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Strategies Small Business Owners in Saint Croix Used to Prepare for and Recover from Hurricane Maria

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Abstract

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MA, American Public University, 2011

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Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

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Abstract

In the aftermath of a natural disaster, small business owners often struggle with property damage, financial losses, disrupted operations, limited resource access, and a challenging recovery process. Grounded in the theory of planned behavior, the purpose of this qualitative multiple case study was to explore risk management strategies that six small business owners in the U.S. Virgin Islands, Saint Croix, used to prepare for and recover from the disastrous Hurricane Maria. Data were collected using semistructured interviews and reviewing public and participant-supplied documents, and they were analyzed following Yin's 5-step process. Four themes emerged: disaster recovery, belief and disaster preparedness, recovery and financial preparedness, and experience and government aid. Key recommendations are for businesses to develop a comprehensive emergency plan, secure vital resources, and provide disaster safety and business continuity training to employees. The implications for positive social change include the potential for small business owners to address the threats associated with natural disasters proactively, retain employment, and maintain a positive economic effect on their community and society.

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Dedication

      This study is dedicated to the highest almighty God above, who is first in my life. I also dedicate this study to my son, Liahm, and stepdaughter, Zhavia, and pray that they follow in my footsteps in becoming a successful scholar. Lastly, I dedicate this study to my family and those who were very supportive throughout my journey.

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Section 1: Foundation of the Study

After being impacted by a natural disaster, continuity planning can enhance how an enterprise restores operations (Hatton et al., 2016). Businesses that lack adequate disaster planning strategies are unable to overcome market turbulence and uncertainty because they cannot absorb losses attributed to natural disasters (Morrish & Jones, 2020). According to the Federal Emergency Management Agency (FEMA) Library Data (2019), approximately 40% of businesses affected by a natural disaster are unable to recover due to a lack of effective risk management strategies. In addition to ineffective risk management strategies, firm leaders have an inability to recognize their vulnerability to catastrophes (FEMA Library Data, 2019). Analyzing the strategies used by some businesses to recover from the effects of a natural disaster was essential in understanding possible vulnerabilities, consequently leading to business continuity amidst natural disasters. Sharing these strategies, therefore, could help other business owners avoid permanent business closures.

Background of the Problem

Business owners who have effective disaster preparedness procedures can protect critical business assets and mitigate the effects of the disaster (Webb et al., 2002); however, many small business owners have low-risk perceptions as compared to large enterprises (Setyawan et al., 2017). Small business owners tend to inadequately prepare for emerging business risks such as disasters, pandemics, and social unrest. The risk of disruptive natural events is ubiquitous, but some business leaders overlook these risks, which affects their ability to withstand disasters (Krausmann et al., 2019). For example,

Hurricane Maria was one of the most costly and extreme natural catastrophes in the history of the United States, with gross losses estimated to be over $1.54 billion in the U.S. Virgin Islands (USVI: Hurricane Recovery and Resilience Task Force, n.d.).

In the United States, natural disasters such as Hurricane Maria have caused substantial losses to businesses as well (Krausmann et al., 2019). Only 14% of small businesses, compared to 45% of medium and large businesses, recovered successfully from the effects of natural catastrophes within a three-year period (Hiramatsu & Marshall, 2017). Natural disasters interfere with supply chains because catastrophes impact bridges, roads, trains, and airports. Being proactive by using survival techniques increases the ability to recover from and survive natural disasters (Morrish & Jones, 2020). Additionally, there are small businesses that have survived natural disasters despite having limited resources, while large enterprises with greater access to resources have not been as successful (Morrish & Jones, 2020).

Problem and Purpose

Businesses in low-income communities are disproportionally affected by closures and losses following natural disasters (Krausmann et al., 2019). These losses and closures are likely to escalate due to the increased effects of climate change and inadequate resources (Morrish & Jones, 2020). Approximately 40% of small businesses close permanently in the aftermath of a natural disaster, while 25% of businesses that survive a natural disaster face closure within one year of operation after recovering from a catastrophic event (FEMA Library Data, 2019). The general business problem was that small businesses operating in areas with low-income populations are affected adversely

by natural disasters, leading to closures and economic losses to the value of tens of billions of U.S. dollars (Botzen et al., 2019). The specific problem is that some small business owners in low-income communities in the U.S. Virgin Islands (Saint Croix) lack effective risk management strategies to prepare for and recover from disasters, such as Hurricane Maria in 2017, and avoid permanent closure.

The purpose of this qualitative multiple case study was to explore effective risk management strategies that small business owners in low-income communities in the U.S. Virgin Islands, Saint Croix used to prepare for and recover from Hurricane Maria in 2017, and avoid permanent closure. The target population was six small business owners in the U.S. Virgin Islands, Saint Croix in low-income communities that experienced the effects of Hurricane Maria and were able to recover and avoid permanent closure. The implications for positive social change include the potential for small business owners to develop strategies to address the threats associated with a natural disaster proactively, maintain employment, and continue to have a positive economic effect on their community and society.

Nature of the Study

Timans et al. (2019) contended that researchers could apply a qualitative, quantitative, or mixed-methods approach when investigating the resolution to a complex research question. A quantitative researcher gathers numerical data to test hypotheses about variables, relationships, or characteristics (Cassell et al., 2018). The quantitative method involves the compilation and use of numerical data to predict, control, and describe a phenomenon, which was not the intent of this study. Alternately, researchers

conducting a mixed-methods study combine aspects of qualitative and quantitative methods (Venkatesh et al., 2013). Researchers use mixed methods when the qualitative or quantitative methods alone would not be adequate, which was not the case here. Since I did not use the quantitative method, I did not use a mixed-methods strategy.

Qualitative researchers use exploratory techniques to identify the opinions and lived experiences of the participants to discover an in-depth exploration of related phenomena (Brink, 2018). Within qualitative research, researchers use semistructured interviews to facilitate open-ended responses because participants have the liberty to share their experiences within the parameters of the interview questions (Cassell et al., 2018). Thus, the qualitative method was appropriate for this study.

The qualitative designs considered were case study, phenomenological, and ethnography. Qualitative researchers can select from several design options, including case study, ethnography, and phenomenological. In an ethnography study, researchers evaluate shared cultures (Morgan-Trimmer & Wood, 2016); in a phenomenological study, researchers explore the personal meanings of participants' lived experiences (Neubauer et al., 2019). Neither was the aim of this study. A multiple case study design allows one to conduct an in-depth exploration based on actual experiences and facts (Cameron et al., 2019; Kaszynska, 2015). A multiple case study is used to interpret and compare multiple bounded systems (Houghton, 2020). A multiple case study offers an opportunity to gain a more in-depth understanding of phenomena than a single case study does and provides an opportunity for comparison between varying conditions across

differing organizations (Yin, 2014). Hence, I selected a qualitative multiple case design for this study.

Research Question

What strategies do small business owners in low-income communities in U.S. Virgin Islands, Saint Croix use to prepare for and recover from disasters, such as Hurricane Maria in 2017, and avoid permanent closure?

Interview Questions

1. What were your overall strategies for disaster preparedness and recovery before Hurricane Maria?

2. What, if any, financial strategy did you have in place to recover from a disaster?

3. When you learned the hurricane was imminent, what immediate steps did you take to prepare?

4. Once you knew the hurricane was coming, how did your short-term preparation strategies differ from your long-term strategies for general disaster preparedness?

5. How were your preparation strategies for a natural disaster informed by your norms, beliefs, and attitude regarding the impact of hurricanes in your community?

6. What strategies were least helpful in recovering from the hurricane?

7. What strategies were most helpful in recovering from the hurricane?

8. What else can you add to explain the strategies you used as a small business owner in a low-income area in the U.S. Virgin Islands, Saint Croix to prepare for and recover from Hurricane Maria?

Conceptual Framework

Two conceptual frameworks guided the research for this study: the theory of planned behavior (TPB) and disaster protection motivation theory (PMT). Ajzen (1985) developed TPB based on the understanding that beliefs can influence behaviors. According to TPB, an individual's behavior and intentions depend on perceived norms, beliefs, and attitudes. The concern that intention or reasoned action alone is insufficient to produce an expected behavior is believed to have influenced the development of TPB. Ajzen (1985) perceived that intent does not always influence behavior. This revelation initiated a reconsideration of the role of an individual's viewpoint in influencing behavior, which led to extending the theory of reasoned action to include both intention and behavior. The TPB conceptual framework is also appropriate for exploring how small business owners use disaster risk management strategies for business continuity.

The central tenet of PMT is that individuals tend to protect themselves based on how they perceive a threatening event (Moran et al., 2018). The aspects of event severity, the efficacy of the protective measure, the likelihood of disaster reoccurrence, and the self-efficacy needed to adapt to the desired behavior are tenets of this theory (Westcott et al., 2017). PMT includes not only a threatening event but also self-protective appraisals (Westcott et al., 2017). This theory was useful to explore why business owners use strategies to reduce risks. PMT resonates among small business owners who need to make complex decisions on how to enhance recoverability from the effects of a natural disaster (Westcott et al., 2017). PMT is a logical avenue that explores risk management strategies by improving the understanding of risk response and how individuals react

(Babcicky & Seebauer, 2019). PMT is a useful lens for understanding the strategies that business owners use to prepare for and recover from disasters, such as Hurricane Maria in 2017.

Operational Definitions

Disaster preparedness strategy: A disaster preparedness strategy is a process of setting goals and priorities, determining actions to avoid potential losses, assuring prompt and appropriate assistance to victims, and achieving a rapid and effective recovery from a disaster (Katende et al., 2017).

Low-income communities: Low-income communities refer to a population of individuals whose income is less than the poverty threshold (Huda et al., 2020).

Natural disasters: A natural disaster is a catastrophic event that affects the natural environment, such as hurricanes, floods, earthquakes, tornados, wildfires, and other geologic processes (Homeland Security, 2018).

Assumptions, Limitations, and Delimitations

Assumptions

Assumptions are elements of a study that a researcher believes to be true without concrete evidence (Simon & Goes, 2018). The primary assumption in this study was that the participants be would honest and thorough in their responses. Another assumption was that each participant possesses functional knowledge and the applicable skillset to expound on the strategies used to prepare for and recover from a natural disaster such as Hurricane Maria. Finally, I assumed participants had adequate knowledge and communication skills to answer the interview questions.

Limitations

Limitations are potential study weaknesses, which cannot be addressed and are not able to be controlled by the researcher (Ross & Bibler Zaidi, 2019; Simon & Goes, 2018). The participant's ability to respond to interview questions with adequate detail could limit the results of the study because the research requires rich and insightful information to reproduce accurate and indisputable results. A second limitation was that the company document review process depends on the documents provided by the participants, which may be subjective and contain bias. Another limitation was the availability of the participants for participation due to a lack of consistent work schedules, meetings planned, vacations, and travel.

Delimitations

Delimitations are the parameters or the scope a researcher establishes while planning a study (Simon & Goes, 2018). This research study is delimited to small businesses in low-income areas in the U.S. Virgin Islands, Saint Croix that avoided permanent closure after Hurricane Maria. I also delimited the study to business leaders with experience using risk management strategies to enhance the continuity of business amidst a natural disaster.

Significance of the Study

Natural disasters are unavoidable, but planning for a crisis increases a business's chance of survival. According to Padli et al. (2018), natural disasters are not only inevitable, but the occurrence of natural disasters has also increased. The changing forms of natural disasters require adequate disaster risk management strategies. Thus, the results

of this study could provide valuable lessons to business owners and other stakeholders that could include the significance of risk plans and the identification of effective risk management strategies.

Contribution to Business Practice

Business owners could benefit from the findings by identifying strategies they can apply to enhance recovery after a natural disaster. Setyawan et al. (2017) contended there is a need to help new and existing business owners understand the connection between business recoverability from the aftermath of a natural disaster and appropriate strategies to plan for these disasters. The study's findings contribute to advising small business owners to put financial strategies and disaster plans in place.

Implications for Social Change

The findings of this research could also contribute to positive social change by offering insights into suitable risk plans to prevent business failure following a catastrophic event. Small business owners with viable plans to survive natural disasters help strengthen local economies. Having viable plans adds to the economy by supporting financial development and advancement, and sound tactics provide continuing employment that benefits families and communities.

A Review of the Professional and Academic Literature

The objective of this qualitative multiple case study was to explore strategies used by small business owners in low-income communities in the U.S. Virgin Islands, Saint Croix to recover from Hurricane Maria. The focus of this professional and academic literature review is to gain a better understanding of how business owners apply risk

management strategies to avoid permanent closure. This review includes an extensive analysis of academic and professional books, reports, peer-reviewed articles, and electronic media in various disciplines.

I accessed sources for this literature review from Walden University Library and other online databases, particularly ProQuest and SAGE Premier. The keywords used to identify credible sources included *natural disasters, disaster recovery, business continuity, small businesses,* and *effect of disasters, planned behavior theory,* and *recovery strategies*. The goal of the literature review is to provide a detailed review of previous knowledge, topics, themes, and research gaps that can enhance a business owner's recovery efforts after natural disasters. The organization of the professional and academic review aims to develop the qualitative conceptual framework through an in-depth evaluation of the literature and themes.

