reasonable levels of the measured POB states for these Chinese workers, but, with the possible exception of resiliency, seemed to be somewhat lower than norms for US employees (see Snyder, 2000).

Reliability estimates for each of the study variables were determined. According to Kline (1998), reliability coefficients around 0.90 can be considered as 'excellent', values around 0.80 as 'very good', and values around 0.70 as 'adequate'. However, values of 0.60 have also been regarded as reasonable (Peterson, 1994; Slater, 1995). Even when translation issues are minimized, relatively lower reliabilities are still possible when constructs developed in one context are applied to another context (Earley, 1989). Since the constructs of hope, optimism, and resiliency were developed in the USA, even with the systematic re-translation procedure, we would still reasonably expect some wider variations as a result of cultural orientation. The Cronbach's-alpha reliability coefficient for resiliency was 0.84, but for hope was 0.64, and for optimism 0.56. However, the positive psychological capital measure (i.e. hope, resiliency, and optimism combined) was 0.80, suggesting that the major measure for the study was within the acceptable range of reliability.

Exploratory factor analysis revealed that the combined 30 items formed a single factor with an eigenvalue over 1.00. This factor explained 84% of

the variance. Our proposed positive psychological capital, which combined the three states of hope, optimism, and resiliency, was further supported by results of a second-order confirmatory factor analysis (loading items on the three sub-scales and the three sub-scales on a single positive psychological capital factor), which demonstrated a reasonable fit to the data. The fit indices were chi-square (χ^2)=606.71; degrees of freedom (df)=383, χ^2/df =1.58; goodness-of-fit (GFI)=0.92; comparative fit index (CFI)=0.88; and the root mean square error of approximation (RMSEA)=0.04. Table 1 indicates that the positive psychological capital factor also had positive correlations with each of the three states: hope ($r=0.73$), optimism ($r=0.75$), and resiliency ($r=0.78$). Collectively, these results suggest that the positive psychological capital construct can be viewed as a higher-order core factor consisting of hope, optimism, and resiliency.

As preliminary answers to the two research questions, it was found that all the POB states of hope, resiliency, and optimism were positive and significantly related to supervisory rated performance (hope, $r=0.17$, $p < 0.01$; optimism, $r = 0.16$, $p < 0.01$; and resiliency, $r=0.24$, $p < 0.01$). Most importantly, the positive psychological capital core factor containing all three states had a relatively higher and significant relationship with rated performance ($r= 0.26$, $p < 0.01$).

To further analyze these data, we conducted two separate hierarchical regression analyses to assess the contribution of the POB states on supervisory rating of the workers' performance. We first entered into the regression equation control variables including age and gender (education and tenure were not available in two samples). As can be seen in the upper part of Table 2, the controls accounted for only 1% of the variability in supervisor-rated performance. In the second step, we entered all three POB states (hope, optimism, and resiliency). The three POB states explained an additional 8% ($p < 0.01$) of the variance in the workers' rated performance. The lower part of Table 2 shows the regression results for the controls and the combined states of positive psychological capital. As shown, the combined positive psychological capital explained an additional 7% ($p < 0.01$) of the variance in the workers' rated performance.

Table 3 presents the inter-correlation results on the sub-sample using the merit-based salary measure of performance available from one of the study sites. As shown, the positive psychological capital of these workers was positively related to their merit-based salary ($r=0.18$, $p < 0.01$). The results of the hierarchical regression analysis of this sub-sample with salary as a performance measure are shown in Table 4. Besides

age and gender, education and experience were also available and were entered as controls. As expected, they accounted for significant variance in these workers' salary ($R^2=0.22$, $p < 0.01$). However, when these demographic variables were controlled for, the psychological capital still accounted for a significant 10% of the merit-based salary measure of performance ($B=0.18$, $t =3.00$, $p=0.01$).

