

PREDICTORS OF ORGANIZATIONAL RESILIENCE: A PATH ANALYSIS

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ABSTRACT: *This study examines the relationship between organizational resilience and the following predictors: openness, trust, authenticity, and proaction. The predictors were derived from Flach's (1988), Weick's (1993), and Malak's (1998) sources of organizational resilience. The rationale for this study is based on the overwhelming support from the literature that organizations must become resilient if they hope to survive environmental turbulence (see Doe, 1994; Horne, 1997; Lengnick-Hall & Beck, 2009; Kerr, 2016; Livingstone, 2016). To achieve the objectives of the study, data was collected from employees of higher education institutions in the Philippines. Of the 779 instruments distributed, only 267 instruments were used due to incomplete instruments, outliers, normality, and other considerations. A path analysis was used to deduce whether the hypothetical model developed from the literature represents the reality. The results suggest that openness, trust, authenticity, and proaction explain 47% of the variation in organizational resilience. Further, evidence also suggest that proaction has the highest effect on organizational resilience although it was highly influenced by trust. Finally, a predictive model (structural equation model) which was different from the hypothesized model was achieved in terms of model fit and significant relationships. A major contribution of this study is the pinpointing of the substance of organizational resilience—that reservoir of vulnerability that is grown by an organization through trust—rather than defining it by what organizations are able to do because it has resilience—bouncing back from or absorbing adverse consequences. This paper discusses the results of the study, the implications for managers, and the recommendations for further research.*

KEYWORDS: Organizational Resilience, Openness, Trust, Authenticity, Proaction, Path Analysis.

INTRODUCTION

Given that organizational life is played out in an increasingly volatile environment—it is necessary that organizations be deliberate in the nurturing of its resilience because the literature is overwhelming in its assent that resilience has become critical for organization survival (see Doe, 1994; Horne, 1997; Warner & Pyle, 1997; Sullivan-Taylor & Wilson, 2009; Sullivan-Taylor & Branicki, 2010; Livingstone, 2016; Howard, 2016). Kerr (2016) went on to suggest that organizational resilience “reaches beyond survival, towards a more holistic view of business health and success. A resilient organization is Darwinian, in the sense that it adapts to a changing environment in order to remain fit for purpose” (p. 40). Hence organizations and its leaders must nurture organizational resilience for the organizational environment today requires it (Livingstone, 2016).

However, studies on organizational resilience has been case based and context specific. (Linnenluecke, 2015). In discussing its limitations, Linnenluecke (2015) argued

“These studies illustrate context-related points, but they do not draw out the context-dependence of their insights, and little is known about the transferability of insights across different contexts. Future research could investigate whether and how findings from discrete case examples could be integrated to develop insights that are more generalizable to different settings and contexts including under-researched contexts such as organizations in developing countries”

Hence this study followed these recommendations by deriving variables from Flach’s (1988), Weick’s (1993), and Malak’s (1998) as predictors of organizational resilience. Further, this study used these predictors to look at relational reserves within an organization (Gittell, Cameron, & Lim, 2006). Finally, this study tested these predictor variables in an organization in a developing country and used path analysis in the analysis of the data in the hopes that its findings can be more generalizable to different settings and contexts.

As such, this paper focuses on organizational resilience—the relational reserves—and its predictor variables specifically openness, trust, authenticity, and proaction. This paper discusses the relationship between the predictor variables and organizational resilience as well as the relationship among the predictor variables. Further, a conceptual framework was used to denote the relationships among these variables and for each parameter in the framework, a hypothesis was derived for testing purposes. In addition, the method of how to test and analyze the results of the hypothesis was described and this paper concluded with a discussion of the results of the hypotheses testing, implications, and recommendations for both practitioners and academics.