The literature review contains 161 references, with 120 (74.53%) of the references published between 2018 and 2022. This review includes 106 (76.81%) out of 138 references from scholarly peer-reviewed articles. The remaining 23.19% consists of credible websites. Most of the professional and academic literature came from the Walden University Library, using databases such as SAGE journals and the EBSCO database. I also used Google Scholar to search keywords to identify relevant articles and then searched the Walden University Library again to gain access to these studies. The literature review begins with an overview of the conceptual framework. Two conceptual frameworks, the TPB and disaster PMT, guide this qualitative multiple case study.

Theory of Planned Behavior (TPB)

The purpose of this qualitative multiple case study was to explore strategies that small business owners in low-income communities in U.S. Virgin Islands, Saint Croix used to prepare for and recover from 2017's Hurricane Maria. According to TPB theory, attitudes toward behavior, subjective norms, and perceived behavioral control shape an individual's behavioral intentions and behaviors (Ajzen, 2002). An individual's intentions have considerable influence over consequent actions or behaviors. Motivational factors surrounding a person's attitude or beliefs can dictate how the person will act (Majd et al., 2019).

Beliefs and behaviors of small business owners concerning a natural disaster can influence how they prepare for and respond to a catastrophe. Trained business managers are expected to have the requisite skills to make sound decisions and implement effective risk management strategies that reduce the effects of natural disasters on a business (Majd et al., 2019). Understanding how beliefs contribute to behavior is useful in creating awareness of how business owners can evaluate their motivational factors to make appropriate decisions (Ferrell et al., 2019). Managers who understand the adverse effects of natural disasters and climate change can develop effective risk management strategies and risk plans that enhance recovery (Panwar & Sen, 2019). Risk management and planning is a process involving the following various continuous strategies (Duong, 2009):

Risk Planning: It is recognized as a significant approach to proper measurement of efforts and planning the assessment and control activities and schedule.

Risk Identification: As the name suggests, risk identification involves identifying and determining potential risks. It is the ultimate strategy that decides the outcome of the risk management process.

Risk Assessment: After identifying the risks, they are assessed by establishing the likelihood of the occurrence and its effects. Assessment involves classifying, evaluating, and prioritizing the risks.

Risk Control: Risk control is the managing of risks through the development of cost-effective options to address the risks. It involves assigning responsibility, determining a response approach and action plans, transferring the risk, and risk tracking.

Risk Communication: Risk communication refers to the internal and external exchange of real-time information, advice, and opinions between experts and other small businesses facing risk.

Continuous monitoring and review: Involves regular surveillance, analyzing the risk management plans, and ensuring that control measures and insurance cover are adequate.

The perceived control of a measure or an action is enough to attain the desired behavior (Haerens et al., 2018). Business owners' attitudes towards a disaster influence how small business owners prepare for disasters. Several interrelated factors influence disaster preparedness, including the availability of resources, experience gained from other disasters, anxiety, attitude, and critical awareness (Ozaki & Nakayachi, 2020). TPB is a useful lens to describe the significance of behavior in reducing disaster risks. To critically evaluate the PBT, I based the research on a 2011 report by Ajzen. Ajzen (2011)

clarified aspects of the theory and addressed some of the issues raised by other literature. The report provides both a meta-analysis and criticism of the influential model for predicting human behavior.

Hill et al.'s (1977) theory of reasoned action influenced the development of the TPB. The theory is grounded in logic and the process of making reasoned decisions to influence a specific behavior (Zhu et al., 2020). Ajzen (1985) recognized that an individual's intention is not enough to determine a specific behavior. As a result, intentions lead to the inclusion of the control factors that influence individuals to alter their intentions or to prevent the successful execution of the behavior. An individual's intentions and the relative importance of attitude reduce the effects of natural hazards (Ngo et al., 2020). Attitudes toward an individual's behavior determine the cognitive outcome of a situation, whether it be favorable or unfavorable (Guo et al., 2018). A favorable attitude, therefore, has a significant correlation to stronger intentions that consequently influence a person's behavior (Ajzen & Fishbein, 2005).

While the concept of attitude includes attitude, aptitude, and amplitude, Ajzen (1985) explored how intention influences behavior; however, Ajzen noted intention does not always lead to the desired behavior. Ajzen revised the model of TPB to include subjective factors and how these factors determine the expected behavior. Intentions to have updated disaster risk management strategies can lead to positive feelings among business owners regarding their ability to maintain performance, economic leadership, and future control (Adiguzel, 2020). Najafi et al. (2017) determined that individuals who had behavioral control could better navigate outside influences and therefore, have more

positive intentions. Business owners and managers could enhance the future control of their enterprises by understanding how factors such as attitude can lead to the expected behaviors needed to reduce disaster risks.

Disaster preparedness is a critical measure of disaster risk mitigation (Stikova, 2016). Preparedness is associated with identifying resources and actions that can help a business owner respond effectively to lessen the effects of the aftermath (Sharifian et al., 2016). However, identifying actions and resources to achieve disaster preparedness is subject to a person's understanding of the factors that may affect performance. TPB does more than identify behavior; rather, it provides a useful lens through which to understand the preparation process for disaster management and mitigation (Daellenbach et al., 2018). TPB posits those behaviors are immediately determined by behavioral intentions, which, in turn, are determined by a combination of three factors such as attitude toward the behavior, subjective norms, and perceived behavioral control (Sharifian et al., 2016). A specific behavior, such as a person's beliefs in favor of a particular outcome, determines the facet of attitude in TPB. Attainment of the specific behavior is dependent on subjective norms, which usually serve as the motivation for the desired behavior (Minton et al., 2018). Conversely, the perceived control of a measure includes the belief of being capable of mitigating disaster risks for effective disaster preparedness.

Protection Motivation Theory

PMT was first introduced in the health discipline to describe how people might respond in a self-protective manner to a perceived health threat (Westcott et al., 2017). The objective of PMT is to identify and assess danger, followed by the creation of

mitigation strategies to counter the threat (Westcott et al., 2017). In 1983, Rogers revised PMT to include other natural hazards, such as earthquakes and hurricanes, to describe how these natural occurrences can influence self-motivation as well as the development of coping behaviors to the threat. The objective of PMT and the revised comprehensive model of the theory make PMT useful in describing the human response to threatening events such as natural disasters.

PMT proposes the severity of the hazard, the likelihood of the threat occurring, the effectiveness of the recommended coping behavior, and perceived self-efficacy as factors that influence individuals to react in a self-protective manner (Westcott et al., 2017). Using PMT could provide an appropriate analytical framework to explore counter-risk management strategies as applied by small business owners in low-income communities in the U.S. Virgin Islands, Saint Croix in response to Hurricane Maria.

Maladaptive tactics such as optimistic bias are also critical motivators that can lead to the development of effective disaster response strategies (Westcott et al., 2017). In this study, PMT could enhance the understanding of the need to have PMT in disaster planning. Ultimately, how people react and prepare for disasters is congruent with how they perceive a threatening event (Moran et al., 2018). PMT is an appropriate framework to explore how business owners respond to natural hazards and ensure business continuity. According to Westcott et al. (2017), PMT proposes mitigation strategies based on the following four factors: (a) the perceived severity of the risk, which provides a basis for risk appraisal that examines how severe the risk consequences will be; (b) the perceived vulnerability, which provides a foundation for risk appraisal by determining the

probability of occurrence, it is an individual's belief of the likelihood of the risk

happening; (c) the response efficacy, which forms the basis for coping appraisal – what

mitigation measures are available, thus describing the belief that the recommended

preventive measures and behavior will mitigate the risk; and (d) the perceived self-

efficacy, which forms the basis for coping appraisal – an individual's ability to

successfully enact the recommended mitigation measures.

Since PMT is based on cognitive processes, the adoption of the appropriate

behavior will be based on the presumption that the behavior will lessen the effects of a

disaster (Turner, 2017). Unlike large enterprises, small business owners face considerable

challenges in their efforts to recover and attain similar or higher pre-disaster levels of

performance. According to EL Khaled and Mcheick (2019), most small businesses are in

disaster-vulnerable areas, operate in nonengineered buildings, and predominantly serve

neighborhoods with limited access to critical resources. The design problems and

limitation of resources make it challenging to implement risk management measures,

which exposes vulnerability to natural disasters. Other indirect effects, such as population

dislocation and loss of inventory, lead to high failure rates and the inability to survive the

aftermath.

Critical Analysis and Synthesis of Protection Motivation Theory

Anticipation of the effects of a natural disaster guides small business owners to

plan for disaster recovery and business continuity. Rogers (1975) developed the

protection motivation theory, in which the concept of fear was critical in influencing

behavior changes. Rogers developed PMT to examine how the inclination of protective

behavior, as well as the need to avoid failure, determines the threat appraisal or coping techniques in response to a threat. Rogers postulated coping and threat appraisals are parallel cognitive processes. Business owners could use threat appraisals as an effective risk management strategy to mitigate a threat and other related components.

According to Babcicky and Seebauer (2019), increased severity of a threat leads to low maladaptive rewards such as fear for continuity, whereby failure to engage in protective behaviors can heighten the effects of a disaster. The application of protection motivation theory can be useful in understanding the response behaviors of business owners, especially when faced with a threatening event. Planned actions have contributed to positive results in protecting enterprises from the effects of disasters. For example, Majd et al. (2019) found that managers with a good attitude toward disaster prevention and who receive training in disaster risk management are proactive in disaster planning. Researchers have also applied TPB as an effective framework for understanding how attitude influences behavior (Albattat & Mat Som, 2019; Bronfman et al., 2019; Himes-Cornell et al., 2018). This understanding could help develop strategies to plan and recover from a natural disaster.

Divergent views on TPB indicated that this theory includes a presumption that individuals have the resources and opportunities required to help them exhibit the desired behavior, irrespective of the intention (DeMaria et al., 2019). LaMorte (2019) criticized TPB, stating that it failed to provide additional details over actual control of a person's behavior. Behavioral change models can be effective, particularly in information-seeking behavior, which leads people to prepare for natural disasters more extensively. According

to Ryan (2018), individuals perform reasonably well in predicting and preparing for disasters when they have the desire to gain knowledge on disasters as a means of phasing out the effects of catastrophes.

TPB is partly supplemented by the theory of reasoned action (TRA). While TPB has been the dominant theoretical approach to guide research on health-related behavior, it is an extension of TRA (Madden et al., 1992). Ajzen proposed an extension of TRA by including perceptions of behavioral control as an additional predictor of intentions and behavior and thus, formulated TPB (Madden et al., 1992). The inclusion of perceived behavioral control enhances the prediction of behavioral intention and behavior, which makes TRA an inferior theory but supplementary to TPB. Sideridis et al. (1998) applied latent variables as functions of measured variables to postulate direct and indirect relationships in the path-analysis structure to explain both theories.

TPB is contrasted by the value-belief-norm (VBN) model (Kaiser et al., 2005), which suggests that perceiving adverse effects from global warming could help with reducing the severity of natural disasters by focusing on values and moral norms (Chen, 2015). The VBN model emphasizes that individual decisions about pro-environmental disasters can be driven by personal norms, which is an internalized sense of obligation to act in a certain way. The VBN model suggests a chain of five variables such as values, the new ecological paradigm (NEP), awareness of consequences, the ascription of responsibility to self-beliefs, and personal norms (Chen, 2015). TPB emphasizes the attitudinal aspects associated with behavior, while the VBN model focuses on the importance of moral components when setting environmental behaviors in motion

(Aguilar-Luzón et al., 2012). Since both theoretical models depend on inherent characteristics, it is difficult to conclude which model is better. Therefore, I conducted a literary analysis of the 2012 Comparative Study Between the TPB and the VBN model Regarding the Environment, on Spanish Housewives' Recycling Behavior (Aguilar-Luzón et al., 2012) to assess the differences between the two theories. While Aguilar-Luzón et al. (2012) do not factor in natural disasters, the scholar provides a comprehensive contrast between the two theories by analyzing environmental behaviors.

Emphasizing awareness of disaster preparedness and planning is essential to decrease the effects of an imminent threat. Translated awareness can contribute to collaboration with emergency providers (such as FEMA), increase knowledge, and implement strategies to enhance survival from a disaster. Several studies have depicted PMT as an appropriate basis for understanding protective behaviors (Babcicky & Seebauer, 2019; Wang et al., 2019; Westcott et al., 2017). Coping and threat appraisals are antecedents of PMT because business owners differ in how they perceive natural disasters. Thus, the use of PMT is crucial to analyze how business owners respond to natural disasters.

Business owners are responsible for ensuring that effective risk management strategies are available to recover from a natural disaster. Business owners using effective mitigation strategies and challenges associated with natural disasters could be identified, discerned, and addressed (Gougelet, 2006). Viewing these challenges through the lens of PMT may be useful to enhance disaster preparedness (Westcott et al., 2017). Enhancing risk perception is not enough to heighten protective behavior. Kothe et al. (n.d.) found

that the vulnerability of an individual to a threatening event influences their ability to change and maintain protective behavior.