Discussion

Using a US-based theoretical foundation, we explored the relationship of the positive psychological capital of workers in the People's Republic of China and their performance. Since this was a cross-sectional study, the correlational results can not be used to definitively conclude that the three POB states and psychological capital caused the performance of these workers. The alternative hypothesis that performance led to these states cannot be ruled out. However, the results do provide at least initial empirical evidence that each of the positive organizational behavior states of hope, optimism, resiliency, and, (when combined) psychological capital, are positively associated with the performance outcomes of the sampled Chinese factory workers.

Although China is certainly recognized as an emerging economic giant, its development is still faced with tremendous challenges, including immature management practices, a huge population, political consolidations, cultural complexity, and difficulties resulting from a history of planned economic strategies and ideology. In particular, Chinese human resource management may be one of the most overlooked, but potentially most important factors for China's future economic development. Improved productivity, especially leveraging employee performance, seems critically important for Chinese competitiveness. As Japan and the 'Four Tigers' discovered as they fully entered the global economy, China can no longer rely solely on low cost, plentiful labor. A new approach to understanding the full psychological capacities of Chinese human resources and their development is now needed. We propose that Chinese workers' positive psychological states and their overall psychological capital may help meet these human resources challenges, and the results of this study provide initial support.

The relatively lower scores (compared to US samples, see e.g. Peterson and Luthans, 2003; Snyder, 2000) on the positive psychological states of

hope and optimism may be explained by the fact that the production workers in Chinese factories have worked and lived under the long-time pressure of Communist centralized planning and political ideology, which has often seemed to result in hopelessness and helplessness (Schermerhorn and Nyaw, 1990). Moreover, with the current dramatic economic transition in China, many factory workers may feel that their time is running short, in terms of staying employed in an over-employed, downsizing environment in the state-owned enterprises and the uncertain, sometimes stressful conditions of the private-firm factories. However, the findings in this study may reflect in China what we would expect to find in the USA. In other words, Chinese workers having a more positive focus and greater psychological capital are more likely to be associated with being higher performers.

The relatively higher relationship of the overall psychological capital factor than the individual positive states is consistent with Bandura's (1986) argument that no single variable can aspire to have great predictive powers of complex human action. Sulloway also showed support for this point when he stated: 'In the world around us, a multitude of crisscrossing influences limits our ability to predict individual action. Still, multiple predictors – far more effectively than single ones – provide an effective means of explaining individual behavior' (1997, p. 363). This combined, integrative measure of psychological capital may be more realistic than using individual states such as hope or optimism to predict employee performance, at least in this complex setting. The relationship of resiliency with rated performance was very similar to that of overall psychological capital. This may be explained by this study's context of transitional, turbulent Chinese manufacturing enterprises. In general, however, the broader positive psychological capital factor will probably be the best predictor of human performance outcomes across cultures. This will need to be substantiated in future research.

Limitations and Implications

Unfortunately, the limitations of any field study are magnified when the realities of taking the concepts and techniques developed in one culture are applied to another culture. Although the study sites and sample were deemed to be fairly representative of Chinese factory workers, generalizability of the results to other settings within China and to other cultures is not yet possible. Also, besides the relatively low initial reliability

estimates for the hope and optimism measures, any questionnaire study (even using the re-translation method) is still problematic in cross-cultural research (Earley, 1989; Luthans, Welsh, and Rosenkrantz, 1993). Furthermore, the performance measures of the supervisor's evaluation and the relative salary data may still have problems of not being contingent enough on the individual worker's actual performance. Although demographic variables, such as age, gender, education, and tenure were controlled for in the sub-sample with salary data, and are reasonable proxies of ability, other potential performance variables such as level of technology utilization were not. Moreover, the supervisory performance evaluation used in this study may be influenced by things like connections, or '*guanxi*' in China, but this same argument could also be used in the case of US-based studies. There are problems with the objectivity of any performance measures. 'Hard' measures of performance (e.g. units produced) would be ideal for future research.