Organizational Resilience (R)

Organizational resilience has two dimensions, that intangible quality of individuals or organizations to function as intended despite significant changes or challenging circumstances (see Masten & Reed, 2002) or the ability to respond positively to setbacks or challenging incidents (see Horne & Orr, 1998). These dimensions were summarized well by Sutcliffe and Vogus (2003) when they defined organizational resilience as the ability to absorb strain and still function as intended; or an ability to bounce back from untoward events; or both.

In order to deduce predictors for organizational resilience from the literature, an understanding of its sources are necessary. Flach (1988) argued that for organizations to be resilient the following are needed: a supportive environment, personal autonomy and self esteem, emotional maturity, creative thinking, and a sense of hope for the future. On the other hand, Weick (1993) argued that for organizations to be resilient, it must have: improvisation and bricolage, virtual role systems, the attitude of wisdom, and respectful interaction. Malak (1998) combined and extended these sources of organizational resilience to seven: perceiving experience constructively, performing positive adaptive behaviors, ensuring adequate external resources, expanding decision-making boundaries, practicing bricolage, developing tolerance for uncertainty, and building virtual role systems.

Based on Flach’s (1988), Weick’s (1993), and Malak’s (1998) sources of organizational resilience, the following predictors were formulated: Openness, Trust, Authenticity, and Proaction. These predictors will be discussed individually and how they relate to each other.

Further, hypothesis will be developed from each discussion to be tested and reported in this study.

Openness (O)

Openness in an organization reflects the employees' willingness to voice their ideas and their organizations supports them in doing so (see Lather et. al., 2010) for this will improve communication, feedback, and the discussion of what matters (see Choudry, 2011). Thus an organization whose openness level is high would experience improvements in the interaction of organizational members in terms of clarity, willingness to express ideas and take risks among other things (see Subrahmanian, 2012). Openness can be equated with Weick's (1993) respectful interaction and Flach's (1988) supportive environment.

Further, in term of the other predictor variables, openness affect trust (see Solkhe, 2013; Kumari, 2013; and Panchemia 2013); openness affect authenticity (see Subrahmanian, 2012; and Nika & Sofi, 2013); and openness also affect proaction (see Nika & Sofi, 2013; and Solkhe, 2013).

RQ 1: Does Openness predict trust, authenticity, proaction, and organizational resilience?

Trust (T)

Trust exists when employees "accept what another person says at face value and not search for ulterior motives" (Solkhe, 2013). This definition of trust is extended by Subrahmanian (2012) to include confidentiality in the sharing and use of information. Trust is built on the mutual consensus between employees and management in an open atmosphere. Scholz pointed out that "as trust increases, defensive and unproductive behaviors decrease" (as cited in Siddiqui et al., 2013, p. 55). Hence the outcome of trust will bring higher empathy, timely support, reduced stress and reduction and simplification of forms and procedures (Subrahmanian, 2012). Trust can be seen in Flach's (1988) supportive environment, development of personal autonomy, and Weick's attitude of wisdom and respectful interaction.

Further, in term of other predictor variables, trust affects authenticity (see Panchamia 2013; and Nika & Sofi, 2013); and trust affect proaction (see Subrahmanian 2012).

RQ2: Does trust predict authenticity, proaction, and organizational resilience?

Proaction (P)

Proaction refers to the ability of employees to take initiative, preplan, and take preventive action (Subrahmanian, 2012). This definition is extended by Lather et al. (2010) that employees anticipate the issues that arises and act or respond to the needs of the future. This means that employees must take the initiative in starting the process (Choudhury, 2011), preplanning (Panchemia, 2013), as well as taking initiative and risks (Mittal & Verna, 2013). To possess the quality of proaction, it goes beyond mere reaction to circumstances arising from the environment to include adapting to, influencing, and managing the environment. When organizations are possess this characteristic, they "embrace diversity...[are]...relationship oriented...embrace external connectivity...[and]...promote internal integration" (Siddiqui et al., 2013, p. 55). As such, proaction is critical for organizational success (Schein as cited by Siddiqui et al., 2013) and it can be seen when organizations respond to situations by taking or planning actions due to immediate concerns (Subrahmanian, 2012). Proaction can be seen in

Weick's (1993) improvisation and bricolage and attitude of wisdom; Malak's (1998) performing positive adaptive behaviors; practicing bricolage; and building virtual role systems.

Further, in terms of other predictor variables, proaction affects authenticity. Where employees are in an open environment that is trusting and encourages initiating and risk taking; employees become authentic because the atmosphere is open/trusting and there is no significant adverse effect of being real about one's feelings, saying, and doings.

RQ3: Does proaction predicts authenticity and organizational resilience?

Authenticity (A)

Authenticity is being real about one's feelings, talk, or what he/she does (see Choudhury; Panchamia, 2013). Authenticity enhances the communication within the organization and reduce the distortion among organizational actors (see Suhrahmanian, 2012; Panchamia, 2013). As such, where authenticity exists, employees accept each other as they are and relate to each other without pretense (see Lather et al., 2010). This is because trust exists and therefore employees do not see the value of pretense (see Siddiqui et al., 2013; and Solkhe, 2013). Authenticity can be seen in (Weick's, 1993) respectful interaction and attitude of wisdom as well as Flach's (1988) emotional maturity of the individual and the supportive environment.

RQ4: Does authenticity predicts organizational resilience?

Conceptual Framework

The conceptual framework was drawn based on the above literature. However, based on the conceptual framework (see figure 1) two other questions can also be answered:

RQ5: What is the best predictive model for organizational resilience given the predictors openness, trust, proaction, and authenticity?

RQ6: Which of the predictors—openness, trust, proaction, and authenticity—have the greatest effect on organizational resilience?

METHODOLOGY

The six RQs of this study was answered through the use of a cross-sectional survey design. Convenience sampling was used to distribute 779 instruments to employees of four private Higher Education Institutions (HEI). The choice to study employees of HEI in the Philippines is appropriate in this setting because prior to 2013, the system of basic education in the Philippines began at kindergarten to grade 10 and then they graduated to college/university life in contrast to the other countries' K to 12 systems. However, in 2013, President Benigno Aquino III signed an enhanced Basic Education Act which extended the previous K to 10 system by two years i.e. K to 12. This has caused much anxiety and stress among employees at the HEI given that there will be no intake of students for at least two years once implementation take place.

A total of 520 (67%) instruments were collected and only 400 instruments (77%) were used in this study due to missing data. In order to use path analysis, normality assumption among others were required to be met. As such, another 137 instruments were removed from the study. Thus

in total, there were only 267 respondents used in this study. The items on the instrument were adapted from Nwihere, Jone, and Kumari's measurement of the predictors. This was done with their permission and the reliability of the different scales are given in table 1. The reliability of the scales was above 0.7 (see Table 1) and were deemed reliable.

In order to answer the RQs of the study, the path analysis as a statistical tool was used. Path analysis is appropriate for the study because it can test the relationship between the predictors and the dependent variable as well as the relationships among the predictors. The SPSS software was used for recording the data and the AMOS software was used for the actual path analysis.

Figure 1: Conceptual Framework

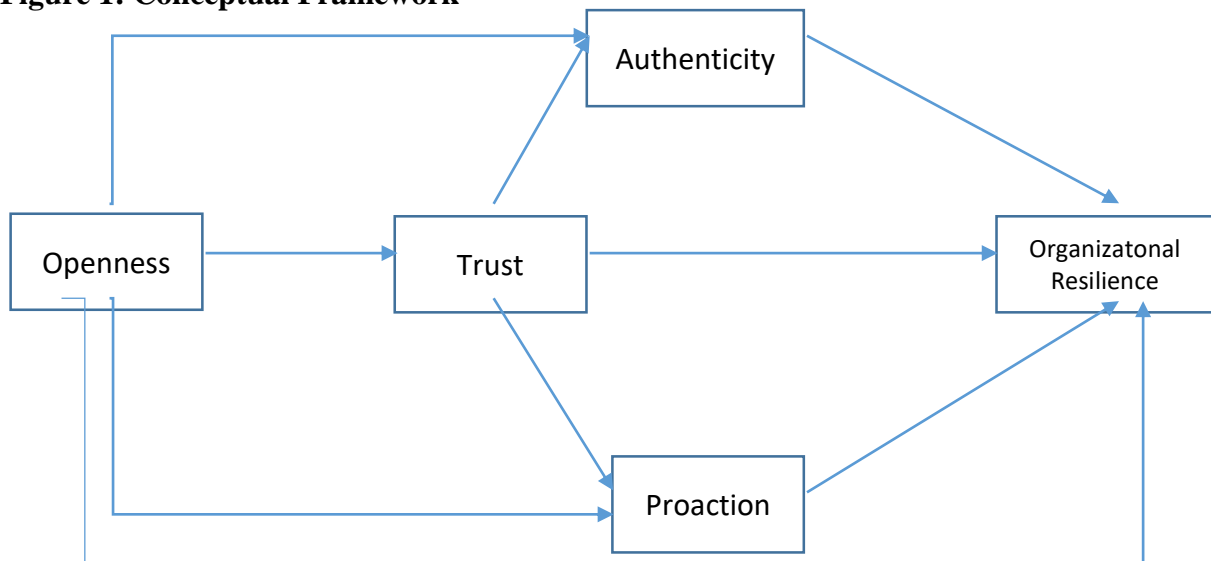


Table 1: Summary of Reliability Tests

Variable	Cronbach Alpha
Openness	0.814
Trust	0.837
Proaction	0.796
Authenticity	0.862
Organizational Resilience	0.852

RESULTS AND DISCUSSIONS

Before discussing the research questions, a description of the sample is necessary. Of the 267 participating in this study, 103 were male and 164 were female. There were 4 who were below the age of 20; 90 whose ages were between 21-30; 77 whose ages were between 31-40; 59 whose ages were between 41-50; and 37 whose ages were 51 and above. In terms of marital status, there were 103 who were single, 158 who were married, and 6 who claimed other (separated or widowed). In terms of the educational attainment, at the doctoral level, there were 7; at the master's level, there were 58; at the bachelor's level, there were 167; and lower than

the bachelor's level, there were 35. In terms of years of service, there were 32 who has served less than 1 year; 38 who has served between 1 to 2 years; 32 who has served between 3 to 4 years; 29 who has served 5 to 6 years; and 136 who has served 7 years and above. These demographics is summarized in Table 2 with relevant percentages.

Table 2: Demographic Profile of Respondents.

Variables	Frequency	%
Gender		
Male	103	39
Female	164	61
Total	267	100
Age		
20 and below	4	1
21 – 30	90	34
31 – 40	77	29
41 – 50	59	22
51 and above	37	14
Total	267	100
Marital Status		
Single	103	39
Married	158	59
Other	6	2
Total	267	100
Education		
Doctorate	7	3
Masters	58	22
Bachelor	167	63
Other	35	12
Total	267	100
Years of Service		
Less than a year	32	12
1 – 2 years	38	14
3 – 4 years	32	12
5 – 6 years	29	11
7 and above	136	51
Total	267	100

Path Analysis Results

Before answering the RQs, it is important to note that path analysis as a statistical tool tests whether the model hypothesized from the literature (as in figure 1) in essence represents the reality. Hence, the chi-square, the baseline comparisons, as well as the RMSEA are indicators that we observe (see table 3 for a summary). As such, if the indicators and their values are satisfied than the hypothesized model is a representation of the reality—statistically speaking (see Byrne, 2011; and Kline, 2005).

Table 3: Model Fit Indicators

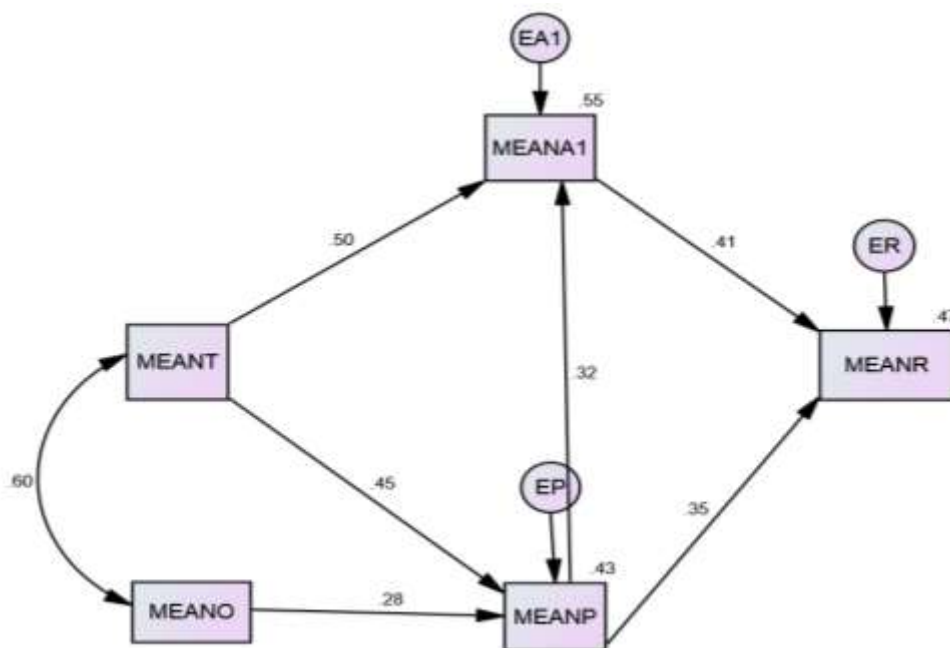
Indicators	Recommended Value
Chi-Square/CMIN	> 0.05
Normed Fit Index (NFI)	> 0.93
Incremental Fit Index (IFI)	> 0.93
Tucker-Lewis Fit Index (TLI)	> 0.93
Comparative Fit Index (CFI)	> 0.93
RMSEA	< 0.08

The results of the path analysis in terms of model fit is presented in table 4 and the final model is presented in figure 2. Hence the discussion of the research questions will be based on the results shown in Table 4 and figure 2.

Table 4: Model Fit of Final Model

Indicators	Recommended Value	Final Model	Evaluation
Chi-Square/CMIN	> 0.050	0.216	Acceptable
Normed Fit Index (NFI)	> 0.950	0.993	Acceptable
Incremental Fit Index (IFI)	> 0.950	0.998	Acceptable
Tucker-Lewis Fit Index (TLI)	> 0.950	0.992	Acceptable
Comparative Fit Index (CFI)	> 0.950	0.998	Acceptable
RMSEA	< 0.080	0.043	Acceptable

Figure 2: Final Model



RQ1: Does Openness predict trust, authenticity, proaction, and organizational resilience?

Previously, openness was the only exogenous variable (see figure 1). However, when answering this question, it was found that openness predicts proaction ($\beta = 0.281$; $p = ***$) only. Openness does not predict trust and authenticity either directly or indirectly. On the other hand, openness does predict organizational resilience indirectly through proaction (see figure 2).

RQ2: Does trust predict authenticity, proaction, and organizational resilience?

Previously, trust was an endogenous variable (see figure 1). However, when answering this question, it was found that trust is an exogenous variable and it predicts proaction ($\beta = 0.447$; $p = ***$); and authenticity ($\beta = 0.502$; $p = ***$) directly. Trust does not predict organizational resilience directly but through proaction and authenticity (see figure 2).

RQ3: Does proaction predicts authenticity and organizational resilience?

