

An Empirical based model for predicting managers' behavioral intention towards crisis strategic planing

Using extented theory of planning behavior

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Abstract: Despite organizations and governmental institutions encounter a unique, threatening and stress-including decision-making when managing crisis, which has to be dealt effectively and consistently and in a timely manner, the majority of past studies have focused on response and recovery of crisis, rather than on crisis strategic planning, while many organizations remain unprepared for a crisis situation and failed to adopt models and strategies proposed in the literature. Furthermore, most related models offered in the academic literature are descriptive in nature and few have undertaken a predictive research approach underpinned, which reflect their limitations as practical responses to potential or actual crises that organizations may experience. Moreover the existing crisis management literature to date concerns their focus on developed countries. Therefore, our research attempts to narrow this research gap in the current body of literature by developing and validating an empirical-based model for predicting the critical factors influencing managers' intention to undertake crisis strategic planning based on an extended theory of planned behavior, as well as suggesting recommendations to enhance their participation. The research design involved a cross-sectional survey for data collection. The reliability of instruments was assessed, and showed a high internal consistency and a richer research methodology was used, combining quantitative and qualitative methods to validate the research model and empirically test the hypothesized relationships. Multiple regression analysis with its associated statistical inference tests was applied. Based on our findings the study has made a number of important practical and academic implications. These findings provide valuable guidance for researchers and practitioners.

Keywords: Crisis management, Crisis planning intentions, Crisis strategic planning, Developing countries, Theory of planned behavior.

Introduction

Today, business and governments around the globe are operating under high uncertainty and risk levels forced by crises which are low frequency, high consequence events and can severely threaten the integrity of organizations and societies. The potential for these consequences, then, provides a major incentive to consider crisis planning, because it helps organizations to be proactive and attempt to control and resolve crises quickly and reducing their level of proneness in order to prevent such events or to minimize their impact when they occur, bearing in mind that the most effective method of dealing with crises is prevention [1]. However organizations are badly affected by every possible crisis disruption due to their high interconnectivity with all aspects of society [2], but unfortunately practical evidences to date show that crisis planning is often overlooked and, as a result, many organizations are not prepared adequately for a crisis situation [e.g. 3,4,5 and 6].

It is noteworthy to state that several scholars in the field of crisis management have suggested that a large number of organizations operating in developing countries have had less formal crisis strategic planning than other in developed countries and facing a great challenging in managing crisis. However literature indicates that small businesses organizations with their limited time and resources are especially vulnerable to the consequences of crisis events [7]. Therefore it is not surprising, that most organizations in developed countries now placing more emphasis on crisis planning [see 1 and 3]. This highlights the importance of this current research which examines crisis planning in the Egyptian context, which may also be of interest to other developing countries. Addressing these challenges require examining how managers, specifically in developing countries, perceive crisis planning because managers' attitudes and perceptions may affect behavioral intentions [6]. The objective of the present study, then, is to identify the attitudes and perceptions of crisis strategic planning behavior held by organization managers as decision-makers. Therefore there would seem to be some merit for more studies to empirically examine factors influencing managers' intention to undertake crisis strategic planning at unstudied developing countries to achieve more improvement in decision-making process. The current research is an attempt at this direction.

Research Problem, Objectives and Plan

Despite organizations and governmental institutions encounter a unique, threatening and stress-including decision-making when managing crisis, which has to be dealt effectively and consistently and in a timely manner, the majority of past studies have focused on response and recovery of crisis, rather than on crisis strategic planning, while many organizations remain unprepared for a crisis situation and failed to adopt models and strategies proposed in the literature [3 and 6]. Furthermore, most related models offered in the academic literature are descriptive in nature and few have undertaken a predictive research approach underpinned, which reflect their limitations as practical responses to potential or actual crises that organizations may experience [3, 4, 6, 8 and 9]. Another key limitation of the existing crisis management literature to date concerns their focus on developed countries. Therefore, our research attempts to narrow this research gap in the current body of literature by developing and validating an empirical-based model for predicting the critical factors influencing managers' intention to undertake crisis strategic planning based on an extended theory of planned behavior, as well as suggesting recommendations to enhance their participation.