We have provided theoretical support that the POB constructs and overall psychological capital are states subject to development and change. Thus, longitudinal studies that measure performance in two or more points in time would contribute to inferring causality (Podsakoff, MacKenzie, Lee, and Podsakoff, 2003). To conduct field experiments that develop psychological capital as the intervention to determine its causal impact on desired outcomes would be even more desirable. Such a pilot experiment was recently conducted at a small US manufacturing plant (Larson, 2004). Results indicated that psychological capital did seem to be developed in a training intervention when compared to a randomly assigned control group receiving standard company training. Also, it was found that psychological capital was a significantly better predictor of the workers' satisfaction and commitment than was their measured human and social capital (Larson and Luthans, 2004). For the future, such psychological capital intervention studies need to focus on the impact not only on work attitudes, but, more importantly, on performance outcomes.

The psychological capital process can be better understood if theory-driven mediating and/or moderating processes were included and tested empirically. For example, task complexity has been shown to affect the impact of self-efficacy on work related performance (Stajkovic and Luthans, 1998). It may mediate and/or moderate the impact of one's psychological states used in this study as well. In addition, future studies could benefit from empirically analyzing the moderating effects of different individual values and/or personality traits in the relationship between

positive organizational behavior/psychological capital states and work performance. Furthermore, organizational and overall cultural values may very well moderate the results. For example, organizational culture may strengthen or weaken the link between the workers' POB/psychological capital states and their performance. Lastly, since the theoretical foundation for the psychological states were largely developed in the USA, cross-cultural analyses of many other countries besides China need to be pursued in the future.

The practical implications of this study include manager attention to building and strengthening the psychological capital of their workers. There are specific guidelines and numerous successful applications in the positive psychology literature for enhancing hope (Snyder, 2000), optimism (Seligman, 1998a), resiliency (Reivich and Shatte, 2002) and in POB (Luthans, 2002a, 2002b, 2003; Luthans and Jensen, 2002), and psychological capital (Larson and Luthans, 2004; Luthans, Luthans et al., 2004; Luthans and Youssef, 2004). Furthermore, Avolio and colleagues (Avolio, Gardner et al., 2004; Luthans and Avolio, 2003) have argued that authentic leadership can enhance the psychological capital in one's organization to improve performance and competitive advantage. Authentic leaders can provide opportunities to build their own psychological capital and that of their associates through successful practice and performance. Hope, optimism, and resiliency have been shown to be open to human resource development with organizationally related performance implications (Adams et al., 2003; Larson and Luthans, 2004; Luthans and Jensen, 2002; Peterson and Luthans, 2003; Schulman, 1999; Sutcliffe and Vogus, 2003; Youssef and Luthans, 2005). In general, managers can invest in, build, and improve psychological capital through encouraging learning among workers and adjusting to organizational change (Luthans, 2002a, 2002b, 2003; Luthans and Avolio, 2003; Luthans and Jensen, 2002; Luthans and Youssef, 2004). The more developed employees' positive psychological states become, the higher their psychological capital to draw from in dealing with the increasing demands and pressures of today's organizations.

Conclusion

This exploratory study of a sample of Chinese factory workers is only a first step toward an empirical test of the POB states of hope, optimism, and resiliency and overall psychological capital. However, the preliminary

findings do underscore the potentially important role of these positive psychological capacities. Investing in, developing, and leveraging positive psychological capital may be an overlooked perspective and approach in meeting the challenge of improving human resource performance not only in China, but also other countries around the world.

