



Investigating the Resilience- Performance Relationship in the Workplace

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Abstract

This paper shows how measuring employee resilience in organizations has potential for providing new insights into performance. Resilience has been hypothesized to be an important factor in the ability to perform at a high level, especially under adversity. However, most resilience instruments have been studied and used in clinical settings for the purpose of addressing mental health concerns, leaving the population of general employees largely unstudied. Two samples of working professionals were used to study resilience. This research provides initial support for the relationship of resilience with self-efficacy, workload, and work locus of control and offers direction for future research of the resilience-performance relationship.

Keywords

Resilience, Performance, Self-Efficacy

Introduction

This paper shows how measuring employee resilience in organizations has potential for providing new insights into performance. Resilience has been hypothesized to be an important factor in the ability to perform at a high level, especially under adversity (Mallak, 1998; Weick, 1993). However, most resilience instruments have been studied and used in clinical settings for the purpose of addressing mental health concerns (Ahern, et al., 2006; Rew & Horner, 2003; Rosch, 2001), leaving the population of general employees largely unstudied. Two samples of working professionals were used to study resilience. This research provides initial support for the relationship of resilience with self-efficacy, workload, and work locus of control and offers direction for future research of the resilience-performance relationship.

Literature Review

With resilient individuals able to withstand stress better than others (Coutu, 2002), stress reduction through the ability to measure and improve resilience has enormous consequences. Estimates are that 67-90% of all office visits to a physician can be traced to stress-related symptoms (Mosley et al., 2015; WebMD, 2014). Stress creates adverse effects on 43% of all adults (WebMD, 2014). Stress is a major contributor to heart disease, cancer, stomach problems, lung problems, accidents, cirrhosis of the liver, and suicide; the common cold and skin rashes can often be traced back to stress conditions (Mosley et al., 2015; WebMD, 2014). There is much to be gained from an instrument that can effectively measure individual resilience in the workplace and lead to interventions to increase resilience.

Resilience is a key construct in the performance of targeted behaviors for solving problems and taking action in the face of adversity. The increasing need for quicker decision making in complex systems having severe consequences requires individuals and organizations to have the capacity to make high quality decisions and take effective actions. The recent increase in the frequency of costly natural disasters and continued vigilant action to thwart terrorist actions represent high-profile situations benefiting from resilient behavior.

Resilience research, especially the measurement of resilience dimensions, is found predominantly in the psychological, medical, and nursing professions and their associated journals. Resilience has been identified as having “enormous utility for nursing” (Ahern et al., 2006). Rew and Horner (2003) found that resilient individuals have positive outcomes in the face of adversity.

Beginning in the 1950s with landmark research by Werner (1993), resilience research has progressed from her foundational work to conceptual work (Conner, 1993; Deevy, 1995), to the current focus on measurement of resilience (Connor & Davidson, 2003; Mallak & Yildiz, in press). In particular, the focus of this study is on *workplace* resilience to differentiate from the more clinical treatment of resilience, as has been the dominant research tradition to date.

Resilience and Performance

Research streams on resilience and outcomes have typically been housed in child and adolescent psychology disciplines and in psychological research involving post-traumatic stress disorder (PTSD) and military populations. As such, the outcomes studied are of interest to the clinical researcher but not of direct interest to the researcher and practitioner in the general workplace. A thorough literature search of the studied relationships between resilience and performance produced very little relevant research for the purpose of understanding the role of resilience in affecting performance in the workplace. However, related constructs have been used in the workplace to study effects on outcomes; these constructs include psychological capital (PsyCap)

(Luthans et al., 2010) and self-efficacy (Judge et al., 2007; Stajkovic & Luthans, 1998). Product innovativeness has been studied as a mediating variable between resilience and firm performance (Akgun & Keskin, 2014). PsyCap contains four variables, one of which is resilience. Self-efficacy shares some theoretical underpinnings with resilience and therefore is worthy of investigation as a proxy for resilience-performance relationships. Product innovativeness has independent variables of behavioral preparedness and competence orientation (Akgun & Keskin, 2014).

The 1998 meta-analysis performed by Stajkovic and Luthans studied 20 years of research on self-efficacy and performance. They found the relationship between self-efficacy and performance is moderated by task complexity—stronger relationships between self-efficacy and performance were found when facing lower task complexity. Their meta-analysis found a weighted average correlation between self-efficacy and performance of 0.34 ($p < .01$).