PMT has received criticism since there is an assumption that individuals use rational information processors (Rogers, 1975). PMT provides critical details on how the intention can lead to changed behavior. For instance, a study by Kothe et al. (n.d.) established that individuals who perceived the severity of climatic change developed the intention to mitigate risks that eventually translated into behavior changes. According to the concept of incentives, human behavior is subject to consequences, whereby negative results require effective risk management strategies to counterbalance the situation (Turner, 2017). The incentive theory proposed that the desire for a positive reward motivates and governs an individual's behavior.

In addition, PMT is an extension of the fear appeals theory (Paravastu & Anandarajan, 2014). Thus, PMT is concerned with how individuals process risks and choose responses to get through the danger brought about by the risks. According to Maddux and Rogers (1983), PMT is an extension of fear appeals theory because of the inclusion of coping response information. Fear appeals theory emphasizes the negative consequences of specific behaviors to motivate behavior change (Paravastu & Anandarajan, 2014). This theory describes the approach to motivate individuals to take a specific action, agree to a particular policy, or make a particular purchase by arousing fear. In addition to the fear appeals theory, other different theoretical models support and supplement PMT (Orazi & Pizzetti, 2015). The different theoretical models include but are not limited to, the drive theory, the transtheoretical model, the health belief model, the

extended parallel process model, and the subjective expected utility theory (Tannenbaum et al., 2015).

The theoretical model of fear appeal and PMT was studied by Tannenbaum et al. (2015) and the researchers conducted a comprehensive meta-analysis to determine the effectiveness of fear appeal models for influencing attitudes, intentions, and behaviors. In addition, Tannenbaum et al. (2015) and Tanner et al., (2015) researched how a protection motivation paradigm offers a prescriptive model to improve the effectiveness of the fear appeal. Fear appeals are credible messages that attempt to arouse fear by emphasizing the potential danger and harm that will occur if there is no plan.

Disruptions caused by natural disasters through the destruction of infrastructure not only impact businesses but also the community around the business (Sydnor et al., 2017). For example, a significant loss of jobs and psychological distress due to business closure and debt challenges the businesses and community's ability to cope with the effects of the aftermath (Sydnor et al., 2017). These vulnerabilities constrain the ability to recover and continue with regular business operations.

Research on the effects of disasters on businesses in Sri Lanka revealed that small businesses are more vulnerable, particularly in areas such as capital, labor, logistics, and markets than larger businesses (Samantha, 2018). Business owners who stay in business amid the effects of disasters collaborated and coordinated with local governments and non-governmental organizations. Kemp (2017) determined after Hurricane Katrina insurance coverage was effective among business owners in northeastern Florida. Moreover, Kemp established that collaborating with other stakeholders was essential for

business recovery. Thus, it is important to evaluate how preexisting conditions and preparedness lead to disaster-related decisions and risk plans that enhance the continuity of a business.

A business continuity plan is needed to ensure the survival of an enterprise amidst a natural disaster. Business continuity entails maintaining activities required by an enterprise during a disruptive event (Kato & Charoenrat, 2018). Most natural disasters cause devastation to entire communities, which can lead to the permanent closure of a business. Any interruption of normal business activities can raise operational costs due to hiring new employees and low-profit margins because of business slowdowns (Kato & Charoenrat, 2018). Business leaders need continuity plans to overcome interruptions and maintain normal activities to mitigate widespread losses. The temporary or permanent closure of any business could eventually lead to business shutdowns. Owners must develop plans that will ensure the continuity of their business during and after a crisis. Unlike the disaster recovery process, a business continuity plan involves the development of a risk mitigation plan (Jorrigala, 2017).

Jorrigala (2017) found that only 5% of businesses have adequately prepared continuity plans to survive a natural disaster. Many businesses are unable to remain competitive, consequently decreasing the ability to survive the effects of a catastrophe. While a substantial number of business owners perceive business continuity and the consequent preparedness as necessary, the awareness does not usually translate to actual steps to decrease the impact of a disaster. Jorrigala (2017) determined businesses do not have continuity plans because of cost; therefore, many business owners have inadequate

resources. Not having an alternative option challenges, the ability of a business to continue with normal activities because of a lack of resources. Without an effective continuity plan, a business could fail; however, a smaller business is more vulnerable (Zhang et al., 2019). For example, limited resources prevent small businesses from training their employees. Moreover, small business leaders do not develop risk management and mitigation strategies, which, in turn, makes them vulnerable to natural disaster risks. Nevertheless, businesses should prioritize continuity plans to avoid permanent closure.

PMT was widely applied by businesses during the COVID-19 pandemic. During the pandemic, companies assessed the severity of the effects on the business as well as the fear threat. Demirtaş-Madran (2021) discussed the way organizations had to accept restrictions and compliance measures used to contain and curb the spread of the COVID-19 pandemic. The scholar showed the way fear made organizations and individuals compliant with the restrictions. Company leaders had to reduce their production capacity or allow workers to work from home because of fear appeal. Although these changes were forced on business leaders, many business leaders did not understand the way the pandemic would change the work environment. The fear appeal led to changes that helped the world to safeguard public health. Some people seemed to ignore the effects of the coronavirus and disregarded preventive measures (Demirtaş-Madran, 2021). However, looking at the overall picture one realizes that fear appeal played a significant role in changing behavior and adapting new ways of doing business both from employees and organizations. Hanson et al. (2021) analyzed the role protection motivation played

regarding family health, media coverage, and economic influences. Media coverage and economic influences served as fear threats during the pandemic (Hanson et al., 2021). The way the media covered the pandemic instilled a sense of fear in people to make them embrace preventive measures. For example, daily coverage of several deaths and new cases scared people enough to ensure everyone followed guidelines. In addition, economic influences, especially loss of work and livelihood, served as a fear threat for people. Many individuals followed government guidelines in mitigating the disease because they feared job loss. Society wanted life to go back to normal so they could continue working and feeding their families. Hanson et al. (2021) argued that family health served as a coping threat. People had to cope with the hard life of wearing masks and limited traveling because they wanted to protect their families. No one wanted to lose their loved ones because of recklessness, which resulted in strict adherence to the guidelines (Hanson et al., 2021).

Role of Information on Disaster Preparedness

The vulnerability of a business depends on the manager or business owners' level of preparation for a disaster (Sydnor et al., 2017). Well-prepared managers and staff can develop plans and policies that enhance the safety and protection of lives from a disaster. Majd et al. (2019) determined that business owners who received training on disaster management were able to recover successfully. Trained managers develop deeper insights into disasters, which helps with achieving business goals in pre-disaster conditions. Information is not only essential in disaster preparedness, but also a vital tool identified as functional, operational, and cost-effective, and, therefore, recommendable to

small businesses (Majd et al., 2019). Sydnor et al. (2017) stated the temporary or permanent closure of businesses in northeastern Florida amid Hurricane Katrina showcased the importance of collecting data, which contributed to awareness, the ability to predict, and the use of effective recovery strategies.

The degree of awareness that business owners possess, and their risk perception and preparedness are influenced by factors such as environmental variables and socioeconomic factors. To manage risk in market or trade organizations, Pan (2020) recommended awareness of the effect of the disaster affecting their environment, the culture of the people, prevention, and mitigation. According to Pan, formal and informal educational approaches are needed to enlighten business owners' desire to increase their roles, contributions, and participation in the decision-making process. The distribution of information on disaster relief for business owners can be done through awareness campaigns using print and electronic media.

Education on disaster management requires all members of the organization at all levels to emphasize the need to reduce company vulnerability (Nguyen et al., 2018). This strategy ensures a range of benefits including maintaining qualified staff, relationships with business policymakers, and appropriate human resource professionals. Informed risk management teams enhance the capacity of business entities to formulate actionable policies that ensure effective support and the implementation of vulnerability reduction approaches. Pan (2020) found that a lack of disaster awareness among organizational officials in private and public firms increases the vulnerability of those enterprises. In the presence of a culture of safety and business continuity or resilience, the awareness and

understanding of the people involved lead to actions that reduce risk after a disaster (Dissanayake, 2018). Knowledge, experience, appropriate training, and the use of technology contribute to valuable disaster risk management for the benefit of organizations.

Recovery from Disasters

Recovery from the effects of a natural disaster allows businesses to avoid permanent closure. Disaster recovery is a comprehensive approach that focuses on how businesses can resume operations and activities after a disruptive incident (Xiao, 2019). A successful disaster recovery process should involve restoring normal business activities, stabilizing conditions attributed to disruptive events, and restoring normal routines within the business environment (Xiao, 2019). The failure of a business to recover effectively from a disaster can lead to a disruptive secondary event that could become rampant, facilitate widespread losses, and hamper business growth. Therefore, it is essential to implement effective disaster recovery processes to avoid recurring disasters to prolong the risk of secondary disasters and interrelated disasters, which intensifies the effects of a catastrophic event (Xie et al., 2018).

Ineffective disaster recovery decreases performance and increases poverty. According to a report by the United Nations Development Programme (UNDP, 2017), disruptive events such as natural disasters are associated with not only economic slowdown but also reduced entrepreneurial activities, which leads to increased levels of poverty. UNDP's (2017) study on the effects of earthquakes established a 3.5% increase in the number of people living in poverty within 1–2 years after the natural disaster.

Disaster recovery processes need to focus on the restoration of normal business activities, assets, and operations as well as reduce social vulnerabilities such as poverty, which can aggravate the effects of a disruptive event. To achieve successful disaster recovery, the emphasis should be on addressing the underlying risks. An efficient and effective disaster recovery program should include components such as improved conditions compared to pre-disaster levels, reduced vulnerabilities, and enhanced sustainable development Fernando (2017). The disaster recovery process, thus, should not necessarily aim to reinvent conditions that existed before the disruptive event but seek to address the core problem, identify opportunities, and reduce business vulnerabilities to natural disasters.

A needs assessment is a requirement in the disaster recovery plan process. The effects of a natural disaster are typically distributed across various sectors, requiring an assessment of each sector to establish an efficient and effective plan (Dissanayake, 2018). For example, the recovery process should consider areas such as the use of land, construction practices, control of natural hazards, and protective practices, among others, to reduce the magnitude of a disruptive event. A needs assessment should provide precise details concerning the level of damage as well as the required resources and abilities (Halfon & McLachlan, 2019). Disaster recovery will be more efficient and effective when a needs assessment considers all critical sectors.

Disaster Preparedness

A disruptive event can lead to lost revenue and increased expenses. Although insurance is useful in disaster recovery, most policies do not cover all the incurred and indirect costs, such as losing customers due to death, injury, or defection to competitors

(Kato & Charoenrat, 2018). Overcoming these challenges, therefore, requires businesses to have continuity and mitigation plans ready in the event of a natural disaster. Disaster preparedness implies that a business requires less time to resume normal activities, settlement of insurance coverage, and maintain customers (Cutter & Derakhshan, 2019). Disaster preparedness involves identifying and accessing the required resources. Proper preparation ensures that a business will recover rapidly, as the needed resources are within reach during a natural disaster. Therefore, the aspect of quality in terms of resources, response time, and staff training is also critical in disaster preparedness.

A business must have specific measures to protect normal business activities, infrastructure, and the workforce from the harmful effects of natural disasters. It is important to have a plan in place before a disruptive event. A disaster preparedness plan is essential to identify potential hazards and mitigate the risks associated with natural disasters. According to Nguyen et al. (2018), disaster preparedness plans, such as communicating with critical stakeholders (customers, suppliers, and employees) help to overcome the disruptions attributed to a natural disaster. Moreover, they reduce the time taken to resume normal operations. For instance, a business owner or manager can have a current contact list of stakeholders who are trained to mitigate disaster risks and have an updated communication strategy to enhance disaster preparedness. *Emergency Preparedness - Business Emergency Preparedness* (2020) establishes that an informed workforce is essential to protect a company from the effects of a natural disaster while a good disaster preparedness plan helps a company to comply with safety requirements and avoid legal battles that can affect its image.

Financing Insurance

Hurricane Maria had a profound financial impact on the U.S. Virgin Islands, Saint Croix economy. The net economic loss attributed to Hurricane Maria in Saint Croix was approximately $3.8 billion (After the Storms Saint Croix Foundation for Community Development: Rebuilding Communities and Nurturing Resiliency, n.d.). Hurricane Maria destroyed businesses, apartments, and residential houses. To facilitate recovery from this hurricane, the Senate Finance Committee passed legislation that required the state to fund the process with $2.7 billion, with $2.2 billion contributed by the federal government. The remaining recovery budget was shared among the state agencies concerned with recovery and reconstruction, including FEMA, and CDBG, which located the largest share of the funds, $1.5 million and $2 million, respectively (ODR, 2020).

The total estimated net impact (losses plus gains) was approximately $91.61 billion loss in GSP in the first year following the storm (HowStuffWorks, 2023). Among all the regions affected by Hurricane Maria, the highest indirect costs, approximately $900 million, were incurred. (Collier & Babich, 2019). While the Saint Croix economy was able to recover within the second year after the hurricane, the recovery costs strained the Saint Croix economy, leaving a long-term effect. As a result, discussions addressed the role of insurance, especially from the National Flood Insurance Program, in providing the finances required for recovery after hurricane disasters in the future.

According to Collier and Babich (2019), inherent funding from a natural disaster is available in the form of grants, government relief, insurance, and loans from financial institutions. While these financing options are essential in disaster recovery, several

challenges make it difficult to access these funds for business needs after a disaster. In various cases, a funding gap is observed between the public and private sectors, whereby funds are relatively inaccessible to the latter. The financial needs of businesses in the private sector are generally higher than those of the public sector, and the available funds are inadequate for disaster recovery. Although small businesses are frequently affected by natural disasters, financial inadequacy means that many small businesses will be unable to recover.

While it is imperative to plan effectively for a natural disaster, substantial funds are required to cover the cost of damages arising from a catastrophe. The findings from this study could inform business leaders in areas susceptible to natural disasters about strategies to maintain financial stability in the aftermath of a major hurricane. Lack of adequate contingency plans and ineligibility for relief financing undermines the ability of small businesses to recover after a natural disaster (Peters et al., 2019). FEMA relief funds follow strict regulations that constrict eligibility for subsidy (Hammett & Mixter, 2017). These regulations, for example, require enterprises to undergo audits and, in the case of businesses that previously benefitted from FEMA, to have complied with eligibility requirements. Moreover, funding may not be available at the required time. Timing for disaster funding is a critical issue that prevents funding from addressing essential needs, which may increase with time (Hammett & Mixter, 2017). The complexity of the financial risk assessment process, the requirement for legislative approval, and the extended time of product development challenge the timing aspect, making funding less available relative to the urgency of the recovery process.

Nevertheless, business owners must understand guidelines and procedures as stipulated by funding sources to secure maximum funding for disaster recovery.

A mismatch between funding and financial needs and losses affects the disaster recovery process (Hammett & Mixter, 2017). Maintaining liquidity after damages and loss from a catastrophic event is essential to determine the needed time for the recovery process. Planning for a disaster, therefore, would enable business owners to avoid a disaster-funding mismatch. Cash shortages during recovery may jeopardize business continuity, and fund inadequacy may lead to prolonged operational lockdown, as well as direct and indirect financial losses. Kousky (2019) found a sizeable number of businesses tend to discover cash shortages and incomprehensiveness in coverage plans, consequently influencing the ability to recover. Business owners must frequently assess liquidity needs and review insurance coverage policies to ensure that disaster risks are covered adequately (Drexler et al., 2019).

According to Kousky (2019), some people do not properly understand the insurance contract they have signed. It is important for business owners to review aspects such as changes in policy, current property value, waiting period, and risk coverage level for effective financial preparedness. Some business owners realize the coverage policy's ambiguity when it is too late, thus creating settlement issues and unnecessary delays in the recovery process (Kousky, 2019). For example, failure to assess liquidity needs and review insurance claims can result in insufficient coverage for property damage, disruption, and additional costs. The consideration of extra expenses, such as interrupted

operations, indemnity period, and ordinary payroll may help minimize recovery cost and time.

Mitigating monetary loss from natural disasters is an essential risk strategy that directs the recovery process. Although catastrophic events may lead to losses that surpass expectations, having a financial risk strategy is essential in guiding business owners on actions needed to facilitate effective disaster recovery. The magnitude of the effects of catastrophic events highlights the need for business owners to consider the exposure of enterprises to financial losses. According to De Vet et al. (2019), business owners can address these effects by applying effective financial disaster preparedness, which enhances their ability to contain risk and determine actions that may lead to full recovery. Effective financial preparedness entails the prior identification of actions necessary during a catastrophic event. The effects of natural disasters can present unforeseen challenges that may affect how business owners overcome these effects and enhance financial recovery (Kousky, 2018). Failure to consider financial recovery can lead to delayed recovery and challenges in insurance claims, and the inability to take advantage of emerging opportunities.

This failure undermines the ability of small business leaders to estimate the outcomes of a natural disaster. Businesses need to have a financial risk strategy for business recovery and continuity after a natural disaster. In addition to being more resilient to the effects of catastrophic events, they also have a reliable recovery process (De Vet et al., 2019). For example, financial preparedness maximizes business restoration through insurance and other sources, which are crucial in reducing economic losses.

Financial preparation should be considered in disaster recovery plans to allow recovery from a substantial financial loss.

The basis of adequate financial preparedness is the level at which a business can serve customers to maintain reliable financial stability during a catastrophic event. Financial preparedness may include having a financial risk strategy that entails actions such as outsourcing services, having a temporary location, cooperation and collaborating with other stakeholders, and correspondence with insurance providers (Miles, 2017). A financial risk strategy, with clearly identified actions, can enhance business continuity by maintaining activities and operations, which could mitigate financial loss. However, it is difficult to anticipate catastrophic events (FEMA, 2018) accurately. For example, small business owners may anticipate disruption of operations and damage to inventory and infrastructure. However, they may fail to expect the losses incurred by hiring the new task force, the displacement of a population, and the effects that reach suppliers and other stakeholders (Miles, 2017). A financial risk mitigation strategy needs to encompass a wide range of catastrophic damage to minimize probable loss.

Risk-averse organizations are willing to allocate more financial resources than expected to insurance firms. This might be due to the benefit of risk insurance in ensuring the welfare and continuance of a business in the aftermath of a disaster. However, not all risks are covered, as insurers are more willing to pool certain risks than others (Yang et al., 2020). Yang et al. (2020) found that not all risks are covered. In this case, the insured may have a better understanding of the risk than the insurer, and the latter receives

reduced risk coverage. Some insurance programs do not have a direct link to their customers or offer incentives to reduce direct losses from disasters.

The types of risks covered are a general concern for most potential insurance customers. Yang et al. (2020) warned that insurance might present disincentives to business owners, who will then proactively develop risk-reduction measures. Insurance agencies should ensure that the public has increased awareness and availability of insurance coverage. Insurance should be based on the risk perception of the business owners, such as experience, unknown factors, controlled factors, and probability factors. Sustainable insurance systems should reflect higher hazard awareness and perception of the organizational business owners.

Data from the National Risk Index (2021) supports the idea that available insurance should be based on the perception of risk in the business. Different risks have different effects on businesses. For instance, heat waves affect populations, buildings, and agriculture. on top of being frequent with recorded 2610 Spatial Hazard Events and Losses Database for the United States (SHELDUS) loss records and a total record per event of 11780 (National Risk Index, 2021). On the other hand, the total SHELDUS loss for earthquakes is 210 with total records per event basis at 206. This shows that the availability of insurance should look at the frequency and level of loss occasioned by the risks. Data from the National Risk Index (2021) confirm that drought primarily affects agriculture, and it cannot be compared to other disasters such as heat waves and earthquakes.

Continuing Employment

Employee retention contributes to the financial and non-financial performance of an enterprise. An employee's loss is associated with direct and indirect impacts, which can derail the desired performance (Albrecht, 2018). In catastrophic events, maintaining employees is challenging, as there is loss through injuries, loss of life, relocation, suspension of operations, and moving to rival businesses. The centrality of employees to business continuity and restoration makes it necessary for business owners to develop strategies that would foster employee retention in a catastrophic event. For instance, employers should have an effective communication plan to ensure that interaction between the two parties continues. Compliance with existing laws on aspects such as safety and compensation is also essential to avoid lawsuits and foster a good image of being considerate of the task force (Albrecht, 2018). Adherence to these two factors leads to employee loyalty and maximized productivity, which is essential for business continuity.

In the case of employee safety, employers should ensure that the workplace is safe and that workers have received the necessary training on disaster preparedness to mitigate disaster risks. Research by Cvetković (2016) assessed the effects of natural disasters on employee performance and identified increased absenteeism, reduced job satisfaction, and slow improvement in performance. The employer's role creates an environment that supports job satisfaction; failure to do so may inhibit employee retention. A business approach to employee safety and well-being influences business and employment continuity. While natural disasters are difficult to anticipate, business owners can

implement risk management strategies to reduce the level of damage to inventory, physical structure, and employees (Geydar, 2020).

A failed business due to a catastrophic event implies a significant loss of employment. Poorly maintained recovery processes might attract lawsuits and increase employee turnover, which is damaging to an enterprise. Compliance with regulations stipulated by agencies such as the Occupational Safety and Health Administration (OSHA) is essential to enhance employee safety and health before and during the recovery process. According to Irabor and Okolie (2019), employers should comply with labor laws, especially concerning compensation and benefits, to avoid lawsuits and maintain a positive relationship with employees. Providing a good working environment enhances job satisfaction and decreases perceived job insecurity, which encourages a worker to remain with an organization. Hiring and retaining talented employees determines the continuity and economic competitiveness of a business. Business owners who focus on establishing a good working environment are likely to retain a skilled workforce, whose innovativeness can foster disaster recovery and economic growth.

Multiple Disasters

The presence of multiple disasters within a short period can lead to an overall decline in businesses and other fields. The complexity of numerous disasters can lead to human displacement and increased vulnerabilities, such as disease transmission. According to Han (2020), natural disasters such as earthquakes and hurricanes, among others, usually are associated with secondary effects such as infectious diseases that continue to weaken the immune system of an individual. Reacting to disruptions to power

supply, transport, chain of supply, and regular business activities from a natural disaster can be challenging, especially when responding to a deadly virus outbreak.

Some disasters occur more often than others do, which exacerbates the total economic damage. The determinants of risk resilience in any disaster include previous experience, the presence of protection, and recovery measures (Pan, 2020). Preparedness and management behavior help protect vulnerable entities from losses. Pan (2020) established that typhoons are a common and frequent disaster for the coastal communities of southeast China. When disasters have relatively significant effects, decisions concerning the mitigation of the risks are dependent on information on the probability of the event happening, operational environment factors, availability of warnings and effective risk prevention measures, as well as the presence of required risk reduction structures (Pan, 2020). Since risk prevention measures are important to reduce damage caused by disasters, there is a need for organizational management units to develop measures to ensure safe practices and solutions to minimize the effect during high probability disasters. Business leaders need to evaluate potential strategies to address the effects of disasters and help increase the commitment and participation of all the organizational stakeholders to risk protection and recovery.

Amidst multiple disasters, there is often an adverse effect on the supply chain and communication channels within various enterprises. The complexity and interconnectedness of enterprises heighten the effects and disruptions in communication and the supply chain. According to Samantha (2018), the devastating effects of natural disasters cause significant effects on micro, small, and medium-sized enterprises,

whereby disruptions to communication and supply chain results in restrained resources. Samantha (2018) established that only a few businesses could recover successfully, depending on their ability to exploit available opportunities and have effective risk mitigation strategies in place. The recovery process encompasses numerous challenges, as disruptions in communication and supply chain directly affect business operations and activities. For example, a stable business needs to have an efficient supply chain that affects the network of suppliers and buyers, whose effects on financial performance are detrimental.

Ivanov and Wendler (2017) posited that the success of a business depends on the effectiveness of the supply chain, which encompasses coordination, collaboration, and interdependence of activities and operations. A study by Gunessee et al. (2018) established that disruptions in the supply chain not only cause financial losses but also lead to the loss of critical business aspects such as assets, reputation, and quality. While the effects and risks of natural disasters expose supply chains, Krause et al. (2018) recognized that the ownership and leadership of an enterprise remain essential in identifying the appropriate resources, hiring talent, and reducing disruption vulnerabilities and associated costs. Therefore, it is important to have informed ownership and leadership for business continuity amid natural disasters.

Damage to roads and airports, among others, disrupts this chain, consequently affecting the success of various enterprises. Some business operations are halted since the acquisition of raw materials and transportation to users limits the quantity of production, in addition to other effects (EL Khaled & Mcheick, 2019). Conversely, the loss of

communication infrastructures does not only directly affect enterprises, but it leads to panic and mass hysteria, making communication with critical stakeholders, such as employees, buyers, and suppliers, difficult and, to some extent, impossible. For example, the loss of communication infrastructures such as cell towers would affect communication with almost all critical stakeholders (Ogie et al., 2018).

Loss of clientele is prevalent during multiple disasters, whereby a significant number of customers may temporarily or permanently relocate away from the affected region. Loss of goods may cause a loss of clientele to business rivals, complicating the ability to recover. Information management across critical stakeholders is essential for the effective mitigation of disaster risks and threats. Maintaining effective and reliable information exchanges is important in disaster response and for requesting timely relief operations (Moorthy et al., 2018). Disasters usually occur abruptly, affecting the ability to deliver timely information during and after the aftermath. Therefore, it is essential to ensure information concerning disasters becomes readily available, so that associated risks can be mitigated to enhance proper preparedness.

COVID-19

An epidemic such as COVID-19 threatens lives and affects those with existing vulnerabilities, such as a low immune system. The COVID-19 outbreak attracted strict response measures, such as observing social distancing and staying at home, which negatively affected business development. Moreover, epidemics such as COVID-19 lead to unprecedented business disruptions, which increases the vulnerability of small businesses to disasters. According to Hiramatsu and Marshall (2018), small businesses,

unlike large enterprises, are less likely to recover from disasters due to the scarcity of available resources.