When this question was answered, proaction does predict both authenticity ($\beta = 0.319$; $p = ***$) and organizational resilience ($\beta = 0.347$; $p = ***$) directly (see figure 2).

RQ4: Does authenticity predicts organizational resilience?

When this question was tested (as can be seen in figure 2), authenticity does affect organizational resilience ($\beta = 0.414$; $p = ***$).

RQ5: What is the best predictive model for organizational resilience given the predictors openness, trust, proaction, and authenticity?

Given the above results, the best predictive model is given in figure 2. Trust and openness does not affect organizational resilience directly but through proaction and authenticity (for trust only). Further, trust can predict authenticity and proaction whereas openness can only predict proaction. On the other hand, only two variables had direct effect on organizational resilience—proaction and authenticity.

In terms of explaining the variation among the endogenous variables, the final model (in figure 2) explains 43% ($r^2 = 0.428$) of the variation in proaction; 55% ($r^2 = 0.550$) of the variation in authenticity; and 47% ($r^2 = 0.472$) of the variation in organizational resilience.

RQ6: Which of the predictors—openness, trust, proaction, and authenticity—have the greatest effect on organizational resilience?

When answering this question, we are concerned with two kinds of effects, direct and indirect effect. A direct effect is when the parameter (or arrow as shown in figure 2) goes from one variable to another. An indirect effect is when one variable has a parameter to one endogenous variable who has another another arrow pointing to another endogenous variable (see Trust via proaction to organizational resilience). As such, the results show that authenticity has the highest direct effect ($\beta = 0.414$) followed by proaction ($\beta = 0.347$). In term of the indirect effect, trust has the highest indirect effect ($\beta = 0.422$) followed by openness ($\beta = 0.134$). However, when measuring each variable's total effect on organizational resilience, the result is ranked from highest to lowest effect: proaction has highest effect ($\beta = 0.479$); trust ($\beta = 0.422$); authenticity ($\beta = 0.414$); and then openness ($\beta = 0.134$).

DISCUSSION

McManus (2008) argued that for organizations to be resilient, they must possess these three qualities. First, resilient organizations are aware of their surroundings. Second, resilient organizations are able to manage their vulnerabilities given their awareness of the surroundings. Finally, resilient organizations are able to adapt to their surroundings or manage the challenges through improvisation and bricolage. McManus's (2008) three qualities of a resilient organization will be used as a background to discuss the results.

Trust in the final model became an exogenous variable (see figure 2) as opposed to being an endogenous variable (see figure 1). McManus (2008) argued that an organization is resilient if it is able to manage its vulnerabilities. Trust becomes critical because vulnerability cannot be divorced from trust (Nienaber, Hofeditz, & Romeike, 2015). Similarly Mayer et al. (1995) and Rousseau et al. (1998) argued that trust is the process of making one's self vulnerable because of positive expectations from the trust relationship. As such, even in monitoring or controlling relationships—trust exists if vulnerabilities are not exploited (Davis & Schoorman, 1995). Thus an organization who has high levels of trust can be argued to possess a *reservoir of vulnerabilities that are not exploited*. This become important because critical decision and decision making under stress are opportunities for exploitation. Should an organization have a reservoir of vulnerabilities that are not exploited, it can be argued that they also have high levels of resilience for the relationships within has high levels of trust. This is important and is supporting by other findings—trust is positively correlated with a company's financial performance (Schoorman, Mayer, & Tan, 2000); trust is positively related to job performance (Colquitt, Scott, & Lepine, 2007); and trust is positively related to retention (Barbian, 2002).

Another important finding in the study is that trust and openness does not have direct effect on organizational resilience. Rather, trust and openness effect proaction and authenticity directly and it is the latter two that impacts organizational resilience directly. It is important to make the distinction that trust and openness provides the *climate* whereby proaction and authenticity thrives. Proaction is defined as the ability of employees to anticipate the issues and respond to concerns at hand and those in the future (Lather et. Al., 2010). This includes the initiative to take risks because one has decided to become responsible for the issues that arises (Mittal & Verna, 2013). For employees to take initiatives and expose themselves to risks of failure, ridicule, and punishment—the environment that surrounds them should be conducive to their vulnerability exposure. Hence, the trusting environment allows the employee to take the risk of ownership and enables them to practice improvisation and bricolage in the workplace (Magnus, 2008).

Similarly, authenticity is also enhanced when vulnerabilities are not exploited (Daniel, 1998). Where trust levels are low, vulnerabilities are fenced and communication breakdown is inevitable because there is distortion among organizational actors for their authenticity is also fenced in. Human beings are vulnerable in many ways—but the challenge lie in being authentic rather than defensive about their vulnerability. In organizations where trust levels are high—this will not be an issue. But in environments where trust levels are low—it becomes problematic because employees begin fencing off their vulnerability which can result in isolation from members within and external to the organization. Hence, an environment that does not allow persons to become authentic about their vulnerabilities will suffer the consequences of Magnus's (2008) first assertion—they do not become aware of their surroundings. For instance, Werhane (1991), in her discussion of the Challenger's launch failure, pointed to the fencing between NASA and Thiokol, Thiokol's top management and its

engineers, and Thiokol's top management with its parent company, Morton as one of the causes of the launch failure. Because each of these organizational actors refused to be authentic about their vulnerabilities, they began fencing off their responsibilities: priorities conflicts escalated and these actors failed to take on personal responsibility for the decision-making.

This study contributes to the body of knowledge in three ways—first, this study that has defined the substance of organizational resilience—it is that reservoir of vulnerability present within an organization that can be exploited but organizational actors do not abuse it. Organizational resilience has been defined as the ability to bounce back or absorb stress and still function as intended or both. However this study understands the substance of organizational resilience that enables this ability i.e. bouncing back or absorbing stress. This vulnerability reservoir allows organizational actors to either absorb strain or stress or bounce back from adverse circumstances simply because decision making processes can be fluid, fencing among organizational actors is minimal, and actions are done in good faith rather than seeking to exploit a vulnerability. Second, this study brings to light the role that trust plays in organizational resilience. Trust has been conceptualized in the literature to affect resilience. However, this study has found that trust does not affect organizational resilience directly as was originally conceptualized. Trust was found to indirectly affect resilience through proaction and authenticity. Hence, trust—as defined through the lens of vulnerability—provides that environment whereby vulnerability exists and is nurtured but not exploited. This allows for proaction—bricolage and authenticity of engagement. Third, this study contributes to the body of knowledge by applying path analysis to organizational predictors of organizational resilience. This allows for the possibility of generalization.

CONCLUSION

The purpose of this study was to explore whether the predictors—openness, trust, proaction, and authenticity—based on relational reserves (Gittell, Cameron & Lim, 2005)—derived from Flach's (1988), Weick's (1993), and Malak's (1998) sources of resilience models do influence organizational resilience. This study found that the predictors do predict organizational resilience—proaction and authenticity directly; trust and openness indirectly. Further this model explained 47% (r^2) of the variation in organizational resilience. Finally, this model satisfied the model fit indicators as specified by Byrne (2011) and Kline (2005) suggesting that this model represents the reality.

Given the levels of volatility within organizational environments, the importance of nurturing organizational resilience deliberately cannot be overstated. This study suggests that organizations consider fostering trust, openness, proaction, and authenticity in order to increase its levels of organizational resilience. Further, it is important to replicate this study in other industries and consider other variables given that 53% of the variation in organizational resilience cannot be explained by this study. Finally, scholars of organizational resilience should consider the substance of resilience. Understanding its substance allows organization to rework their policies, structures, and practices in order to nurture it deliberately. This study argue that the substance of resilience is that reservoir of vulnerability that is grown in an environment of trust. This enables its nurture but not its exploitation. Further studies in this area can focus on how these reserves of vulnerability can be grown intentionally.

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