Judge et al. (2007) updated the meta-analysis performed by Stajkovic and Luthans (1998). They studied the relationship between self-efficacy and work-related performance (WRP) and focused on literature published between 1997 and 2003. They did not find direct support for the self-efficacy-WRP relationship, but did find support for “distal variables,” which included Big Five personality variables and experience. Although direct support was not found for self-efficacy and WRP, the study did identify the role of self-efficacy as a moderating variable between the distal variables and performance.

Luthans uses the term psychological capital “to represent individual motivational tendencies that accrue through positive psychological constructs such as efficacy, optimism, hope, and resilience” (Luthans et al., 2010). Avey et al. (2010) found PsyCap to negatively correlate with age, with PsyCap having lower values for older workers. In their two studies (Avey et al., 2010), they found PsyCap correlated positively with manager-rated performance, referral performance, and sales performance. Performance was measured using a four-point single-item scale: managers rated employees based on their internal performance appraisal (manager-rated performance), on the employee’s referral of clients to other internal services offered by the firm (referral performance), and on sales performance six months after the PsyCap measured had been collected (Avey et al., 2010).

A study of Italian white collar employees directly measured the relationship between the PsyCap variable of resilience and job performance (Alessandri et al., 2015). This study found modest correlations (0.10-0.13, $p < .01$) between resilience and performance in both longitudinal and cross-sectional samples. Job performance was measured by the employee’s supervisor using the company’s performance appraisal tool. The study showed strong correlations between resilience and work engagement (0.50) and between resilience and job satisfaction (0.35), providing support for the study of resilience beyond merely performance.

Resilience capacity, a construct similar to the resilience construct used in this paper, was operationalized by Akgun and Keskin (2014) in terms of sense-making, learned resourcefulness, counterintuitive agility (unscripted agility), and an “ongoing bundling and redeployment of innovative strategies (Akgun & Keskin, 2014, p. 6919). Product innovativeness was found to be a mediating variable between resilience and firm performance. Specifically, they found behavioral preparedness, unscripted agility, and competence orientation to correlate significantly with product innovativeness. Akgun and Keskin’s “unscripted agility” (2014) has theoretical similarities with the concept of bricolage (Levi-Strauss, 1974; Mallak, 1998; Weick, 1993).

Conner (1995) identified people as Type-o or Type-d when presented with adverse stimuli. Type-d individuals see adverse stimuli as “danger,” and will take steps to avoid the situation. Type-o individuals see adverse stimuli as “opportunity” and will take steps to exploit the situation. This is easier to understand on a macro level. Organizations faced with an economic downturn typically

take one of two general paths. One: They can cut staff and reduce operations to match the decreased demand for their products and services and then hope to ramp up when the economy turns around. This is Type-d behavior—the adverse situation is dangerous and we must retreat until it is safe again. Two: They can reduce operations staffing/hours and work on R&D projects that will be ready for launch shortly after the economy improves and go shopping for companies whose market value has dropped and are “on sale.” These companies view the adverse situation as an opportunity and they take steps to exploit the situation so their company can reap the benefits when the economy turns around. Of course, the Type-o companies need a “war chest” of available cash to ride out the downturn and fund R&D during periods of declining sales.

Variables and Scales Used in Investigating the Resilience-Performance Linkage

The variables investigated in this study include Generalized Self-Efficacy (Johnston, Weinman, Wright, & Johnston, 1995), Work Locus of Control (Spector, 2016), Workload (Spector, 2016), and Organizational Constraints (Spector, 2016; Peters & O'Connor, 1980). Generalized Self-Efficacy (GSE) (Johnston et al., 1995) is based on the classic work by Albert Bandura (1977) on self-efficacy. Self-efficacy has been shown to have a strong positive relationship with performance, based on decades of research examined in a meta-analysis (Stajkovic & Luthans, 1998). This meta-analysis showed a weighted correlation of 0.38 between self-efficacy and performance which was interpreted as a 28% increase in performance. These authors also found self-efficacy to be a better predictor of job-related performance than traditional work attitudes (e.g., job satisfaction), personality traits, and feedback interventions (Stajkovic & Luthans, 1998). Luthans' PsyCap notably has four distinct constructs, including efficacy and resilience, providing research evidence that these two constructs are related but different (Luthans et al., 2010). Further, Bandura (1997) makes a distinction between efficacy and what he calls “resilient efficacy” that perseveres in spite of setbacks.

As a first step in relating workplace resilience to performance, we can study the relationship between workplace resilience and self-efficacy. Self-efficacy is anchored on three essential factors: 1) one's belief in his/her ability to complete a task; 2) their actual ability to complete the task, often called personal mastery; and 3) the ability to perform the task success in other settings (adapted from Geller, 2013). Workplace resilience shares some of the theoretical underpinnings but has different factors, depending on which resilience definition is used. This study builds on the work performed in the development of the Workplace Resilience Instrument (WRI) (Mallak & Yildiz, in press). The four resilience factors operationalized by the WRI are: Active Problem-Solving, Team Efficacy, Confident Sense-Making, and Bricolage (Mallak & Yildiz, in press). By understanding the relationship between self-efficacy and workplace resilience, we can begin to build a research framework to relate resilience to performance.

Hypothesis 1: Self-efficacy will be positively correlated with workplace resilience. Self-efficacy is a variable associated with the multi-construct of PsyCap (Luthans et al., 2010). Workplace resilience is one's ability to respond effectively to adverse situations in work settings. Self-efficacy is related, but different. Self-efficacy is more task-related compared to resilience. Because of these conceptual similarities between the two constructs, we expect a positive correlation between workplace resilience and self-efficacy.

Hypothesis 2: Organizational constraints (as measured by OCS) will be negatively correlated with resilience. (Note that frequent occurrences of interruptions on the OCS are represented by lower scores.) Organizational constraints work against an individual's performance level. The more resilient individual should be able to deploy the resilience factors of active problem-solving and bricolage to overcome those constraints. Therefore, we expect the negative correlation between resilience and one's perception of organizational constraints. Bandura, author of the self-efficacy

construct, noted that “evidence shows that human accomplishments and positive well-being require an optimistic sense of personal efficacy to override the numerous impediments to success” (Bandura, 2013, p. 21). As such, organizational constraints act as barriers to effective performance. Although each industry, organization, and job has its unique constraints, Peters and O’Connor (1988) have studied situational constraints for their role in inhibiting organizational performance.

Hypothesis 3: Workload will be positively correlated with resilience. This means individuals having higher perceptions of workloads, in terms of frequency of job demands, should have correspondingly higher levels of self-efficacy and workplace resilience so they can effectively manage those workloads. One’s perception of workload has implications for workplace resilience. A more resilient individual should be able to approach the workload demands more readily, while a less resilient individual will view increased and difficult workload demands as barriers to effective execution of their duties.

Hypothesis 4: Work locus of control will be positively correlated with resilience. A person’s locus of control (Luthans, 2011) refers primarily to whether a person believes internal or external factors are responsible for the ability to have control over a situation. A person with an external locus of control believes the situation occurred because of something outside his/her control. Conversely, a person with an internal locus of control believes the situation occurred because of something he/she did or should have done. Internal locus of control has been shown to be significantly correlated with lower levels of stress (Anderson, 1977). Therefore, we expect persons with higher resilience will have a higher work locus of control.

Methodology

Two pilot studies were designed to begin collecting data on the quality of the WRI and the underlying relationships of resilience with constructs having known relationships with performance or hypothesized relationships with performance.

Although performance measurement has been conducted in many settings, mostly at work unit levels, measuring performance at the worker level and relating that to other variables presents some unique difficulties. First, individual performance data is sensitive and subject to protection under Institutional Review Board (IRB) guidelines and regulations. Second, workers are hesitant to share performance data about themselves. Third, self-report performance measures are likely to produce data with a pronounced positive bias. Fourth, obtaining performance data from a worker’s supervisor requires the ability to match supervisor with employee, the employee to provide consent for the supervisor to rate the employee, and the organization to approve the release of such information. In many organizations, including one used in the pilot study for this paper, performance-related information was treated as confidential personnel information collected solely for the purpose of internal human resource development.

An initial instrument package contained the 20-item Workplace Resilience Instrument (WRI) (Mallak & Yildiz, in press), the 10-item Generalized Self-Efficacy Scale (Johnston et al., 1995), and several measures of organizational culture. The purpose of the initial study was to investigate the WRI’s convergent validity with a similar measure and to measure items pertinent to an applied research project conducted by the author with a Fortune 500 manufacturer (not reported in this publication).

The second instrument package contained the 20-item WRI, the 11-item Organizational Constraints Scale (Spector, 2016), the 5-item Quantitative Workload Inventory (Spector, 2016), and the 8-item Work Locus of Control scale (Spector, 2016). The purpose of this study was to

begin investigating relationships between the WRI and related measures, especially those having established relationships with performance.

Sample

The first instrument package was distributed to 51 employees of a US Fortune 500 manufacturing organization. These employees practiced professional/technical/managerial functions. Forty-eight usable survey responses were received, for a response rate of 94%. Of those providing a response to the gender item, 82.5% were male. Nearly half were between the ages of 35 and 44, with 76.5% being 25-44. This was a highly experienced group, with nearly 90% having 10 or more years of full-time experience and a mean of 17.7 years of experience. See Table 1 for demographics on the first study sample.

Table 1. Demographics of the Study 1 respondents.

Demographic	Frequency	%
Gender		
Female	7	17.5
Male	40	82.5
Age		
18-24	0	0
25-34	14	27.5
35-44	25	49.0
45-54	9	17.7
55-64	1	2.0
65+	0	0
Years of Full-Time Work Experience		
<=9	5	10.9
10-14	12	26.1
15-20	15	32.6
21-25	6	13.0
>25	8	17.4
Mean	17.7 years	
Regions of U.S.		
Michigan	100	

The second instrument package was distributed to US professionals in customer service/management/nursing. One hundred fifty-three usable surveys were returned and used in the analysis. Respondents were spread across all age ranges, with nearly two-thirds in the 30-59 age group. Fifty-eight percent of respondents were female. Respondents were spread across all regions of the United States. See Table 2 for demographics on the second study sample.

Table 2. Demographics of the Study 2 respondents.

Demographic	Frequency	%
Gender		
Female	79	58.5
Male	56	41.5
Age		
18-29	24	15.7
30-44	50	32.7
45-59	50	32.7
60+	29	19.0
Regions of U.S.		
New England	8	5.3
Middle Atlantic	20	13.3
East North Central	28	18.5
West North Central	13	8.6
South Atlantic	22	14.6
East South Central	7	4.6
West South Central	21	13.9
Mountain	15	9.9
Pacific	17	11.3

Results and Discussion

The two pilot studies provided a start to the investigation of the resilience-performance relationship. This is a nascent line of research having few empirical studies published to date. The purpose of the first study was to establish convergent validity with a known similar construct. Generalized Self-Efficacy (GSE) (Johnston et al., 1995) is a scale that has been translated into 32 languages and used worldwide for decades, based on the original work by Bandura (1977). Because self-efficacy concerns the individual's ability to perform a task, their belief in their ability to perform a task, and their ability to perform the task in other settings, this provides a basis for hypothesizing that workplace resilience is a similar, yet different construct. Workplace resilience, as measured the by WRI, is less task-dependent than GSE and represents a more general state of being. Workplace resilience is concerned with four factors: 1) Active Problem-Solving, 2) Team Efficacy, 3) Confident Sense-making, and 4) Bricolage.

The first pilot study provided evidence to support Hypothesis 1—that WRI and GSE would have convergent validity. This study found WRI and GSE to be correlated positively at 0.6769 ($p < .0001$). When convergent validity was analyzed between GSE and the four WRI factors, all four factors were significantly and positively correlated, with a higher p-value ($p < .05$) for Team Efficacy, indicating a weaker relationship between GSE and this factor than with the other three WRI factors. This is interesting given that the WRI factor containing the word “efficacy” and the measure of self-efficacy itself had a slightly weaker significance level. However, this finding is indicative of WRI measuring a different construct than GSE, which is one of the desired outcomes of this research.

The second pilot study provided evidence for partial support of Hypothesis 3 (workload-resilience) and Hypothesis 4 (locus of control). Hypothesis 2 (constraints-resilience) was not supported. Workload, as measured by the Quantitative Workload Inventory (QWI) (Spector, 2016) correlated positively with resilience (0.1767, $p < .05$). When resilience was analyzed by its four component factors, workload correlated positively with Bricolage (0.1895, $p < .05$), but not with any of the other

three factors. Although work locus of control did not correlate with the overall resilience measure, it did correlate positively with Active Problem-solving (0.2097, $p < .05$). This finding indicates that persons with higher levels of resilience are more likely to take active steps to solve problems that they face. This is consistent with the literature, especially concerning Carver et al.'s work on coping (1989), where the most effective actions were those of active problem-solving and weaker actions concerned seeking social support and behavioral disengagement.

When the data were analyzed by demographics, some additional insights were discovered. Age was found to be a differentiator with respect to organizational constraints: older respondents (60+) found the tested constraint items to be less of a problem than the 18-29 year-old group. Gender differences were found, as well. Male respondents reported higher resilience overall and for the Active Problem Solving factor and the Bricolage factor. Income also played a role in resilience. Respondents with high incomes had higher resilience, scoring higher overall in WRI and on the Active Problem Solving factor and the Team Efficacy factor. Interpretation of this income finding is difficult, especially since it exists in contrast with resilience findings in adolescent psychology where children in impoverished households have often emerged having high levels of resilience (Werner, 1993).

The second study provided insights into the relationships between resilience, as measured by the WRI, and constructs having theoretical linkages with work performance. See Table 3. The WRI factor structure had correlations among the four component factors that were consistent with the original factor structure during development of the WRI (Mallak & Yildiz, in press). Workload, as measured by the Quantitative Workload Inventory (QWI) (Spector, 2016), showed significant positive correlation with WRI (0.1767, $p < .05$) and the WRI's Bricolage factor (0.1895, $p < .05$), and a significant negative correlation with the Organizational Constraints Scale (OCS) (-0.4158, $p < .0001$). These relationships have a logical basis for interpretation: workers with higher overall resilience levels are also more likely to experience a lower frequency of reported interruptions to their work. The correlation between Bricolage and QWI suggests that workers with higher levels of bricolage perceive lower levels of interruptions in their work and still achieve desired levels of performance. The frequency of work interruptions correlates closely with the perception of constraints to getting one's work done.

Work Locus of Control (WLOC) was found significantly and positively correlated with WRI's factor of Team Efficacy (0.2097, $p < .05$), suggesting that the more control one perceives over his/her work, the greater their ability to perform in a team setting. WLOC's negative correlation with the Organizational Constraints Scale (-0.1602, $p < .10$) implies that those with higher locus of control view organizational constraints as less of an impediment to performing their work.

Table 3. Correlations and descriptive statistics (Study 2)

Variables	1	2	3	4	5	6	7	8	
WRI	1	--							
WRI Factor 1	2	0.7380***	--						
WRI Factor 2	3	0.7607***	0.5121***	--					
WRI Factor 3	4	0.8010***	0.4583***	0.5914***	--				
WRI Factor 4	5	0.8134***	0.6111***	0.5841***	0.5896***	--			
OCS	6	-0.0129	-0.0548	0.0841	0.0851	0.0337	--		
QWI	7	0.1767**	0.0460	0.0706	0.1124	0.1895**	-0.4158***	--	
WLOC	8	0.0948	0.2097**	0.0505	-0.0108	0.0255	-0.1602*	0.0473	--
Mean		3.72	3.92	3.86	3.97	3.66	3.64	3.70	3.47
S. dev.		0.46	0.74	0.66	0.49	0.66	0.88	1.00	0.66

* $p < .10$; ** $p < .05$; *** $p < .0001$

Data were also analyzed to check for significant differences between the two study samples on the WRI scores. A t-test was performed on the overall WRI scores for the two studies and found

that there was a significant difference between the means of the WRI score ($p < .0001$). Although directionality of this difference was not tested, the first sample had the higher mean WRI score (4.05 vs. 3.72), providing evidence of higher workplace resilience in the first sample.

Future Directions for Investigating the Resilience-Performance Linkage

This research is just beginning. The development and testing of the Workplace Resilience Instrument (Mallak & Yildiz, in press) was the first step. This studies reported in this paper serve as initial pilot studies to identify variables that are convergent with resilience (e.g., self-efficacy) and outcome variables that are hypothesized to be correlated with resilience. Future research should build on what has been started here. First, a large-scale study across multiple contrasting occupations (slow-paced vs. fast-paced, traditional industry vs. emerging industry) should be conducted. This type of study should shed light on resilience differences across occupations and industries as well as differences within those occupations and industries. Second, resilience should be studied directly with measures of individual performance. Previous studies have used supervisor ratings of employees and/or their performance appraisal information. This performance information can then be tracked with resilience measures to learn how resilience changes with performance levels and how the resilience factors change with performance. Third, once we have a body of knowledge concerning the relationship between resilience and performance, we can use this research-based information to design training interventions to enhance one or more resilience factors. Fourth, we can then test the effectiveness of this training as an intervention to improve resilience and then draw conclusions concerning how resilience can be improved through the use of research-based interventions designed to improve resilience and, therefore, to improve performance.

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