In sum, the present investigation contributes to literature and practice through achieving the following objectives: (a) provide deeper understanding about crisis strategic planning, as an integral part of any successful crisis management, (b) empirically examine and validate simultaneously factors that have the most significant influence on intention to undertake crisis strategic planning in the Egyptian context as an example of developing country, (b) develop a mathematical model that can systematically predict this intention.

Consequently, the theory of planning behavior was extended to included additional variables that expected to have a significant influence. With these objectives in view, the current paper has been organized as follows: the literature and relevant studies were reviewed and analyzed. Then a research model was proposed and hypotheses were formulated to be tested in the study. This was followed by an explanation of the procedures used to obtain data, measurement, and validation processes, as well as the testing of the hypotheses stated. Finally, based on our findings a series of conclusions with managerial implications and final thoughts that emphasize the great interest in the topic under analysis were presented; and then certain limitations and future lines of research with regard to this issue were highlighted.

Literature Review

Relevant literature, which provided the conceptual foundation for this paper and past research were extensively reviewed and integrated sequentially, including a wide range of recently published works, in order to develop more effectively the study hypotheses and the research model. Through this process it was noted that the term crisis has been conceptualized and defined in multiple ways in literature and the available literature provides no generally accepted definition of crisis management [1]. As reported by Alas et al. [10] crisis is a low probability, high consequence event that is capable of threatening organizational legitimacy, profitability, and viability and challenges the public's sense of safety, values, and appropriateness.

Others such as Grebe ([11] defined crisis as crisis as a sudden and unexpected event that negatively impacts on the organization. In contrary, Paraskevas and Altinay [1] reported that most crises do not occur suddenly and long before actual occurrence a crisis sends off a repeated and persistent trail of early warning signals, which could be picked up at a time where there is still opportunity to prevent it from occurring or take measures that minimize its impact. For the purpose of this study, crisis refers to the unexpected result of some internal management failure to act that interferes with an organization's ongoing functions [8 and 12] and relevant literature has been addressed within the following streams:

I. Crisis management and crisis planning

In literature, crisis management can be defined as an ongoing systemic effort that organizations carry out in an attempt to identify and prevent potential risks and problems, to manage those that occur in order to minimize damages and maximize opportunities. It includes three phases: (a) crisis planning "before a crisis", (b) implementation of crisis management "during a crisis", and (c) evaluation and control "after a crisis" [1 and 13] However, some researchers [9] prefer to use the term "corporate crisis management" because it can apply to a wide variety of circumstances that might disrupt the normal course of activities in an organization. On the other hand, the term "crisis planning" describes all the actions taken in the proactive stage of crisis management which help organizations to become crisis prepared rather than crisis prone [6, 12 and 14]. Evidence of a disaster reduction review indicates that prevention and planning is the least expensive step; for example, the cost of monitoring volcanic activity and pre-disaster planning is very small when compared to the potential losses of volcanic events [8 and 14].

II. The theory of planned behavior (TPB) and crisis planning behavior

The conceptual framework for the study was provided by the theory of planned behavior (TPB) which states, as shown in fig.1 that attitude toward behavior, subjective norms, and perceived behavioral control, together shape an individual's behavioral intentions and behavior. Within the limited research that evaluates the factors influencing crisis planning, the

theory has been used successfully in attempts to provide a better understanding of manager behavior, and presenting theoretical logic that predicts the likelihood of managers willingly preparing for a crisis [e.g.15 and 16].

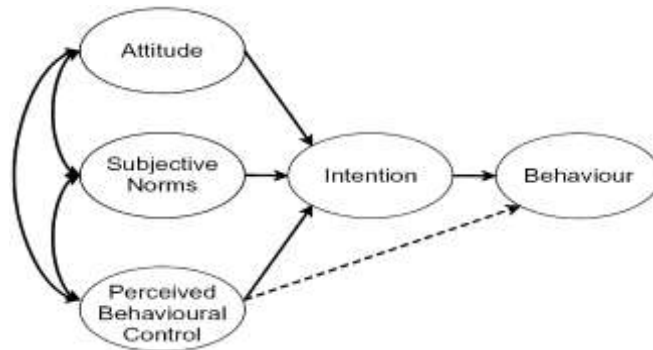


Figure 1. Theory of Planned Behavior

Building upon TPB, managers intention to undertake crisis planning is influenced and can be predicted by three basic determinants (predictors) as shown in figure 1: (a) attitude toward crisis planning (favorable or unfavorable evaluation), (b) perceived social pressure to perform or not perform the behavior (subjective norm), and (c) perceived behavioral control (self-efficacy in relation to the behavior). In many TPB studies, behavioral intention is taken as a proxy measure of likely behavior, while intention represents an individual’s expectancies about a particular behavior in a given setting [6].

III. Our expanding of TPB

From the review of the recent literature, the current research, unlike other works with similar objectives, has taken a further significant step in contributing to both theory and practice of crisis management literature, specifically in developing countries, and to help address some gaps in the current body of literature, through expanding the theory of planned behavior. The comprehensive literature review as well as insights from a serious of in-depth interviews in the preliminary stage of our study revealed additional factors, which have not been previously examined simultaneously, and should be taken into account. For example, Rousaki and Alcott [17] reported that, if managers fail to perceive the importance of crisis planning, organizations will often have in effective crisis planning actions, while others [e.g.5and 18] identified past crisis experience as a key factor influencing managers’ intention to undertake crisis planning. They believe that the experience gained through practices crisis may greatly enhance their awareness and preparation for similar crises in the future, as well as their crisis management procedures [see 19]

Developing the research model and Hypotheses

Drawing upon the theoretical background discussed earlier and based on the feedback arising out of our preliminary study, the research model was developed through the integration of five predictor constructs to be examined simultaneously and graphically presented in fig. 2 to guide this investigation. The structure paths of the model represent the directions of the hypothesized relationship. In contrast to previous works and existing models in this area, the current empirical study extended the research scope by combining the most critical factors identified in relevant literature and attempted to apply them in the local context. Therefore our proposed model contained variables that have not been integrated into one framework subject, to examination simultaneously for validation and relationship. As presented in the figure, the study integrated five constructs discussed earlier as independent variables, to be collectively examined in our proposed model: perceived social pressure (PSP), perceived behavioral control (PBC), perceived importance of crisis strategic planning (PIC), attitude toward crisis strategic planning (ATT), and past crisis experience (PCE). Accordingly, hypotheses for testing their relationships are formulated as follows

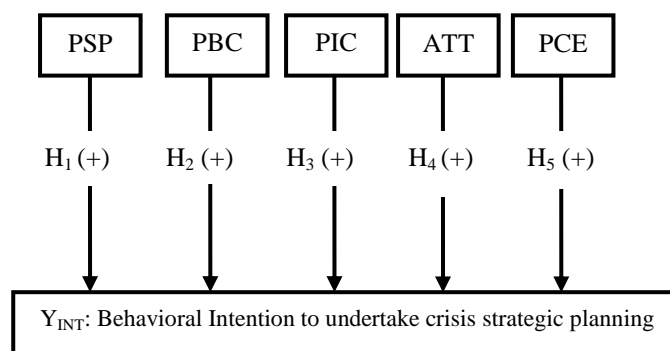


Figure 2. The research Model

Where:

PSP= Perceived social pressure

PBC= Perceived behavioral control

PIC= Perceived importance of crisis strategic planning

ATT= Attitude toward crisis strategic planning

PCE= Past crisis experience

Y_{INT}= Behavioral Intention to undertake crisis strategic planning

H₁: Perceived social pressure positively influences the behavioral intention to undertake crisis strategic planning

H₂: Perceived behavioral control positively influences the behavioral intention to undertake crisis strategic planning

H₃: Perceived importance of crisis planning positively influences the behavioral intention to undertake crisis strategic planning

H₄: Attitude toward crisis planning positively influences the behavioral intention to undertake crisis strategic planning

H₅: Past crisis experience positively influences the behavioral intention to undertake crisis strategic planning

Symbolically, the prediction multiple regression equation of the model (EQ1) can be presented as follows, to predict the probability of intention to undertake crisis planning (the criterion variable: Y_{INT}), served as regress, given known values from a set of predictor variables (PSP, PBC, PIC, ATT and PCE), used as regressors.

EQ1:

$$Y_{INT} = a + b_{PSP} PSP + b_{PBC} PBC + b_{PIC} PIC + b_{ATT} ATT + b_{PCE} PCE$$

Developing the research model and Hypotheses

A richer research methodology is used in this empirical study combining quantitative and qualitative methods to validate the research model and empirically test the hypothesized relationships among its variables. Thus, the research process involved multi-stage procedures as follows:

I. Preliminary Qualitative Study

In this stage, a series of in-depth interviews with brainstorming sessions were held with some Egyptian organization managers to get deeper understanding of the phenomenon under investigation, and establish the criteria and relationship constructs relevant to our empirical study. Issues arising from this stage were used as a basis for the next quantitative study.

II. Quantitative Study

The quantitative stage in the form of personally-administrated questionnaire survey was conducted over three-month period to collect empirical data. The target population was executive and general managers of Egyptian industrial and service companies. To increase generalizations of the results the participants were spread across the five major cities in Egypt. A comprehensive list of respondents was assembled from the list of companies in Egypt website (<http://www.list-of-companies.org/Egypt/>) and served as a sampling frame for this study to enhance the validity of the survey results. Simple random sampling was carried out in order to gain as many representative samples as possible.

III. Instrument and Validity

To develop our instrument with high content validity, a number of prior relevant studies and corresponding scales were reviewed to ensure that a comprehensive list of measures was included and the major aspects of the topic were adequately covered. Multi-items measures were generated for each construct and assessed for the reliability and content validity. A 7-point multi-item Likert scales ranging from 1 as strongly disagree to 7 strongly agree was used for measuring all influential constructs. The questionnaire was originally developed in English, and subsequently translated into Arabic language. Also, a back translation was carried out by another translator to ensure the accuracy of the translation. The questionnaire was then pre-tested among 23 respondents. This step followed by a pilot test. Based on pre-test and pilot test feedback, modifications have been made to improve readability and appropriateness. The revised questionnaire was again pre-tested and the final version was found worked well and the instrument has confirmed content validity

IV. Research Design and Reliability

The research design for this study involved a cross-sectional survey methodology, which was conducted between September and November, 2012. Among a total of 500 questionnaires that were randomly distributed, 167 valid responses were received and used in data analysis, after removing invalid answers, yielding a usable response rate of 33.40 percent for the overall survey. The sample consisted of 112 male respondents (67.07%) and 55 female respondents (32.93%). Despite the relatively low response rate, which thought to be expected the fact that the respondents were as representative of the population as possible, led to their contribution being regarded as

providing information applicable to the larger population. The reliability of instruments was assessed using Cronbach's alpha coefficient test. The test showed an acceptable degree of internal consistency reflecting a strong reliability, all alpha values over 0.8 (alpha > 0.8).

Data Analysis and Model Testing

The empirical data collected by the survey were analyzed and tested using statistical software packages (SPSS). Multiple regression analysis with its associated statistical inference tests (F test and t-test on b), were applied.

I. Multicollinearity Test

To determine whether any multicollinearity effects existed, total correlation matrix of the research model was reviewed in-depth, and the results showed that there was no significant evidence of multicollinearity problem among regressors. The results of testing each of the five hypotheses are given below:

II. The results of Hypotheses testing:

The summary output of the multiple regression analysis, in table 1, led to accept the above mentioned hypotheses, while the statistical significance test supported this acceptance.

Table 1: Summary output of the multiple regression analysis

Coefficients ^a	Symbols	Values
<i>Regression Statistics</i>		
Multiple correlation coefficient	Multiple R	0.92477528990731
Coefficient of multiple determination	R ²	0.85520933682315
Adjusted R Square	Adjusted R ²	0.850712732376664
Standard Error	SEE	0.844613216957141
Observations	N	167
<i>ANOVA^b</i>		
Regression	SS _{reg}	678.380723646484
Residual	SS _{res}	114.852809287649
Total	SS _{total}	793.233532934133
F-test overall model	F	190.190030499896*
Degrees of freedom	df ₁ , df ₂	5, 161

^a Criterion variable: Y_{INT}

b. Predictors: (constant), PSP, PBC, PIC, ATT and PCE

*Significant at ($p < 0.0000$ level)

A strong significant meaningful correlation is found between intention to undertake crisis planning and the above mentioned independent variables (Multiple correlation coefficient: Multiple R=0.92477528990731). The F statistic value ($F=190.190030499896$ at $p < 0.000000$ level) is statistically significant indicating that the results of the model could hardly have occurred by chance. Thus, the goodness-of-fit of the model is satisfactory.

The coefficient of determination, multiple R-square showed that these predictor factors explained the major proportion (85.52 %) of the variability observed among instructors' intention ($R^2=0.85520933682315$), which reinforce our confidence in the hypotheses testing results and provides support for the above mentioned association. Furthermore, the adjusted R² of the model, which is a more conservative estimate of variance by considering error variance, is 0.850712732376664. This reinforces our confidence that the overall explanatory power of the research model considered high and quite capable of explaining the observed variance among the sample. For easily comparison and assessing the relative impact of each predictor variable on the criterion variable standardized beta coefficients and t-test values were summarized in table 2.

Table 2: Variables included in the research model equation

Factors	Regression Coefficients		Beta Coefficients		<i>t-test</i>	
	Symbol	Value	Symbol	Value	Value	Sig.
PSP	b_{PSP}	0.399142347	B_{PSP}	0.364	5.57867115	0.000000000
PBC	b_{PBC}	0.530127671	B_{PBC}	0.241	4.21512596	0.000000000
PIC	b_{PIC}	0.189420383	B_{PIC}	0.132	2.84619785	0.005000594
ATT	b_{ATT}	0.080715841	B_{ATT}	0.062	2.23638012	0.026700833
PCE	b_{PCE}	0.193604408	B_{PCE}	0.191	3.11682556	0.002165490
Intercept	a	1.069567087				
df	n-k-1	161				

Based on the results shown in the previous table, it can be stated that that within 5 independent variables, included in the model, only four predictors variables were found to be critical significant factors in the decision to undertake crisis strategic planning (the criterion variable Y_{INT}), namely PSP, PBC, PIC and PCE. More specifically, perceived social pressure ($Beta_{PSP} = 0.364, p < 0.000000$) had the highest effect on intention to undertake crisis strategic planning, followed by perceived behavioral control ($Beta_{PBC} = 0.241, p < 0.000000$), past crisis experience ($Beta_{PCE} = 0.191, p < 0.00216$), and then perceived importance of crisis strategic planning ($Beta_{PIC} = 0.132, p < 0.005000$). In contrast the coefficient of the remaining variable (attitude toward crisis strategic planning: ATT) failed to exceed the correspondent statistical significant test. Using the values of the regression coefficients presented in table 2, the future intention of high-education instructors to participate in e-learning systems can be predicted, in this study, by the following final equation (EQ2):

EQ2:

$$Y_{INT} = 1.06 + 0.40 PSP + 0.53 PBC + 0.19 PIC + 0.08 ATT + 0.19 PCE$$

III. Normal probability analysis

As the classical regression model was used in our analysis, a P-P plot of regression standardized residual for assessing the assumption of normality was conducted. The plot, in fig. 3, showed that the quantile pairs fell nearly on a straight line. Thus, it can be stated that the data used in this research are approximately normally distributed.

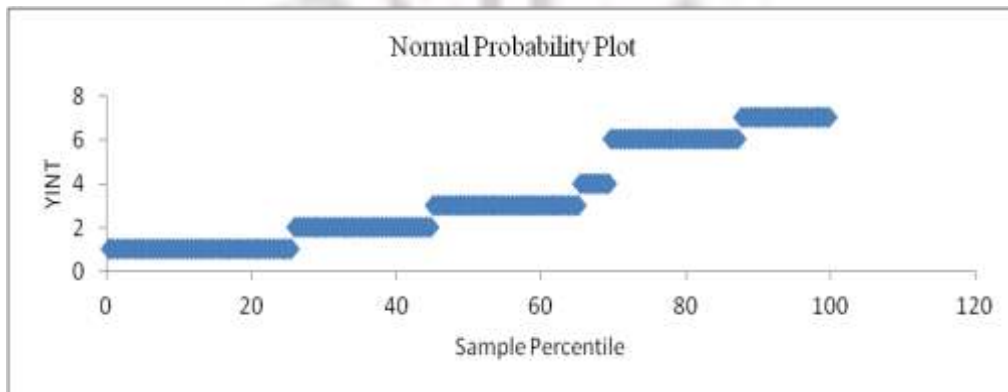


Figure 3. Normal P-P plot of regression standardized residual

Conclusion and Implications

Since this work was motivated by the fact that very few empirical studies had investigated crisis strategic planning in developing countries, the current research has taken a further significant step in contributing to both theory and practice of crisis management, particularly in developing countries and to help address some gaps in the current body of literature, through expanding the research in this area by developing a comprehensive empirically-based model that quantitatively assessed and predict the critical key factors that have the most significant influence on intention to undertake crisis strategic planning which have never been integrated before into one framework, to examination simultaneously for validation and relationship.

More specifically, this study has made a number of important practical implementations and theoretical contributions. In term of practical implications, the results presented in this paper can help organizations to be proactive and attempt to control and resolve crises quickly and reducing their level of proneness in order to prevent such events or to minimize their impact when they occur.

It also broadens the knowledge of the drivers of crisis strategic planning which could benefit managerial crisis management and practice. Based on our findings, interventions could be targeted, for example, applying more social pressure, and sharing past crisis experience can encourage managers to undertake crisis strategic planning. Thus organizations need to articulate the importance of crisis planning by embedding it in strategic plans.

From an academic and research standpoint, this study provides empirical evidences and validation for the existing specialized literature concerning crisis strategic planning, as well as demonstrating the applicability of the extended theory of planned behavior. Also, the findings of the empirical study provide support for the research model and for the hypotheses regarding the directional linkage among its variables. The high overall explanatory power of our model indicated that this model is capable of explaining high proportion of variance observed in crisis planning behavioral intention. Furthermore, our research attempted to integrate and encompass the most frequently cited factors in the literature, and applied them in the local context in order to best examine the phenomenon. Therefore, the proposed model contained variables that have not been tested simultaneously in previous works.

Limitations and Further Research

Although this paper is differentiated from other previous work and expanded the research scope, like all studies, there are a few limitations that should be considered when interpreting the results and implications. First, the research model was validated using empirical data gathered from Egypt and therefore the findings may be specific to the culture in this developing country. For example the attitude towards crisis strategic planning was not found to be significant, whereas the attitude of crisis planning was a strong predictor of intention in other studies (e.g. Wang and Ritchie, 2013). Since the study is cross-sectional in design, a further examination of our argument using a longitudinal study is recommended in the future to investigate our model in different time periods, which may strengthen the findings and eventually achieve statistical generalization.

Apart from the above, we must point out that although the majority of the hypothesized relationships were validated, and significant, and the proposed model yielded a relatively high level of coefficient of multiple determination, multiple R-square (R^2), there is still need to find additional variables, to compensate for this limitation and improve the model's ability to predict the future instructors' intention. However, there are other opportunities to build on this study in future research. Suggested areas include reexamining the proposed model in other countries with different cultures, and make comparisons, to see whether it can be applied. Also it would be valuable that future research use other theoretical bases or different methodologies and sample to derive more predictions.

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