Enterprises face challenges with many issues that can impede growth and development. A disaster such as COVID-19 causes financial strain due to the challenges when making payrolls, maintaining operations and activities, adjusting to changing consumer demands, and addressing issues with insurance coverage, which can cause substantial disruption of businesses. The spread of infectious diseases strains the available resources, which is a critical challenge in multiple disasters. The emergency response to COVID-19 strained local budgets, which constrains the ability of small business owners to provide relief if another disaster occurs. The deadly tornadoes in Covington County, Mississippi, occurred when the country was fighting the spread of COVID-19 when communities already lacked important resources required for their survival (Kann et al., 2020). The catastrophic damage by the tornado not only included deaths and property destruction but also challenged our ability to control the spread of COVID-19.

The well-being of customers and suppliers, among other stakeholders, is essential before, during, and after a disaster. Owners and managers of enterprises work hard to establish a catastrophic-resilient business environment that will facilitate business continuity and success during a threatening event. Infectious diseases tend to heighten disaster risks due to their effects on health, supply, and service delivery (Chan & Shaw, 2020). Organizations need to focus on how they can reduce the risk posed by infectious diseases and create effective disaster response plans to guarantee their continuity.

Collaboration with governments and other agencies is necessary when establishing a catastrophic resilient environment. For example, substantial information exists on how countries worldwide have addressed infectious diseases such as Ebola and Zika. The information was useful, especially when addressing other infectious diseases such as COVID-19, which has not only claimed lives but has also led to the diversion of resources to the health sector, causing an economic downfall due to reduced fiscal activities and the severity of the pandemic. The occurrence of natural disasters, such as hurricanes, would exacerbate the existing situation of an infectious disease, which may hinder the ability to safeguard business continuity. Lempinen (2020) suggests that the response to COVID-19 has been associated with lump-sum spending that may undermine the ability to respond to multiple disasters. The economic crisis due to COVID-19 may lead to an economic depression, and some countries may require an external bailout to support their economy.

Unlike regular planning for business recovery from natural disasters such as earthquakes and floods, planning for infectious diseases is complex and multifaceted. Focus on physical recovery through the building of infrastructure has dominated continuity plans. However, infectious diseases tend to change this order, whereby the continuity plan emphasizes safeguarding human lives. For example, the Florida Small Business Development Center (SBDC) Network reshaped its focus on state development to address the COVID-19 pandemic. The well-being of people has received greater emphasis. Slowing the spread of COVID-19 required controlling human movement and interaction, which has affected many businesses. For example, social and public

gatherings and interactions remain discouraged, and in extreme cases, quarantines are necessary. *Small Business Preparedness, Recovery Resources for the Coronavirus* (2020) required that meetings be canceled, including business training and workshops in response to COVID-19. The state of Florida collaborated with the federal government and agencies in the United States to provide financial assistance to adversely affected businesses. Although local and federal governments have been at the frontline of containing the spread of COVID-19, the effects of the pandemic continue to affect businesses.

Disaster Education

Zhang and Wang (2022) discussed trends in global disaster education. The authors noted that disaster preparedness is an important area of focus in global education. The world has emphasized disaster education and preparedness because of the increased occurrence of natural disasters (Zhang & Wang, 2022). Everyone should attempt to be ready to respond to natural disasters such as hurricanes and earthquakes. Global warming and climate change have put the world on the brink of disasters. Floods and hurricanes are common and have far-reaching consequences that not only cause death but have the potential to hurt businesses. Subarno and Dewi (2022) conducted a systematic review of the shape of disaster education and reiterated the need to create awareness for better preparation. Disaster education is even more important in areas more prone to natural disasters. For instance, some areas are prone to floods and hurricanes. This calls for the need to create awareness through both formal and informal means (Subarno & Dewi, 2022). According to Subarno and Dewi (2022), disaster education should focus on areas

such as various technological tools and devices in residential areas. This would make the population better prepared to respond to disasters. The scholars also stated that low public awareness of disasters stems from a lack of education. Through training, it would be possible to alleviate the effects of disasters. In addition, with technological advancement, it is possible to learn about disasters through applications. Therefore, risk education and disaster preparedness should become a recurring part of the workday to prepare businesses and communities for responding effectively to disasters.

Zhang and Wang (2022) highlighted areas of interest in disaster education. According to scholars, disaster education focuses on disaster nursing, disaster awareness, earthquakes, disaster risk, and reduction. In disaster nursing, the focus is helping victims during natural disasters (Zhang & Wang, 2022). Using disaster education aids within ling with injured persons and offering treatment in the field. The purpose of risk and preparedness was to help individuals identify risks and prepare to manage any risks. The population should be in a position to map disasters. In some cases, disasters strike without warning as was the case with the COVID-19 outbreak. The COVID-19 disaster showcased how unprepared the population was to respond.

Globally, education research centers for disasters are unevenly distributed. Developed countries have research centers that emphasize providing education to the people (Pascapurnama et al., 2018). Zhang and Wang (2022) determined that established research centers were evenly distributed in the United States. Developing countries such as African and Asian nations lack these research centers. This was evident when developing nations relied on aid from developed nations to respond to the pandemic

(Zhang & Wang, 2022). This was because they had no research to understand the mechanisms of the COVID-19 virus. Therefore, it was paramount to bridge this gap in education on disasters. Education plays an important role in preparing societies to respond to disasters. Majd et al. (2019) determined education on disasters was important. The scholars argued that education and technological advancement make it easy for individuals to respond to disasters. However, education should focus on vulnerable groups such as the elderly, children, and the disabled (Majd et al., 2019). Educating these people on ways to respond to disasters minimizes the negative effects. Trained people could protect themselves and others from disasters. This shows education is beneficial to society because even the most vulnerable are protected because of education (Majd et al., 2019). Both Majd et al. (2019) and Zhang and Wang (2022) highlighted the importance of developing educational programs to train people as well as the importance of research in preparation for disasters.

Transition

Section 1 included the foundation of the study, the background of the problem, a general and specific statement of the problem, the purpose statement, the conceptual framework, the research question, and the professional and academic literature review. The goal of this study was to explore strategies used by small business owners in low-income communities in the U.S. Virgin Islands, Saint Croix to recover from Hurricane Maria.

Section 2 includes the following sections: purpose statement, the role of the researcher, participants, research method and design, population and sampling, ethical

research, data collection instruments, data collection technique, data organization

technique, data analysis, and reliability and validity. Section 3 includes the presentation

of findings, application to professional practice, implications for social change,

recommendation for further research, reflections, and conclusion.

Section 2: The Project

Purpose Statement

The purpose of this qualitative multiple case study was to explore strategies that small business owners in low-income communities in U.S. Virgin Islands, Saint Croix used to prepare for and recover from 2017's Hurricane Maria. The target population was six small business owners in the U.S. Virgin Islands, Saint Croix in low-income communities that experienced the effects of Hurricane Maria and were able to recover and avoid permanent closure after this disaster. The implications for positive social change include the potential for small business owners to address the threats associated with natural disasters proactively, retain employment, and continue to have a positive economic effect on their community and society.

Role of the Researcher

For qualitative studies, the researchers are the primary instruments for data collection and analysis (Barnham, 2015). I played the role of the data collection tool as the research instrument and used multiple sources by applying data triangulation methods for quality in the research. I first gained informed consent and respected the privacy of the participants. I then used semistructured interviews via video conference and teleconference with small business owners and multiple scholarly peer-reviewed or seminal sources to gather data for this study. I also conducted data analysis, which is the process of searching and arranging interviews to increase the understanding of the phenomenon.

I do not have any relationship with the small business owners who agreed to participate in the study. In this, my role was to ensure that the participants' rights were protected, specifically by the three major components of the *Belmont Report*: (a) respect for persons, (b) beneficence, and (c) justice (Miracle, 2016). I treated each participant as autonomous and provided protection to make sure there was minimal risk. Further, I implemented strict ethical guidelines, obtained informed consent, maintained confidentiality, and used anonymized data whenever possible.

Qualitative researchers collect data by interviewing study participants and examining records from research organizations' reports, academic peer-reviewed articles, and business and industry data (Barnham, 2015). Once data are collected, qualitative researchers analyze the data into patterns and themes. To identify patterns and themes, I analyzed the strategies used to develop and implement disaster plans.

Additionally, the role of the researcher in a qualitative multiple case study was to select a research method and design, recruit participants, and collect, and organize data without bias (Office for Human Research Protections, 1979). I mitigated bias by avoiding viewing data from a personal perspective by having the participants review the interview results, and asking whether my interpretations represent their beliefs. I also used an interview protocol to systematically gather specific information from participants in a structured and standardized manner to ensure consistency and reliability in data collection, as recommended by Roberts (2020).

Participants

The eligibility criteria of participants included individuals who are small business owners in low-income communities in the U.S. Virgin Islands, Saint Croix who were affected by Hurricane Maria, but who overcame the effects by applying disaster preparedness and recovery (risk management) strategies to enhance the continuity of their businesses. The selection of these participants was not limited by gender and ethnicity. The eligible participants were asked to reveal disaster preparedness and recovery (risk management) strategies used in the aftermath of Hurricane Maria.

To gain access to prospective participants, I used digital listings to seek small business owners who met the study criteria. I contacted potential participants and prescreened them by asking them probing questions, such as did they had a disaster preparedness plan that was used to recover from Hurricane Maria. The owners of the small businesses were contacted via telephone and email. I explained the purpose of the study and made a request for voluntary participation. After gaining consent from business owners, I sent an email describing the interview protocol. The participants sent an email back to verify that they had reviewed the interview protocol and sent an agreed confirmation. I then contacted the participant by phone to set up a date and time for a Zoom meeting. For two of the six participants, I conducted the interview on the same day. The other participants were scheduled a few days out.

I sent a consent form to each person willing to participate and provided 10 days for review and understanding of the consent process and their role in the study. When participants do not fully understand the concept and interview process, issues can impact

the success of the interview and the results (Spatz et al., 2016). Sending the consent form immediately after a participant agreed and providing 10 days for review provided the participants with enough time to fully consider the risks and benefits and to seek alternatives to the procedure (Spatz et al., 2016). Thus, informed consent was obtained immediately after the participants agreed to voluntarily participate in the study to ensure the participant's autonomy remained at a high level. To establish a good working relationship with the potential participants, I asked them to select the date and time for their Zoom or other videoconferencing interview. I relayed to the participants that data collection was not used for any other purposes than its intended use. I also assured them of the confidentiality and privacy of any personal information collected.

Research Method and Design

Research Method

Qualitative, quantitative, and mixed approaches are the three types of research techniques (Yin, 2018). The qualitative research method was most suitable for this research because using this method enabled me to focus on the experiences of small business owners whose businesses were negatively affected by Hurricane Maria. According to Jenkins-Smith et al. (2017), researchers use the qualitative research method to understand the concepts and experiences of business owners and develop insights on issues that are not fully understood.

Quantitative researchers use closed-ended questions to test hypotheses based on cause and effect, which was not appropriate for this study. Researchers use quantitative methods to analyze numerical data and infer results from a larger population between

various aspects. Thus, using the quantitative method was suitable for confirming theories. In contrast, researchers employ qualitative methods to explore concepts with complicated interdependent relationships that are difficult to understand (MacCallum et al., 2019). Researchers use mixed-method to combine both quantitative and qualitative methods in the same study. The qualitative method is appropriate when the research aims to explore business processes, how people make sense and meaning, and what their experiences are like (Venkatesh et al., 2013). Therefore, the mixed-method approach was not appropriate for this study.

Research Design

The qualitative designs considered were case study, phenomenology, and ethnography. Qualitative researchers can select from several design options, including case study, ethnography, and phenomenology. In an ethnography study, researchers evaluate shared cultures (Morgan-Trimmer & Wood, 2016). In a phenomenological study, researchers explore the personal meanings of participants' lived experiences (Neubauer et al., 2019). Neither was the aim of this study. A multiple case study design allows one to conduct an in-depth exploration based on actual experiences and facts (Cameron et al., 2019; Kaszynska, 2015) and can be used to compare multiple bounded systems (Houghton, 2020). A multiple case study offers an opportunity to gain a more in-depth understanding of phenomena than a single case study does; it also provides an opportunity for comparison between varying conditions across differing organizations (Yin, 2014). Hence, I selected a qualitative multiple case design for this study.

Data saturation was assured by collecting and evaluating the data until no new topics emerged in the information obtained. I did not rely on a single source of information because doing so would have limited the scope and made it difficult to achieve the same results.

Population and Sampling

The targeted population for this qualitative multiple case study was small business owners in the U.S. Virgin Islands, Saint Croix, specifically in low-income communities, who experienced the effects of Hurricane Maria and were able to recover and avoid permanent closure after this disaster. Purposive sampling was used to find participants for this study. Robinson (2014) determined purposeful sampling is often used to recruit participants for studies to gain insights into a large population. Suri (2011) pointed out that the logic and power of using purposeful sampling are based on selecting representative cases that demonstrate information rich enough for in-depth studies. By using this type of sampling, I selected individuals with experience using risk management strategies to enhance the continuity of business amidst a natural disaster. The suitable candidates were small business owners from low-income communities in the U.S. Virgin Islands, Saint Croix who applied risk management strategies to overcome the effects of Hurricane Maria and were able to recover and survive these effects. This sample offered multiple perspectives on strategies for successful small business recovery following a major disaster, Hurricane Maria.

Researchers should use sound samples that are reliable and free from bias. Researchers can also use purposive sampling to divide the research into smaller sub-

studies and analyze the findings before combining the information to form the overall study findings (Robinson, 2014). Since small businesses form most enterprises within the U.S. Virgin Islands, Saint Croix economy, a small population of these entities can be used to provide enough information required to answer the overarching research question. Palinkas et al. (2015) posited that a small sample size is appropriate for qualitative research. Marshall and Rossman (2016) further suggested that a sample of five participants can be sufficient to understanding a phenomenon. Using the sample size of six small businesses along with the review of their disaster preparedness plans enabled me to obtain data saturation.

Data saturation is a method of collecting and assessing data when the sample is small because it overcomes the challenges associated with reviewing large samples through simplification of the process (Guest et al., 2020). To obtain and ensure data saturation, two key steps are needed to maintain a small sample size and construct a saturation grid (Francis et al., 2010). Data saturation is reached when there is sufficient information to replicate the study, at which point no further data collection is needed (Guest et al., 2020).

I selected six participants for this study. The interviews took place via Zoom videoconferencing software. Data saturation was achieved after four interviews. By collecting two additional cases, the data no longer revealed new or substantial insights or information, indicating that the research had reached a point of theoretical sufficiency. The participants were in the comfort of their own homes or office. The interview questions were open-ended. I ensured data saturation by observing the reoccurring

themes, member checking, and using participants preparedness plans after the interview was complete.

Ethical Research

As the researcher, I practiced transparency and honesty with the participants to gain their trust. During this study, the rights of the participants were protected and respected. My primary concern was to protect the rights of the study participants as described in the *Belmont Report* (Office for Human Research Protections, 1979), a guide for conducting ethical research on humans. I also adhered to ethical procedures by delaying any data collection until the Walden University Institutional Review Board (IRB) granted permission for me to conduct the study.

Within the first telephone contact, I informed participants of the confidential nature of the study and the right to withdraw at any time without repercussion. With informed consent, the researcher ensures that the participant agrees to participate in the study verbally and in writing, thus building a good relationship between the participants and the researcher (Ferrer et al., 2016). I also informed the participants that I preserved confidentiality and protected the participant and organizational name by using a combination of letters and numbers to identify the participants, such as O1P1, O2P2, where O1P1 represents participant number 1 from organization 1, and O2P2 would be participant number 2 from organization 2, etc. To comply with ethical principles, I explained the right to withdraw, and that participation in this research study was voluntary. This explanation also informs participants how they can withdraw for any reason without fear of penalty. To withdraw from the study, the participant could notify

me by email or phone call. I also assured them that their name and their organization's name were confidential.

No participants withdrew from the study, so no data needed to be excluded. In addition, all consent forms and all data and information collected throughout the research will remain on an external hard drive and in a fireproof home office safe for 5 years. After 5 years, I will permanently delete all materials from the hard drive and destroy all hard copies related to this study. There were no incentives for those who participated.

Data Collection Instruments

I was the primary data collection instrument to find answers to the research question: What strategies did small business owners in low-income communities in the U.S. Virgin Islands, Saint Croix use to prepare for, and recover from, Hurricane Maria? Conducting semistructured interviews via teleconference and video conference enabled me to collect and compile information-rich responses for the research question. I conducted semistructured interviews and analyzed archival data from business disaster plans provided by the participants. I interviewed six business owners whose businesses recovered and continued after Hurricane Maria. Becker (2019) determined the researcher is responsible not only in the process of inquiry but also in analyzing and interpreting data. To this end, I was open-minded, understood the sensitive topic, and was flexible, reactive, and sensitive to understand the phenomenon.

Since a multiple case study requires more than one source of data, in addition to the interview data, I reviewed and analyzed the disaster preparedness plans provided by the participants. A researcher as an instrument creates an interview protocol to ensure that

data collection employs a similar approach (Battistella et al., 2017). The interview

protocol for this study can be found in Appendix A. I ensured data consistency while

capturing the participants' responses of their experience and observed their expressions

as they discussed risk management strategies to overcome the effect of a natural disaster.

I did this by recording my participants' words, actions, and behaviors during the

interview using an Ametoys SK-505 recorder and the video conference software, Zoom.

Nonverbal communication plays a significant role in the meaning-making process. The

essential functions of nonverbal communication in qualitative research include

clarification, juxtaposition, discovery, confirmation, emphasis, illustration, elaboration,

complementarity, corroboration and verification, and effect (Denham & Onwuegbuzie,

2013). Researchers should be aware of cognitive bias, which can be provoked by beliefs,

predispositions, and assumptions (Turner, 2021).

After completion of the interviews, I used member checking. Member checking is

a process to ensure the accuracy of the research data. During the member checking

process, the researcher interprets the participants' responses to the interview questions

and then shares the interpretation with the participant for validation, thus ensuring high

accuracy of the obtained research data (Caretta & Pérez, 2019). Candela (2019) and

Caretta and Pérez (2019) established that member checking ensures the reliability and

validity of the data collection instrument used in a study.

I also used an interview protocol (see Appendix A), which is an interview guide

that provides a standard procedure in the interview process (Yeong et al., 2018). The

protocol includes a list of items that guide the researcher on aspects of time, the manner

of the study, and the purpose of the study (Yeong et al., 2018). The use of an interview protocol is important for helping researchers obtain maximal information within a limited time and interview different participants systematically and comprehensively (Yeong et al., 2018). I developed an interview protocol comprised of open-ended questions that covered all the research objectives and a guideline to ensure data consistency.

Data Collection Technique

After obtaining Institutional Review Board (IRB) approval from Walden University, I started the data collection process. Walden University's Institutional Review Board's approval number is 12-12-22-0307833. I used digital listings to obtain the lists of prospective participants that meet the sampling criteria. Once obtained, I reached out through phone and email to inquire if they were willing to participate in this study. If an individual decided to participate, I sent the consent form by email to the participants. Once I received the signed consent form from the participants, the data collection process began by conducting interviews through Zoom with the participants at a date and time of their choice. Archibald et al. (2019), stated based on the 22 participants invited to interview gave sufficient reason that Zoom would be a feasible method for interview-based data collection.

Each participant participated in semistructured interviews. With permission, I used a video recording device to capture the participants' views on risk management and mitigation strategies used to overcome the Hurricane Maria disaster. I also used an Ametoys SK-505 recorder and Ametoys SK-007 as a backup device in case the primary device has any issues.

I asked each participant the same interview questions but was flexible to allow for follow-up questions, as necessary. Once all interviews were completed, I used member checking by having the participants review the interpretation of the interview responses to make sure my interpretations represent their beliefs to help validate the trustworthiness of the data and clarify any misconceptions (Simpson & Quigley, 2016). I also obtained the company's contingency plans related to emergency planning. The contingency plans contained detailed instructions on how to respond to unplanned incidents such as natural disasters. I wrote my experiences in a reflective journal to add depth to the collected data by describing my feelings and interpretations during the research.

The data collection technique has various strengths as well as weaknesses. Interviews are advantageous because they provide detailed information about the subject under study. In addition, interviewers can ask clarification questions to eradicate bias in collected data. Interviews are also easy and provide first-hand information about a phenomenon under study. On the other hand, interviews are costly and time consuming (Magaldi & Berler, 2020). Respondents may deliberately conceal information, which could affect the quality of collected data. Interviews are disadvantageous because they are based on human account and could include personal bias.

Data Organization Technique

Data organization involves making information available to the researcher for analysis and establishing how the researcher arrived at the findings (Borghi et al., 2018). I used the recorded and transcribed interviews, the codebook, and the research log to organize the interview data. For this research, I used manual coding by assigning the

responses an identification number because of the small sampling size. I used a codebook with margins to take quick notes and add additional comments and give codes based on categories. Using this process guided the coding responses, served as documentation of the layout, and provided code definitions for the data file, thus making it easier to find and retrieve data. Using Microsoft Excel aided with coding by using simple numbers and letter codes, I used a combination of letters and numbers to identify the participants, such as O1P1, O2P2, where O1P1 represented participant number 1, from organization 1 and O2P2 would be participant number 2 from organization 2, etc. I labeled each audio recording with the interview code designation and use tags to label interviewees and organizations as recommended by Yin (2018). The organizing continued by inputting data into the qualitative software Atlas.ti.

Researchers use research logs to record issues encountered during the recording and transcribing process (Fonteyn et al., 2008). An external drive, WD My Passport, was password-protected to safely store all data. Hard copies of the data were scanned onto the hard drive and stored as soft data. Other documents, such as the codebook and research logs, remain in a secure location for 5 years. These documents and the recordings will be destroyed by shredding paper-based data and deletion from the computer. The use of Microsoft Excel aided with managing, organizing, and analyzing the data. Microsoft Excel software allows users to classify, sort, and arrange information, examine relationships in the data, and extract themes and patterns (Bree & Gallagher, 2016).

Data Analysis

Case study researchers use data obtained from triangulation for data analysis. Triangulation is the process of using multiple methods or data sources to conduct research and then comparing the results from each method or source (Krichanchai & MacCarthy, 2017). Noble and Smith (2015) determined triangulation in data analysis involves using different methods and case study perspectives to produce various comprehensive sets of findings. While there are four types of triangulations, methodological triangulation was the best method for this study.

The purpose of this study was to explore strategies used by business owners in low-income communities in the U.S. Virgin Islands, Saint Croix affected by Hurricane Maria that were able to recover and avoid permanent closure. According to Archer (2018), a researcher must pay more attention to evidence analysis and critically reflect on the guiding questions to enhance the appropriateness and credibility of the research. Archer further noted the complexities and nuances in the process of analyzing and interpreting qualitative data stem from the subjective nature of responses, the need to identify patterns and themes, the potential for researcher bias, and the iterative nature of analysis requiring continuous refinement.

Researchers use the qualitative method to capture complexity by providing a better understanding of the nature of the research issue and explore all possible nuances to support the analytic conceptualization ideal for generating and understanding theory (Beeson, 1997). I used Yin's (2014) five-step procedure for qualitative data analysis. Yin's (2014) analysis includes five stages (a) compile database – the preparation and

organization of data, which entails data collection, data logging, and data documentation, (b) disassemble data – in this case, I used coding to categorize research data into groups; the procedure of fragmenting and classifying data to form explanations and comprehensive themes using the information, (c) reassemble data – involves , I used coding to categorize research data into groups; the procedure of fragmenting and classifying data to form explanations and comprehensive themes using the information. Participants and themes of qualitative research are the focus of vignettes to establish the credibility of the study, (d) interpret data – entails streamlining the data log and evaluating the theme material to make a comprehensive notion of the data collected, and (e) concluding – calls for drawing the conclusions from the entire research.

Interviews were labeled with the identification codes for each participant and the major themes in the response were identified and coded, and similar themes grouped together and used to describe the general responses obtained. In this study, I used Microsoft Word and Excel to organize and analyze data from the interview information, textual sources (secondary data, such as business preparedness plans), interview notes, and recorded transcripts.

Theme Development

According to Dasgupta (2015), theme development in qualitative studies should occur naturally. Furthermore, theme development should happen without manipulation or prejudice imposed by the researcher (Dasgupta, 2015). At the initial stage of data analysis, I coded the data into the following categories: disaster recovery, beliefs on disaster preparedness, recovery, or theories on motivation for disaster recoveries, and

planned behavior. The themes aligned with the conceptual framework and consisted of the actions taken in every code. I emphasized identifying, analyzing, and interpreting the patterns of the themes within qualitative data and employing PBT and PMT to explore the participant's attitudes toward disaster preparedness and recovery planning.

Woods et al., (2016) determined themes are recognizable patterns in research data and assist in making conclusions because themes describe the phenomenon as well as have a direct relationship to the research questions. The theme analysis involved reviewing notes, viewing and listening to the audio, coding the interview data, and identifying common themes relating to the study objectives. I looked to connect key themes with the literature. I used Atlas.ti computer-aided qualitative data analysis software (CAQDAS) to further organize the data and assist in identifying patterns of codes. Hoover and Koerber (2011) stated how researchers use qualitative software to identify ideas and to create codes to analyze data. I inputted the textual data into the computer tool Atlas.ti to ensure the development of emerging patterns to determine the frequency of codes.

Reliability and Validity

The aim of using a qualitative methodology was to identify patterns to establish a meaningful representation of a phenomenon free from bias. According to Cypress (2017), reliability and validity are essential in research. Trustworthiness equates to the quality and rigor in qualitative research (Lincoln & Guba, 1986).

Reliability

Reliability is synonymous with dependability in qualitative research (Lincoln et al., 1985). Reliability encompasses the concepts of research reliability and validity as well as every code-critical component of research quality (Noble & Smith, 2015). The quality of the research is based on the integrity with which the study is conducted (Noble & Smith, 2015). Assessing the quality of research is crucial, especially when the findings are applied in the real world. Since the purpose of this study was to apply effective risk management and mitigation strategies to overcome the effects of natural disasters, it is important to evaluate the concept of reliability and validity. The ability to obtain trustworthiness, stability, and reproducibility of the data over time is known as dependability (Lincoln et al., 1985). I used member checking to enhance the dependability of the interview data. Member checking involves asking participants to review and confirm the researcher's interpretations of the interview data (Simpson & Quigley, 2016). A guide of how I conducted my research and research logs articulating the issue experienced were also provided so that readers and future researchers can follow the guidelines to confirm, audit, and critique the research process. Researchers should establish rigor and quality by paying attention to the concepts of credibility, confirmability, transferability. Within the subsections below is information on achieving reliability and validity in this study.

Credibility

Achieving credibility requires the findings to be believable from the participants' point of view (Cypress, 2017). Credibility was obtained by obtaining an accurate account

of the participants based on the semistructured interviews with follow-up member checking, and a review of related company documents. Member checking includes verifying the accuracy of what was said (Lincoln et al., 1985). I restated and summarize information and requested that participants determine accuracy. In addition, during member checking, the literal translation is crosschecked to ensure accuracy in the researchers' interpretations (Carlson, 2014).

Confirmability

Confirmability refers to the neutrality of the research findings that are based on responses of the participants and not that of the researchers' biases, motivation, or interests (Kyngas et al., 2020). The use of the coding framework provided an audit trail of evidence for the credibility of the study. To enhance confirmability, researchers keep detailed notes about the development and hierarchies of concepts and themes to be included in the audit trail (Nowell et al., 2017). I made the raw data, procedure, codebook, and research log available to readers as evidence of the decisions and choices I made regarding theoretical and methodological issues throughout the study.

Transferability

The levels at which findings of qualitative research may be applicable in a different setting is known as transferability (Lincoln et al., 1985). Transferability is a process performed mostly by the readers of the research. Therefore, to facilitate the transferability of the findings, I made the research detailed and specific by not generalizing the results to other populations. The detailed nature of a study attracts readers, thus ideal for transferability. I enhanced transferability and provided a thick

description of the data by paying attention to the contextual detail in my interpretation. I ensured enough information to replicate the study when the ability to obtain additional new information was attained and additional coding was no longer feasible for data saturation. For example, I described the disaster, the business owners as the participants, and the setting in which the research occurred. Another person can seek to generalize the results obtained in a different context. However, the individual who desires to transfer the results was responsible for the effectiveness and sensibility of the transfer.

Transition and Summary

Section 2 includes the (a) role of the researcher, (b) participants, (c) research method and design, (d) population and sampling, (e) ethical research, (f) data collection instruments, (f) data analysis, and (g) credibility, transferability, dependability, and confirmability. For Section 3, I provided (a) an overview of the study, (b) presentation of findings from the data collected, (c) interpret the findings to stem the implications for social change, (d) recommendations, (e) personal reflections, and (f) a concluding statement.

Section 3: Application to Professional Practice and Implications for Change

Introduction

The purpose of this qualitative multiple case study was to explore effective risk management strategies that small business owners in low-income communities in U.S. Virgin Islands, Saint Croix used to prepare for and recover from Hurricane Maria in 2017, and avoid permanent closure. Natural disasters have lasting effects on businesses because of the destruction of property. Over 40% of small businesses close in the aftermath of a natural disaster such as Hurricane Maria. In one study, small businesses that reported losses due to natural disasters were forced to temporarily close 63 percent of the time (Trevordelaney, 2022). This indicates a lack of preparedness on the part of small businesses to deal with the effects of natural disasters. Thus, risk management is an important phenomenon that businesses seem not to value. They often operate without any contingent plans or risk management strategies, which puts them at risk of collapse after a natural disaster strikes.

The findings from the qualitative multiple case study revealed the need to rely on the money they had at their disposal as well as government aid to survive a natural disaster. Most businesses fail because they do not know the way to recover from their financial losses. In addition, many businesses did not have long-term risk management plans (Samantha, 2018). Instead, the plans were mostly short-term and included protecting customers and ensuring their safety. It was also evident that the businesses had disaster preparedness plans, but they did not rely on them. The businesses lacked skilled

workers who could help them implement the disaster preparedness plan, forcing them to rely on federal and state help.

Presentation of the Findings

I conducted semistructured interviews to answer the research question: what strategies did small business owners in low-income communities in the U.S. Virgin Islands, Saint Croix use to prepare for and recover from, Hurricane Maria in 2017, and avoid permanent closure? I asked the participants of my study the interview questions in Appendix A, which were designed to prompt answers to this research question. To determine if a participant was qualified to participate in the study, each participant had to be a small business owner that was affected by Hurricane Maria but was able to overcome its effects by applying risk management strategies to enhance the continuity of their businesses in low-income communities in U.S. Virgin Islands, Saint Croix. I will discuss the findings relating to the four themes revealed within the context of the study's frameworks.

Table 1
Subjects Mentioned Most Frequently by Participants

	O1P1	O2P2	O3P3	O4P4	O5P5	O6P6	Frequency	Theme
Disaster Recovery	Y	Y	Y	Y	Y	Y	6	1
Beliefs disaster preparedness	Y		Y	Y	Y	Y	5	4
Recovery	Y	Y	Y	Y		Y	5	1
Financial Preparedness Protection	Y	Y		Y	Y		4	2
Motivation Theories	Y	Y	Y	Y	Y	Y	6	3
Planned behaviors	Y	Y	Y	Y	Y	Y	6	4
Government aid	Y			Y	Y	Y	4	3

Theme 1: Disaster Recovery

Organization1 Participant 1 (O1P1) stated that they did not have a disaster recovery plan in place. Rather, their response to the hurricane was based on trial and error. They did not have a plan that would help them carry out repairs or replace damaged equipment. The business had no plan or strategy in place that could help them recover from the hurricane. This derailed their reopening after the disaster because they had to wait on the government to help in responding. According to Adiguzel (2020), lack of disaster recovery plans makes businesses reactionary to disasters, which leads to blunders. In contrast, Organization 2 Participant 2 (O2P2) said that they had a disaster recovery plan that detailed the way they would respond and ensure they repair any damage caused after a disaster. However, during Hurricane Maria, they did not utilize their disaster recovery plan. This made them more or less the same as businesses that did not have a plan in place. Lack of sufficient resources to help in the recovery efforts forced them to depend on trial and error. The business did not have sufficient workers with the right skills to steer the recovery efforts. O3P3's business had a disaster recovery plan that they used during the hurricane; however, they did not adhere to the plan in full because of challenges in resources. They had to do some repairs and leave others to become operational as soon as possible. The table below shows the coded frequency for Theme 1, as well as the following themes.

Table 2
Thematic Analysis

Theme	Code Frequency	Word Frequency	Participant Frequency
1	24 (Disaster Recovery)	27	3
2	20 (Disaster Preparedness)	30	4

| 3 | 18 (Recovery and Financial Preparedness) | 26 | 5 |
| 4 | 21 (Experience and Government Aid) | 27 | 4 |

From the table, it was evident that business owners that disaster recovery plans did not take long to resume operations after hurricane Maria. Those who did not follow the plan were delayed in reopening and needed to first receive governmental funds. Those who had, and adhered to, disaster recovery plan were able to perform repairs promptly without delays. This is because they had funds that would enable them to carry out the repairs. The plans also prioritized activities to undertake after the hurricane, which avoided allocating resources to the wrong activities and leaving out the essential ones. O2P2 described the way a disaster plan was essential for them even though they did not implement it fully. They knew the activities to undertake and the necessary measures to take. Cutter and Derakhshan (2019) stated that recovery plans coordinated the efforts of businesses to pick up the ruins after the disaster. This was evident from the explanation O1P1 gave about the confusion they encountered due to a lack of a disaster recovery plan.

Theme 2: Beliefs and Disaster Preparedness

Organization 5 Participant 5 (O5P5) held the belief that natural disasters are beyond human control and that it was futile for human beings to prepare to avert or control natural disasters. This explained the reason why their business did not have a disaster preparedness plan. Setyawan et al. (2017) argue that beliefs affect the way businesses prepare to respond to disasters. It was evident from the conversation with O5P5 that their beliefs on natural disasters derailed and delayed their preparedness for hurricane Maria. O4P4's beliefs on natural disasters were different because businesses

should take measures to minimize risks. According to O4P4, the issue is not stopping the hurricane from happening, but ensuring that its negative effects are minimized. This belief made the business have disaster preparedness plans in place. They had prepared steps to rack up and reinforce windows.

Simply, the businesses that had disaster preparedness plans were able to deal with evacuation and safety operations. O3P3 had positive beliefs and attitudes towards natural disasters. To them, no human cannot stop them from occurring, but this does not negate the need to prepare for them. This is the reason why the business had insurance to cover things, and they had prepared by racking up windows and reinforcing the walls.

The results collected from participants O5P5, O4P4, and O3P3 align with the literature review, which showed that the beliefs of business owners and their attitudes influence their response or preparedness for a disaster. This is the reason why O5P5 did not have any measures in place to deal with disaster preparedness. They believed that natural disasters were beyond human control. On the other hand, O4P4 and O3P3 held different beliefs regarding natural disasters. According to them, business owners should prepare for disasters because, despite the inability to stop them, they could minimize the effects and even ensure quick recovery and reopening of their businesses. Cutter and Derakhshan (2019) state that disaster preparedness makes businesses resilient to natural disasters and avoids closure. Therefore, it is important to embrace disaster preparedness despite personal beliefs or attitudes towards natural catastrophes.

Theme 3: Recovery and Financial Preparedness

The businesses incurred different levels of loss during Hurricane Maria. O5P5 incurred the highest losses due to poor preparedness. The business did not have any disaster preparedness plans in place and incurred a loss of around $15,000 after the disaster. This made its reopening difficult because raising that amount of capital for repairs was difficult. O1P1 suffered losses of around $5,000 with a proper disaster preparedness plan. In addition, the business had a financial plan that enabled it to promptly resume operations promptly. The company had insurance coverage of a total sum of $12,000, which cushioned it from any financial shocks that could result from the disaster. The financial plan also ensured continuity of the business because owners did not struggle to raise funds, and they could do repairs and resume operations without complications. Kousky (2019) argues that natural disaster insurance recovery is crucial because it ensures continuity of businesses by reducing financial burden.

O3P3 also suffered unmitigated losses, and the owners did not have a recovery plan. They had their eyes set on the government for financial help to reopen their business, which is why it took them months before resuming operations. The owners confessed that they even contemplated about closure because it was difficult to raise the required funds to repair and begin operations.

O5P5 described the enormous losses they incurred including destruction of the building. The hurricane destroyed their walls and floors, and they also lost their inventory, which increased the amount needed to resume operations. The business did not have any plans for disaster preparedness, which increased the losses. On the other hand,

O1P1 suffered minimal losses because they had prepared for the disaster. They racked windows and reinforced walls, which reduced the impact of the hurricane on the infrastructure. This is why it is important for businesses to have recovery and financial plans in place to deal with natural disasters to ensure continuity. Gougelet (2006) states that mitigation of disasters minimizes losses making it easy for businesses to recover and continue with operations. Therefore, it is best to not rely on government aid, which could delay recovery from natural disasters.

Theme 4: Experience and Government Aid

O1P1 reflected on important takeaways from Hurricane Maria, noting how the event forced them to learn about financial preparedness. This is the most important aspect of disasters, as failure to have a financial plan in place could lead to closure. In addition, the business owner noted that their response to the disaster was different because of experience. New business owners found it difficult to come to terms with the losses. On the other hand, businesses that had gone through previous disasters were quick to reopen because they knew the way to respond. O5P5 stated that their undoing was an overreliance on government aid for recovery. The help came, but it was too late because the individuals they relied on had to work for others. This made their recovery efforts slow and painful. O5P5 also discussed the importance of risk management in recovery. According to Duong (2009), disaster and risk management help businesses to recover and become operational quickly. O3P3 noted that Hurricane Maria was a lesson learned the hard way for them because of the realization that insurance coverage is essential for recovery from natural disasters.

O1P1 had been in business for over two decades. They had experienced a natural disaster once before, and they knew the measures to take to resume operations. This made their response quick and effective. On the other hand, O5P5 was a newer business owner, and they did not know what to do when a natural disaster happened. Ultimately, they relied on the government for help. This explains the reason why it took long for them to start operations after the disaster. O3P3 and O4P4 also noted that they learned it was critical to have insurance and not to over-rely on the government for help. Collier and Babich (2019) discuss financing recovery after natural disasters, which shows the importance of not relying on government aid as the primary recovery plan. Therefore, businesses should have financial plans to help them recover and ensure continuity.

Summary of the Findings

The overreaching research question for this study is as follows: What strategies do small business owners in low-income communities in the U.S. Virgin Islands, Saint Croix use to prepare for and recover from disasters, such as Hurricane Maria in 2017, and avoid permanent closure? The participants were identified using the following codes: O1P1, O2P2, O3P3, O4P4, O5P5, and O6P6. I conducted semistructured interviews using open-ended questions to collect data from participants with video conferencing and recording of each interview when the participants granted permission. I uploaded the recorded data into a qualitative software called NVivo to observe the aspects of Ajzen's (1985) and Rogers' (1975) frameworks applied to my study.

Participant O1P1 stated that they did not have an overall strategy to deal with the disaster. Rather, they did everything as it happened and took measures instantaneously

without following any plan. The measures they took included racking up the windows to strengthen them and increase their safety (Adiguzel, 2020). In addition, O1P1 said that they did not have any financial strategies or plans in place. The businesses thought that the government would help with financial recovery. The way the states handled Hurricane Hugo of 1989 informed their behavior. O1P1 also lacked a long-term plan, and their short-term strategy was reactionary.

Participant O2P2 stated that they had a strategic plan in place to ensure business continuity; however, their staff were reactionary and did not rely on the plan. A business with a disaster plan may fail to implement it during an actual disaster due to a lack of training, poor communication, or the chaos and unpredictability of the event itself, leading to a breakdown in execution. O2P2 explained that they were forced to remain open and rely on their revenue to keep the business afloat. However, they had insufficient insurance that did not help as much as needed to ensure the continuity of the business. The information from the participants confirms that their business was reactionary and had not prepared adequately to handle the negative effects of the hurricane.

Information gathered from the other participants including O3P3, O4P4, O5P5, and O6P6 revealed that small businesses lack proper preparedness to handle natural disasters. Participant O3P3 disclosed that they did not have any specific strategy in place. They had not even made plans to ensure they had electricity in case the hurricane hit their business. The business had to wait for days until the relevant authorities restored power in their area. In addition, the participants said that they did not have a disaster preparedness plan because they are a new business that is barely a year old. This shows

the level of ignorance people have when it comes to risk aversion measures (Albattat & Mat Som, 2019). The other participants also show a lack of disaster preparedness for small businesses. Even the ones with disaster management plans lack professionals to implement their plans. This is the reason why small businesses relied on emergency plans or reactionary steps to deal with Hurricane Maria. The attitudes and beliefs of business owners also influenced the way they reacted to the disaster. Those who believed that they had no control over natural disasters did not take proactive action toward disaster preparedness.

The findings are in accord with the literature on good business practices and conceptual frameworks. According to Albattat and Mat Som (2019) small businesses struggle when it comes to disaster preparedness and emergency planning (Cutter & Derakhshan, 2019). This is because they lack the necessary resources to implement plans. This was evident from the findings as many small business owners said that they had a disaster plan, but they did not utilize it. They lacked the personnel to help them implement the disaster plan. In addition, some of the businesses did not have any disaster strategy in place. This conforms to the literature, which shows many small businesses permanently close after natural disasters because of a lack of financial strategies (Albattat & Mat Som, 2019). The businesses lack financial plans that could help them ensure continuity after the destruction of their property and losses incurred during the hurricane. The findings also relate to the conceptual framework of attitudes, beliefs, and norms in influencing disaster preparedness. They both show that beliefs were important in determining the way business owners handled the hurricane. Those who believed that

they had no power over natural disasters did not have long-term plans in place to ensure continuity of their businesses.

Applications to Professional Practice

The research findings are relevant to improved business practices in various ways. They are relevant to improved business practices because they would enable them to plan for continuity. Disasters are inevitable and businesses should prepare for them. The findings show the way businesses close after natural disasters such as hurricanes occur (Bronfman et al., 2019). This is important to business owners because it shows them that their businesses are vulnerable, and they should plan accordingly for their continuity. Therefore, the findings could help businesses in developing continuity plans that ensure they survive beyond the onset of a natural calamity. The fact that 40% of businesses permanently close after a natural catastrophe supports the need to have continuity strategies in place. This would improve business practices that plan for the life of a business, a disaster, and the life of its owner.

In addition, the findings would help enhance good business practices by ensuring small business owners have disaster plans. It was evident that small businesses lacked disaster plans. In case a catastrophe occurs, they do not know the best way to respond (Fernando, 2017). Most of them rely on trial-and-error responses that are not anchored on any disaster response plan. The participants confirmed that their response to Hurricane Maria was reactionary (Ferrell et al., 2019). Even those that had disaster plans did not follow them. This led to mistakes when responding to the hurricane. For instance, one participant stated that they did not even have electricity and they had to wait for the state to restore power. With a proper disaster plan, businesses can respond in the right way and minimize losses.

The findings also could improve good business practices by revealing the need to have a team in place to help with disaster responses. Some of the participants stated that they had disaster plans, but they did not use them because of a lack of personnel. The small businesses did not have people to help them in implementing their disaster plans. This was a problem because they could not handle the technical issues of disaster management, as noted by Bronfman et al. (2019). The lack of personnel to execute the plan or implement the disaster plan derailed their response. The businesses had to rely on the state and federal agencies for technical information and direction. Training and development of employees to empower them with the right skills in disaster preparedness is needed. Therefore, the findings would enhance good business practices and ensure small businesses train their workforce appropriately in handling disasters.

Moreover, the findings improve business practices by showing the way culture, norms, and beliefs influence the response businesses have when disasters strike. According to the participants, they were hesitant to prepare for Hurricane Maria because they believed that natural disasters were beyond their control. Therefore, they did not have the incentive to take proactive measures to help respond to the hurricane. Organizational culture also influences the way businesses respond to problems (Botzen et al., 2019). In some organizations, they have a culture that allows all people to work proactively to solve a problem, whereas others leave the responsibility of dealing with issues to the top management team. The findings improve business practices because they show that it is important for all people to pull in the same direction and collaborate to

avert losses and respond to natural disasters. Leaving the work to top management causes delays and makes it difficult for businesses to respond appropriately.

The findings also inform good business practices because they show the importance of having a financial strategy in place. From the interviews, it was evident that many businesses do not have sufficient financial strategies in place to respond to natural disasters. The interviews and review of documents revealed that only one business from those that participated had appropriate insurance coverage, as recommended by Botzen et al. (2019). The others did not have sufficient insurance coverage that could help them recover from the losses. As a result, the businesses were at the mercy of state intervention and federal aid to help them recover, which exposed them to the risk of closure. Financial risk management is crucial for the continuity of businesses. Through investing in financial risk management and insurance the number of businesses that permanently close after disasters could be drastically reduced. Therefore, the findings inform good business practices that enhance financial security and financial planning.

Implications for Social Change

The implications for positive social change include the potential for small business owners to address the threats associated with natural disasters proactively, retain employment, and maintain a positive economic effect on their community and society. An increase in the frequency and intensity of hurricanes is an indication of climate change, as rising global temperatures can lead to warmer ocean waters, providing more energy for storm formation and making conditions more conducive to the development of

hurricanes. Hurricane Maria is considered an indication of climate change due to the factors that amplified its impact, including warmer sea surface temperatures, which provided more energy for the storm, and changing atmospheric conditions that contributed to its slow, destructive path, reflecting trends consistent with climate change models and raising concerns about the intensification and behavior of future hurricanes in a warming world. Dealing with climate change can have a positive impact on society by reducing natural disasters and promoting clean energy and sustainable practices, which can improve air and water quality, reduce health risks, and, ultimately enhance public health and well-being.

Recommendations for Action

The first recommendation for action is for small businesses to develop a financial strategy to deal with losses related to natural disasters. However, to have a financial plan in place they should take some steps. One step to take is to conduct a financial analysis of the business. This would help understand cash flow of the business and the percentage of loss it could support from revenue generation to cater for the loss (Cutter & Derakhshan, 2019). The next step should include calculating the amount of risk they should insure or plan to take in case a disaster strikes. The next would involve deciding on a financial plan to take and ensure the business's solvency. Having a financial plan to cover losses is important because it ensures continuity. It protects them against loss and closure when natural disasters occur.

The next recommendation is for businesses to have disaster plan implementation teams. The findings showed that some small businesses that do have disaster plans do not

necessarily use them appropriately due to a lack of technical teams that could help in implementation. Therefore, the businesses had to rely on trial and error rather than a clear plan to solve the problems. Moreover, some had to wait for help from state and federal agencies responding to Hurricane Maria. The steps to take to ensure they employ workers conversant with disaster management. Businesses should have a department to deal with risk management and disasters. The next step could include training and development of workers. Organizations should ensure they train their employees in disaster management. Workers should be conversant with the steps they should take to minimize losses and protect business when a disaster occurs.

<div align="center">**Recommendations for Further Research**</div>

Further research is necessary to understand the way beliefs, norms, values, culture, and attitudes influence disaster management. Business owners responded differently to Hurricane Maria. From the findings, it was evident that businesses that believed that they had no control over natural disasters did not have any plans in place for dealing with the hurricane. Others held that natural disasters are a sign of bad luck or bad omen hence they could not prepare for them since they had no way to influence the results. It was different for those who had positive attitudes and beliefs about natural disasters (Kousky, 2019). In addition, further research is necessary to help in providing solutions for ways businesses could ensure continuity through financial plans to cover for risks (Gougelet, 2006). It is a tragedy to note that over 40% of businesses close after a disaster. This is because lack financial strategies that could have helped them recover from the losses. The overreliance on government aid to recover after a natural calamity

such as Hurricane Maria is worrying, and further research is necessary to show businesses they should have a financial plan.

Reflections

My experience with the DBA Doctoral Study process has been interesting and educative. I learned the way personal biases and pre-conceived ideas influenced my research. Starting the research process and from my experience, I knew that most businesses lack effective disaster management plans. This caught me when designing the interview questions; however, I had to ensure that I did not let my personal biases influence the quality of my research. I had to overcome them by remaining objective and embracing an unbiased research position. In addition, I learned that personal biases could influence the participants. I avoided leading questions in my study. I was objective with the participants and discussed with them the nature of the study I was doing and the importance of the research. Completing the study changed my thinking when it comes to disaster and risk management in organizations. Businesses may lack appropriate disaster management plans due to factors such as cost constraints, insufficient awareness of potential risks, or a belief that disasters are unlikely to affect them, resulting in inadequate preparedness.

Conclusion

Businesses should ensure they have disaster management plans. The plan should have financial strategies that they would adopt to ensure continuity. Closures are common after natural disasters, which shows the need to have a disaster plan that would inform response and ensure that it restores the business to its financial position. The

findings show that businesses do not prepare for disasters and respond poorly. It is important to have sound financial strategies that would enable businesses to continue with operations. Taking insurance and other financial measures could protect organizations and ensure continuity. It is also important to empower employees and equip them with the appropriate skills to help respond to natural calamities.

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Appendix A: Interview Protocol

A copy of signed consent received from participants will indicate an understanding of the willingness to participate and that no monetary compensation will be made as participation will be entirely voluntary. The steps below refer to the interview protocol I will use.

1. The interview session will begin with an introduction and appreciation of participants' willingness to take part in the research.

2. I will ask for permission to have the interview recorded with an audio recording device.

3. If the participants accept the use of audio recording, proceed to protocol 4.

4. An audio recording of the interview will begin.

5. I will request participants to reread the consent form and give an affirmative reply on agreeing to participate in the study.

6. I will welcome every participant with remarks: "Hello, my name is AAA and a doctoral student at Walden University. I welcome and thank you for being a participant in this study."

7. The interview duration will be communicated to the participants: "*This interview will take 30-45 minutes*."

8. If a participant is unwilling to have the interview recorded, give the remarks: "I respect your decision on audio recording; therefore, I will need to take notes which may require additional time. Are you still willing to participate?"

9. I will assure participants of confidentiality for their responses in the study using the remarks: "All responses in this study will be confidential with anonymity observed after the interview and during the publication of the doctoral study.

10. I will check whether participants had received a copy of the consent form through an email: "*Did you receive the consent document?*" I will then explain what the document entailed: "*The document includes Walden Institutional Review Board (IRB) number for this study and an email address for the Chair of my Doctoral Study Committee of which you can use if you have an additional question.*"

11. I will communicate the purpose of the study to the participants. "The purpose of this study is to explore strategies used by small business owners in low-income communities in the U.S. Virgin Islands, Saint Croix to recover from Hurricane Maria."

12. I will confirm whether participants are willing to continue.

13. "The study will use open-ended questions. You are free to ask for more clarifications."

14. Option to withdraw will be provided. "(Participant's Name) Participation in this study is voluntary, and you may decline to give an answer to a question that makes you feel not befitting to you. You are also free to withdraw from this study with the withdrawal having no reprisal to your professional standing.

14. I will inform the participants that the collected data will be available after the interview.

15. I will ask the following interview questions.

- What were your overall strategies for disaster preparedness and recovery prior to Hurricane Maria?

- What, if any, financial strategy did you have in place to recover from a disaster?

- When you learned the hurricane was coming, what immediate steps did you take to prepare?

- How did your short-term preparation strategies, once you knew the hurricane was coming, differ from your long-term strategies for general disaster preparedness?

- How were your preparation strategies for a natural disaster informed by your norms, beliefs, and attitude?

- What strategies were least helpful in recovering from the hurricane?

- What strategies were most helpful in recovering from the hurricane?

- What else can you add to explain the strategies you used as a small business owner in a low-income area in the U.S. Virgin Islands, Saint Croix to prepare for, and recover from, Hurricane Maria?

16. I will thank the participants for participating in the study.