



**Resilience in disasters: a case study of an informal settlement in the
Western Cape province of South Africa.**

A Dissertation Presented to
The Faculty of Engineering, University of Cape Town

In partial fulfilment of the requirements for the
Master of Philosophy in Engineering
(Specialising in Engineering Management)

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2019

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Abstract

In South Africa, disasters are a crucial impediment to successful sustainable development in communities. Many communities have insufficient capacity to forecast, check, handle and reduce disaster risk. These communities face a growing range of challenges including economic hardship, technological and social impediments, urbanisation, under-development, wildfire, climate change, flooding, drought, geological hazards and the impact of epidemics such as HIV/AIDS and COVID-19, sometimes termed ‘the burden of disease’.

The Western Cape of South Africa is a dynamic province that is disaster-prone, particularly the vulnerable urban communities in and around its environs. Such communities are more vulnerable to wildfire, flooding, drought and other natural and human-made disasters because of poverty and, consequently, poor living conditions such as overcrowding. The inability of these communities to withstand adversities affects the sustainability of initiatives to develop them.

This study aims to understand the mechanisms influencing the resilience level of the communities faced with disaster risk, which is defined as the likelihood of a disaster having a negative impact on community resilience. Therefore, the primary research question raised in this study is: ‘*What are the underlying mechanisms influencing the resilience of communities faced with disaster risk?*’ In this study, disaster risk is viewed as a complex adaptive system. This view challenges simple cause and effect assumptions and recognises that components in a system are connected and interact in ways that cannot be predicted.

Fieldwork was conducted in an informal settlement in the Western Cape. The main sources of data were observation notes, document analysis and interviews. The research study was conducted in four cycles of data collection and analysis. Grounded theory principles and system dynamics modelling were used to analyse data. The nine emergent themes or mechanisms were described as variables influencing the resilience level of the community faced with disaster risk.

The answer to the primary research question is described as a theoretical model of community resilience based on a community vulnerable to disaster risk. The theoretical model consists of four reinforcing feedback loops that explains how the development of community resilience in the informal settlement maps on to the relative achievement systems archetype (success of the

successful causal loop diagram). Negative reinforcing behaviour explains the lack of community resilience, while positive reinforcing behaviour would indicate the development of community resilience.

While this study has identified that the role of individual resilience is important to developing community resilience in the context of disaster risk (that is, individual resilience has the potential for improving management of the identified community mechanisms), it also provides the explanation for how this development happens and what mechanisms are needed for it to take place.

Acknowledgements

I owe a huge debt of gratitude to God almighty for the grace, favour and empowerment He granted me to carry out this research work. All glory be to Him alone. Thank you, Jesus.

To my supervisors, Dr. Corrinne Shaw and Professor (Emeritus) Tom Ryan who inspired, encouraged, guided and led me all through this journey, even when I thought I would not be able to carry out this study. Thank you so much.

To my pastor and life coach, Dr. Chris Oyakhilome and Pastor Karen Victor, for all your prayers and support. Thank you so much.

A special thanks to my parents and siblings for always supporting me and encouraging me to keep going, even when I almost gave up. Thank you so much.

A very special gratitude to my pillar and Tata, Nnakenyi Chinenye Assumpta, for always being there for me, supporting me and giving me so much encouragement and pats on the back to keep me going. Thank you so much.

This research study was also made possible by those who took their time to participate in the processes, like the community members, the Disaster Management Centre, the South African Police Service (Accident Response Team / Disaster Risk Management) and many others. Thank you very much.

To my families, friends and colleagues who contributed intellectually and morally, supporting and encouraging me. Thank you so much.

To those that I might have offended by omitting your names, I am saying a great and resounding thank you. God bless you.

Finally, to the **UCT Knowledge Co-op** who facilitated this collaboration project between Habitat for Humanity SA and the University of Cape Town. You made this happen. Thank you so much.

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Table of Acronyms

Acronym	Acronym Name
SA	South Africa
WCG	Western Cape Government
WCDMC	Western Cape Disaster Management Centre
AHAC	Annual Hazard Awareness Campaign
CLD	Causal Loop Diagram
CR	Community Resilience
DRR	Disaster Risks Reduction
SR	Systemic Resilience
IR	Individual Resilience
PE	Positive Emotions
RUVE	Relevance, Utility, Validity and Ethics
GT	Grounded Theory
HFHSA	Habitat for Humanity South Africa
LMIC	Low Middle Income Countries
DMFRS	Disaster Management Fire Rescue Services
KPA	Key Performance Areas
ETC	Et cetera
I.E	That is

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Chapter 1 : Introduction and Overview

1.1 Introduction

This chapter discusses the background of the present study for a contextual relevance to the topic and to recognise the directions that might lead to the exploratory theory. A brief discussion on the grounded theory methodology and systems thinking approach is included to direct the research design.

1.2 The research problem and background to the research study

Several reports have declared Cape Town as the most disaster-prone city in South Africa, with the highest rate of disaster-related deaths, which mostly happen in informal settlements (Walls et al. 2017). Globally, the leading cause of death is a type of disaster called fire disaster and this accounts for 96% of all fatalities or burn deaths, totalling 300 000 deaths per year in low-to-middle-income countries (LMIC) (Mock et al. 2009). These type of death is the fourth most significant injury caused by accident globally (Twigg et al. 2017).

The definition of informal settlement in South Africa, according to the SABC (2012), means unexpected settlement on land that is yet to undergo surveys or a residential area which consists of shacks. These types of settlement are vulnerable to disaster problems and, by their very nature, promote and increase poverty.

In 2010, more than 200 million people were affected by natural disasters (such as earthquakes, and tsunamis) which led to the death of 270 000 people; caused damages of \$110 billion and prolonged famine in the horn of Africa (Department for International Development, 2011). In the coming decades, these natural disasters could increase in frequency and intensity as a result of climate change, urban migration, growth in population and scarcity of natural resources (Department for International Development, 2011).

As indicated in the abstract section of this dissertation, disaster risk in the Western Cape is a complex adaptive system. This study is focused on understanding the mechanisms influencing the level of resilience of communities vulnerable to disaster risks, as well as how to strengthen, improve the various disaster management mechanisms to benefit communities.

Resilience, according to (Cutter et al. 2008), is the capacity of a social system to recover from disasters and has characterised states that enable the system to absorb shocks and cope with post-disaster events, as well as adaptive procedures that promote the capacity of the social system to withstand threats. Similarly, in this study, resilience is defined as a positive turnaround, outcome or adaptation of a competent individual or community exposed to risk, difficulties, significant challenges or adversities.

The benefit of understanding the mechanisms influencing the level of resilience found in communities faced with disaster risks include possible cost savings of disaster recovery or emergency relief, as well as improvements in community resilience, disaster response and reduction of disaster risk. Studies have shown that tackling vulnerability using resilience development is cheaper than emergency relief (Venton et al. 2012). The idea of understanding and developing resilience is often accompanied by hidden complexities, contradictions and vagueness (Kaplan, 2003). This is because different levels of resilience must be considered when trying to understand and develop the concept of resilience in communities.

From observations made during this study at the informal settlement, resilience and disaster risk reduction are seldom the same thing, because when an individual is unable to cope with shocks or diversities, the individual is deemed incapable, however, an individual living in the formal sector can still lack resilience without being exposed to disaster risk or being vulnerable to disaster (Kaplan, 2003).

Between 2009 and 2012, 5 000 disasters were reported in South Africa, with 1200 to 1300 cases reported in the Western Cape (Fire Protection Association of South Africa, 2017). This has attracted more attention because of the impact it has on the economy and individuals living in informal settlements. These disasters affect the communities and destroy their shacks, render them homeless, cause more crime and increase poverty. [Figure 1. 1](#) below shows the residential losses that have occurred between 2005 and 2012.

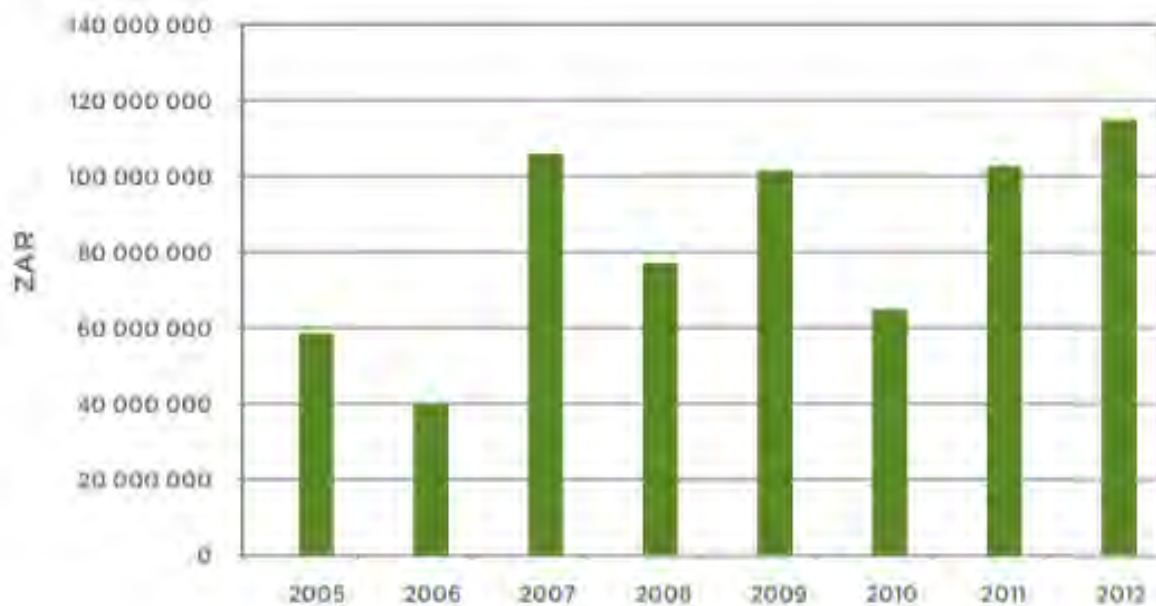


Figure 1. 1: National compared residential losses due to disasters 2005-2012. Source: National Statistics from (Fire Protection Association of South Africa, 2017) and (Western Cape Strategic Framework for Fire and Burn Injury Prevention, 2015, p.7).

To address the complex problems relating to the challenges of disaster risk and low community resilience in the Western Cape, a system dynamics approach was used in conjunction with appropriate modelling techniques. This will promote understanding of the variables in a community and how they interact in response to disasters. System dynamics modelling has been employed for development planning and support-related decision making. Brent et al (2017) noted that this is achieved by simplifying reality in such a way that it can be employed to provide exploratory decision support.

1.3 Introducing the concern variable

Disasters like floods, wildfires and crimes put many South Africans in difficult situations, as they are unable to recover from shocks and adversities. In disaster events, lives can be lost, and the poorest people often lose everything they own. The Western Cape Government has recognised the increase in disaster risk, which has led to disaster-related economic losses, poverty and deaths in the province (Western Cape Strategic Framework for Fire and Burn Injury Prevention, 2015). The solutions to this problem have been of serious interest to the Western Cape Government for many years. With this backdrop, this research study seeks to

carry out a system dynamics approach on community resilience in order to understand what is influencing behaviour over time in vulnerable communities.

In order to combat the issues of informal settlement disasters, mitigate against disaster risks in developing cities, reduce damages due to disasters, reduce inequality and offer the best chances of overcoming the substantial barriers to sustainability, now and for future generations (Mensah et al. 2018); community resilience is proposed in this dissertation to be an answer to the question of how vulnerable communities could attempt to reduce disaster risk and improve disaster response to attain thriving, sustainable community development in a local context. This, as stated in *section 1.2*, is premised on the assumption that tackling vulnerability by developing resilience is more cost-effective than emergency relief (Venton et al. 2012).

The research also seeks to understand the gap between the level of disaster risk and the level of community resilience. The concern variable for this research study is the **'development of community resilience'** in the Western Cape, South African context, and this may also be called the **'development of systemic resilience'** in this research study. Therefore, anywhere **'systemic resilience'** is mentioned in this study equally suggests **'community resilience'**. The meaning of systemic resilience is explained below on page 5, and Figure 1.2 below illustrates the concern variable.

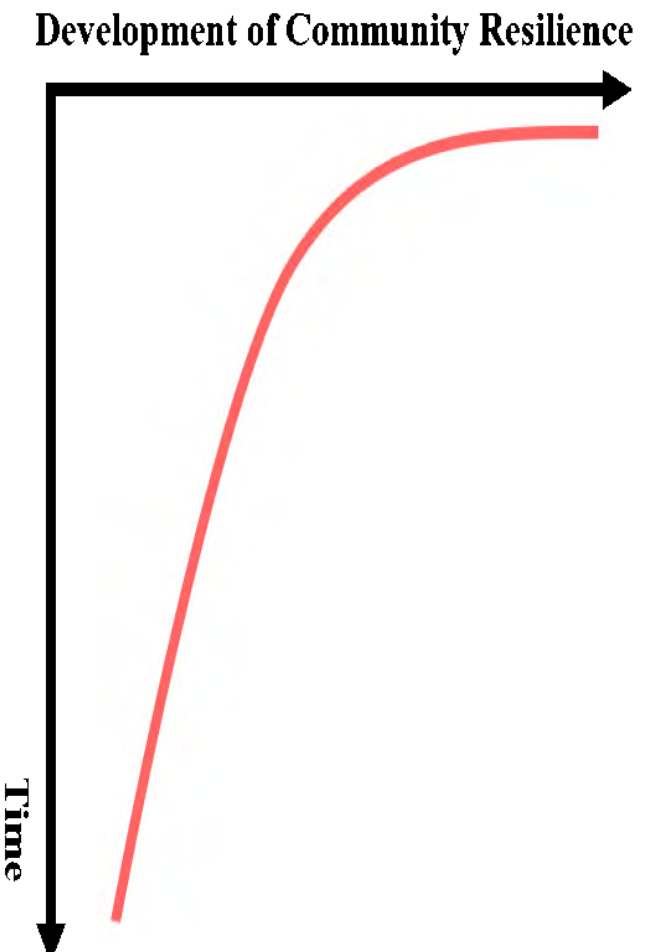


Figure 1. 2: Graphical explanation of the concern variable.

The concern variable shows what the research is going to change after the research is complete. It shows the pattern level in the research. As stated on page 4, the primary focus of the research is centred on the ‘development of systemic resilience’ or ‘development of community resilience’ to enable the researcher to gain more knowledge about the study. This will be explained further below. Figure 1.2 above shows how the concern variable, ‘development of community resilience’ in the Western Cape, changes and moves over time.

The concern variable shows that there is low or decreasing resilience in the vulnerable community and that they have difficulties in recovering from disaster risk because of this. Therefore, it is essential to understand what is happening, i.e. what is causing the decrease in the level of resilience of the vulnerable community. If the concern variable (figure 1.2) is left to its pattern, and no more contribution to knowledge is brought into place, this trend might go on to deprive the selected Phola Park community of successful sustainable development.

What is systemic resilience in a community? In this study, systemic resilience may be referred to as resilience developed systemically. In other words, systemic resilience is the capacity of communities and households to cope with change by retaining or altering the quality of living in the face of disasters without compromising their long-term expectations and, in doing so, take into consideration the general systems and its parts (Willitts-King & Harvey, 2005). This is because resilience in this study is shown when a community is becoming competent or demonstrating capabilities despite exposure to extreme or persistent adversities.

Ostadtaghizadeh et al (2015, p.1) argued that, “recent years have witnessed community resilience becoming one of the most heavily supported and advocated approaches to disaster risk management in developed countries.” Community resilience is approached not by avoiding stress, but by facing stress at a time in a way that allows self-confidence and social competence to increase through mastery and appropriate responsibilities (Rutter, 1985: p. 608).

Why is systemic resilience important in the communities? The value of systemic resilience is that it could bring a systemic answer to the question of how communities could attempt to reduce disaster risk and improve disaster response to attain thriving, sustainable community development. This is because resilience has become the cornerstone of hazard preparedness (readiness), recovery, disaster risk reduction and disaster response in developed countries (Ostadtaghizadeh et al. 2015).

Developing systemic resilience for communities could reduce the impact of disasters and the devastating effects thereof. For example, Bangladesh as a country is considered more resilient because of its better disaster risk management strategies and the development of disaster-resilient infrastructure provided by the government. This has resulted in reduced consequences from disasters in that country (Barker et al. 2014). Systemic resilience can save money as well as lives. For example, in Malawi, resilience-building work contributed towards a reduction in the consequences of disasters, including the impact they have on the country's economy (Barker et al. 2014). Therefore, this concept implies that any community whose resilience capacity is low may have difficulty in managing the consequences of disasters (Bergstrand et al. 2015). In summary, it is essential to build systemic resilience among communities in the Western Cape province of South Africa.

The community resilience concept will attempt to reduce the cost of rebuilding the communities (shelter focus), and it could help to understand recovery, response and preparedness better. These could be done by understanding the mechanisms influencing the level of development of resilience in the communities and improving such mechanisms. Therefore, the logic of the community resilience concept is that increasing the level of resilience is better and cheaper than emergency relief, although it has been argued that it is difficult to identify the exact cost of resilience, but the cost of resilience needs to match its benefits (Venton et al. 2012).

1.4 Introduction to systems thinking approach

System dynamics, a particular systems thinking approach, was used in this study to achieve the desired purpose of the study. "A systems approach represents a broad view, taking all aspects into account and concentrating on interactions between different parts of the problem" (Checkland 1981, p.5). A system in this study is not a physical, objective entity, such as a nuclear power station would be considered a system, the understanding of a system is as a conceptual idea for viewing a problem situation based on Checkland's views. Systems thinking was also described by Checkland (1979, p.135) "as a method for notating the real world in a manner which may not or may plot onto reality; thus, it is a notation which is a choice of the viewer and a contribution to epistemology prior to the contribution of the ontology."

Within the range of methodological approaches for systems inquiry, system dynamics modelling is a technique that provides insight into the behaviour of complex systems and as noted by Wolstenholme (1985) encompasses the feedback or adaptive effects of such systems. System dynamics, according to Brent et al. (2018), is seen as a process that aims for the consideration of most of the possible impactful elements in a system which initiates their connections mainly through modelling. The philosophical assumptions chosen for this study and its system dynamics approach are discussed further in chapter two of this dissertation.

1.5 Brief introduction of grounded theory and research design

A grounded theory methodology was applied in this research. Grounded theory permits change through its process. This is important because the research can change at any time, considering the research questions and topic. Similarly, documentary research, the investigation of the documents that provide detail about the phenomenon involved in the study, was also employed and linked to the grounded theory methodology.

Barney Glaser and Anselm Strauss are credited with initiating and developing the grounded theory methodology (Glaser et al. 2010). Ponterotto also explained that grounded theory has been known as one of the most critical and well regarded qualitative research methods (Ponterotto, 2005). Grounded theory is also a research methodology that focuses on how individuals create their realities using social interactions (Torabi & Zeinaloo, 2006). The research methodology as applied in this study is discussed in more detail in chapter two.

1.5.1 The research designs

The research design for this study is based on the qualitative research approach described by Maxwell (2008). This was chosen because it offers opportunities to investigate the research problem in its natural context. Qualitative research does not emphasise the traditional statistical type of analysis or pre-constructed hypothesis, but focuses more on the analysis of intentions, beliefs and the words that will transfer qualitative thoughts and feelings (Steve, 2004).

Qualitative research is also chosen as it is appropriate for the study of social systems that considers the perceptions of the people participating in and are affected by the system. It is also one of the research approaches that has the potential to provide benefits not only for the researcher but for the community and all those involved in the research study (Steve, 2004).

This research design is further discussed in detail in chapter two. The figure below will give an illustration of the research design for this study.

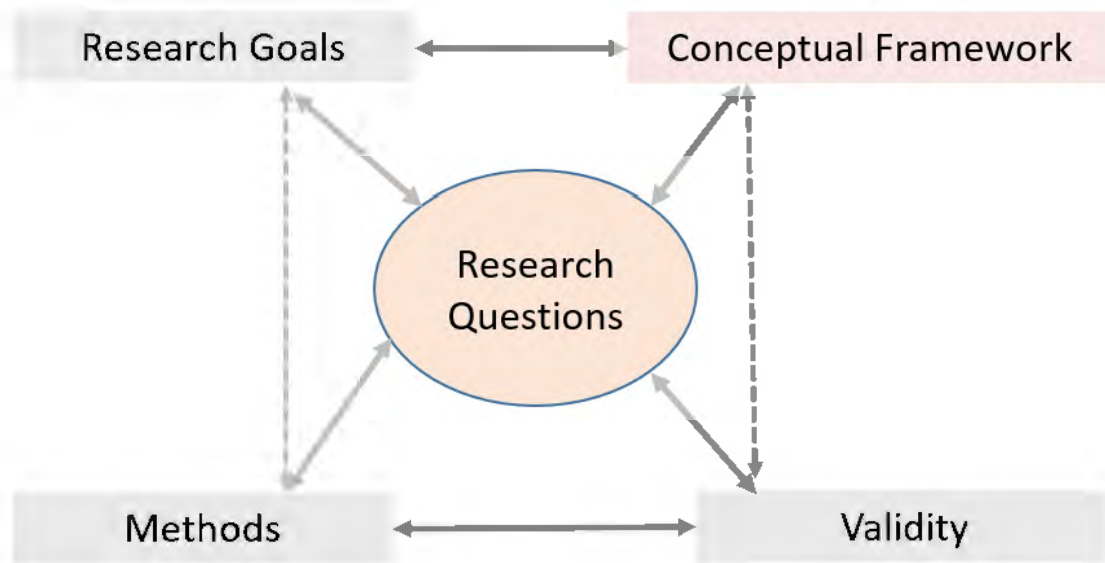


Figure 1. 3: An “interactive model of research design”, Source: Maxwell (2008, p.7).

1.6 Background of the researcher

It is realised in grounded theory that the researcher is never fully rational and without bias and there are likely to be subjective judgements on the research process (Hyland, 2001). This is where the researcher asks the question of how his background and experience relate to the research study? To answer that question, the researcher commented that it was around 2012 when he first became interested in disaster risk management aimed at reducing disaster occurrence and helping victims to recover from its effects. When the researcher was employed as a factory inspector, he visited communities and observed how people in disaster-prone areas survive and live. Through religious conflicts, terrorist attacks, floods and other conflicts, the researcher witnessed many lives lost and properties destroyed. As a result, the researcher was motivated to find solutions to reduce disaster risks.

During this time, there was no proper response to disasters. There was no sustainable shelter assistance and no education on how to build resilience to disaster. There was no preventive assistance for disaster-prone areas and no preparedness efforts to establish readiness for future disaster events. During this time, the researcher noticed that most essential needs like healthcare, shelter, sanitation, employment and safety and among others were not available.

These made the researcher start thinking more about this challenge and he concluded that disaster risk reduction could be attempted, and disaster response could be improved. This connects with the academic study through the researcher's direct personal experience of how communities suffer during and after a disaster and his intention to save lives and develop communities. This experience also influenced the goal of this research study.

1.7 Research goal

This describes why the research study is worth doing; what issues are to be clarified by doing the research study; the policies and practices the researcher wants it to impact; why the researcher wants to perform this research study and why the beneficiaries should care about the results. The goal is linked to what propelled the researcher to carry out the research study and what the researcher wishes to accomplish.

According to the graphical representation of the concern variable (Figure 1.2), when the level of development of community resilience in the community is low or decreasing, it could cause disaster risk (that is the likelihood of negative consequences of disaster) to rise (Clark-Ginsberg, 2013). Therefore, the purpose of the research is to investigate what is influencing the development of community resilience. This implies that the key focus of the dissertation is not on identifying disaster risk, but on the development of community resilience.

It will be essential to differentiate between the three types of goals for this study. These are the intellectual goal, the practical goal and the personal goal.

1.7.1 The intellectual goal

This goal focuses on the critical, systematic and scientific understanding of a phenomenon, including valid ideas about what is happening and why. This kind of goal was a substantial influence on the research design.

The intellectual goal is '*to understand the mechanisms influencing the level of resilience of communities vulnerable to disaster*'. This notion is illustrated diagrammatically below:



Figure 1. 4: Disaster resilience as common ground (Intellectual Goal). Source: Barker et al. (2014. p.7).

The diagram relates to the intellectual goal, which is related to the concern variable (figure 1.2) that the development of community resilience could result in state-building, disaster risk reduction, climate change adaptation, disaster response, conflict sensitivity and peace-building, which are supported and driven by humanitarianism and development. The diagram indicates that disaster resilience could create an improvement to the variables shown around it, which is related to what the research study intends to achieve at the end of the research.

1.7.2 The practical goal

A practical goal focuses on the accomplishment of something, meeting some needs, changing some situations or achieving a purpose. This significantly influenced the research design.

The practical goal is *'to improve the mechanisms influencing the level of community resilience in the vulnerable community'*.

1.7.3 The personal goal

These types of goals are those that propel the researcher towards engaging in research endeavours. They can be influenced by personal experience and passion for the subject. They can be driven by political belief in the need to change existing conditions; a zeal to know about a specific phenomenon or events; a personal interest in adopting a particular research approach;

or to advance or move the researcher into a new career area (Maxwell, 1996). These personal goals are mostly about the researcher's desires and might not be the primary focus of the research or have a significant relationship with the primary reasons for the research study.

The personal goal is *'to understand community resilience and responses to disasters in a local context in the Western Cape, given the particular challenges faced by people in informal settlements, and then develop appropriate expertise for researching such problems and contexts.'*

The research goal is essential because it helps guide the design decision, ensures that the research study is worth doing and that the researcher gets significant results. It is also essential because it is the key to justifying the research study, which plays a significant role in the research. When there is no clear understanding of the purpose behind the research work, there is a possibility of the researcher losing directions and wasting a lot of time and effort on things that will not add value to the goals when performing the research (Maxwell, 1996).

In this case, the research goals are linked to the concern variable because it indicates that at the end of the research, there will be a better understanding of the development of community resilience, which in turn may lead to successful sustainable community development in a South African context.

1.8 Conceptual framework

This is a provisional theory of what is happening and why. It is the creation of what is going on with the phenomena under study. A conceptual framework is not necessarily a literature review because it can be developed by a researcher from his understanding of phenomena and draws upon different pieces of information to explain the phenomena that are being studied (Maxwell, 1996).

The conceptual framework is also what the researcher thinks influences the issues, settings or people the researcher planned to study, along with theories, beliefs and prior research findings that guide or inform the research, as well as what literature, preliminary studies and personal experiences the researcher draws on for understanding the people or issues the researcher is studying. In addition, the conceptual framework helped the researcher clarify the goals;

understand the rest of the design; build and select sensible and applicable research questions and methods; and assist with recognising potential validity threats to the conclusions (Maxwell, 1996). The conceptual framework similarly helped the author to understand the idea of disaster resilience by ascertaining the stages of resilience. The stages of resilience, according to Henry and Verma, (2009, p.2-5) are the: “original states, disruption, disrupted state, recovery, and recovery state.”

1.8.1 Building the conceptual framework

Miles and Huberman (1984) describe a conceptual framework as a concept that graphically or narratively explains the essential things to be studied: the main factors, main variables and the assumed interrelationships between them. The main ideas found in the conceptual framework link to each other and give insight into the interaction of people, places and events, which allows room for predictions based on circumstances. The information formulated on the conceptual model was done using a concept analysis process which helps to explore, define and clarify the concept (Xyrichis & Ream, 2007). The researcher assessed the phenomenon that was being studied by identifying the antecedents, attributes and consequences.

The conceptual model below shows the *antecedents* as the things the researcher had already observed about the issues, settings or people the researcher plan to study. It also shows the *attributes* of literature, preliminary studies and personal experiences that will be drawn on for understanding the people or issues the researcher is studying. Finally, it comprises the *consequences* of theories, beliefs and prior research findings that will guide or inform the research. Below is the illustration of the conceptual model:

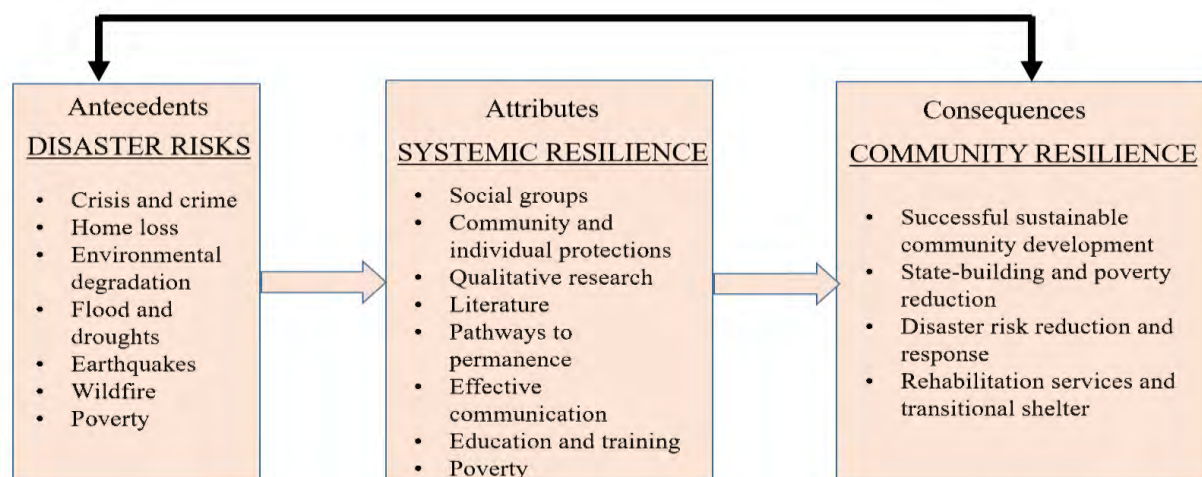


Figure 1. 5: Conceptual framework for systemic resilience

The figure above explains the factors that would be present for the systemic development or community resilience to occur and the positive expectations that will arise if systemic resilience occurs. The conceptual model does not give the directions of the research per se but provided an initial understanding of the events.

1.8.1.1 The definition

The word resilience has been defined in research studies, like Cutter et al. (2008), but, Schmolke (2005) defined resilience as a psychic resistance despite stressors, adversity and challenges. In this study, systemic resilience was defined as the capacity of communities and households to cope with change by retaining or altering the quality of living in the face of disasters, without compromising their long-term expectations and, in so doing, take into consideration the general systems and their parts (Willitts-King & Harvey, 2005).

1.8.1.2 The antecedents

The antecedents are events that must occur before the occurrence of the concept. In identifying the importance of the development of community resilience and improved disaster response in the communities, the researcher had to identify what currently influences the issues, settings and people that were studied. When the community is exposed to disaster risk and is unable to recover when affected, then the concept of assisting them reduce the impact and become safe arises. These defined antecedents, identified at the beginning of the research study, were related to disaster risk and resilience. They were used to examine the different versions of the concept.

1.8.1.3 The attributes

The attributes are the different instances of the concept that appear repeatedly, and they have the most frequent association with the concept. To determine the importance of the development of systemic resilience in improving disaster response in the communities, literature, preliminary studies and the researcher's personal experiences were part of the tools used to inform an understanding of the people and issues the researcher studied. These defined attributes, identified at the beginning of the research study, were also related to disaster risk and resilience. They were used to examine the different instances of the concept.

1.8.1.4 The consequences

The consequences are events that occur because of the existence of the concept or the results of an event that took place. In identifying the importance of the development of community resilience to improve disaster response in the communities, the researcher had to identify the theories, beliefs and prior research findings that would guide or inform the research. As stated on page 5 of this study, Ostadtaghizadeh et al. (2015), asserted that resilience has become the cornerstone of hazard preparedness (readiness), recovery, disaster risk reduction and response in developed countries. These defined consequences, identified at the beginning of the research study, were also related to disaster risk and resilience. They were used to examine the different versions of the concept.

1.9 Research question

From Maxwell's (2008) model of research design, the research question is the core of this research. It connects to the research goal, conceptual framework, research methods and research validity. Without the research question, there is no problem to solve and the research has no focus or drive.

The researcher is not aware of what is causing the decrease in the development of resilience in communities faced with disaster risk. Therefore, by doing this research, the researcher would like to understand why the level of community resilience is decreasing, according to the graphical representation of the concern variable (see Figure 1.2), or what is influencing it. The phenomenon of interest focuses on the behaviour of the concern variable. In addition, from the discussions in this introduction, these issues require further investigation so that meaningful conclusions can be drawn. Consequent to this, the following research major question and sub-question are posed:

1.9.1 Major question

'What are the underlying mechanisms influencing the resilience of communities faced with disaster risk?'

For the researcher to answer the question, the researcher will have to understand what is causing the low development of resilience or the underlying mechanisms that are influencing the resilience behaviour of the communities and how to strengthen or improve the mechanisms.

1.9.2 Sub-question

‘How can the mechanisms be improved to develop the community resilience?’

This research question helps to direct the researcher to review literature in order to understand what the impact of the concern variable is. It also helps the researcher to understand the existing problems under investigation, the types of interview questions to ask and guides the research design and objectives about improving the mechanisms.

Additionally, all the research questions are linked to the overall research goal, conceptual framework, methods and validity. Answers to the research questions will assist in realising the goal. Therefore, to answer the research questions, the research will be justified by a *theoretical model of community resilience* as exemplifying the behaviour of a system that can produce thriving, sustainable community development, this being the focus of this research.

1.10 Research relevance established

The Western Cape Disaster Management Centre (2016, p.1) has defined disaster as “a progressive or sudden, widespread or localised, natural or human-caused incident that causes or threatens to cause death, injury or disease, damage to property, infrastructure or the environment, or disruption of the life of a community.” When the life of a community is destroyed, it could affect the nation. This is the reason the Western Cape Government launched an Annual Hazard Awareness Campaign (AHAC) as a priority project to raise awareness about fire and flood safety in the Western Cape and about potential hazards (Western Cape Disaster Management Centre (WCDMC), 2016).

The Western Cape Disaster Management Centre (2016, p.1) stated that the goal of the AHAC campaign is “to address the prevalence of fire, flood, drought and water conservation, related incidents/disasters that cause injury, loss of life, damage to property and displacement of people.” The campaign, which is an annual priority project of the Western Cape Government (WCG), aims to instil the culture of disaster risk ‘resilience’ among communities. This shows how vital resilience is to a community in the Western Cape for the reduction of disaster risk.

Resilience also helps to understand recovery, response and preparedness, because when the communities are resilient enough (i.e. competent enough to withstand disaster), it might make

the job of disaster risk reduction easier for the disaster management teams. According to the observations made during this research study at the informal settlement, it is likely that if individuals in the community demonstrates resilience, they could have a better chance of being able to deal with disasters. This suggests that a resilient community should have a mechanism to adapt to and resist adverse conditions.

Furthermore, understanding a community facing disaster risk as a social or socio-technical system is important for many disciplines, including those in the built environment such as town planners and architects and in engineering disciplines (Lloyd-Jones et al. 2009). For example, civil engineers need to understand such systems in order to develop appropriate infrastructure (Lili & Zhe, 2018), and mechanical engineers have the capacity to engage such systems through interventions such as the provision of technology for sustainable energy (“Disaster Risk Reduct. Built Environ.,” 2017; Malalgoda et al. 2010). Therefore, the behaviour of a community in the face of disaster risk and response is of relevance to an interdisciplinary field such as engineering management for understanding the problems in its context in order to design appropriate interventions to address them.

Therefore, the research study is relevant because it has the potential to contribute to knowledge about sustainable community development in the Western Cape province of South Africa, improve the understanding of what is required for disaster response and, provide a perspective on why some communities are more vulnerable to disaster risk. Further discussion on the relevance of the research study will be covered in chapter six of this dissertation.

1.11 Conclusion

This chapter has shown the relevance and purpose of the research because the development of community resilience could be essential to reducing disaster risk in the Western Cape. This could help solve problems facing disaster response and assist in building sustainable community development.

This study is composed of five more chapters, and chapter 2 explains the research methodology. Chapter 3 presents the empirical results discovered in the research, and chapter 4 reviews relevant literature, while chapter 5 covers research theory. Lastly, chapter 6 outlines conclusions and the evaluation aspect of the study.

However, according to the research structure used for this dissertation, relating to grounded theory, the researcher has presented the findings of the research (chapter 3) before the literature review (chapter 4), (Glaser & Strauss, 1967; Glaser, 1992; Ramalho et al. 2015; Strauss & Corbin, 1990). This structure is different to the traditional way of presenting the literature review chapter before the research result chapter (Creswell, 2012; Gibbs, 2008). The reason for this is further explained in section 4.1 of chapter 4 in this dissertation.

The above also implies that the research result (chapter 3) requires no references in this dissertation, as it is illustrating or explaining the findings and how the findings were derived or discovered by the researcher. However, some of the references and background theory relating to the findings (outlined in chapter 3) are found or identified in the other chapters (such as the literature review, chapter 4) to substantiate the claims made.

Chapter 2 **Research Methodology and Process**

2.1 Introduction

This chapter explains the research design, the methodological approaches, and techniques used to conduct this research study. In addition, the process of the management of validity threat of the research study, and ethics are also considered. When explaining the methodology, the rationale for the research design for addressing the research questions in chapter one is provided.

Crucially, the selection of the methods does not depend only on the research questions, but on the condition of the definite research, and what will efficiently work in the research condition to give the data needed (Maxwell, 1996). The research methodology also helps to clarify, order and show disciplined processes, through following the grounded theory (GT) research and critical concepts definitions. Based on this, a *qualitative research method* may be satisfactory for this study, because findings can not be accurately preconceived, and it will provide an efficient inquiry framework to solve the problems. However, there is caution against methodology selections before answering more basic questions that are connected to the paradigm (Guba & Lincoln, 1998).

This research was carried out in line with the University of Cape Town's policy on Research Ethics (see appendix C). Therefore, to contribute to the suitability of the methodologies selected for answering the research questions; and the philosophical foundations for this research study; the grounded theory methodology relevant to the philosophical foundations, the issues of ethics in qualitative research and trustworthiness will be discussed in this chapter.

2.2 The philosophical considerations for this study

Specifically, the aim here is to consider the primary philosophical positions that are central to the designs of research of management. In order to accurately answer the research question, the understanding of the philosophical positions is fundamental.

According to Easterby-Smith et al (2012, p.56), there are three reasons in management research why these philosophical considerations are essential; that means "it can assist to clarify research design by providing adequate answers to the principal questions being investigated in the research, it can assist the researcher to identify which designs might work and which might

not, and it can assist the researcher recognise and create better designs that might be out of his/her experience.”

The philosophical consideration of the research study can be viewed through the debate of the *ontology* and *epistemology* considerations (Eriksson & Kovalainen, 2011; Ponterotto, 2005). While the ontology explains the nature of existence and reality, the epistemology explains the right steps of investigating the nature of the world. This research was conducted based on these philosophical areas in order to develop the methodology and techniques in order to address the research question. This is because the results of the philosophical considerations is critical to the kind of method used to conduct the research and reach conclusions on the phenomenon.

The researcher should be aware of the philosophical assumptions which can help to increase the quality of the research and creativity of the researcher (Easterby-Smith et al. 2012). Figure 2.1 below explains the relationship of the ontology, epistemology, methodology and the methods and techniques;



Figure 2. 1: The relationship between the ontology, epistemology, methodology and techniques.

Figure 2.1 shows the correlation between the ontology, epistemology, methodology and methods and techniques that were used to conduct this research study, while their essence is summarized in table 2.1 below. The first outer ring represents the apparent attributes of the methods and techniques derived in the research study (in-depth-interviews), determined by the conclusion of the continuous, less visible methodology, epistemology and ontology considerations.

Table 2. 1: The essence of the relationship between ontology, epistemology, methodology and the methods and techniques (Easterby-Smith et al. 2012, p.60).

Ontology	Philosophically assuming the nature of reality.
Epistemology	Generally assuming the right steps of investigating the nature of the world.
Methodology	A mixture of techniques used to investigate a specific case
Methods and Techniques	The individual procedures for collection of data, data analysis, and so on.

The philosophical areas such as the ontology, epistemology, paradigm, methodology and methods and techniques used to address the research questions are discussed below.

2.2.1 The ontological position

The origin of the term ‘ontology’ was from philosophy which represents the study of being in existence (Zlatanova, 2007). Ontology focuses on the nature of existence, and what comprises reality (Gray, 2014), and thus led to the consideration of nature, form and what is known about reality when focusing on the ontological position in this study. In addition, the research question of this study shows that the research aimed at gaining perspective and knowledge from different individuals regarding the topic and this is an indication that different realities can be directed to a relativist realm (Ponterotto, 2005).

Similarly, the ontological (realism) position, was explained in detail because it led to the epistemological position which gives the existence of the focus of the research study to be a construction which would be seen in social reality (see figure 2.2). The two main points of

ontology are: the ontology as conceptualisation and ontology as a shared means. Studer and Benjamins (1998) explained that conceptualisation is seen as a theoretical model of the phenomenon of the real world, and this real-world is recognised as a set of ideas. As a shared means, it is referred to as the accepted ideas by a group of people with a consensual knowledge (Studer & Benjamins, 1998) and (Uschold & Gruninger, 1996). Gruber (1995) portrayed this point by saying that ontology can be defined as a clear formal stipulation of shared knowledge.

In the social world, the assumption of ontology is characterized by a nominalist view (Cohen et al. 2000), which means, that “objects of thoughts are merely words or that social reality is a product of individual consciousness and the *realist* view that objects have an existence independent of a knower” (Manson & Morrison, 2000 in Shaw, 2013, p.42). Further discussions of the critical features of realism is also discussed briefly below as concepts of stratification and intransitivity of reality, emergence and causation, the person and society relationship consideration (Sayer, 2000) and brief explanations of the Bhaskars’s conception of discovery (Bhaskar, 1989; Corson, 1991).

2.2.1.1 Intransitivity and stratification of reality

The depth of this ontology position idea is central to critical realism (Shaw, 2013). It means that our observations (events) of the world are attributed to mechanisms which will be obtained from the structures of objects found in the geo-historical subjects (Sayer, 2000). Critical realism gives a massive contribution between the practical level which is the experience level; the actual level which is the event level; and the real level which is the structural level and causal power for the enlightenment of the researcher (Sharp, 1998, p.12). The illustration of these levels is introduced in Figure 2.2 below.

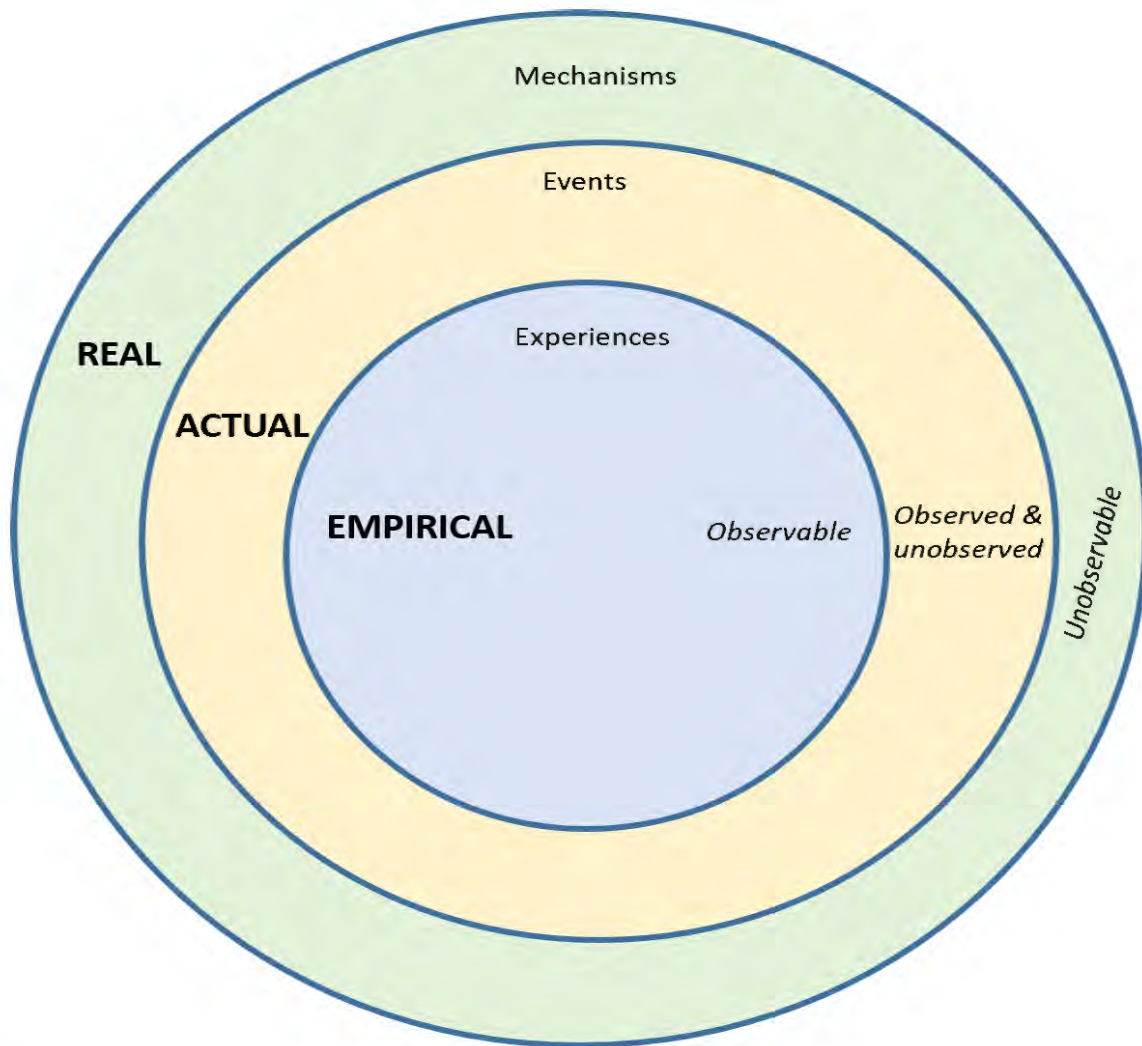


Figure 2. 2: The three levels of reality.

The three levels illustrated above are referred to as the ontological stratification (Bhaskar, 1978 ; 1998) because they make up the totality of reality which includes the intransitive that involves the independent existence of the structural mechanisms of what we describe them to be (Shaw, 2013). Furthermore, the real domain produces events that may not be directly experienced, unlike the actual event domain which is in existence even though experienced or not, and the empirical domain where the events are experienced. Table 2.2 below shows the illustrations further.

Table 2.2: Three domains to reality. Source from: Bhaskar (1978, p.56).

	REAL DOMAIN	ACTUAL DOMAIN	EMPIRICAL DOMAIN
MECHANISMS	#		
EVENTS	#	#	
EXPERIENCES	#	#	#

The three-level of domains is seen as very important to the social and natural world as the social structures are seen to have distinct properties from the physical structure areas (Mingers, 1999). This assertion was supported by Archer (1998, p.190) who opined that “the problems of ontology position differences between physical and social reality are welcomed by critical realism.” This is in line with Outhwaite's (1998) view about the challenges of defining intransitive components in the social world.

The implication of this kind of ontology on this research study is the existence of unimplemented power and that what has been studied to happen would not consume what is supposed to happen. Therefore, in realist ontology, the understanding of initially turning to what we are not is currently possible (Sayer, 2000). It means that regarding this research work, the non-resilient individuals in a community might become resilient and those not educated on community resilience and disaster risk could become educated, and so on.

2.2.1.2 Causation and emergence

Emergence is also another aspect of realism like the one explained above. The emergence explains that reality is unpredictable by recognising the emergence of new phenomena from the relationship between several elements. This element, as explained by Sayer (2000, p.12) “have properties which can be reducible to their components, although the latter is important for their existence.” The emergency and systems thinking according to Checkland (1981, p. 314) can be seen in the same concepts for the behaviour of the system of human activities, which is emergence. Figure 7 below is an illustration of critical realism idea of causation.

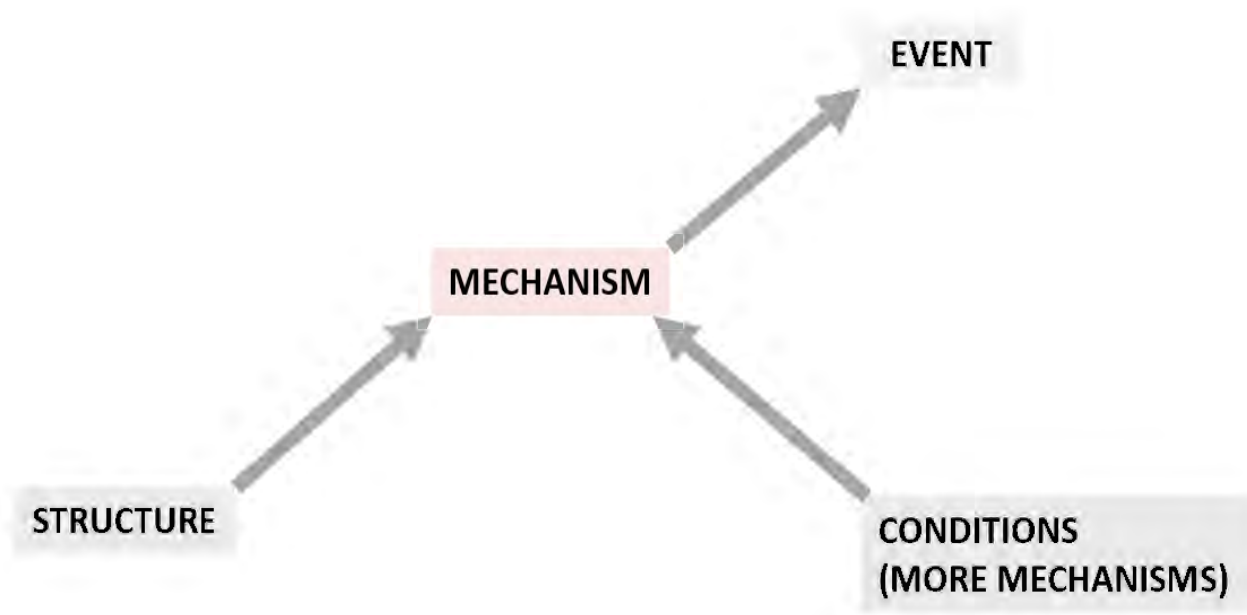


Figure 2. 3: The view of causation in critical realism (Sayer, 2000, p.15).

The figure above explains the idea of critical realism view of causation where the intransitive structure defined by Sayer (2000. p.14) produces mechanisms that are demonstrated as events. The events are derived from the combination of the mechanisms which may not or may be observed. Sayer (2000. p.44) explained that “it is necessary to differentiate the concept of causation in critical realist world from the use of causality world in various research paradigms which considers causal descriptions as the description of the regularity of occurrence to establish general laws and principles.” In addition, Sayer (2000) warned against the use of research approaches targetted on patterns as duplicated events. He also says that the number of times we observed things happening has no relationship with what causes them to happen.

Furthermore, Shaw (2013, p.44) mentioned that “...the identical mechanisms could generate dissimilar events in a dissimilar context; also, a cause could have a dissimilar historical period of time to the outcome.” As indicated by the research cycle three, individuals in the community who are trying to build resilience do that over some time with social, cognitive and cultural dimensions. In another view, resilience is sometimes built much later in different locations and not with the resilience-building procedures.

2.2.1.3 The person / society relationship and change

This is another key feature of critical realism which, although not entirely focused on in this study, but it is essential to discuss a little bit of the meaning and how it works. This feature is

a point of discovering what is on the mind of the individuals regarding the phenomenon being studied, through the reports they give as a reality and a point of trying to ensure these realities are confirmed. Corson (1991, p.231) explicated that we could only be able to comprehend and transform the social world when we recognize the structures at work or the real-life mechanisms themselves. There is no doubt that people can serve as change agents due to the long-time structures that have been in place, which make changes not entirely accepted. Therefore, researchers are advised to be cautious when proposing changes (Sayer, 2000).

This fundamental aspect of critical realism is also a point of distinguishing between people and societies. Bhaskar (1989, p.35), argues that it is vital to determine categorically between people and the societies, “because the properties possessed by social forms may be very different from those possessed by the individuals on whose activity they depend” Bhaskar (1989, p.35). For the significance of this research, the knowledge of structural effects are few and cannot be predicted because the produced influences in the empirical domain influences in a context, which give a comprehension of the “real present and past” (Sayer, 1992, p.238).

2.2.1.4 Bhaskar’s conception of discovery

This is another key feature of critical realism, although not entirely focused on in this research, it is also essential to discuss its meaning and how it works. This aspect is focused on a point where the question of how knowledge can be produced and how statements can be specific and accepted (Bhaskar, 1989). Resilience researchers should contemplate on the possible tendencies of clarifications and forecast while trying to understand or know the underlying causal mechanism of the phenomena been studied than the interpretation of what can be seen and experienced. Shaw (2013, p.46) stated that “...critical realism, therefore, alerts us to the restrictions of our understanding and possible analysis if we do not consider the person with the reality in a layered social environment.”

Therefore, concerning the Bhaskar’s work, others who have expanded on Bhaskar’s concepts of discovery and the other themes explained above, the brief explanations and clarifications discussed in this research work constitute the accumulation of understanding available to the researcher during this research study.

One of the reasons the critical features of realism were discussed extensively in this dissertation even though they were not all entirely focused on is because one possible way of tackling the challenges faced in the vulnerable community, is the use of ontology which will help in revealing the fundamental and hidden knowledge (Zlatanova, 2007).

In resilience research, ontology perspective is of fundamental relevance to the epistemological concerns (Christophe et al. 2004), just like in the education research where ontology tends to be subordinated to epistemological concerns (Dall’Alba & Barnacle, 2007). The above notions suggests that there is less possibility of describing a world as it is by separating between epistemology and ontology (Christophe et al. 2004). This further leads to the researcher’s opinion that the ontological position can lead to the epistemological position; therefore, they might both provide for the research paradigm. The next section discusses epistemology.

2.2.2 The epistemological position

As explained in *section 2.2*, epistemology is about several steps of investigating the nature of the physical and social worlds. Epistemology has formed a focus on two conflicting points of view on how this research study should be conducted, which are *positivism* and *social constructionism* (Easterby-Smith et al. 2012). These two conflicting views, which are illustrated in Table 2.3 below, are discussed briefly in the paradigm section.

For the researcher, it is vital to understand the paradigms, their consequences, and roles. Ontology which was discussed earlier is disconnected from the epistemology for this research study (Fairclough, 2005), because epistemology complicates the knowledge of reality and the nature of reality which can be referred to as the ‘epistemic fallacy’ (Fairclough, 2005 & Bhaskar, 1978). Similarly, Shaw (2013, p.47) admitted that “a constructivist epistemological position is not incommensurate with critical realism.”

In addition, epistemology shows how one acquires knowledge, and that the critical realist is a non-positivist. The aims of epistemology focuses on the connection between the participants of the study and the researcher (Ponterotto, 2005). The notions above further reinforce the methodological part of this research.

Sayer (2000, in Bhaskar, 1986, p.72) stated that “...critical realism accepts ‘epistemic relativism’, which gives the perspective that the world can only be known in accessible explanations or discourses, but it refuses ‘judgmental relativism’, which gives the perspective that one cannot judge between various discourses and decide that some accounts are better than others”. Corroborating the above, Al-Amoudi and Willmott (2011, p.42), agreed that “...Sayer explains that epistemological relativism is a philosophical theory of knowledge that moderates our knowledge, while epistemic relativism explains that the existing knowledge or discourse does the moderating.” This is significant to this study, although critical realism is not the focus in this section

Since the 1980s, in the social science and management research, there has been a progressive shift from the positivism towards constructionism traditions, and some researchers deliberately combine methods derived from both; though constructionism tradition has been considered for this study (Easterby-Smith et al. 2012). More details about the choice of constructionism is in table 2.3 below. Therefore, the selection of this epistemology position was based on its interconnectivity to adopted methods for this research. Below are the adverse implications of positivism and social constructionism.

Table 2.3: The conflicting “implications of positivism and social constructionism”:
adapted from Easterby-Smith et al (2012, p.59).

	Positivism	Social constructionism
The observer	Must be independent	Is part of what is being observed
Human interests	Should be irrelevant	Are the main drivers of science
Explanations	Must demonstrate causality	Aim to increase general understanding of the situation
Research progresses through	Hypothesis and deductions	Gathering rich data from which ideas are induced
Concepts	Need to be defined so that they can be measured	Should incorporate stakeholder perspectives
Units of analysis	Should be reduced to simplest terms	May include the complexity of ‘whole’ situations
Generalization through	Statistical probability	Theoretical abstraction
Sampling requires	Large numbers selected randomly	Small numbers of cases chosen for specific reasons

2.2.3 The research paradigms

The term paradigm has become a trend in social science. Kuhn (1962) used this term in his work to explain the advancement of scientific findings in observations and not how they are eventually recreated in books and academic journals. Maxwell (2005) explained that using a research paradigm is very important and critical, referring to the historian Thomas Kuhn. The choice of the research tools, methods and samples can be guided by choice of paradigm which allows the readers to view the research the way the researcher sees it (Lincoln & Denzin, 2000).

Out of several paradigms, researchers tend to conceptualise and choose a specific paradigm based on what is being studied (Ponterotto, 2005), but the four conventional paradigms which Lincoln and Guba (1985) classified as useful, are the positivism, post-positivism, constructivism-interpretivism and the critical ideological theory. These four paradigms are discussed below.

i. Positivism: This focuses critically on the prediction and control of phenomena explanations (Ponterotto, 2005). This type of paradigm depends on the hypothetic-deductive method in the aspect of quantitative research where the hypothesis is examined (McGrath & Johnson, 2003; Guba & Lincoln, 1994). Similarly, Easterby-Smith et al. (2012, p.57) asserted that “the main concept of positivism shows the existence of the social world and indicates the measurement of its properties through objective methods, instead of being theorised subjectively through reflection or institution and sensation.” However, this paradigm cannot be employed for this study based on its elements and functionality.

ii. Post-positivism: This is partially compatible and supportive of the grounded theory method (Baskerville & Pries-Heje, 1999). Post-positivism points out that the truths are never entirely understood but can be approached by a research study (Lincoln & Guba, 1985), or that the impartial reality can never apprehend the complete reality (Lincoln & Guba, 2000). In addition, post-positivism is interested in verification and discovery of theory. Both positivism and post-positivism focus more on the illustration of a phenomenon and mostly applicable to quantitative research. Therefore, both the positivism and post-positivism paradigms would not be fit for this research study.

iii. Constructivism-interpretivism: This paradigm believes in numerous and the same logical realities (Schwandt, 1994) which show an assumption of an understanding of the world by the human experiences, and disseminated through languages. This paradigm enables the researcher to make sense of the phenomena through the relationship between the object to be investigated and the researcher (Ponterotto, 2005). This paradigm also mainly focuses on *qualitative research methods*, which is in alignment with the subjectivist of this study. This paradigm is suitable and chosen for this study because it is flexible and suitable for theory generation. The relevance or reason for chosen this paradigm for the research study is discussed further in the section 2.2.3.1 below.

iv. Critical-ideological theory: This paradigm analyses the underline theories in order to solve the challenges; and or it can be said to be a social science philosophy which analyses and focuses on solving current challenges and gaps (Alderson, 2016). The paradigm tends to reach an understanding of the world to enable the movement from coercion to innovating and liberating power (Ponterotto, 2005) in a social context. In management research, this has multiple implications. Easterby-Smith et al (2012, p.74), indicated that “critical theory creates a questioning eye on the reasons and effect of powerful individuals and groups which in an emancipatory process gives a concern for the notice of the least powerful individuals.” This paradigm was not chosen for this research.

2.2.3.1 *Relevance of constructionist design to the research study (why constructionism-interpretivism?)*

The primary question of the research study is, ‘What are the underlying mechanisms influencing the resilience level of the communities faced with disaster risks?’ This implies that the investigation has no intention of providing emancipation and authority to the people, which is an attribute of the *critical theory* paradigm but to consider the human sense-making process in addressing the research question, which is an attribute of the *constructionism-interpretivism* paradigm. In that bases, the researcher understood constructionism as a connection to the theoretical model building process and the interpretivism as a connection to assessment of the theoretical model building process.

From the start of the *constructionist research design*, there are assumptions of lack of obvious truth; thus, the researcher has a job to confirm how several assertions for reality and truth are already constructed in the day-to-day life (Easterby-Smith et al. 2012). Therefore, it is the

reason why there is more range of methodologies, which can go with the constructionist paradigm in disparity to other epistemologies (Easterby-Smith, et al. 2012).

In this research study, the grounded theory, which is often connected to constructionist designs is considered as the method and approach used for this research. The constructionist research is also seen as when researchers comprehend the world all over them through the construction of a mental model (Alesandrini & Larson, 2002). The figure below illustrates components of mental model as regards the understanding of the statement.

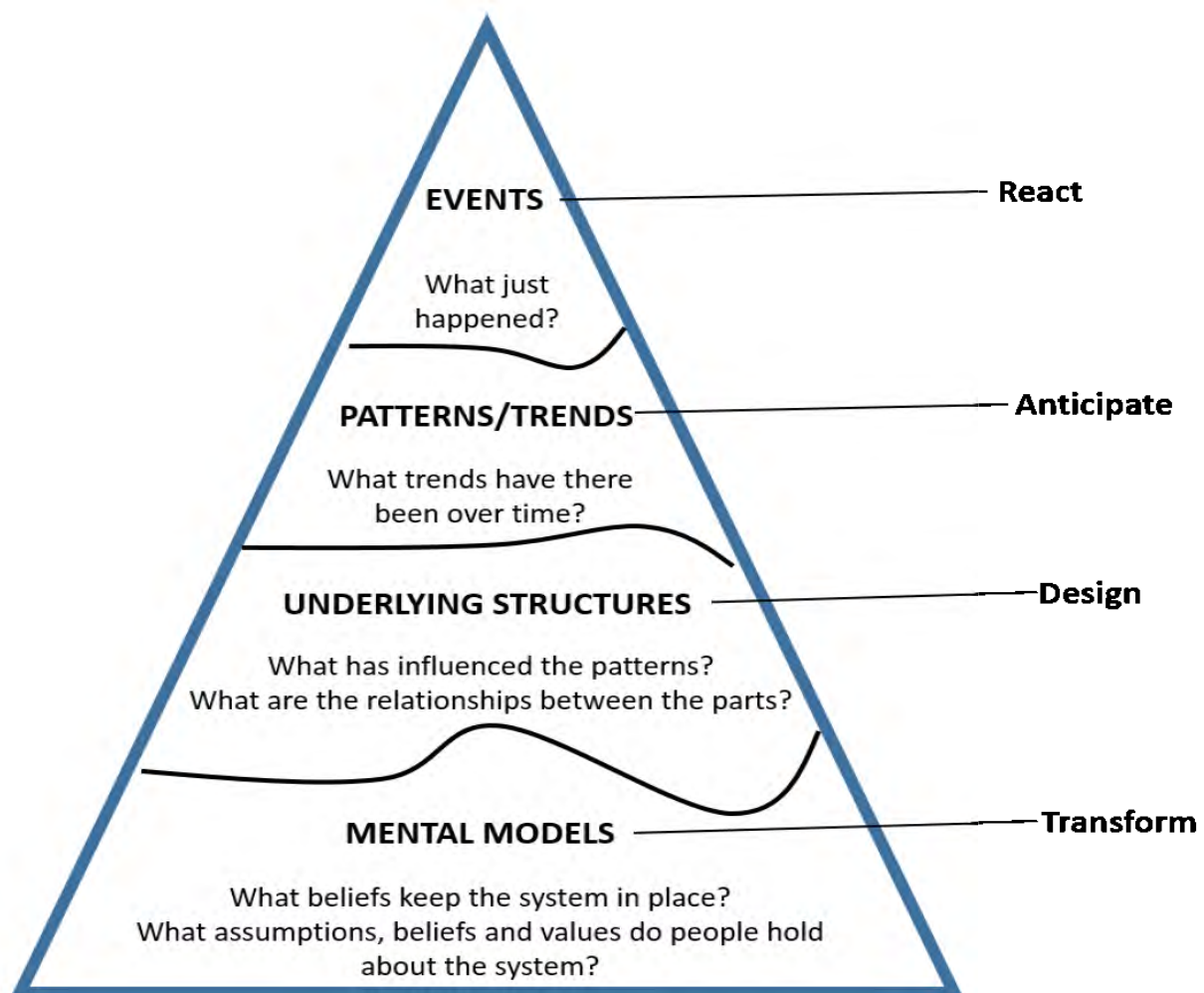


Figure 2. 4: The mental model (the iceberg): A tool for guiding systemic thinking (Northwest Earth Institute, n.d. p.2)

The mental model helps to keep the structures to serve their purposes, or they are the existed thoughts (values, beliefs, attitudes) that make the structures to be like what it is (Kim, 1996).

Furthermore, in constructionism, research can take place when people are involved in the making of substantial objectives in the real world. This explains that constructionism is related to experiential knowledge, which gets its foundation from Piaget's epistemological constructionism theory (Duijnhoven & Neef, 2014). Most academicians have tried to explain constructionism as a knowledge-by-making formula, however, Papert and Idit Harel explicated that it should instead be having several aspects or features and more rooted in its indication than can be transferred by formulas (Papert & Harel, 1991).

Additionally, the *constructivism-interpretivism paradigm* also allows for enough natural interactions of the researcher and the participants and allows for the extension of the period of a field study that is familiar with the qualitative research study (Lincoln & Guba, 1985). The interviews and observation for the data collection processes of this research study are favoured by the *constructivist-interpretivist* paradigm.

In resilience study, there are no definite answers to which paradigms to choose as they are still hugely argued about in philosophy (Christophe et al. 2004). Therefore, choosing one of the paradigms can be said to be linked to personal interest and beliefs of the researcher (Christophe et al. 2004). According to Christophe et al (2004, p.8), "an author found critical theory to provide a good framework for his research and another author found radical constructivism theory of knowledge as a useful approach for the questions that came up throughout his projects," Thus, the implications of both paradigms might not eliminate each other.

For the search for practical relevance according to the explanations above, it would not be a surprise to have a notable relationship between resilience study and constructivism since there is a link between these. However, resilience study from the basic concepts of this research is different from the traditional approaches to safety which aims on failures as isolated cases (Hollnagel et al. 2006), but resilient study tends to move attention from actual occurrence to the underlying facts and mechanisms of systems which will allow for the development of community resilience.

Therefore, *constructivism-interpretivism* paradigm is relevant and selected to be more suitable for this research from the interest and belief regarding the research study (Christophe et al.

2004), and the explanations above intend to portray the arguments for the selection of *constructivism-interpretivism* paradigm as the *epistemological position* for this research study.

2.2.4 The research methodology

The essence of the problem to be tackled is systemic; therefore, this research needs a systemic methodology, which can improve the addressed situation and develop the skills of the people involved in the research. Many researchers as concerning research design have supported the use of a coherent mixture of components from several methodology paradigms to tackle research questions (Ackroyd, 2004; Mingers, 2000a; Sharp, 1998).

When speaking of methodologies, there is a method adopted in this research study, which is referred to as the *qualitative research* method and it is different from the other methods used in research, like the quantitative research methods. The relativist and subjective position explored in this research study provided the reasons for adopting a qualitative research approach. The approach was adopted for this research because it provides the efficient inquiry framework to solve the current problem at hand, which is related to the *constructivist-interpretivist* paradigm. Qualitative methods therefore help to explain and clarify the research participant's experiences in a local context.

Qualitative research has a focus on an inductive method because it generates a new theory, unlike the deductive method, which can be used for examining an existing theory. This research is not a number-based study but a text-based study since in-depth, focused research was applied, and not the less-depth as in quantitative research method (McGrath & Johnson, 2003).

The research question shows that the research study tends to achieve an understanding of the phenomena studied; thus, the qualitative method was used in order to proceed. There are three presently known qualitative research approaches used to understand a group of interest. These are the *grounded theory* (creation of theory that is grounded in the field of study); *phenomenology* (which gives an explanation, understanding and interpretation of the experience of the phenomenon by individuals (Lichtman, 2014)); and the *ethnography* (which explains the social and cultural connection between a group of individuals (Nicholls, 2009)). Based on what the research questions tend to gain as explained in the chapter one, phenomenology and ethnography may lack the full or general ability to provide understanding,

identification, and explanation of a phenomenon and mechanism, respectively. For tackling the research questions, the grounded theory will be used, in order to tackle the limitations found in the phenomenology and ethnography approaches, and this was explained in detail by Helen and Cowley (2004).

The figure 2.5 below explains the approaches used in tackling the research question where the connection between the ontology, epistemology and methodology is illustrated.

2.2.5 Linking the ontology, epistemology, methodology and techniques

As established earlier that there is a connection between the ontology, epistemology and methodology (see figure 2.5 below), with the relativist realm linking to the ontology position and the subjectivism linking to the epistemology position, while the qualitative approach is linked to the methodology. The correlation, however, is condensed in figure 2.5 below, where the four paradigms discussed in *section 2.2.3* are also linked to the ontology, epistemology and methodology from the research question, and to the methods and techniques in order to answer the research questions.

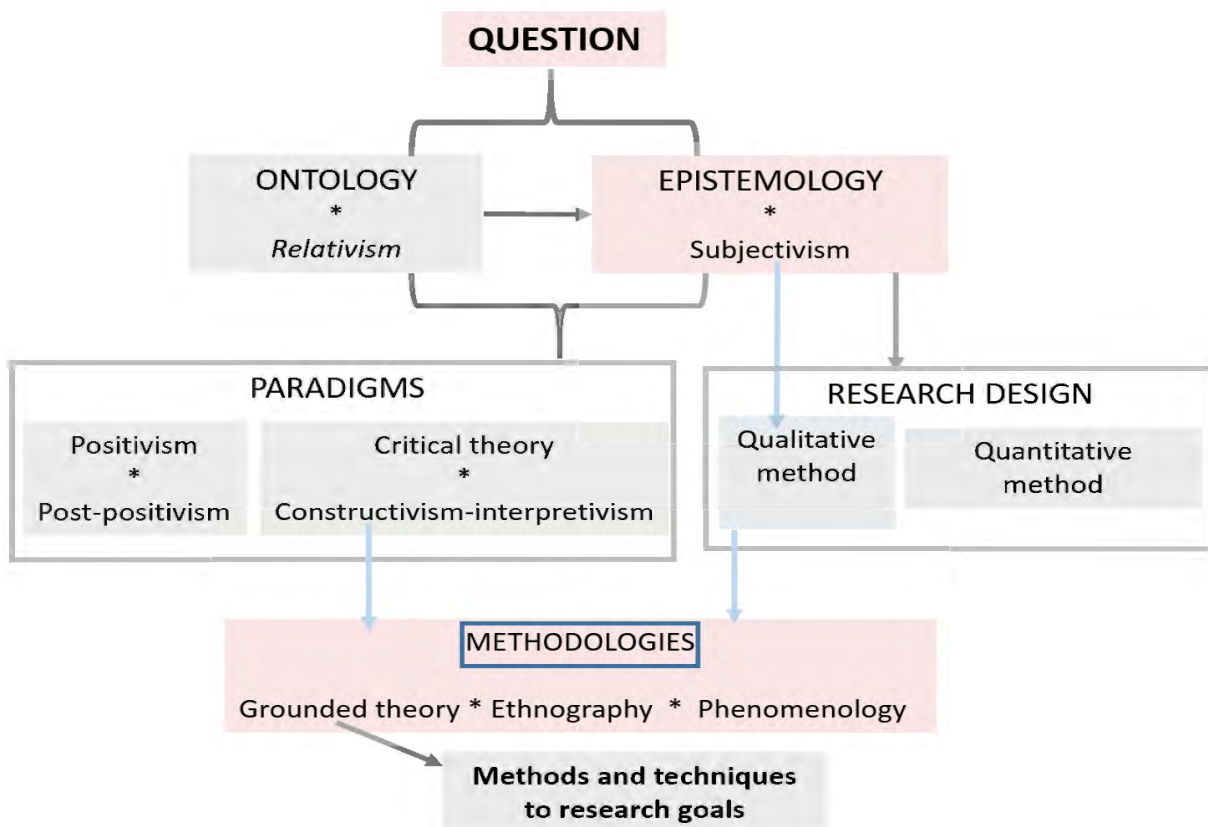


Figure 2. 5: The link between the ontology, epistemology, methodology and techniques.

As shown above, constructivism-interpretivism was selected as the research paradigm ahead of the critical theory; and the link between the ontology, epistemology, methodology and techniques, the reasons for their choice; as well as their composition were demonstrated.

2.3 The grounded theory

Grounded theory is defined as a research methodology that produces theoretical descriptions of social phenomena that are grounded in empirical experience through various data collection in cycles and constant comparative analysis from emerging subjects (Kennedy & Lingard, 2006). Grounded theory has no hypothesis, but only research questions which are open-ended and wide validated theory outcome, and this can be termed as the grounded theory being emergent (Tavakol et al. 2006).

Furthermore, the chosen methodology is in line with the intended achievement of an essential and practical qualitative study, grounded in observations and data. The main possible limitation of grounded theory is that the outcome can be prone to research bias due to the qualitative processes (Charmaz, 2014), and this limitation was managed by an endeavoured identification of researcher bias in the *validity section* below.

The grounded theory is compatible with the *constructivism-interpretivism paradigm*, which is the paradigm used in this research study (Yeung, 1997). Similarly, the grounded theory research approach is also a qualitative method where a systematic set of strategies are used to produce an inductively obtained grounded theory about a phenomenon (Strauss & Corbin, 1990). The grounded theory also involves the collection of data, coding, categorisation of data, and using the categories to create a theory (Strauss & Corbin, 1990).

In the same vein, the grounded theory is also suitable in attempting to develop a theory concerning the mechanisms that influence the resilience of communities affected by disaster risk and ways to improve these mechanisms (These mechanisms are actions). The research study is not looking to build a theory relating to eradicating disaster risk in South Africa, but rather to attempt to reduce disaster risk in the Western Cape, South Africa, through understanding community resilience and developing the resilience level for the South Africa vulnerable communities.

An absolute grounded theory research design accommodates the underlisted features, and the diagram below explains them further. The steps mentioned below may not follow a particular step in the research because the researcher needs to go forth and back sometimes amidst various steps. The universal feature in the grounded theory research design used are;

1. Question formulations
2. Theoretical sampling
3. Contact summary and transcribing
4. Chunking and naming of data – Coding
5. Conceptual category development
6. Constant comparison
7. Analytical memo.

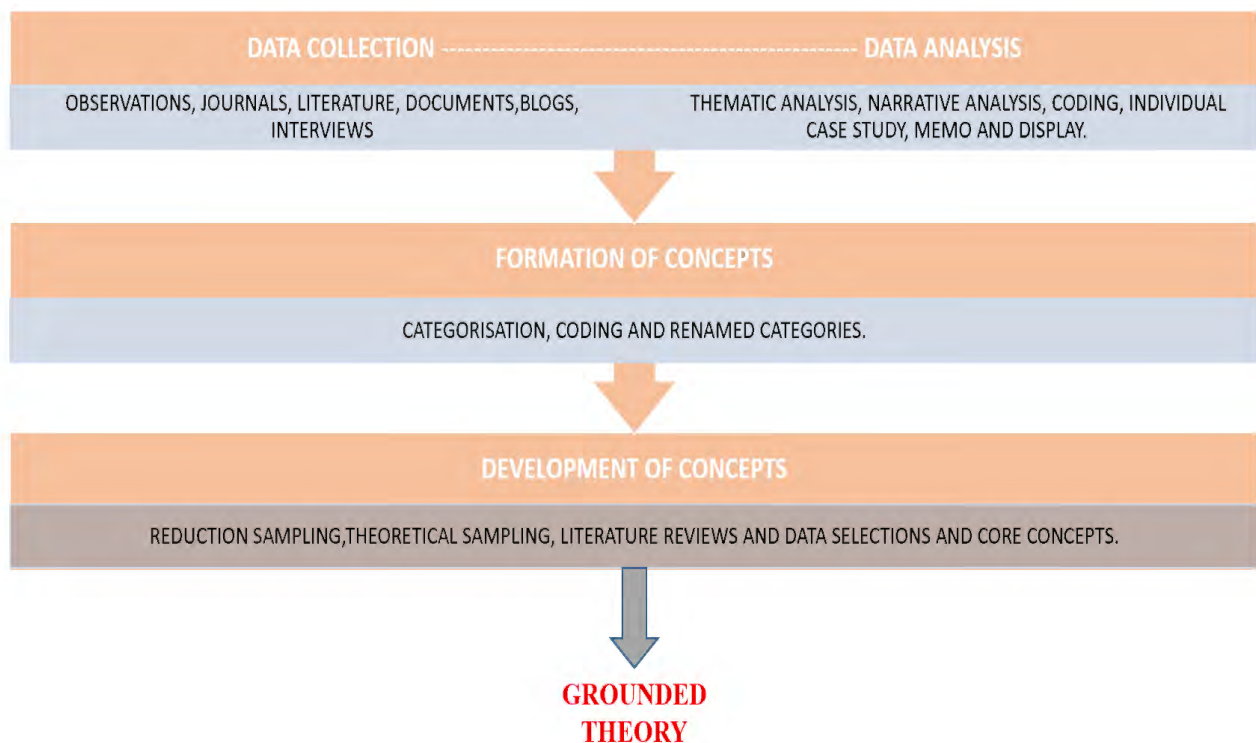


Figure 2. 6: The grounded theory process used.

The diagram above gives a proper illustration of the grounded theory and the procedures. The method starts with a data generation that includes the interviews, literature, participant observation, fieldwork, documents and journals and goes to the data analysis. Then it proceeds

to a process called the concept formation where it is crucial to use coding, categorisation, and identification of fundamental social processes. After these comes the process of concept development which includes the reduction sampling, selective literature review and selective sampling of the data. After these, is the core variable process that make up the grounded theory method, and these same processes were used for this research study, with further explanations in chapter three.

However, to ensure that the research study has specific canons and procedures as described by Maxwell (1996), the grounded theory approach was used for this research study. Grounded theory is also referred to as a systematic qualitative research methodology around the areas of social sciences, highlighting the creation of theory from data in the process of organising research (Martin & Turner, 1986).

2.3.1 Key elements of the grounded theory

According to Charmaz (1990), the identified vital elements of grounded theory has some features that are suitable for this study and are explained below.

2.3.1.1 Collection and analysis of data concurrently

This process is essential to the grounded theory because the methodology is very much dependent on the data gathering and analysis concurrently. This key element guilds the researcher on the data to collect, the additional data to collect and the questions and themes that are unfolding (Charmaz, 2015). This key element is explained better in the research process section.

2.3.1.2 Development of the categories and analytic codes from the data

In this process, the researcher builds categories by continually comparing and analysing the data gathered. This process is different because there is a theory, which is conceived beforehand or predetermined through the process of the research.

2.3.1.3 Recognition of the fundamental collective process in the data

After developing the categories and analytical codes, the fundamental collective process is then developed around the core categories.

2.3.1.4 Inductive establishment of conceptual categories

Inductive nature is one of the major attributes of the grounded theory. According to Leboea (2017), it is the qualitative process used by the researcher to discover a phenomenon by laying apart the preconceived ideas about the phenomenon, and building a theory about the phenomenon. It is because in grounded theory, the built theory is formulated, and most times not tested.

2.3.1.5 Improving categories by theoretical sampling

In the grounded theory, the researcher needs to develop categories and then produce the categories into a conceptual theory, and this is the main aim of the grounded theory. The approach of theoretical sampling is to sample the data that are theoretically placed. From the start of this process, the research question was not fixed but modified according to the type of unfolded theory from the data. Breckenridge and Jones (2009), buttressed the above notion that theoretical sampling is a typical characteristic of the grounded theory and very important for the building of any theory grounded in data.

2.3.1.6 Saturation of theory

Saturation refers to when the researcher starts getting the same results repeatedly. It can merely occur when, after qualitatively collecting and analysing the data severally and no new ideas, inputs, directions, and data are being added to the categories developed.

2.3.1.7 Risks issues in grounded theory

One of the major issues of the risks of grounded theory is that grounded theory ends with the theory and not with the illustration of themes. There are several studies with end to end illustrations of themes without real theory (Kennedy & Lingard, 2006), and it is hard to know meaningful relationships and loopholes among the themes in the absence of these abstractions. It was necessary to produce and test the theory before continuing with the second cycle of the research study.

Another risk is the study of a research that has been considered in depth before. It is the reason researchers using the grounded theory should learn not to go too deeply into the literature, knowing that the grounded theory is an emergent process. Lincoln and Guba (1985) and Stern et al (1984) advised that the researcher, while using the grounded theory methodology should avoid carrying out a literature review from the initial stages of the research study to avoid the

less development of emergent theory. In this research, this risk was managed by carrying out a literature review that is not entirely related to the topic (see chapter 4).

The third risk explained here is the misunderstanding that researchers using the grounded theory approach are allowed to begin the study with no research question or directions by avoiding experiences and literature before the study, which may bring about a lack of organised manuscripts that could obstruct the research (Suddaby, 2006). In this research, the risk-managed (starting with research questions amended as time went on), and these research questions linked the researcher to the decision of sampling, data collections and methods.

2.4 The system dynamics application

System dynamics is mostly identified to be an understandable cause-effect presumption around connected variables of a system. It warrants independent evaluation and improvements of metal models around a particular way of thinking (Cabrera et al. 2008). System dynamics can also be seen as a vital way of inspecting interrelationships, which involves complexity. Therefore, this has been recognised as one of the main point of approach to this research study. Additionally, system dynamics is recognised to be a suitable method to study complex social and economic systems within the context of systemic resilience, disaster risks, disaster management and developing the resilience of informal settlements against disasters.

Notably, this approach can be used to model relationships or interrelationships between variables, which impacts the resilience of informal settlements against disasters and creating disaster risk reduction in the Western Cape, South Africa and beyond. The system dynamics has the characteristics of using the causal loop diagrams to produce causal relationships between unlikely representatives of a system (Forrester, 1973., 1987., 1991). Likewise, causal loop diagrams have been used to indicate complex relationships and feedback results within many sectors, even the agricultural sector (Vennix, 1999).

Specifically, system dynamics is also useful in simulating complex problems and policy frameworks by experiments (Forrester, 1994). It focuses on the control theory (Kirkwood, 1998), and the nonlinear dynamics of modern theory (Amigun et al. 2011), and most times, the interrelationship diagram can be in the shape of a stock and flow diagrams. However, system

dynamics provides the policy makers already made tools for the solution of vital complex challenges like disaster risk or climate change (Sterman, 1991).

2.4.1 Causal loop diagram

The result of this is an interrelationship diagram which is made up of loops with representations and dynamics used to explain the theory building. The links to the several variables are used to represent the invention of the causal loop diagram. The feedback loops explain the behaviour of the phenomenon. This research brought about the modelling of community resilience as the behaviour of a system.

2.5 The research processes

The research process explains when, how and where the research steps are implemented to develop the theory. The research process is made up of the data collections, coding and the construction of categories, reduction sampling, theoretical sampling and identification of categories. It led to the invention of a conceptual framework using the core categories derived from the research study, and a causal loop diagram was established as a theoretical description.

2.5.1 Data collection

Data collection is the assembling of information which revolved around the research problem. This process took place through participatory observations. Access to the informal settlement was facilitated by a non-governmental organisation that was working on a project with the community called the Habitat for Humanity South Africa.

The data collected was through participatory observations and interviews. Participatory observations were done over three months for twice in a month, as a process of gathering data through involvement (widespread community participation) and exposure to day-to-day activities in the informal settlement. Community activities such as meetings took place with 10 of the occupants of the community who comprise men, women, boys and girls who already had personal experiences of disaster risk, which was a focused group.

In addition, semi-structured interviews were conducted with 30 people, mainly youths from the community and the community leader. These people were provided by the community leader as the most trusted and ardent community members in the Pholar park as of that time. They

were each interviewed for 20-30 minutes. Systematically, random sampling method was adopted and items such as addresses, times, settings of individual participants were maximally employed to secure relevant information because random sampling procedure involves using small sample sizes, but with credibility, and not representativeness or the capacity to generalize (Nastasi et al. 2004).

Data analysis was done through a grounded theory approach. The analysis was conducted simultaneously with the data collection, focusing on the interviews and observations concurrently. Categorising strategies (such as open coding, axial coding, selective coding, and thematic analysis), and connecting strategies (such as narrative analysis and individual case studies, memo and displays) were applied (see figure 2.6).

The grounded theory data collection and analysis, as explained, happened concurrently, and the theory modified and collected as the data took place from the first cycle to the last cycle. There are further illustrations of the processes in the grounded theory that were done during the data collection to make sense of the data (see figure 2.7 below).

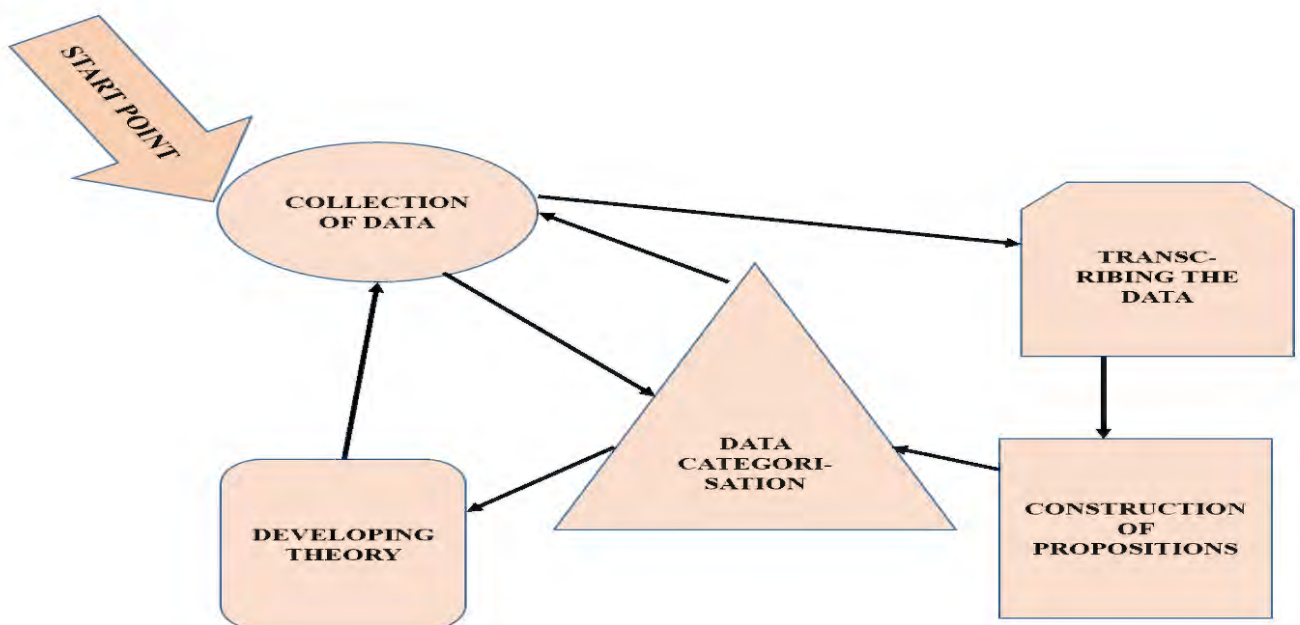


Figure 2. 7: Brief steps for data collection in grounded theory.

As mentioned, there could be saturations during data collection and analysis. Saturation is a time when the researcher is unable to get new essential data to be categorised and also no new propositions. As illustrated, the data collected generates the concern variable or the theory,

which is modified and conceptualised by the researcher. It is part of the data collection and does not take place before the data collection process. Below is another means of data collection methods employed:

2.5.1.1 Web sites: Internet research

The internet has become one of the methods used in everyday life for carrying out management and business research. The internet has also contributed immensely to data flow and storage in conducting research, and making it easier for researchers to track down social processes more than a face-to-face correspondence (Easterby-Smith et al. 2012).

The internet research such as the university database, journals and books has also been argued to be a modest step of data collection for research, and the involvement of individual's owned computers now have a new influence on the researchers to gather, save and manage data (Lee, 2000). According to Williams (2007), there are many possibilities to researchers who are using the internet research as a delivery tool which could be to facilitate and improve data collection. Further discussion on the data credibility of the internet research will be covered in chapter six of this dissertation (section 6.3.3.1).

2.5.1.2 Interview Details

According to Raymond (1992, p.22), the interview is a discussion between two people where one of the people tries to conduct the discussion to acquire information for a particular reason. The different types of interviews are:

1. Structured Interview: A structured interview is a non-flexible tool by nature. To Gill et al (2008), the structured interviews are defined as a verbally organized questionnaire without prompts, and provide minimal scope for follow up questions to scrutinize responses which authorize more depth and facts. The good part of this interview method is that it allows the administration of quick interviews, though it has less use of 'depth' when required.
2. Unstructured Interview: Gill et al (2008), in a different view asserted that unstructured interview does not show any biased theories conducted with fewer arrangements. It implies that the unstructured interview can be a bit disorganized with little plans.
3. Semi-structured interview: The semi-structured interview approach is an interview with different important questions that defines the areas to be investigated and gives the

researcher the flexibility needed to get an elegant idea in response (Gill et al. 2008). It is a channel between structured and unstructured interviews; thus, making it suitable for this study.

2.5.1.3 Study Area

This study was conducted in the Western Cape Province (situated on the south-western coast), South Africa. Out of the nine provinces in South Africa, the Western Cape is the fourth largest with 129,449 square kilometres (49,981 sq. mi), and the third most populated, with an estimated 6.6 million inhabitants in 2018 (The Institute Of Professional Tourist Guides Of Southern Africa, 2018). Furthermore, the metropolitan area of Cape Town houses two-thirds of these inhabitants, which is the provincial capital. The creation of the province was in 1994 from part of the former Cape Province.

The study took place in Phola Park community of the Western Cape Province in South Africa. Almost two-thirds of these occupants are in the provincial capital of Cape Town. This community is vulnerable to series of crime, flood and wildfire among other disasters. In addition, Phola Park, as an informal settlement is located in the Wetton-Lansdowne development corridor and is similar to other informal settlements in Cape Town like the Monwabisi Park and old Pelican (Haferburg, 2002). These areas comprise totally of shacks that are prone to disaster. Phola Park is frequently prone to disasters due to inadequate proper drainage systems; lack of housing and general facilities such as toilets and water taps; poverty, use of heating and cooking materials; overcrowding; crimes of different magnitude; among others.

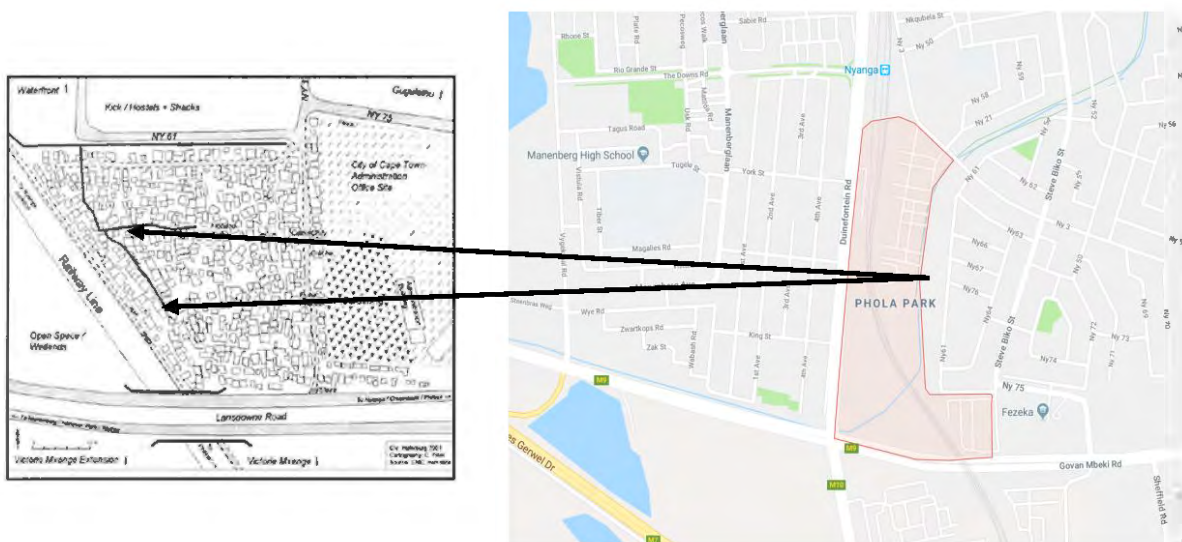


Figure 2. 8: Drawn map of Phola Park (Haferburg, 2002).

2.5.1.4 Sampling

The sampling methods addressed what periods, settings, or people to be observed or interviewed, and other sources of information used. The sampling was used for the determination of the truths about some populations by a small scale (but expectantly representative) collection from a population of units.

This research was applied in a case study related to disasters in the Western Cape, South Africa, which included disaster management centre's, disaster rescue services and NGOs. Disaster history, previous prevention, and intervention methods and disaster risk management data were gathered from the facilities. The ethical conflict within the report was centred on confidentiality, which implies that risk data derived from them, and others remained confidential.

2.5.1.5 Types of Sampling

There are two types of sampling commonly used in the qualitative sampling processes:

Probability Sampling: In the probability-sampling, every unit in the population has an opportunity (greater than zero) to be chosen, and it can be correctly determined. These Probability sampling are discussed below (Bonnie, 2016):

1. Simple Random Sampling: This is applicable when there is a small, homogenous and readily available population. It can be carried out by allocating a number to each unit of the sampling frame.
2. Systematic Sampling: This is where the target population is organised in some ordering patterns, then through the ordered lists, selecting the elements at regular intervals.
3. Stratified Sampling: This is when several definite groups of the population are accepted, and the frame ordered into different 'strata.'
4. Cluster Sampling Complex: This is where the population split into a cluster of homogenous units that relied on geographical continuity. For example, chosen a sample area and selecting a sample of the respondent within those areas.
5. Multistage Random Sampling: This is where the collection of a random sampling of the other random samples is done.

Non-probability Sampling: Non-probability sampling usually is based on assumption regarding the population of interest, which gives the principles for selection. This type of sampling was adopted for this study, and the following are its types:

1. Sampling of convenience: This type of non-probability sampling is a process that includes drawing of the sample from the part of the population that is readily available and convenient.
2. Purposive Sampling: This is where the small sample size of sampling is used, but the aim is to achieve credibility and not for representativeness or the capability to generalise. For instance, to study current cases of disaster response and recovery of 400, 20 random selections can be made, which will reduce judgment within a purposeful category (Bonnie, 2016).
3. Quota Sampling: This is a process where those in the population who looks more helpful are selected. In this process, not everyone gets the chance to be selected. Therefore, the sampling can be biased.
4. Theoretical Sampling: This process focuses more on conceptualisation. It can be used in grounded theory studies, and the population can be sampled if they represent a vivid operational construct. For example, in studying the theory of ‘disasters and resilience’ in informal settlements, it would require sampling individuals who meet theory-driven standards for ‘disaster and resilience’ (Bonnie, 2016).

2.5.1.6 Sample Size

This explains how large a sample should be. The sample size selection depends on the time and cost and the other number of considerations.

Sample size tends to answer the research questions adequately until there is no emergent of new explanations and categories from the data. According to Bonnie (2016), in qualitative studies, there are no fast or hard rules when determining the sample size; but, there are two considerations for determining sample size:

1. What is the sample size for getting to saturation or redundancy? That is, how big would the sample be allowed for the discovery of constant patterns.

2. How big would a sample be needed to represent the variation within the target population? That is, how big should a sample be for the assessment of a proper amount of variety or differences represented in the affected population (Bonnie, 2016).

Sample size for this study was estimated to be based on the study approach or data collection method used. The rules for each category of sample size are represented below:

Based-rules approach

Research Approach	Rule
Case Study	The researcher will choose one person or one case study (If necessary, the researcher can select more than one case study).
Phenomenology	The researcher will evaluate 20 people. We might use fewer people if we reach saturation using 20 people.
Grounded theory / action research / ethnography	The researcher will assess 40-50 individuals, which usually should be enough to get to saturation.

Data collection-based rules

Data Collection Method	Rules
Key informant interviews	The researcher will interview roughly 10 people.
In-depth interviews	The researcher will interview roughly 50 people.
Focus groups	The researcher will create groups of 10-15 people each. We will do this based on “groupings” constituted in the research question.
Ethnographic surveys	The researcher will select a large and representative sample with numbers like those in a quantitative study.

The researcher will also consider the size of a better database, which will give enough quality and quantity data. This is because the quantity of the data is also a factor as the quantity of the data affects the quality of the interview arrangement. For instance, with a well-formulated interview arrangement, 10-20-hour database provided enough data to support a trustworthy qualitative dissertation (Bonnie, 2016). In this case, the guide below was used as guidelines for duration of interviews coverage.

Guidelines for Length of Interviews

Number to be Interviewed	Length of each interview
10	1 to 2 hours
20	30 minutes to 1 hour
30 to 50	20 to 40 minutes

Modifications were made depending on the qualitative data collection used. For instance, if there is a focus group for two hours and ten interviews, the length or duration of the interview could be reduced.

2.5.1.7 Keynote Details on Data Collection

These are a few key points we must be aware of concerning the data collection processes:

Audio-visual Recording: This sampling strategy produced a rich source of data about what is going on in the disaster areas. It made it possible to see things that could not adequately be seen because of a review of actions, observed and isolated individual parts of what is happening around the scene. The strategy ensured the descriptive validity of the observations, stimulate recall and reflection as a component of some of the intentions with the participants.

Fieldwork and Testing: the researcher went to the scene of operations to witness and investigate properly what is going on; took samples from the scene, and prepared reports of the findings, which were used as part of data collection.

Bias: In sampling, research bias needs to be considered carefully because it is an essential aspect of sampling. When the sampling methods are influenced by personal judgments or by favourable critics for including the sample, the sample will, therefore, be biased (Bell et al. 2018). Bias has different sources which were: non-probability or non-random, sampling frame and the non-response. No further details were given about these sources in this study.

Sampling for Structured Observation: For the research study, structured observations necessitated decisions about sampling. It is often not to sample several people but also to put together all issues in sampling as well (Bell et al. 2018).

Sampling for Qualitative Interview: Lack of transparency is sometimes a part of qualitative research, and this is related to the sampling. It is most challenging to identify how those to be interviewed are to be selected; or how many people were interviewed because qualitative researchers know that their sampling is based on conveniences or opportunistic ones (Bell et al. 2018).

2.5.1.8 Data ordering

For the evaluation of the process, and the data analysis process not to be complicated but to be more accessible; the data was ordered sequentially, and this happens at the third stage of the research.

2.5.2 Data analysis

Data analysis includes the process of transforming collected data to meaningful and logical explanations. There was simultaneous conduction of the data analysis with the data collection, because, it focuses on the interviews and observations progressively and made a decision on how to try out the surfacing conclusions. Categorising strategies were used (such as coding and thematic analysis) and connecting strategies (such as narrative analysis and individual case studies, memo and displays).

Data coding helps to generate the categories because the data are mostly descriptive from the start of data analysis. Shaw (2013, p.55), stated that "...the analysis is a process of sense-making of the data concerning research questions and concerns, the sense-making occurs as a process of ascribing codes to the verbatim transcriptions and other data." The different types of coding below helped to generate questions and potential answers to the questions relating to their casual relation.

2.5.2.1 Open coding

Open coding is referred to as the initial conceptualisation of abstract entities. That implies data collection and the building of concepts to be taken from the research study directly, which was done by categorising the codes into themes by looking for comparisons or similarities. The relevant data gathered in the research cycle one was conceptualised into data codes that came up with the same key or important points (Malterud et al. 2001).

The open coding starts with a constant comparison process, and the researcher locates categories by the phenomena found in the data derived.

2.5.2.2 Axial coding

Axial coding is done after the open coding. This is because the researcher wants to further find the relationship between the emergent categories. These relationships were identified using an interrelationship diagram used as a systematic way of checking the relationships between the core variables that were derived from the data, because grounded theory is a qualitative methodology that has a systematic procedure for analysis of data (an example has been included on page 280 to illustrate the process). The researcher should have a great idea of the categories identified for the purpose of more empirical and theoretical idea of the case study in which the research is conducted. This is where the results and interactions are being explored. In the axial coding, the sample reduction process is done. It is also a process of reducing categories by combining categories into other categories.

2.5.2.3 Categorization and proposition

This is where the relevance and impacts are combined to form a proposition on the phenomenon being studied by noting the results and what is happening. This could also be called the axial coding. Thus, a category is identified based on the proposition which can be used to further the research process. Table 2.4 below explains the above processes:

Table 2. 4: The research process from the data collection stage to the category identifications (see appendix A1-A2).

		OBSERVATIONS, JOURNALS, LITERATURE, DOCUMENTS, INTERNET, INTERVIEWS	THEMATIC ANALYSIS, NARRATIVE ANALYSIS, OPEN AND AXIAL CODINGS	CATEGORISATION AND PROPOSITION	
No.	Ref.	Data (observation, description passage)	Relevance (to concern variable)	Impact (on concern variable) D/R	Proposition Subject-Relevance Predicate-Impact
RESEARCH CIRCLE 4.1 (PROPOSITION LOG)					
1.	1	The broaden-and-build theory posits that experiences of positive emotions broaden people's momentary thought action repertoires, which in turn serves to build their enduring personal resources, ranging from physical and intellectual resources to social and psychological resources. Preliminary empirical evidence supporting the broaden-and-build theory is reviewed, and open empirical questions that remain to be tested are identified. The theory and findings suggest that the capacity to experience positive emotions may be a fundamental human strength central to the study of human flourishing.	This is relevant because positive emotions may broaden the individual's momentary thought actions repertoires which helps to increase resilience.	The positive emotions impact on resilience because it builds the individuals enduring personal resources which means that as you increase their personal resources, you increase resilience – D .	Positive emotions might increase resilience by broadening momentary thought action repertoires and enduring personal resources of the individuals in a community.
2.	1	The mission of positive psychology is to understand and foster the factors that allow individuals, communities, and societies to flourish (Seligman & Csikszentmihalyi, 2000). Positive emotions serve as markers of flourishing, or optimal well-being. positive emotions signal flourishing. But this is not the whole story: Positive emotions also produce flourishing. Moreover, they do so not simply within the present, pleasant moment but over the long term as well. The take-home message is that positive emotions are worth cultivating, not just as end states in themselves but also to achieving psychological growth and improved well-being over time.	This is relevant because you may use positive emotions to increase community flourishing to the present and in a long-term moment.	This impact because you can use positive emotions to flourish a community which means that as you increase resilience, you increase the flourishing of the community – D .	Positive emotions might increase resilience in a community by flourishing the community in the present and in a long-term moment.

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2.5.2.4 Memo

The category formation allows for understandings of what the researcher think is going on in the context of the study, captured as memos. These are the knowledge derived during the categorising processes. They also give the researcher the ability to do a checklist on the categories as an understanding of the data collection process is ongoing (Charmaz, 2008).

2.5.2.5 *Selective coding*

The selective coding is a process used to reduce categories immediately; the first core variables are distinguished. It is also where the research changes directions and the categories direct the research process. Douglas (2003) stated thus: “The selective coding process helps in reducing the categories distinguished by the researcher to a smaller sample size in which the propositions are coded for the categories.”

The researcher established a theoretical model from the categories, and a little literature review study was conducted for each category by the researcher to filter each of the categories. This can also be called the theoretical sampling (deductive) although saturation may be reached during this process because saturation is also when the researcher is unable to discover more categories or propositions to add to the already categories in existence.

2.5.2.6 *Theoretical sampling*

Theoretical sampling is a process where the reduced categories are renamed, and more data are collected to fit into the categories. It is a process where data collections are generated to initiate a theory. The researcher makes the decision of what data to collect next after collecting codes and analysing data jointly in order to develop a theory (*theory description*) as it unfolds.

2.5.2.7 *Mini-literature review*

This is the process where memos and mini literature review are made in the research process after collecting and analysing the data in each phase. The researcher keeps this process in the form of notes all through the research process for the researcher to be informed and have ideas on what is happening by having a reflection on the collected data and making a note informally. This vital part of the research process is an intermediary for draft papers and collection of data (Charmaz, 2006).

2.5.2.8 *Documentary research*

The documentary research was mentioned at the introduction of the grounded theory section above. Bailey (1994) stated that the documentary research is made up of the primary documents, which is the present ‘eyewitness’ experience of the research study; and the secondary documents is an account of absentees who have an idea of the event or research study. The documentary research is also a process where the documents with the information of the studied phenomenon are analysed (Ahmed, 2010). For the documentary research process

to be authentic, the documents should be conceptualised, assessed, analysed, and quality control should be done on the documents.

2.5.2.9 Summary of the process (dependability)

The research process employed is the grounded theory, because it can result in getting the empirical (core variables) and theoretical model (causal loop diagram).

Crucially, these research processes are data collection, data analysis, coding, propositions, theoretical sampling, and constant comparison. It led to the building of concepts and a causal loop diagram and shows how dependable the research study is. The Figure 2.9 below summarises the processes and shows how rigorously the researcher used the grounded theory process. It can also be viewed in the appendix (A1-A5).

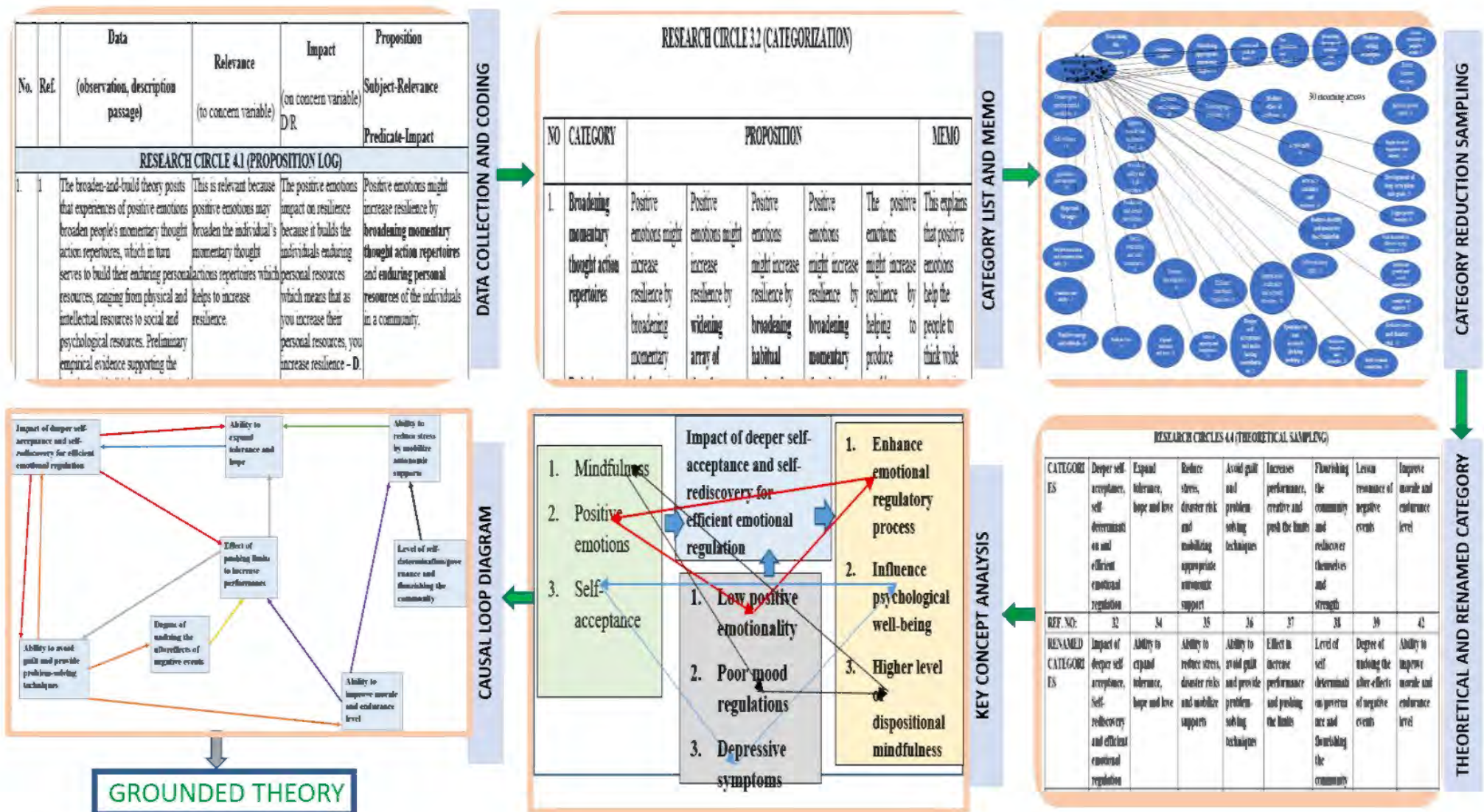


Figure 2. 9: The integration of grounded theory and data collection methods used (dependability). See appendix (A1-A5).

2.6 The research plans

This part involves the steps used for the research processes of the study which is from the data collection down to the theory. It explains the milestones which were used to further assess and monitor the research study in case if amendments are necessary. This part gives a description of the cycles of data collection used.

2.6.1 Cycle one

This first cycle includes several data sources that went through analysis and study for the researcher to get more relevant information related to the research study. The data were inferred into the proposition log, and this allowed for the possible tracking of every data derived, the description of the relevance and effect of the study related to the concern variable or research focus. The proposition log accommodated the results obtained from the combination of the relevance of the concern variable and the impact on the concern variable, which were used to generate suitable categories.

2.6.2 Cycle two

Cycle two allowed the researcher to generate and create more propositions and categories which built from cycle one. It is crucial in this cycle not to collect the same data that were found or represented in cycle one. The same processes used in cycle one was used after the data collection, and the new propositions were added to the proposition log in order to further the research study. In cycle two, the propositions obtained can be categorised into the existing categories, or different new categories can be generated for imputing the propositions.

2.6.3 Cycle three

Cycle three is the part where there is more focus on reducing sampling, and the researcher must generate more propositions at this level too. This is carried out also by building an interrelationship diagram to discover the connection between several categories. When the categories are reduced to lesser core categories in order to generate a theory of the research study, it is called reduction sampling. This early interrelationship diagram was derived by knowing if a category is a kind, a type, or a part of another category.

After this stage, a mini-literature review that assists in gaining insight into the research as well as giving more knowledge to the researcher of each category or concept is done.

2.6.4 Cycle four

This was the last cycle of this research study, and it focuses on reaching saturation. The last or final interrelationship diagram was derived from this research cycle four. Saturation is when the researcher starts getting repeated information about the phenomenon studied or when the researcher imputes information into the categories derived from the previous cycle and to the extent that no new and vital details or data could be added into the categories. Propositions were also derived, which was used to build the last theory.

2.7 Trustworthiness

This part of the dissertation assists the researcher in understanding or addressing the issues of: How the results and conclusions might be wrong? How the data the researcher will potentially have could support the understanding of what is going on as linked to the conceptual framework? In addition, why the readers or those involved in the research study should believe the results? In order to avoid un-useful or non-productivity, there need to be an awareness of the threats, understanding the threats and look for ways to deal with the threats in the research study. The importance of this part to the research study, as stated by Maxwell (1996) is that after the research has begun, qualitative researchers must try to rule out validity threats by use of evidence which will be collected during the research.

The trustworthiness is mostly related to qualitative research as it is a way of accounting for credibility in the qualitative research study. It is because trustworthiness is an evidence and not with methods, so the research is based on evidence and not on methods, and the research will keep re-checking the grounded theory process used.

2.7.1 Constructionist design considerations of trustworthiness

There have been discussions on how to guarantee and illustrate the constructionist design's quality, although authors infrequently use the word 'validity' (Easterby-Smith et al. 2012). Golden-Biddle and Locke (1993) discovered three vital elements for the identification of constructionist' considerations of trustworthiness, these are explained below:

i. Authenticity: This includes convincing the people that the researcher has a more in-depth idea of what is derived from the institution.

ii. Plausibility: This entails the consideration of some occurring review or interest amidst other researchers.

iii. Criticality: This involves the persuasion of the readers to question the disregarded assumptions, thereby providing something truthfully novel.

Easterby-Smith et al (2012, p.96), stated that David Silverman (2000) argues “...for a more objectivist stance because there are few safeguards to hinder researchers from picking evidence out of the mass of data to support their particular prejudices.” Silverman (2000) also advised researchers on some ideas to use, which could protect the researchers against the charges of anecdotal. These ideas are explained below:

i. Constant comparison: This involves the grounded theory concepts for the identification of new settings, that would extend the present theory.

ii. Comprehensive data treatment: This includes analysing all the primary derived data before reaching some conclusions.

iii. Refutability: This includes the search for instances that could probably show that the present beliefs are not or may not be accurate.

iv. Tabulations: This involves the thoroughness of the organisation of data, which can be a-times useful in the degree of the event of phenomena.

Easterby-Smith et al (2012, p.97), asserted that “...in their view, the results of constructionist research should be believable; and they should be reached through transparent methods; thus it is very important for the researcher to explain how he/she gained access to the particular organization; what processes led to the selection of the informants; how data was created and recorded; what processes were used to summarize or collate it; how the data became transformed into tentative ideas and explanations; and how he/she felt about the research.” Most of these processes were considered and exercised in this research and chapter. Elements of trustworthiness will be discussed below before substitute for external and internal validity, validity procedures and validity threats.

2.7.2 Elements of trustworthiness

Qualitative research does not take account of all the different parts of the research study and a researcher cannot give a general factor of the trustworthiness of the research study, but the

researcher must take the responsibility of showing proof of trustworthiness for the research (Maxwell, 1992). A quantitative study is not valid unless it is reliable; also, a qualitative study is not transferable unless it is dependable this means that we cannot judge the actions taken from one viewpoint to another perspective.

For a research to have a worth, validity or trustworthiness is very vital in order to ascertain the worth of the research (Lincoln & Guba, 1985). The vital question to address in trustworthiness is, ‘how can a researcher convince or make the audience or self-belief that the research outcome deserves paying attention to?’ It can be done, assessed or addressed by four elements briefly explained below to assist in assessing the trustworthiness of this study:

i. Credibility: This means that the researcher has confidence in the truth of the research results. It asks a question of if it does ring true?

ii. Confirmability: This is the level of neutrality. It is determined by the respondents shaping of the research results, that is, the level of the findings becoming the product of the research focus and not by researcher bias.

iii. Dependability: This means that the research result can be repeated or replicated and can be consistent in the same or similar context.

iv. Transferability: This means that the research result can be applied in another context to some extent.

2.7.3 Substitute for external and internal validity

For threats to validity consideration towards an increase in the credibility of research findings, there are nine validity or trustworthiness procedures which could help with this, and they are; triangulation, disconfirming evidence, reflexivity of the research, “member checking, prolonged engagement in the field, collaboration, audit trail, thick and abundant description, and peer and debriefing” (Creswell & Miller, 2000, p.126).

In this study, the term *credibility* may be used to replace the term *internal validity*. This is in relation to explanation on standard validity procedures whereby the *internal validity* may be

replaced with credibility (Lincoln & Guba, 1985). However, for the term, *external validity*, which is not produced by the researcher, it may be replaced by the term *transferability*, which according to Shaw (2013, p.58) “...presents a significant departure with respect to the meaning of the concept as the burden of proof of transferability rests with the person seeking to make the application elsewhere if the findings are context-specific.”

Furthermore, concerning the validity or trustworthy constructionist consideration, and for the researcher to propel a probable result, the paradigm positions of this study should be able to inform the validity procedure selections. Three paradigms were considered for the validity procedure comparisons. See table 2.5 below:

Table 2. 5: Comparison of the validity procedures in the qualitative and paradigm positions (Source from Creswell and Miller, 2000, p.126).

Paradigm Assumptions	Lens of the Researcher	Lens of the Participants	Lens of the Readers or External Individuals
Post-positivist Paradigm	Triangulation	Member checking	The audit trail
Constructivist Paradigm	Disconfirming evidence	Prolonged engagement in the field	Thick, rich description
Critical Paradigm	Researcher reflexivity	Collaboration	Peer debriefing

2.7.4 Types of validity (trustworthiness) and their threats

The types of validity are descriptive, interpretative, theory, and generalisation.

2.7.4.1 Descriptive validity

In describing what the researcher saw and heard, the main description validity threat is the incompleteness or inaccuracy of the data. To solve this problem, the researcher used the audio or video recording of observations and interviews and also the verbal transcription of the recordings to avoid a severe validity threat of the study. The reason for this is that any interpretation or conclusions the researcher made from the description can be questioned if the

description of what the researcher observed or if the interview the researcher concluded is invalid. For this reason, interviews are always recorded and transcribed, unless there are reasons strong enough not to do so (Maxwell, 1996).

2.7.4.2 *Interpretative validity*

According to Maxwell (1996), trying to impose someone's framework or meaning instead of trying to represent the viewpoint of the people studied and what they mean by their words and actions are the main threat to valid interpretation. This could happen in the following ways:

1. When the researcher does not pay attention to what the participants mean
2. When the researcher is not aware of the framework and assumptions
3. When the researcher does not give the opportunity for the participants to reveal their perspectives by asking questions that are close leading or short.

To solve this validity threat, how the participants in the study made expressions of what is going on were systematically noted and understood, instead of categorising their words and actions in the framework (Maxwell, 1996). To avoid the threat, the term *member checks* strategy was used.

2.7.4.3 *Theory and generalization validity*

According to Strauss and Corbin (1990), the threat here is that theory does not put into consideration the alternative explanations or understandings of the phenomena studied or even paying attention to the discrepant data. To remove this threat as the researcher, theories of the concepts that are out of the research are checked.

Maxwell (1996) opined that there are two types of generalisation, they are: internal and external generalizability. Internal generalizability implies generalizability of a conclusion within the settings or groups studied, while external generalizability suggests generalizability of a conclusion outside the settings or groups studied. For qualitative research, internal generalizability is crucial.

2.7.5 *Threats to validity*

There are two main types of threats to validity concerning qualitative research studies, although Maxwell (1996) indicated that it is impossible to list all validity threats to the conclusions of a

qualitative study. These types of threats to validity are researcher bias and reactivity (the impact of the researcher on the settings or people studied).

2.7.5.1 Researcher bias

These are ways where data collections and data analysis are analysed out of shape by the researcher's theory, importance, or preconceptions. In qualitative research, the major concern is to learn how a specific researcher's importance could impact the style and conclusions of the study, but not to eliminate the dissimilarity between researchers in the importance and perspectives that they offer the study (Hammersley & Atkinson, 1995).

The possible biases are researcher bias and participant bias. The researcher dealt with these by recording the responses during the interviews (for researcher bias). There were personal and close face to face interviews for transparency, and the identity of the participants was kept confidential (for participant bias).

2.7.5.2 Reactivity

This is the impact of the researcher on the settings or individuals studied. In a qualitative study, the goal is not to remove the influence of the researcher but to understand it and also to use it productively, because removing the actual impact of the researcher is not a possibility (Hammersley & Atkinson, 1995).

Maxwell (1996) explicated that in the case of participant observation studies, reactivity is not seen as a real validity threat which is contrary to what people believe. While in the case of interviews, reactivity is a serious validity threat that can not be escaped. For example, the information giving by the informant is as a result of the interviewer and the situation of the interview.

It is said that incorporating credibility and originality improves the resonance and usefulness criteria (Charmaz, 2006). This notion has spurred some questions which are presented below:

i. Credibility: The question to ask is – can the readers assess the claims of the researcher autonomously? Does the argument have strong links with the data collected? Where there enough empirical observations shown from the categories? Where data provided enough to deserve the claims?

ii. Originality: the questions to ask are – Can new ideas be derived from the categories? What is the significance of the research study? Can the grounded theory modify ideas and current practices?

iii. Resonance: the questions to ask are – Are the participants acknowledging the essence of the grounded theory? Does the experience obtained from the study show the link with the categories? Are the participants going to see that the analysis could give them more ideas about their communities and lives?

iv. Usefulness: The questions to ask are – can the researcher recommend more research areas? Can the research contribute to more knowledge? Can the individuals or communities make use of the results in their environments and lives?

2.7.6 Validity issues

When validity issues occur, below are the proposed ways to deal with them. These issues should have come under the sample session, but the researcher has chosen to discuss them in this section because the researcher also regard them as threats to validity.

2.7.6.1 *Disaster reduction network selection*

The researcher studied some disaster networks (like the pelican park network and habitat for humanity training networks) that have responded to disaster and tried to reduce the risks involved by providing proper recovery as of the time of this research study, which were used to understand what is happening and led the researcher to properly identify which network to work with or not work with for fieldwork. The researcher stopped at the disaster networks in the Western Cape, apart from when other relevant studies were identified elsewhere which the researcher did not find initially. The Western Cape had other features or ways that made it different from other places, thus another reason not to study the disaster networks elsewhere.

2.7.6.2 *Disaster victim's selection*

The threats or questions here was that; Did the researcher interview enough disaster victims? Did the researcher bias the data by whom was interviewed? Did the researcher intentionally interview victims who have different perspectives and opinions on what is going on? Did the researcher interview victims that are outspoken and critical of the disaster response teams? Did

the researcher interview those known or barely known? Did the researcher interview only those referred to him? Did the researcher try to get both positive and negative inputs?

The interviewing were done accordingly as described earlier and the researcher stopped when he did not hear or get new things anymore (That is reaching saturation).

2.7.6.3 How do we know the truth of the information obtained?

To do this, the researcher made participants comfortable and ensured that the relationship he had with the participants would not be a validity threat. The researcher also interviewed the participants in locations that are away from the initial location, for the participants to be free to give proper feedback. The researcher assured them of the trust of keeping their identity confidential.

2.7.7 Ethical issues

Could the research harm the Inter-agency task force of disaster reduction, disaster network members, the communities and the disaster victims?

There was no harm to the disaster management teams, the disaster victims, or persons who participated in this research study because the victims and individuals identities were kept secret. The researcher was not able to eliminate the risk that the individuals or groups of people who responded to the victims gave opinions about them as a result of the interviews. The victims or persons who were concerned about this kind of risk quickly tended to avoid participation. Therefore, these ethical issues are broken into details below:

2.7.7.1 Confidentiality

The ethical conflict within the report or research study was centred on confidentiality, which implies that disaster risk data obtained from the informal settlements, disaster rescue teams, the Western Cape disaster management, and others remained confidential.

2.7.7.2 Participant selection

The researcher interviewed the disaster network members, response crews, disaster victims and others involved in the research project. The researcher made an audio recording or videos of both the disaster rescue teams; the Western Cape Disaster Management Centre and the disaster victims in the informal settlement and recorded what was said by the parties involved and

transcribed them. The researcher also went for fieldwork to take samples, do tests and write analytic memos.

2.7.7.3 Voluntary participant

The victims or persons who were concerned about the risk involved in the research quickly tend to avoid participation. The researcher was aware that no one refusing to participate when asked poses a significant validity threat to the research.

2.7.7.4 Plagiarism

This study also hinges on previous engineering, management, disaster studies and resilience research conducted by other researchers in the research group and externally, which the researcher correctly and thoroughly referenced.

2.7.8 Evaluation of trustworthiness

The point is that any valid concept should have some truth in it, show how the research study can be applied in practice, or utilised and for someone else to be able to judge the consistency of the procedures followed to achieve the research results. The researcher should be able to persuade the readers that the results of the research study deserve to be heard. To assess the validity or trustworthiness, the following details are also to be considered:

- i. Truth Value:** Do realities presented give ideas of the data on which they are based? (Credibility)

- ii. Consistency:** Do the proof of completeness, comprehensiveness, and coherence of the process followed? (Dependability).

- iii. Neutrality:** Is there a complete, comprehensive and coherent audit trail leading to the final interpretations and conclusions? (Confirmability).

- iv. Applicability:** The level of which the results can be applied to another context or with other respondents (Transferability).

2.8 Conclusions

This chapter has motivated philosophical assumptions, paradigms, research design and methodology for answering the research questions. The types of and processes of the data collection methods were explained. Trustworthiness and threats to validity/trustworthiness were discussed in detail to enable the researcher to be aware of the research bias and other steps that were used in the model explanation and conclusion part. The next chapter expands on the findings of the research.

However, according to the research structure used for this dissertation, relating to grounded theory, the researcher has presented the findings of the research (chapter 3) before the literature review (chapter 4), (Glaser & Strauss, 1967; Glaser, 1992; Ramalho et al. 2015; Strauss & Corbin, 1990). This structure is different to the traditional way of presenting the literature review chapter before the research result chapter (Creswell, 2012; Gibbs, 2008). The reason for this is further explained in section 4.1 of chapter 4 in this dissertation.

Chapter 3 Research Results

3.1 Introduction

In this chapter, the findings of the application of the research process described in the previous chapter, are presented. These findings are described as four cycles of theory building. This chapter also explains the framework of the research mentioned in the previous chapter and the application thereof in the context of the study. This involves explanations of how the research conducted is presented to indicate the link between the research processes and the methodology and explains how the researcher conducted the data collection process. The chapter concludes with the establishment of the trustworthiness or credibility of the research procedure.

As indicated in the chapter 1, the structure of this research result (chapter 3) requires no references in this dissertation, as it is illustrating or explaining the findings and how the findings were derived or discovered by the researcher. However, some of the references and background theory relating to the findings outlined in this chapter, are found or identified in the other chapters (such as the literature review, chapter 4) to substantiate the claims made.

3.2 Cycle one

Cycle one could be referred to as open coding in grounded theory because it took the process of analysing the textual content by allowing the researcher to label concepts, identify propositions, and develop categories from the data generated. The cycle one was the first round of data collection, and sources included journal articles and other literature on the topics of community resilience and disaster risk. This is because the research topic has broad areas and research interest groups in the area of disaster risk and resilience development.

The research variable or object of interest was centred on the **development of community resilience**. A systematic literature review was conducted. From the data gathered in the research cycle one, a total of **83 propositions** and **30 categories** that were related to the concern variable and research question were generated. The categories were later renamed and reduced to **7 core categories** (see table 3.1). This is called reduction sampling, and a causal loop diagram was generated as the result for research cycle one (see Figure. 3.1 below).

Table 3. 1: The research core categories (research cycle 1).

CATEGORIES (CYCLE 1)	# PROPOSITIONS
Level of community disaster risk response	9
Level of disaster risk reduction	12
Level of understanding and improvement of systemic resilience	9
The degree of sustainable community development	16
The degree of disaster risk recovery	11
The level of development of systemic resilience in the communities	11
The level of vulnerability and exposure	15
Total	83

The research cycle one provided practical insights to continue data collection. The causal loop diagram below represents theory building for the research cycle one:

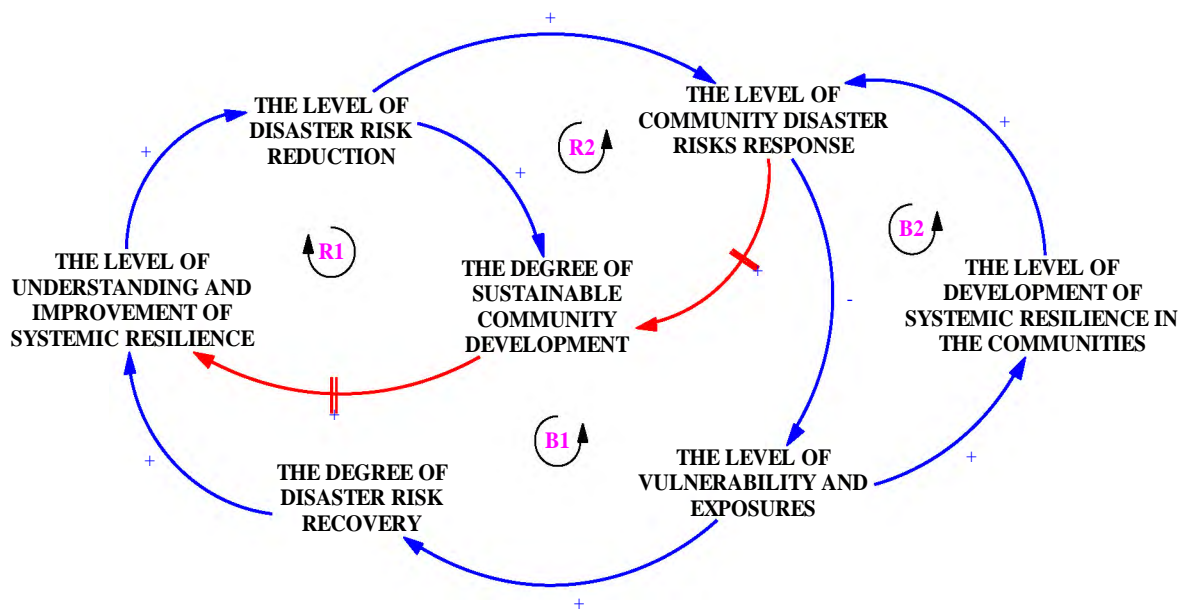


Figure 3. 1: Cycle one causal loop diagram.

The causal loops show variables that influences one another and together produce systemic behaviour. It shows that continuous understanding and improvement of the systemic resilience influences the level of development of systemic resilience in the communities. The mechanisms causing the low level of development of systemic resilience in the communities were identified as the level of vulnerability and exposure to disaster risk and the lack of community disaster response, disaster risk recovery, and disaster risk reduction. These mechanisms can be improved by the level of understanding of systemic resilience in the communities (see figure 3.1).

The research milestones documented is presented below. The research milestone is a process where the researcher analyses the development of the research work to show the accomplishment of the research work done so far (confirmability). Figure 3.2 below shows the milestones of the research cycle one and shows a brief synopsis of the 30 categories generated to be developed in the research cycle two (see appendix D1-D6) for clarity.

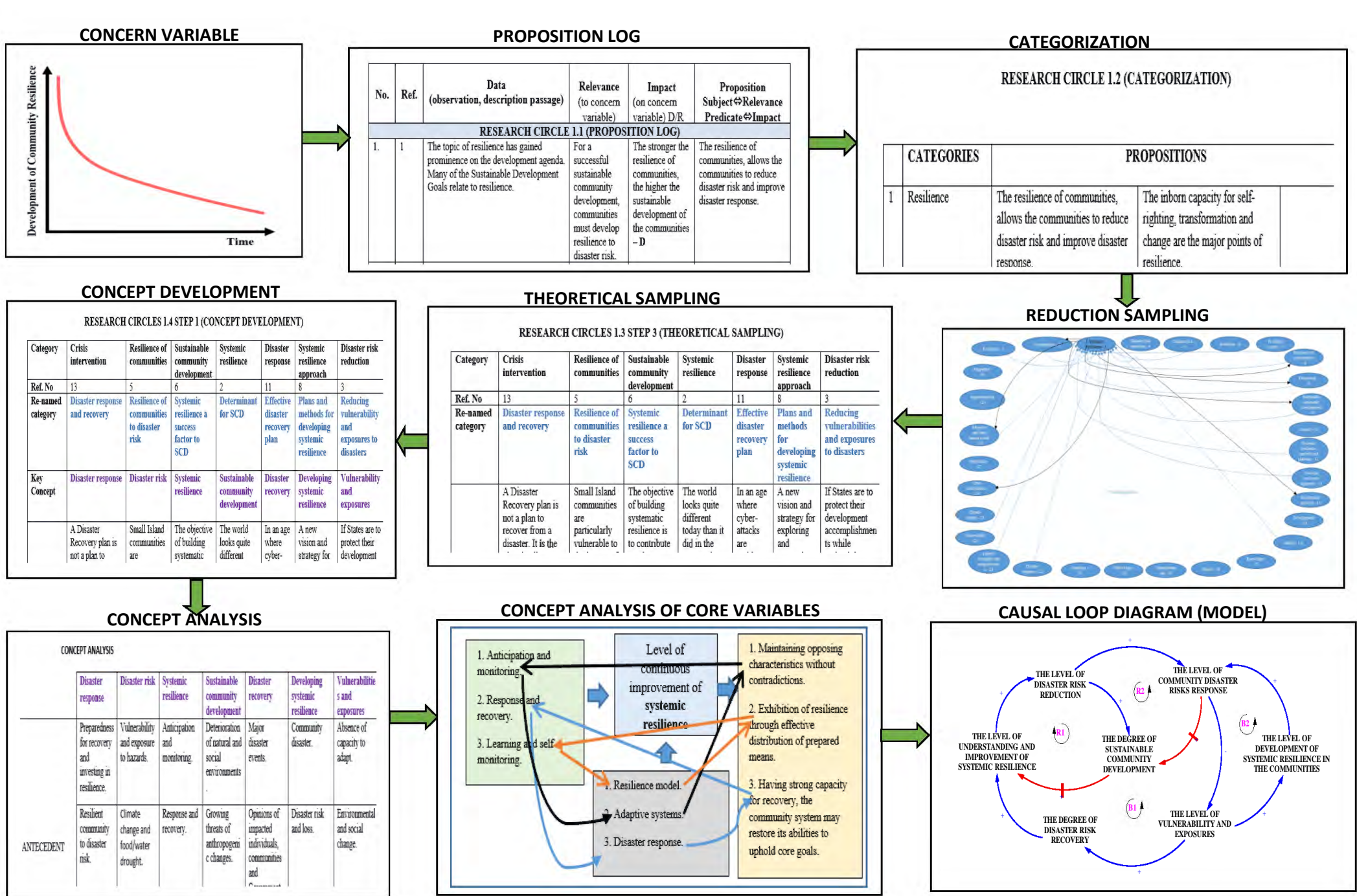


Figure 3. 2: Research cycle one documented milestones (confirmability) – (see Supplementary material; Appendix D1 - D6).

The level of understanding and improvement of systemic resilience (**R1**) influenced five of the variables. This is based on the research cycle one causal loop diagram (see figure 3.1). Therefore, this changed or amended the concern variable to, the ‘level of understanding of systemic resilience’ in the research cycle two, (note that in the chapter one, it was established that *systemic resilience* could also be seen as *community resilience* for the purpose of this study).

The understanding gained from the research cycle one is that the Western Cape as a province have many areas exposed to disaster risk, and the issue of exposure to vulnerability is high; thus, there is a low level of resilience in the communities, and they have difficulty in recovering from disaster risk. The level of disaster recovery, community disaster response and sustainable community development are declining and not helping to reduce disaster and increase sustainable community development as supposed to in the Western Cape (see figure 3.1).

The research cycle one provided insights into how the process of theory building develop in the other cycles. A review of the research goal, research question, and conceptual framework was carried out to verify and check if any changes were necessary. After the review, amendments were made to the research goal, research questions, conceptual framework, and the new research focus or concern variable derived was the ‘Level of Understanding of systemic resilience’ in the communities.

3.3 Cycle two

The research cycle two was built on research cycle one. The core categories from the research cycle one applied to the research study area, were used to generate the core categories in research cycle two. In this cycle, there was an idea of what could be the mechanism influencing the understanding of resilience in the communities vulnerable to disaster in the Western Cape. Two of the new core variables derived as the validation of the idea obtained from cycle one is ‘impact of the contribution of individual resilience’ to community resilience and ‘level of public education and public awareness’ on community resilience.

In research cycle two, data were drawn from the university database, journals, and interviews from individuals in the case study and agencies related to the research topic and concern variable. The cycle two concern variable was centred on ‘level of understanding of community resilience’. From the data gathered in the research cycle two, a total of **192 propositions** and

60 categories that were related to the concern variable and research question were generated. The categories were later reduced to **10 core categories** (see Table 3.2). The generic archetypes were also introduced to get the causal loop diagram as the research result for this cycle two (chapter 5 further explains this).

Table 3. 2: The research core categories (research cycle 2).

CATEGORIES (CYCLE 2)	# PROPOSITIONS
Impact of contribution of individual resilience	21
Degree of community engagement	25
Degree of community positive mind-sets	24
Level of public education and awareness	21
Ability to learn from disaster experiences	16
Degree of transparent/accountable governance	16
Level of perceived self-efficacy	14
Degree of contextual understanding of target audience	20
Level of responsive shared leadership	15
Effectiveness of disaster management frameworks	20
Total	192

3.3.1 Level of understanding community resilience

South Africa, as a developing country should pay more attention to understanding community resilience (see section 4.4.1). One of the purposes of this research cycle is to engage the empirical results of the scientific process to discover and understand the mechanisms that influence the level of understanding of resilience of the community faced with disaster risk in the Western Cape, South Africa.

The research cycle two produced a causal loop (interrelationship) diagram from the variables generated in the research. The causal loop diagram (CLD) explains which variable influences the other.

The CLD below explains how the fundamental of the relative achievement archetype relates to the understanding of community resilience. This gave idea of the mechanisms that influence the level of understanding of community resilience in the Western Cape.

The systems archetype (that is the generic archetype) that applies to the research helped to examine the research variables and considered how they fit into the generic CLD. Then the researcher went beyond the simple archetype which is embedded in a more complex system to improve the CLD (chapter 5 further explains this).

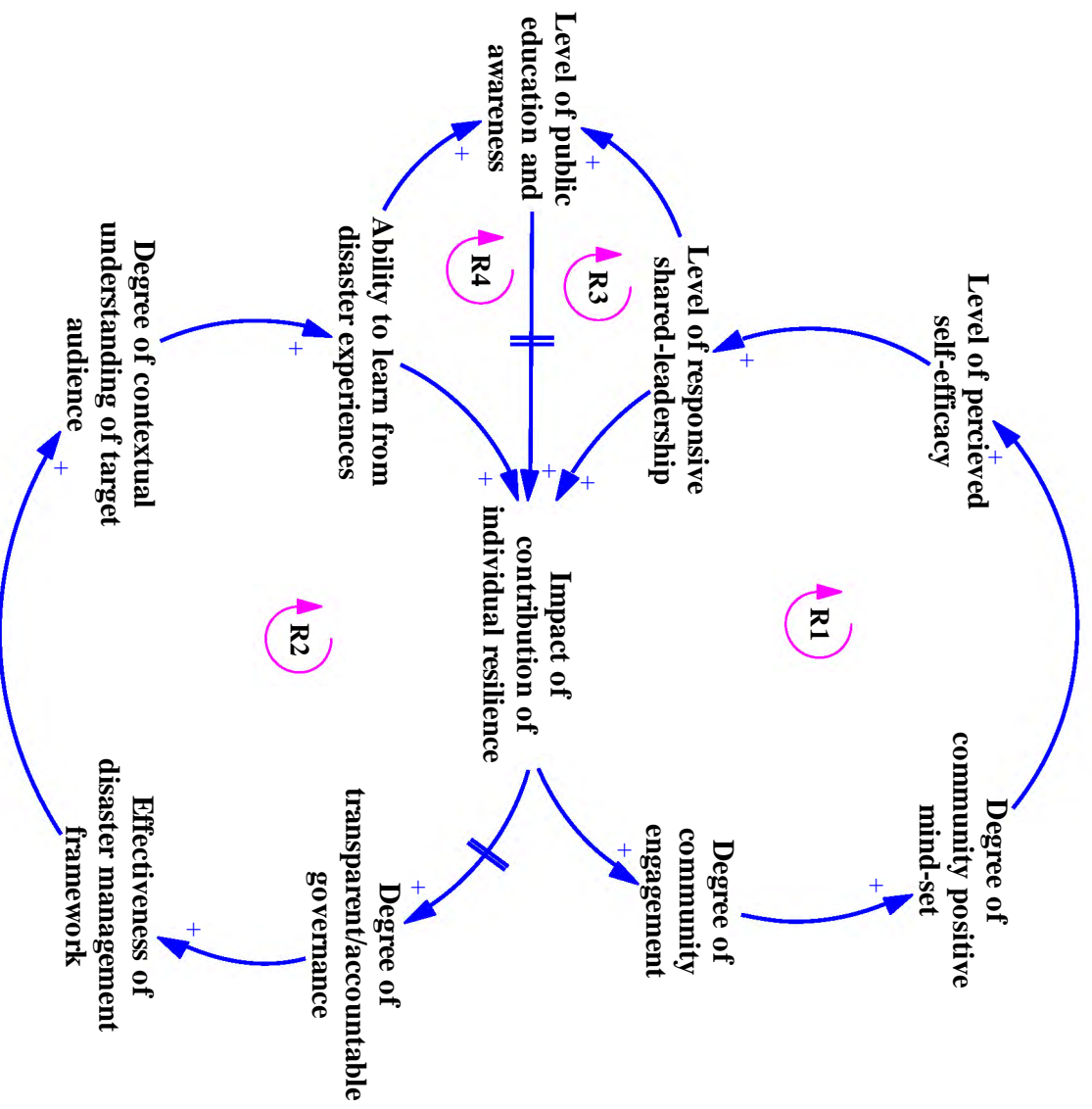


Figure 3. 3: Cycle two causal loop diagram.

To explain further through the causal loop diagram, it was established that, from the reinforcing loop 1 (R1) the impact of contribution of individual resilience (the concern variable) influences

the degree of community engagement, because the community needs to engage and participate together to enable them plan better on how to tackle disaster risk (see figure 3.3). Appropriate engagements could help the communities to do this. In this context (that is in the context of the Phola park community where the data was collected), engagement means the coming together of the community members, government and disaster management agency to plan and agree on some particular ways of managing the consequences of disasters. When decisions are made, the community members should participate in the decision making (That is allowing a bottom-up process). This implies that everyone involved would come together to agree on a strategy to combat the issue of disaster and building resilience for the community.

Also, from the **(R1)**, the degree of community engagement influences the level of perceived self-efficacy, the responsive shared leadership and influences the positive community mind-set (see figure 3.3). This is because the community needs to have a positive mind-set towards believing the possibility of reducing disaster risk, and as they do that, the community's self-efficacy is influenced, which is a belief in themselves that they can do it and participate in reducing disaster risk by sharing leadership responsibilities. However, this only addresses the social considerations with respect to reducing disaster risk. Structural considerations, such as funding, and the ability to implement funding, are also important when considering the likelihood of the consequences of disasters. Therefore, funding did not come up as a variable in this cycle as the disaster agency (government) indicated that funding is provided, but the community members are often not contented with the funding provided by the government.

The concern variable (impact of contribution of individual resilience), from **(R2)** also influenced the degree of transparency and accountability, the effectiveness of disaster management frameworks and this influences the contextual understanding of disaster risk and target audience and ability of the community to learn from disaster experience (see figure 3.3). It is because the disaster management teams in the Western Cape province and those in leadership positions need to be transparent and ready to be held accountable during disaster outbreak and control.

The larger feedback loops **(R3 and R4)**, illustrate the influence of education and awareness of community resilience and disaster risk reduction. Proper awareness should be raised to help the individuals know what to do when there is a disaster in the community, and they should be

able to understand the disasters and target audience to ensure appropriate and accurate messaging and information (see figure 3.3).

The concern variable of the research cycle two showed that there is a low level of understanding of resilience in the community and there will be difficulties in developing community resilience if all those in the community, stakeholders and all those involved in the study do not understand resilience and the systemic nature thereof. Thus, the purpose of the research cycle two was to identify and understand the mechanism(s) that are influencing the level of understanding of community resilience in the community faced with disaster risk and recommend improvements.

The nine variables from the CLD are the current mechanisms that could produce a level of understanding of community resilience (**R1 and R2**). From the CLD, the level of understanding systemic resilience is not mentioned, as the researcher have decided from this moment to start using the word ‘community’ resilience and ‘systemic’ resilience concurrently to drive his points. The reason for this was that during this cycle, the people interviewed were more comfortable and familiar with the phrase ‘community resilience’ than ‘systemic resilience.’ For this research study, these two phrases drive the same focus.

The determinant for improving these mechanisms according to the CLD is the ‘level of public education and public awareness on community resilience’ (**R3 and R4**).

The research milestones documented in this research cycle two is shown in Figure 3.3 below with a brief synopsis on the 60 categories generated to be developed in the research cycle three (see appendix E1-E6), for clarity.

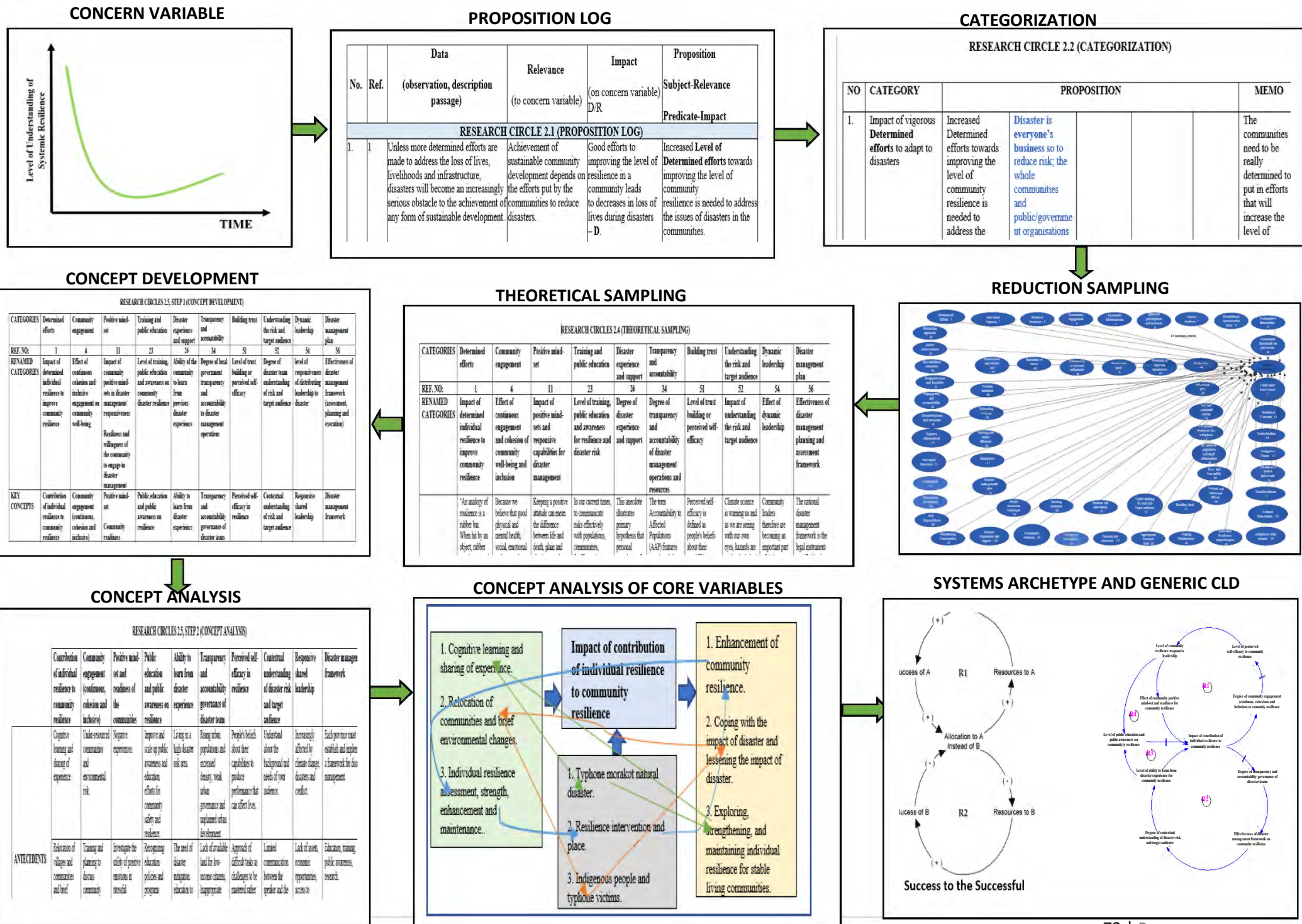


Figure 3. 4: Research cycle two documented milestones (confirmability) – (see Supplementary material; Appendix E1-E6).

Finally, the variables were all influenced more by the impact of the contribution of individual resilience variable. Therefore, this changed the concern variable or focus interest to ‘impact of the contribution of individual resilience’ to community resilience.

The understanding gained from the cycle two is that the Western Cape province has vulnerable communities facing challenge of disaster risk and if the individual resilience from the people living in the community is engaged and contributed to the community, it could help to influence the understanding of community resilience in the Western Cape. This statement is based on the understanding gained from the research cycle two by the researcher during the data collection and analysis and as illustrated in the causal loop diagram of the research cycle two (see figure 3.3 and appendix E). The research cycle two also gave an insight into how the process of theory building could move on from the other cycles.

A review of the research goal, research question, and conceptual framework was carried out to verify and check if any changes were necessary. After the review, few developments were made to the research goal, research questions, and the conceptual framework also changed. The new research focus or concern variable derived was impact of the contribution of individual resilience to community resilience.

3.4 Cycle three

The research cycle three was built on research cycle two. The core categories from the research cycle two were also applicable to the research study area used to generate the core categories in research cycle three. In this cycle, the resilient elements in individuals were identified, which could be used as an exemplar for the non-resilient individuals to influence community resilience. In addition, there was an understanding of the relationship between individual resilience and community resilience. The new core category derived as the validation of the idea derived from cycle two is the impact of positive emotions in individuals.

In this research cycle three, the researcher drew more open data this time from the University database, journals, and interviews from individuals in the case study and agencies related to the research topic, and concern variable of the research study. Few data were obtained from specific sites related to the research topic, which gave more details to the research study.

The cycle three concern variable or object of interest was centred on ‘impact of the contribution of individual resilience’ to community resilience. From the data gathered in the research cycle three, a total of **219 propositions** and **47 categories** that were related to the concern variable and research questions were generated. The categories were later reduced to **8 core categories** (see Table 3.3). In addition, generic archetypes were also used to get the causal loop (interrelationship) diagram as the research result for this cycle three (this is explained further in chapter 5 of this study).

Table 3. 3: The research core categories (research cycle 3)

CATEGORIES (CYCLE 3)	# PROPOSITIONS
Level of change commitment and progressive acceptance to change by individuals	21
Degree of the concept of resourcefulness in individuals	35
Effect of innovative, creative and proactive individuals in the community	26
Impact of positive emotions in individuals	20
Impact of motivated and transformational leadership in individuals	25
Level of the contribution of individual resilience to community resilience	40
Impact of self-esteem and taking responsibilities by individuals	30
Degree of individual good problem-solving skills	22
Total	219

3.4.1 Level of the contribution of individual resilience to community resilience

Individual resilience is crucial during times of disaster to promote, nurture and encourage community resilience (see section 4.4.2). One of the purposes of this research cycle three is to engage the empirical results of the scientific process to identify the resilient elements in individuals. The information and core variables from the other part of this research study and the perceptions derived from the literature review were used to build the theory through the application of the scientific modelling processes used. Therefore, individual resilience could have a vital impact on the level of resilience of community faced with disaster risk.

In research cycle three, a causal loop (interrelationship) diagram was produced from the categories derived in the research cycle. As in the previous cycles, the causal loop (interrelationship) diagram explains which categories influences the other. The concern variable indicates a low impact of the contribution of individual resilience to community resilience, which explains that it is unlikely for the community resilience level to be influenced with the individuals not being resilient enough (see section 4.4.2 and appendix B3). This is also based on the findings from analysis of the case study interview data (see appendix F).

The CLD below also explains how the fundamental of the going beyond the simple relative achievement archetype relates to the understanding of community resilience (this is explained further in chapter 5 of this study).

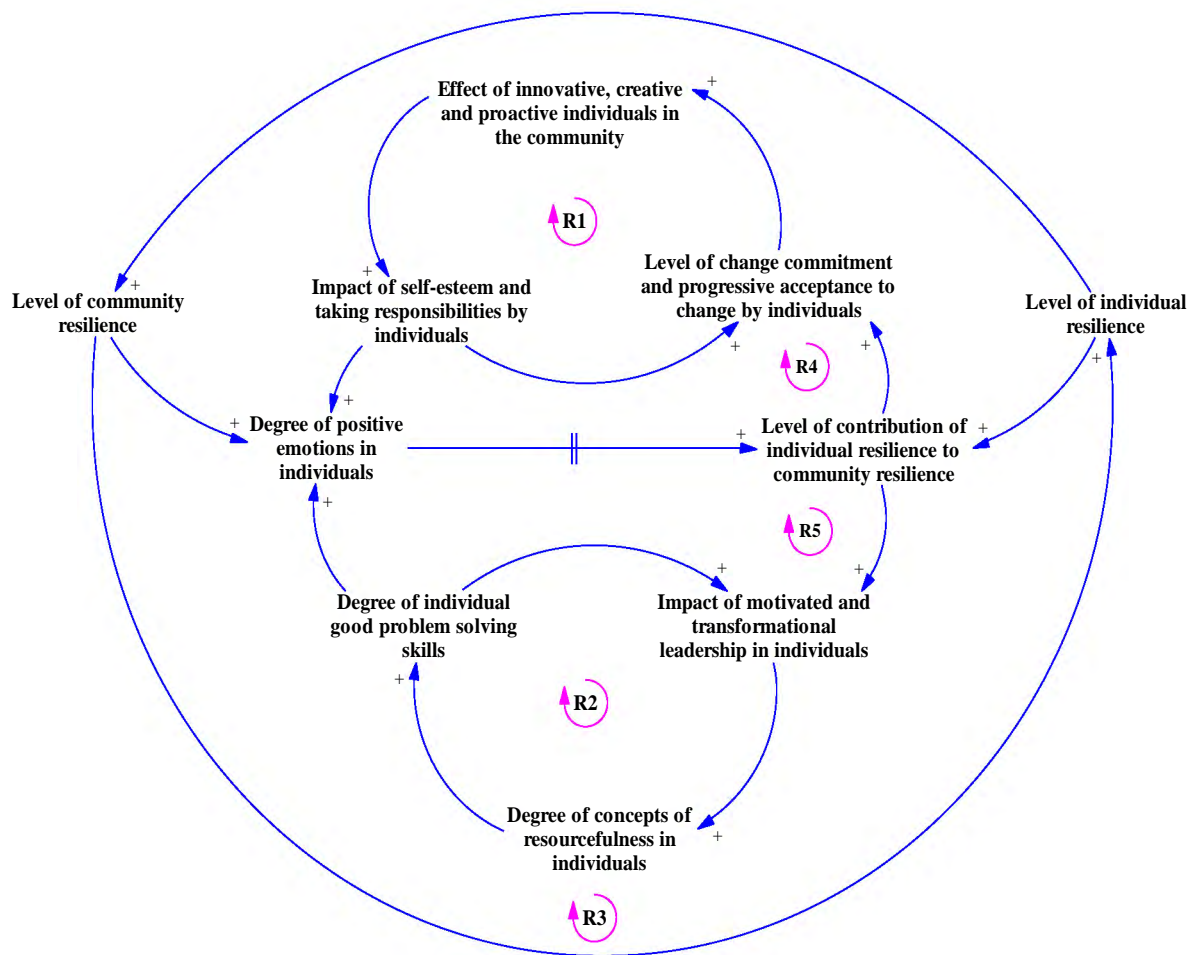


Figure 3. 5: Cycle three causal loop diagram.

The eight variables from the CLD (R1, R2, R4 and R5) are the mechanisms producing the behaviour that explains individual resilience in the case study.

The five feedback loops in this CLD, explains the reciprocal relationship between individual resilience and community resilience through interlinking variables and loops. Reinforcing loops 1 (**R1**) and reinforcing loop 2 (**R2**) both demonstrates how aspects of agency in individuals can contribute to positive emotions. Reinforcing loop 1 (**R1**), explains the attributes of individuals, such as commitment, creativity and innovation, and self-esteem, that contribute to a positive outlook, while reinforcing loop 2 (**R2**) represents skills in relation to leadership, resourcefulness and problem solving. This combination of attributes and skills influence the degree to which individuals demonstrate positive emotion. Positive emotion in this sense represents an increased ability to move forward. This ability therefore can contribute to the contribution that the individual makes to the resilience of the community.

Furthermore, through the loops of the causal loop diagram (**R1 and R4**), it is observed that as the level of contribution of individual resilience to community resilience influences the level of change commitment and progressive acceptance to change by individuals (which is when the individuals agree, accept progressive change and get commitment to it), it will influence: 1) the effect of innovative, creative and proactive individuals in the community (which is when individuals start creating ways and bringing innovative patterns to grow resilience in the community), 2) the impact of self-esteem and taking responsibilities by individuals (which is the process of individuals being confident and taking responsibility for developing resilience in the community), 3) the degree of positive emotions in individuals. This is as described by the CLD in figure 3.5 above.

Through the loops of the causal loop diagram (**R2 and R5**), it is observed that as the level of contribution of individual resilience to community resilience influences the impact of motivated and transformational leadership in individuals (This is a process where the individuals become motivated and engage leadership qualities that could be used to transform other less-resilient individuals), it influences: 1) the degree of the concept of resourcefulness in individuals (This is where the individuals exhibits the ability and idea to quickly and cleverly find means to overcome difficulties), 2) the degree of individual good problem-solving skills (This is a process where talented individuals can generate skills to develop resilience and contribute to knowledge on how to tackle disaster risk. In the context of this study which relates to the individuals interviewed, more individuals indicated that they were able to solve problems

when they have skills and are resourceful). This combination of attributes and skills influence the degree to which individuals demonstrate positive emotion.

In the systemic structure of the causal loop diagram, there is a need to constantly grow individual resilience level in order to influence community resilience; this explains the **(R3)** on the model (see figure 3.5).

The research milestones documented in this research cycle three is illustrated in Figure 3.6 below indicating the milestones of the research cycle three from the concern variable to the model and a brief synopsis on the 47 categories generated and developed in the research cycle (see appendix F1-F6), for clarity.

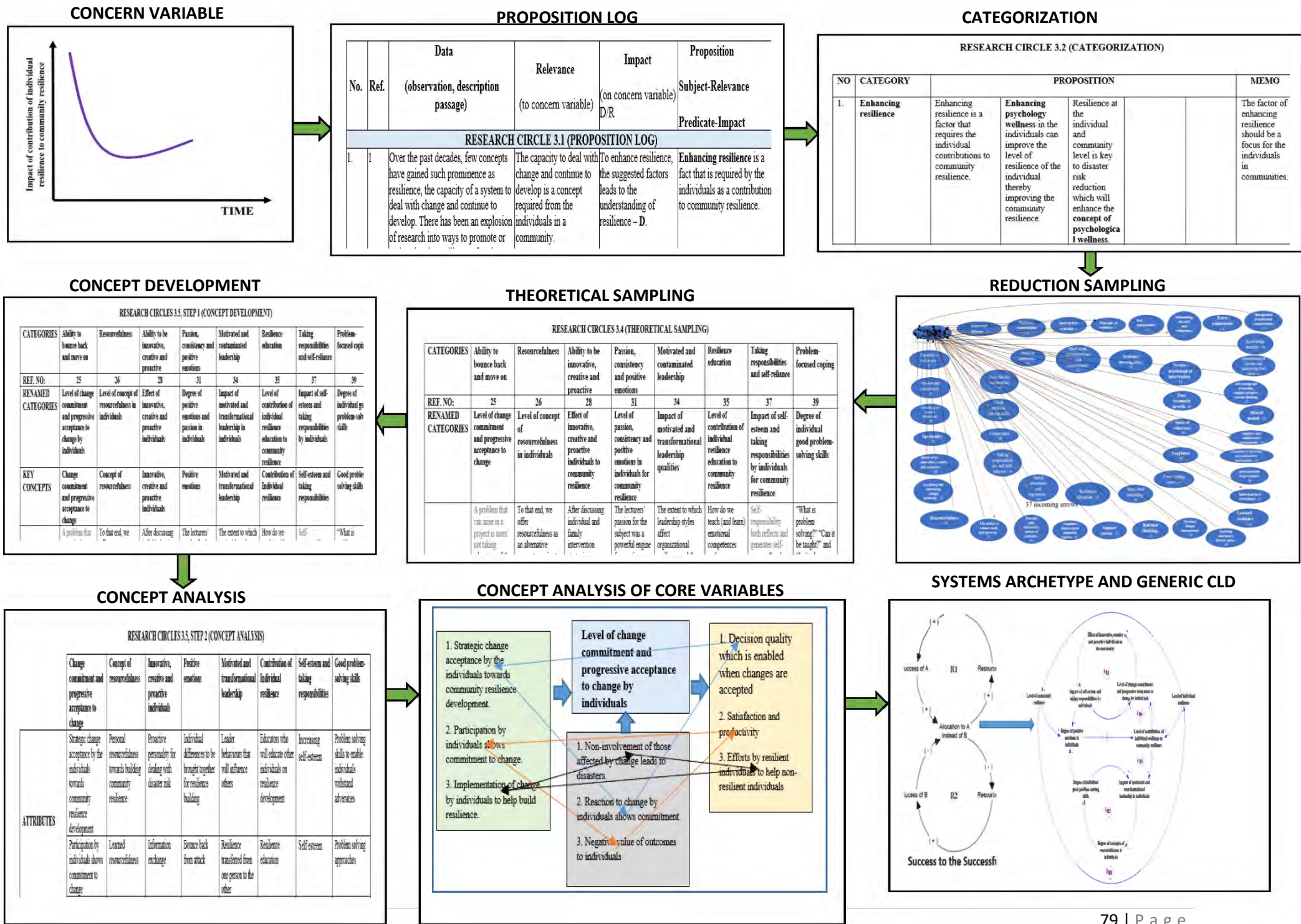


Figure 3. 6: Research cycle three documented milestones (*Confirmability*) – (see Supplementary material; Appendix F1-F6).

The lesson, according to the model (Figure 3.5), is about systematically developing resilience in the communities and trying to prevent it from declining rapidly. This means that to keep developing community resilience, individuals in the community should demonstrate agency through a combination of skills and attributes (see section 4.4.2).

Crucially, a review of the research goal, research question, and conceptual framework was carried out to verify and check if any changes were necessary. After the review, few developments were made to the research goal, research questions, and conceptual framework. The new concern variable derived was degree of positive emotions in individuals.

3.5 Cycle four

The research cycle four (the last cycle for this research process), built on the previous cycles. The core categories derived from the research cycle three were also applicable to the research study area used to generate the core categories for cycle four. In this cycle, the mechanisms influencing the level of community resilience were identified. In addition, there was a better understanding of the relationship between disaster risks reduction and community resilience.

In cycle four, the researcher drew on in-depth interviews from individuals in the case study, and agencies related to the research topic and focus interests were involved. The cycle four concern variable or object of interest was centred on the degree of positive emotions in individuals. From the data gathered in the research cycle four, a total of **208 propositions** and **46 categories** that are related to the concern variable and research questions were generated. The categories were later renamed and reduced to **8 core categories** (see Table 3.4).

A generic archetype was used to compare with and finalise the causal loop diagram as the research result (chapter 5 explicates further).

Table 3. 4: The research core categories (core variables) (research cycle 4)

CATEGORIES (CYCLE 4)	# PROPOSITIONS
Ability to manage emotions	29
Ability to improve tolerance level	30
Level of stress management	31

Ability to avoid guilt	34
Effect of pushing limits to increase performance	25
Level of self-determination to govern the community	25
Degree of undoing the consequences of negative events	16
Ability to improve morale level	18
Degree of positive emotion	0
Total	208

3.5.1 Degree of positive emotions to community resilience

In past years, positive emotions have received increased scientific attention. Positive emotion is not just an outcome but has been studied as markers of individuals point of resilience, well-being, and happiness (see section 4.5.1). Although, positive emotion is not an outcome in this research study, in broad well-controlled research studies, it has been studied to contribute to different outcomes of life and research. This is further explained in the literature review chapter (i.e., section 4.5.1).

In this research cycle four, the research focus takes a systems approach to identify the elements of resilience with an emphasis on identifying and using them to influence the level of community resilience. Similarly, the information and core variables from the other part of this research study and the perceptions derived from the literature review were used to build the theory through the application of the scientific modelling processes used.

The research cycle four also produced a causal loop diagram from the categories generated in the research cycle, like the other previous cycles. The causal loop (interrelationship) diagram explains how the variable influences one another. The causal loop diagram explains these influences, based on the findings from analysis of the case study interview data, illustrated in the causal loop diagram of this research cycle (see figure 3.7 and appendix A).

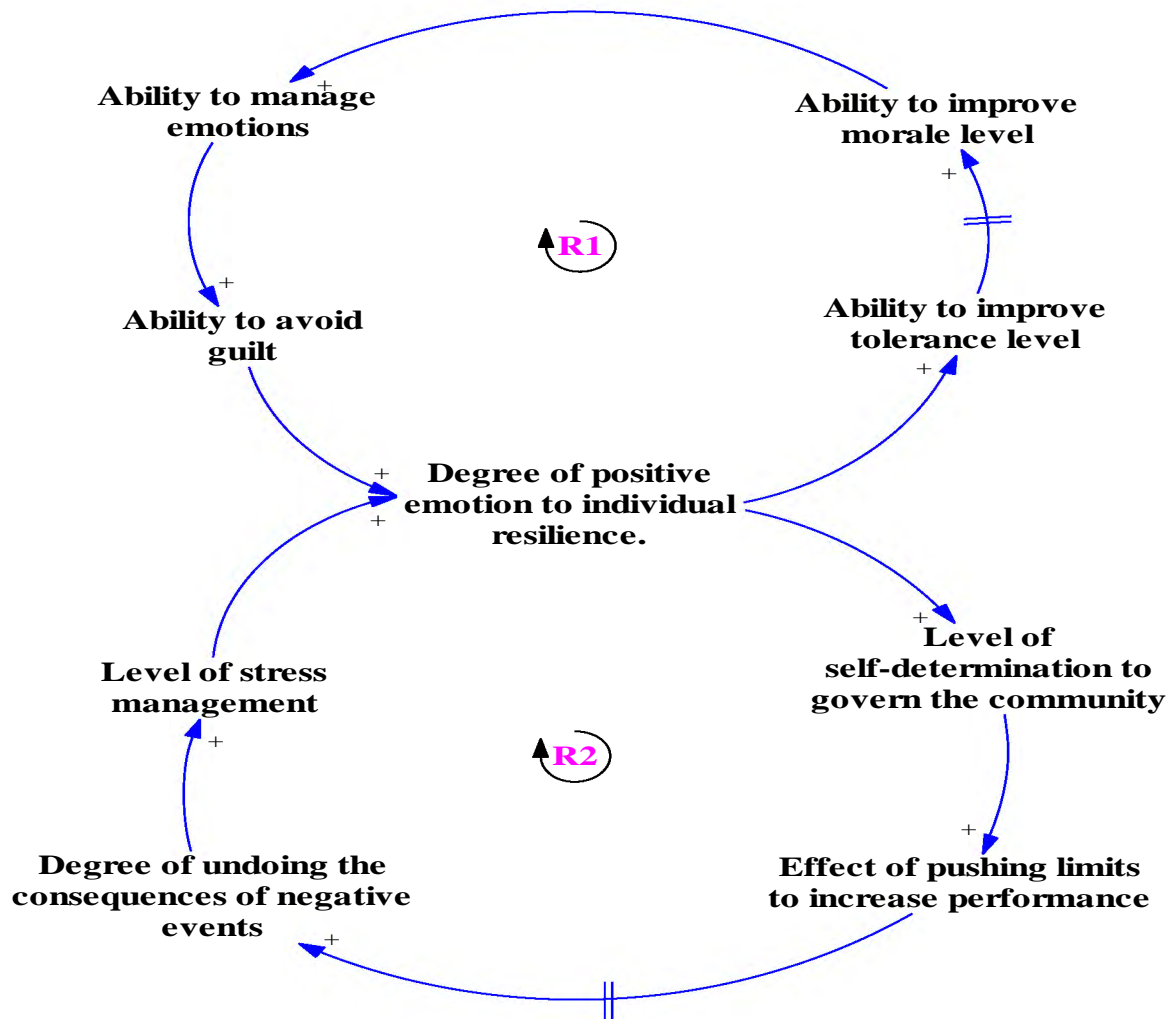


Figure 3. 7: Cycle four causal loop diagram.

The nine variables from the CLD are identified as the mechanisms influencing level of community resilience found in resilient individuals (**R1 and R2**). The ways and similarities these nine mechanisms could shape community resilience is by using them as an exemplar for the less resilient individuals. This is because these nine themes could be an essential active ingredient within the development of community resilience in the community vulnerable to disasters (see section 4.5.1). The description of the model will be done in chapter 5 of this dissertation (see section 5.5).

The research milestones documented in this research cycle four is shown in Figure 3.8 with illustration of the milestones of the research cycle four from the concern variable to the model, and a brief synopsis on the generated 46 categories developed in the research cycle (see appendix A1-A6), for clarity.

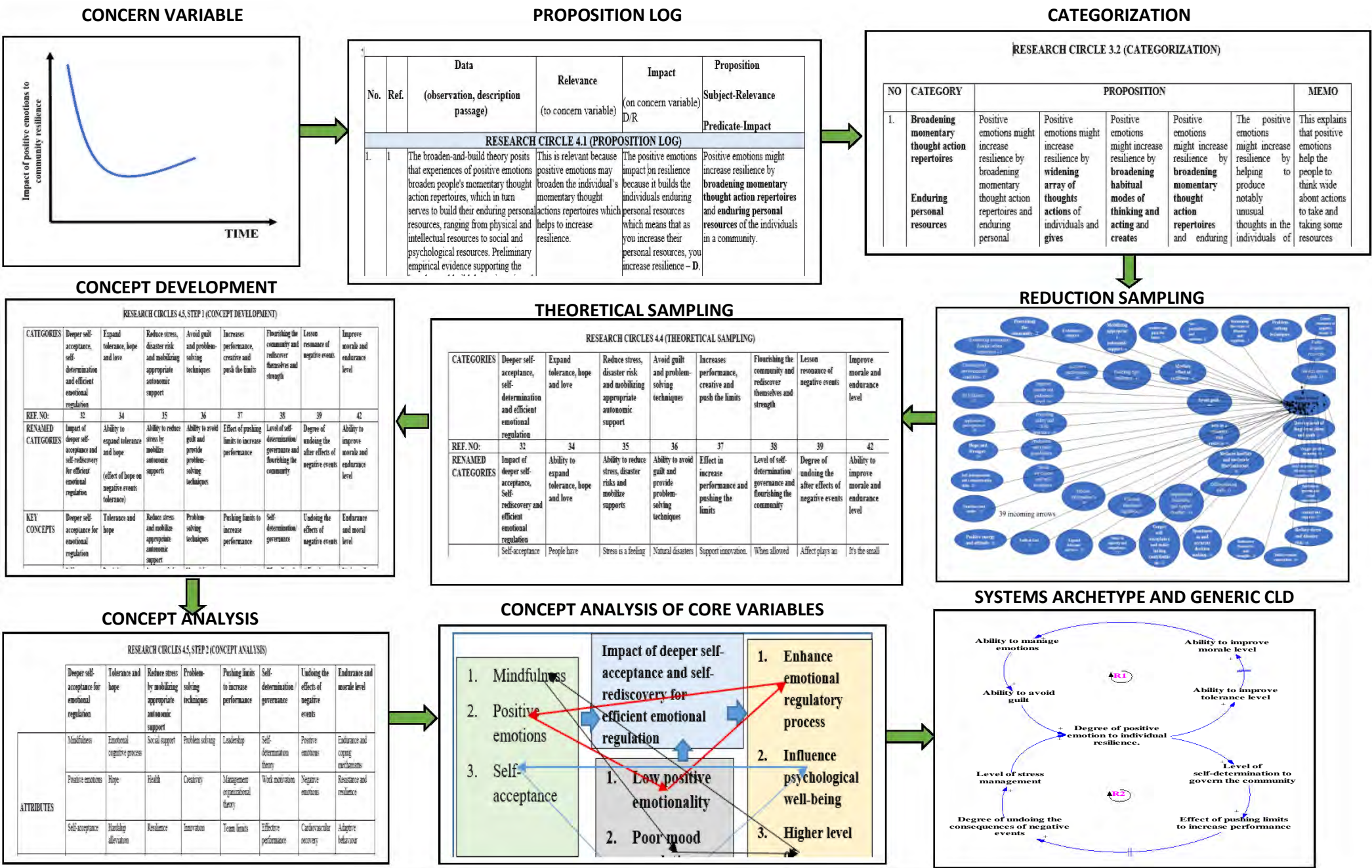


Figure 3. 8: Research cycle four documented milestones (Confirmability) – (see appendix A1-A6).

The lesson, according to the model (Figure 3.7), is about systematically developing and understanding the mechanisms influencing the level of community resilience in the vulnerable community. This means that in developing community resilience and attempting to reduce disaster risk, the nine themes in figure 3.7 could be vital. A review of the research goal, research question, and conceptual framework was carried out to verify and check if any changes are necessary. After the review, no changes were made because this is the last cycle of the research study, and there were saturations.

3.6 Research credibility

The research credibility is part of the trustworthiness of the research endeavour. It is based on the comprehensiveness and details of the researcher's proposition log, by explaining in detail how the proposition was derived and how many propositions were derived. This is because, the better the proposition log, the more credible the data could be. The purpose was to apply the research process and project plan from gathering propositions to developing the core categories. This has been illustrated further in this section and according to cycles of this dissertation. See the figure showing the proposition logs of the research study depicting the credibility of the data in the appendix (A1).

3.7 Validity test/checklist

The strategies used to rule validity threats and increase the credibility are briefly discussed below. the transferability, the dependability, and the confirmability of the conclusions in the research study are discussed in detail, in the chapter six of this dissertation. Additionally, the strategies can only be effective when used because just stating them will not drive the validity threats.

3.7.1 The modus operandi approaches

Modus operandi does not try to control validity threats as variables, but it deals with them as events by continually holding them in some fashion. It was done by looking for ideas where the threats took place or not, and if they are involved in the phenomenon in question.

3.7.2 Inquiring for discrepant evidence and contradictory cases

In order to try to disprove a proposed conclusion, analysing and identifying discrepant data and negative cases are vital points. These were carried out by investigating the assisted and

discrepant data in order to know the plausibility of retaining or modifying conclusion, and being aware under pressure to ignore the data that is not fit for the conclusions (Maxwell, 1996).

3.7.3 Triangulation

This is a process where different methods are used to collect information from individuals or settings. This method helped to mitigate the risk involved in associations and in systemic bias because of a specific method used and makes it possible for assessing the explanations developed generally. It will be better thinking about the particular sources or errors that could happen and figuring out ways to handle them, rather than depending on the particular method selected to doing this (Maxwell, 1996).

3.7.4 Feedback

To identify validity threats, the biases, assumptions and mistakes in the methods, soliciting for feedback is an essential strategy. This feedback was derived from both those who are conversant with the phenomena being studied; and those who are new to the situations because they all gave different comments and opinions which were necessary.

3.7.5 Research reflexivity

To be sure of the reflexivity of the categories developed, the member checking procedure was carried out of the condition instead of the researchers understanding. The researcher made sure the questions asked during the interview were open and not leading question in the data collection processes and the ideas of what is happening around the categories were included in the memo session.

3.7.6 Member checks

This is the process of systematically asking for feedbacks concerning people's data and conclusions from the individual's being studied. It can be regarded as the best way of avoiding misinterpretation, possibilities of what they mean to say and the viewpoint they prefer on what is going on (Guba & Lincoln, 1989).

3.7.7 Rich data

Rich data offers a test of the improving theory instead of a single source of supporting instances. These are complete and detailed data that was enough to give a proper view of what is going on. During the interviews, verbal transcripts of the interviews were carried out instead of relying only on what the researcher found or felt that was important. For observations, rich data are the descriptive note which were detailed and referring to specific events observed (Maxwell, 1996).

3.7.8 Comparison

This is using or identifying different theory, either in different methods of research and comparing them. For example, the participants in the settings studied had experiential knowledge with other settings or with the same settings at the first stage, and were able to depend on this experience to know the essential factors and the impact that it has.

3.8 Conclusion

This chapter detailed the application of the research process and explained the data collection, analysis and theory building processes from research cycle one to the research cycle four. The changes in the research study towards achieving the research goals were documented in this chapter. The trustworthiness considerations and checklist were described. The core variables developed are discussed in the next chapter.

Chapter 4 Literature Review

4.1 Introduction

Often, in research studies, the literature review is conducted in the early stages of the study in order to gather ideas on the research topic, to guide the research and the researchers regarding previous work done in the field and the methodological approaches used (Creswell, 2012; Gibbs, 2008). However, research that is based on grounded theory design does not really require a formal literature review in the initial stages of the research, and the reason for postponing the literature review in a grounded theory study is to enable ideas on the topic to emanate from the data and to avoid the influence of the existing literature on the research and its results (Glaser & Strauss, 1967; Glaser, 1992; Ramalho et al. 2015; Strauss & Corbin, 1990).

Similarly, the literature review should be used systematically to explain the findings derived from the research data collection. The researcher's approach to the literature review is based on the following objectives: to develop the phenomenon of community resilience, as well as to provide a relevant and informed understanding of community resilience and its core theories. This chapter also explains the findings derived from the research data collection methods used in chapter 3.

The approach used for the literature review was to consider the topic at three levels of recursion. The literature review was conducted to understand the topic, the attributes, the antecedents and the consequences, which will help in finalising chapter 5 of this study (theory building). The antecedents are the events that must be present before the development of the topic; the attributes are the characteristics that repeatedly appear in the topic; and the consequences are the events that happened as a result of the development of the topic.

This three-level review framework can be regarded as the **WHY** (level 0), which is the parent discipline concept analysis of underlying key concepts which gives a broad context of the research concern on how it functions. **WHAT** (level 1), which is the concept analysis of underlying key concepts that gives attention to the circumstances of the focus and concern of the research study. The third level is the **HOW** (level 2), which is the core concept analysis of underlying key concepts of each core variable, which gives attention to the categories derived in chapter 3 of this study.

4.2 Structure of the literature review

The outline for the three-level literature review process for this study, which was used to build responsiveness into the study, is presented in table 4.1 below:

Table 4. 1: The structure of the literature review

LEVEL OF LITERATURE REVIEW	AREA OF FOCUS	DETAILS
Parent Discipline (Level 0)	Disaster risk reduction and response in the Western Cape.	<p>WHY? This level 0 focuses on the justification for the research and why the research is essential.</p> <p>It is the parent discipline concept analysis of the underlying key concepts.</p>
Research Focus (Level 1)	<p>Community resilience.</p> <p>(To understand the mechanisms influencing the development of community resilience).</p>	<p>WHAT? This level 1 looks at the research goals, conceptual framework and the research questions.</p> <p>It is the research focus concept analysis of underlying key concepts.</p>
Core Variables (Level 2)	<ul style="list-style-type: none"> • Ability to manage emotions • Ability to improve tolerance level • Level of stress management • Ability to avoid guilt • Effect of pushing limits to increase performance • Level of self-determination to govern the community • Degree of undoing the consequences of negative events 	<p>HOW? This level 2 is the explanation of the core variables emerging from coding in the dissertation.</p> <p>It is the core variables concept analysis of the underlying key concepts.</p>

	<ul style="list-style-type: none"> • Ability to improve morale level • Degree of positive emotions in individuals 	
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4.3 Level 0: parent discipline

Level 0 provides insights into the contextual conditions of the functions of the concern variable and provides a framework for the fundamental research themes. At level 0, the context in which resilience finds itself is described with an understanding and identification of how community resilience fits in and influences it. The core question is: why do we want to develop the theory for community resilience? The reason is to attempt to reduce disaster risk, improve disaster response and develop resilience in communities vulnerable to disaster.

The parent discipline key concept is ‘disaster risk reduction and response’. This discipline is the question of why developing the community resilience model or why solve the research problem. Since the parent discipline is identified (the key underlying concepts), the comprehensive concept analysis of overarching concept will be done to set the antecedents, attributes and consequences (see Table 4.2 below).

4.3.1 Disaster risk reduction and response

Disaster risk reduction (DRR) is the concept of practices used to reduce disaster risk by systematically carrying out detailed analysis and ensuring reduction of the factors causing the disasters (UNISDR & WMO, 2012).

Globally, whenever natural disasters occur, they result in the destruction of lives and property. For example, in April 2004 a landslide destroyed a mountain in Guatemala and killed seven individuals, with more than twelve people still missing and 250 people made homeless. In May 2004 in Turkey, an earthquake destroyed a school which killed 83 school children (Twigg, 2004). In Algeria, over 2, 200 individuals were killed and 10, 000 were injured by earth tremors (Twigg, 2004). In mid-2019, in the Western Cape of South Africa, the researcher witnessed a fire which destroyed part of a residence at Stellenbosch University. There were no fatalities, but many students were depressed, shocked and property were destroyed in the fire.

In the developing and middle-income countries, many researchers have identified natural and human-made disasters as a significant threat to sustainable community development, because they can destroy lives, damage communities and have a negative impact on the economy and the infrastructure of a nation (Twigg, 2004). The Western Cape and national government should act to protect human lives and build successful sustainable community in this context.

Much can be done to protect informal settlements against disasters. This has been shown in Cameroun and Malawi, where high-tech community-managed system-based and scientific approaches were applied to reduce the negative effects of disasters (Twigg, 2004). However, it is not yet recorded that these approaches could successfully be used in the Western Cape or South Africa for disaster risk reduction.

The United Nations has also designed a framework for disaster risk reduction (see Figure 4.1 below), which has been initiated (Twigg, 2004) but not yet determined if this has been initiated in the Western Cape of South Africa, at the time of this research study. