

Role of Resilience in Cement Supply Chain Points

Uma Sankar Mishra^{#1}, Subhendu Patnaik^{*2}, Bibhuti Bhusan Mishra^{#3}

[#] Faculty of Management Sciences, Siksha O Anusandhan University,

Bhubaneswar, India

^{*} Oriana International Limited, 904, DLF Cyber City, Infocity, Bhubaneswar-751024, India

¹connectuma123@gmail.com

²patnaik1218@gmail.com

³ bibhutibhusanmishra@soa.ac.in

Abstract— Supply chain management literature suggests that there are many mutually dependent points in the supply chain and each supply chain point is sensitive to the performance of one another. In the course of business, interrelated supply chain activities might get destabilized because of the man-made or natural factors. It is posited that the human factor (resilience) may contribute to restoring the balance. The main purpose of this study is to examine the relationship of resilience with performance. This study included 258 respondents from four large private cement manufacturing firms. Correlation, regression, and structural equation modeling were used to test the hypotheses. Findings suggest that resilience is positively related to employee performance in the supply chain. Since resilience is found to be positively related to performance practitioners can use this insight and develop the resilience of their employees through training interventions.

Keywords— Resilience, Performance, Structural Equation Modeling, Supply Chain, Cement Industry.

1. Introduction

Supply chain is a mutually dependent interconnected network process that begins from resource (raw material) procurement activities till the sales and service of products to the end-users. Every point including (upstream & downstream) activities in the supply chain involving raw material sourcing, production, inventory management till sales and distribution are equally sensitive to the overall performance output of the supply chain. Figure 1 (A & B) depicts a typical supply chain and portrays the links between upstream and downstream activities. Every point in the supply chain adds incremental values to the final product or service.

Typically, in a cement industry setup, primary points of supply chains are raw material procurement, production, inventory management, and distribution. Slack at any point will eventually lead to poor performance of the overall supply

chain and could possibly lead to a chaotic environment in the delivery of products. Such an event could damage the brand image of the company and could lead to a decline in market share in the cutthroat competitive cement market. There are multiplicities of factors that may hinder the overall efficiency of each supply chain point. For example, in the upstream points, factors like labour unrest, natural calamities (e.g., earthquake, landslide, fire, & break down in logistics operations) could eventually destabilize the optimum supply of raw materials. Similarly, downstream activities like sales and distribution might get affected because of the problem encountered in the upstream activities. It is pertinent to note that although most of the supply chain points are automatically monitored. However, the human factor cannot be ignored. It plays an indispensable role to set right the problematic points and restore optimum balance in the entire supply chain. This is where the resilience of employees engaged in the various points comes into play. In the case of adversities in the supply chain due to the above-mentioned probable problems, human motivation to bounce back (resilience) is of immense importance to resolve the imbalance. Therefore, this study aims to examine the resilience of human resource involved in the supply chain with their task performance. Employee productivity is a major concern in the corporate sector but what causes one to perform better than the other? It is not only compensation or skills that drive an employee to perform better. Campbell et al. (1993) argue that performance is not only dependent on effort but what causes one to put in the endless effort is a pertinent question[4]. Therefore, the primary purpose of this study is to examine the relationship between the resilience of employees and their work performance in the supply chain of the cement industry in India. Findings of this study would suggest necessary pragmatic insights on the crucial role of resilience as a psychological attribute and would also aid managers to develop resilience in employees and their productivity in the cement supply chain.

Apart from the managerial relevance, this study also contributes to resilience theory. An extensive survey of the literature suggests that resilience with particular relation to performance in the cement supply chain has not yet been studied in the Indian context. This study is expected to contribute to the external validity of the resilience construct. Since resilience is a Western developed construct its examination in a different cultural context is necessary. In several instances organizational researchers have voiced their concern on the generability of a Western developed construct in a different socio-cultural context [8,14,16,28,10]. Therefore, this study merits theoretical attention.

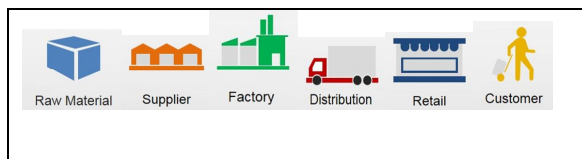


Figure 1(A). Cement Supply Chain

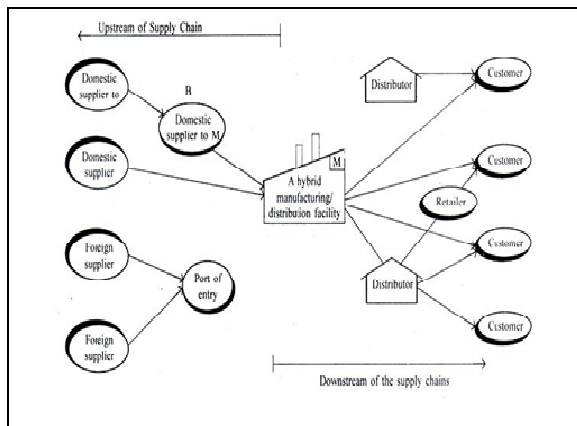


Figure 1 (B). Upstream and Downstream Components

2. Resilience Theory

Theory and empirical evidence on resilience is mainly drawn from clinical psychology literature. Masten (2001) studied on adolescent children who displayed success and adaptation in spite of great adversity [30]. Masten and Reed (2002) argue that those individuals who are endowed with the psychological capacity of resilience, display successful adoption in the time of difficulty and risk [31]. From the standpoint of positive organizational behavior (POB), the scope of resilience as a psychological construct has been widened. POB researchers have incorporated a cross-disciplinary approach for understanding resilience in organizational contexts. Research in clinical and developmental psychology supports the utility of resilience in organizational contexts.

Resilience in organizational settings is defined by Luthans (2002) "the developable capacity to rebound or bounce back from adversity, conflict,

and failure or even positive events, progress, and increased responsibility" [22]. A study conducted by Fredrickson and Joiner (2002) observes a positive and proactive reaction of resilience component on the growth of upward spiraling effects of emotions [9]. Luthans (2002) argues that the ability of resilience includes both negative setbacks and positive events. Scholars have suggested that resilience is characterized as having coping responses to both negative and positive events [9,35].

Masten and Reed (2002) argue for the 'developable' potential of resilience through specific strategies [31]. Bonanno's (2005) research also supports Masten and Reed's (2002) argument on the state-like (developable) nature of resilience construct [3]. Furthermore, empirical findings signify that resilience as a psychological resource can be developed with short term training interventions relevant to the workplace [25,24,33]. Resilience shares positive relation with performance across various samples [6,12,27,26,37,39,42]. Other empirical studies have also found the positive relationship of resilience with success in accomplishments [28,24,25]. Apart from the positive linkage with performance outcomes, resilience also has a positive relationship with job-satisfaction [21, 28].

2.1 Resilience Factors

There is a strong line of scientific inquiry on the resilience construct [15]. Researchers have identified a set of *protective* factors and conditions that promote resilience. These factors reduce the negative impact of adverse factors and facilitates successful adoption during difficulties [29]. Werner (1993) has grouped protective factors into "*within individual factors*", "*in family factors*", and "*community factors*" [38]. Within individual factors include positive self-concepts, autonomous attitude, proactiveness. In family factors such as parents having congenial relationships among themselves helps in resilience development. Community factors like peers and elder's support help in resilience cultivation. All these factors together synergistically interact within themselves and help in nurturing resilience in individuals.

Similarly, there has been a series of scientific investigations on the risk factors or "vulnerability factors". Risk factors are defined as those factors responsible for "elevated probability of an undesirable outcome" [32]. For example, alcoholism [17], drug abuse, encountering repeated stressful situations [36], under education, unemployment, unsound health conditions [5] are some of the contributory "vulnerability factors" responsible for unsuccessful adoption during adverse situations [19]. However, it is pertinent to

note that the mere presence of risk factors are not the only sufficient conditions for unsuccessful adoption and poor coping. In these light scholars such as Cowan et al. (1996) state that, “the active ingredients of risk do not lie in the variable itself, but in the set of processes that flow from the variable, linking risk conditions with specific dysfunctional outcomes” [7]. Therefore, effective identification and preventive management are of principal importance.

2.2 Resilience Development Strategies

Resilience researchers [30,37] have conceptually argued and empirically provided evidence that resilience is a psychological resource which is subject to development through training interventions in work settings. In their scholarly work, Masten et al. (2009) have developed a set of strategies (*asset-focused strategies, risk-focused strategies, & process-focused strategies*) that could develop resilience in the work domain [32].

Asset-focused strategies aim at helping individuals to realize and appreciate the psychological resources available, these strategies help in providing the necessary conditions for adoption during adverse circumstances [32]. Raising the levels of human capital in terms of improving skills sets, education, and an increase in social capital by enhancing the relationship with peers and communities can augment resilience [32]. In an organizational context, it is argued that by developing certain positive work practices like positive feedback, transparency, merit recognition, and work-life balance measures can improve resilience [23,40,41].

Risk-focused strategies are intended to aid individuals to manage and anticipated risk by nurturing psychological assets. Positive measures like giving constructive feedback, coaching, solving work-related issues, encouragement for out-of-the-box thinking, proactive initiatives, and supporting physical sports could improve self-confidence in the workforce. These initiatives, in turn, can further develop a set of psychological resources leading to the overall development of resilience [32].

Process-focused strategies include a blend of psychological resources that help in mitigating risk factors. Development of self-awareness and behavioral self-regulation are some of the strategies that can develop and maintain resilience. Simply, possessing these psychological attributes are not sufficient enough to nurture resilience rather appropriate assessment and proper usage of these resources are of primary importance [32]. Furthermore, studies have evinced that resilience was subject to development through training programs [25,24,33]. Given these scholarly insights management practitioners can take appropriate measures as suggested above to develop resilience in working communities.

Based on the above review following hypotheses were formulated:

Hypothesis 1: Resilience and employee performance are positively related with each other.

Hypothesis 2: Age and gender are significantly related with resilience.

Hypothesis 3: Gender has a significant association with performance.

3 Method of Study

3.1 Design and Procedure

This study was conducted on a sample of 258 employees (246 males and 12 females) from four large private sector cement manufacturing companies (supply chain management division), located in the eastern part of India. The response rate for this study was 74%. It is observed from Table 1 that participants age ranged from 25 to 51 years and above. Data were collected with the help of survey questionnaires. Each respondent was given the resilience questionnaire along with an envelope. To minimize the ‘*common method variance bias*’ problem and to ensure genuine responses, respondents were assured of the confidentiality of their responses [34]. Further, performance data was collected from the managers to whom respective employees reported. To reduce bias in obtaining performance ratings concerned managers were not informed about the resilience scores of the employees.

Table 1. Demographic Profile

Parameters		Frequency	Percentage
Age	25-30 years	135	52.3
	31-35 years	51	19.8
	36-40 years	42	16.3
	41-50 years	18	7.0
	51 years and above	12	4.7
Gender	Male	246	95.3
	Female	12	4.7
Work Experience	1-5 years	168	65.1
	6-10 years	81	31.4
	11-20 years	3	1.2
	21-25 years	3	1.2
	26 years and above	3	1.2
N = 258			

3.2 Study Measures

3.2.1 Resilience

Wagnild and Young's (1993) 6 items resilience scale was used to collect resilience scores of respondents. It is a 6-point Likert scale (1=*strongly disagree*, 2=*disagree*, 3=*somewhat disagree*, 4=*somewhat agree*, 5=*agree*, 6=*strongly agree*). This scale sample items include: "I usually manage difficulties one way or another at work"; "I can get through difficult times at work because I've experienced difficulty before". For this study, we obtained Cronbach's alpha (0.87) for the resilience scale. Confirmatory factor analysis (CFA) was conducted to examine the construct validity of resilience. Each 6 items loaded significantly ($p < .01$) on the latent resilience construct. Furthermore, the cross-cultural adaptation of the said scale was conducted as per the suggestions of Beaton et al., 2000 [1].

3.2.2 Performance

To obtain performance data, Heilman et al.'s (1992) performance rating scale was used [13]. Respective managers were requested to provide ratings of their reporting employees on a 5-item, 9-point Likert-type scale. Ratings ranged from 1 (*not at all competently*) to 9 (*very competently*). We obtained a Cronbach's alpha (0.82) for this measure. One of the sample items of this scale: "How would you judge the overall quality of this individual's work?". Further, Beaton et al.'s (2000) recommendations were followed for the cross-cultural adaptation in Indian context.

4 Results and Discussion

The main objective of this study was to assess the relationship of resilience with the performance of employees engaged in the supply chain of the cement industry. Further, it was also intended to examine the relationship of age and gender on resilience and performance. According, three hypotheses were formulated. To test the hypotheses, data were analyzed through correlation, simple linear regression and structural equation modeling (SEM). In H_1 it was hypothesized that resilience would have a significant positive relationship with employee performance. As evident from Table 2 that resilience is having positive significant relationship with performance ($r = 0.496$, $p < .01$) and it can be observed from Table 3 that resilience significantly predicts employee performance in the supply chain ($B = 0.666$, $p < .01$; $F = 83.400$, $p < .01$). It is also observed from Table 3 that resilience explains 24.6 % of the variation in performance of employees involved in various supply chain points of the cement industry ($r^2 = 0.246$). As there is the existence of a positive association of resilience with performance and resilience positively predicts performance. Therefore, H_1 is supported.

Table 2. Correlation Among Study Variables

Variables		Resilience	Performance	Age	Gender
Resilience	Pearson Correlation	1	.496**	.028	.063
	Sig. (2-tailed)		.000	.654	.316
	N	258	258	258	258
Performance	Pearson Correlation	.496*	1	.035	.151*
	Sig. (2-tailed)	.000		.572	.015
	N	258	258	258	258
Age	Pearson Correlation	.028	.035	1	.109
	Sig. (2-tailed)	.654	.572		.079
	N	258	258	258	258
Gender	Pearson Correlation	.063	.151*	.109	1
	Sig. (2-tailed)	.316	.015	.079	
	N	258	258	258	258
* $p < .05$ (two-tailed). ** $p < .01$ (two-tailed)					

With regard to H_2 , it was hypothesized that age and gender would have a significant relationship with resilience. However, as it can be seen from Table 2 that relationship between age and gender is insignificant with resilience ($r = 0.028$, $p = .654$; $r = .063$, $p = .316$). Hence, H_2 is rejected. Further, it

was hypothesized in H₃ that gender has a significant positive relationship with performance. It can be observed from Table 2 that the relationship between gender and performance is significantly positive ($r = 0.151, p < .05$). Therefore, H₃ is supported.

Table 3. Regression Analysis Outcomes

Predictor	Predictant	B	F	R ²	Adj. R ²
Resilience	Performance	0.666**	83.400**	0.246	0.243

Since latent constructs were involved in this study and to examine the model fit with the data it was necessary to conduct structural equation modeling (SEM) (Joreskog & Sorbom, 1993) on the data. SEM analysis was performed with the help of AMOS (v.20) software. To begin with, in SEM analysis, it is required to assess the covariances of variables [2,20]. Accordingly, implied covariances were obtained and the results can be found in Table 4.

Table 4. Implied Covariances

	bq5	bq4	bq3	bq2	bq1	aq1	aq2	aq3	aq4	aq5	aq6
bq5	.536										
bq4	.137	.652									
bq3	.164	.219	.630								
bq2	.121	.162	.194	.660							
bq1	.151	.202	.243	.179	.658						
aq1	.070	.094	.112	.083	.104	.448					
aq2	.081	.108	.130	.096	.120	.093	.432				
aq3	.100	.134	.160	.119	.148	.115	.133	.469			
aq4	.068	.091	.109	.081	.101	.078	.090	.112	.383		
aq5	.056	.074	.089	.066	.082	.064	.074	.091	.062	.376	
aq6	.071	.096	.114	.085	.106	.082	.095	.117	.080	.065	.460

Note: aq1 to aq6 and bq1 to bq5 represent items of Resilience and Performance scale respectively

With respect to the structural equation model, it can be seen from Figure 2 (path diagram) and Table 5 (path estimate) that the resilience construct is having a significant positive relationship with performance. Further, the test of overall structural model fitness yielded the fit indices which can be seen in Table 6. These goodness of fit indices suggest an appropriate model fit [11].

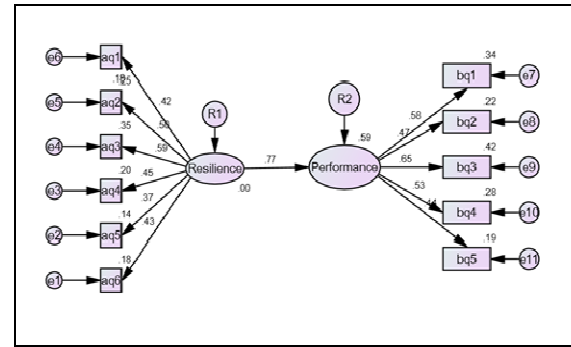


Figure 2. Structural Equation Model

Table 5. Path Estimates

Path	Direction	Unstandardized Estimate	P
Resilience → Performance	+	1.261	***

5 Limitations

The possibility of limitations cannot be ruled out. However, this study also has some merits. For instance, “instrumentation thereof” is not a concern because we used previously validated standardized psychometric measures to assess resilience and performance of respondents supported with solid theoretical rationale. With respect to limitations, this study used cross-sectional data and used a correlational design. Therefore, a precise causal link of the independent variable (resilience) on the criterion variables (performance) cannot confidently be stated. To assess causality, future studies may use experimental and longitudinal study design. Furthermore, this study was limited to samples from four cement manufacturing firms. For improving the generalization of findings, a larger sample size involving other relevant sectors could be taken into consideration.

Table 6. Structural Models Fit Indices

Fit Indices	Fit Value
Chi-square	110.991** (Degrees of Freedom = 43)
CMIN/DF	110.991 / 43 = 2.581
CFI	0.834
RMSEA	0.078
NFI	0.762
RFI	0.695
IFI	0.839

Note: Standardized Estimate; **p < .01; CFI = comparative fit index; NFI = normed fit index; RMSEA= root-mean-square error of approximation; RFI = relative fit index; IFI = incremental fit index

6 Managerial Implications and Conclusions

Results of this study suggest both managerial and theoretical implications. Since this study evinced positive relationship of resilience with the

performance of employees involved in supply chain operations, human resource management professionals can use these insights and improve the resilience of their workforce by providing resilience training [25]. As discussed earlier, supply chain management involves many crucial points in terms of upstream and downstream activities. With respect to the cement industry, in particular, upstream activities like raw material sourcing, production, and inventory management are extremely sensitive to the performance in the supply chain. There is every possibility that all these activities could be affected by natural calamities like flood, earthquake, and fire. Man-made events like riots, terrorist attack, logistic strike, and war. Any of these activities will eventually destabilize one or more points in the supply chain. This will affect the performance of employees and the overall output of the supply chain. When the supply chain optimization and performance is seriously affected it will inevitably have a negative influence on finished product inventory management and distribution. Under these circumstances, it is likely that other rival competitors having robust supply chain will take advantage of the situation. The affected players are likely to lose the market share and the general brand image may get affected. To avoid such a situation, resilience as a psychological resource can assume a great deal of importance.

Now let us discuss in which light resilience might help. It is a generally accepted fact that all the supply chain points are optimized with automated IT technologies. However, human intervention to operate them successfully and take the mental pressures in restoring balance in every point is of seminal importance. In this context, a psychological resource of resilience comes to rescue. If the workforce is appropriately trained psychologically and physically to demonstrate resilience through successful adoption. It would help them to restore normalcy in the various supply chain points and thereby improve the overall supply chain performance. Further, resilience will provide the necessary psychological attributes to demonstrate and sustain human motivation during encountered and anticipated adversities. Additionally, resilience being a positive resource, it would help to nurture self-efficacy (confidence) and hope in the overall attitude of the workforce. All these psychological resources would synergistically interact with each other and provide a positive work environment to fight adversities of any kind. Apart from these managerial implications, theoretically, findings of this study indicate the external validity of resilience construct in non-Western context as resilience demonstrated a positive relationship with performance.

References

- [1] Beaton, D. E., Bombardier, C., Guillemin, F., & Ferraz M. B (2000), Guidelines for the process of crosscultural adaptation of self-report measures. *Spine*, 25(24), 3186-3191.
- [2] Bollen, K.A. (1989). *Structural Equations with Latent Variables*, New York, NY: Wiley.
- [3] Bonanno, G. A. (2005). Clarifying and extending the construct of adult resilience. *American Psychologist*, 60(3),265–267.
- [4] Campbell, J. P., McCloy, R. A., Oppler, S. H., and Sager, C. E. (1993), “A theory of performance”, in Schmitt, N. and Borman, W. C. (Ed.), *Personnel selection in Organizations*, Jossey-Bass, SanFrancisco, CA, pp. 35–70.
- [5] Collins, M. E. (2001). Transition to adulthood for vulnerable youths: A review of research and implications for policy. *Social service review*, 75(2), 271-291.
- [6] Coutu, D. L. (2002). How resilience works. *Harvard Business Review*, 80(5), 46–55.
- [7] Cowan, P. A., Cowan, C. P., & Schulz, M. S. (1996). Thinking about risk and resilience in families. In E. M. Hetherington & E.A. Blechman (Eds.), *Stress, coping, and resiliency in children and families* (pp. 1-38). Mahwah, MJ: Erlbaum.
- [8] Cronbach, L.J., Gleser, G.C., Nanda, H., and Rajaratnam, N. (1972), *The dependability of behavioral measurements: Theory of generalizability for scores and profiles*, John Wiley. New York.
- [9] Fredrickson, B. L., & Joiner, T. (2002). Positive emotions trigger upward spirals toward emotional well-being. *Psychological Science*, 13(2), 172-175.
- [10] Gelfand, M.J., Erez, M., & Aycan, Z.(2007).Cross-cultural organizational behavior. *Annual Review of Psychology*, 58 (2),479-514.
- [11] Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L.(2006). *Multivariate data analysis* (Vol. 6).Upper Saddle River, NJ: Pearson Prentice Hall.
- [12] Harland, L., Harrison, W., Jones, J. R., & Reiter-Palmon, R. (2005). Leadership behaviors and subordinate resilience. *Journal of Leadership & Organizational Studies*, 11(2), 2-14.
- [13] Heilman, M. E., Block, C. J., & Lucas, J. A. (1992). Presumed incompetent? Stigmatization and affirmative action efforts. *Journal of Applied Psychology*,77(4), 536-544.
- [14] Hofstede, G. (1980), *Culture’s consequence*, Sage, Beverly Hills, CA.

- [15] Jessor, R. (1993). Successful adolescent development among youth in high-risk settings. *American Psychologist*, 48(2), 117-126.
- [16] Johns, G. (2006). The essential impact of context on organizational behavior. *Academy of management review*, 31(2), 386-408.
- [17] Johnson, K., Bryant, D. D., Collins, D. A., Noe, T. D., Strader, T. N., & Berbaum, M. (1998). Preventing and reducing alcohol and other drug use among high-risk youths by increasing family resilience. *Social Work*, 43(4), 297-308.
- [18] Joreskog, K.G. & Sorbom, D. (1993), LISREL 8 User's Reference Guide, Scientific Software, Chicago, IL.
- [19] Kirby, L., & Fraser, M. (1997). Risk and resilience in childhood. In M. Fraser (Ed.), *Risk and resilience in childhood* (pp. 10-33). Washington, DC: NASW Press.
- [20] Kline, R.B. (1998). *Principles and Practice of Structural Equation Modeling*, New York, NY: Guilford Press.
- [21] Larson, M., and Luthans, F. (2006). Potential added value of psychological capital in predicting work attitudes. *Journal of Leadership and Organizational Studies*, 13 (2), 75-92.
- [22] Luthans, F. (2002). The need for and meaning of positive organizational behavior. *Journal of organizational behavior*, 23(6), 695-706.
- [23] Luthans, F., & Youssef, C. M. (2004). Human, social, and now positive psychological capital management: Investing in people for competitive advantage. *Organizational Dynamics*, 33(2), 143-160.
- [24] Luthans, F., Avey, J. B., & Patera, J. L. (2008). Experimental analysis of a web-based training intervention to develop positive psychological capital. *Academy of Management Learning & Education*, 7(2), 209-221.
- [25] Luthans, F., Avey, J. B., Avolio, B. J., & Peterson, S. J. (2010). The development and resulting performance impact of positive psychological capital. *Human resource development quarterly*, 21(1), 41-67.
- [26] Luthans, F., Avolio, B. J., Walumbwa, F. O., & Li, W. (2005). The psychological capital of Chinese workers: Exploring the relationship with performance. *Management and Organization Review*, 1(2), 247-269.
- [27] Luthans, F., Vogelgesang, G. R., & Lester, P. B. (2006). Developing the psychological capital of resiliency. *Human Resource Development Review*, 5(1), 25-44.
- [28] Luthans, F., Youssef, C. M., and Avolio, B. J. (2007), *Psychological capital: Developing the human competitive edge*, Oxford University Press, Oxford, UK.
- [29] Masten, A. (1994). Resilience in individual development: Successful adaptation despite risk and adversity. In M.C. Wang & E.W. Gordon (Eds.), *Educational resilience in inner-city America: Challenges and prospects* (pp. 3-25). Hillsdale, NY: Lawrence Erlbaum.
- [30] Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American psychologist*, 56 (3), 227-239.
- [31] Masten, A. S., & Reed, M. G. J. (2002). Resilience in development. In C. R. Snyder, & S. Lopez (Eds.), *Handbook of positive psychology* (pp. 74-88). Oxford, U.K.: Oxford University Press.
- [32] Masten, A.S., Cutuli, J.J., Herbers, J.E., & Reed, M.G.J. (2009). Resilience in Development. In S.J. Lopez & C.R. Snyder (Eds.), *Oxford handbook of positive psychology* (2nd ed., pp. 117-131). New York, NY: Oxford University Press.
- [33] Peterson, S. J., Luthans, F., Avolio, B. J., Walumbwa, F. O., and Zheng, Z. (2011). Psychological capital and employee performance: A latent growth modeling approach. *Personnel Psychology*, 64(2), 427-450.
- [34] Podsakoff, P. M., MacKenzie, S. C., Lee, J., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879-903.
- [35] Richardson GE. (2002). The metatheory of resilience and resiliency. *Journal of Clinical Psychology*, 58(3), 307-321.
- [36] Smith, C., & Carlson, B. E. (1997). Stress, coping, and resilience in children and youth. *The Social service review*, 71 (2), 231-256.
- [37] Waite, P. J., & Richardson, G. E. (2004). Determining the efficacy of resiliency training in the work site. *Journal of Allied Health*, 33(3), 178-183.
- [38] Werner, E. E. (1993). Risk, resilience, and recovery: Perspectives from the Kauai Longitudinal Study. *Development and psychopathology*, 5(4), 503-515.
- [39] Worline, M. C., Dutton, J. E., Frost, P. J., Kanov, J., Lilius, J. M., & Maitlis, S. (2002). Creating fertile soil: The organizing dynamics of resilience. Paper presented at the Annual Meeting of the Academy of Management, Denver.
- [40] Youssef, C. M., & Luthans, F. (2005a). A positive organizational behavior approach to ethical performance. In R. A. Giacalone, C. Dunn, & C. Jurkiewicz (Eds.), *Positive psychology in business ethics and corporate social responsibility* (pp. 1-22). Greenwich, CT: Information Age.

- [41] Youssef, C. M., & Luthans, F. (2005b). Resiliency development of organizations, leaders, and employees: Multi-level theory building for sustained performance. In W. Gardner, B. Avolio, & F. Walumbwa (Eds.), *Authentic Leadership Theory & Practice: Origins, effects, and development. Monographs in leadership and management. (Vol.3, pp. 303-343)*. Oxford, UK: Elsevier.
- [42] Zunz, S. (1998). Resiliency and burnout: Protective factors for human service managers. *Administration in Social Work*, 22 (3), 39-54.