Table 1. Inter-correlations among study variables using supervisor-rated performance

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Age								
2. Gender			0.20**					
3. Hope (8-point scale)	5.17	1.14	0.24**	0.14**				
4. Optimism (5-point scale)	3.36	0.44	0.03	-0.05	0.29**			
5. Resiliency (4-point scale)	2.81	0.50	0.12*	0.08	0.36**	0.39**		
6. Positive psychological capital	0.00	0.75	0.17**	0.07	0.73**	0.75**	0.78**	
7. Supervisor rated performance	4.53	1.80	0.12*	0.03	0.17**	0.16**	0.24**	0.26**

n=422

* significant at 0.05 level (one-tailed)

** significant at 0.01 level (one-tailed)

Table 2. Regression analysis results for supervisor-rated performance

	<i>Step 1</i>		<i>Step 2</i>	
	β	<i>t</i>	β	<i>t</i>
Analysis 1				
Age	0.12	2.37*	0.09	1.76†
Gender	0.02	0.33	0.01	0.09
Hope			0.08	0.67
Optimism			0.01	1.21
Resiliency			0.24	3.85**
ΔR^2		0.08**		
Overall R^2	0.01	0.09		
Overall <i>F</i>	3.13*	7.23**		
Analysis 2				
Age	0.12	2.37*	0.08	1.64†
Gender	0.02	0.33	0.01	0.12
Psych Cap			0.25	4.97**
ΔR^2		0.07**		
Overall R^2	0.01	0.08		
Overall <i>F</i>	3.13*	10.46**		

† significant at 0.10

* significant at 0.05

** significant at 0.01

Table 3. Inter-correlations among study variables using merit-based salary performance

	<i>Mean</i>	<i>SD</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
1. Age	2.33	1.08					
2. Education	2.32	0.73	0.19**				
3. Gender	0.60	0.49	0.07	0.16**			
4. Tenure	6.47	4.22	0.14*	-0.29**	0.00		
5. Positive psychological capital	0.00	0.74	0.18**	0.25**	0.05	-0.09	
6. Salary performance	1,228.87	709.53	0.45**	0.26**	0.20**	0.21**	0.18**

n=272

* significant at 0.05 level (one-tailed)

** significant at 0.01 level (one-tailed)

Table 4. Regression analysis results for merit-based salary performance

	β	<i>t</i>
Step 1		
Age	0.23	3.62**
Education	0.14	2.69**
Gender	0.13	2.57**
Tenure	0.06	1.01
R ²	0.22	
Step 2		
Positive psychological capital	0.18	3.00**
ΔR^2		0.10**
Overall R ²		0.32**
Overall <i>F</i>		24.50**

* significant at 0.05

** significant at 0.01

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Appendix

State Hope (Snyder, Sympson, Ybasco, Borders, Babyak, and Higgins, 1996)

1. If I should find myself in a jam, I could think of ways to get out of it.
2. At the present time, I am energetically pursuing my goals.
3. There are lots of ways around any problem that I am facing now.
4. Right now, I see myself as being pretty successful.
5. I can think of many ways to reach my current goals.
6. At this time, I am meeting the goals that I have set for myself.

Optimism (Drawn from Scheier and Carver, 1985)

1. In uncertain times, I usually expect the best.
2. It's easy for me to relax.
3. If something can go wrong for me, it will.
4. I'm always optimistic about my future.
5. I enjoy my friends a lot.
6. It's important for me to keep busy.
7. I hardly ever expect things to go my way.
8. I don't get upset too easily.
9. I rarely count on good things happening to me.
10. Overall, I expect more good things to happen to me than bad.

Resiliency (Drawn from Block and Kreman, 1996; Klonhlen, 1996)

1. I am generous with my friends.
2. I quickly get over and recover from being startled.
3. I enjoy dealing with new and unusual situations.
4. I usually succeed in making a favorable impression on people.
5. I enjoy trying new foods I have never tasted before.
6. I am regarded as a very energetic person.
7. I like to take different paths to familiar places.
8. I am more curious than most people.
9. Most of the people I meet are likable.
10. I usually think carefully about something before acting.
11. I like to do new and difficult things.
12. My daily life is full of things that keep me interested.
13. I would be willing to describe myself as a pretty 'strong' personality.
14. I get over my anger at someone reasonably quickly.

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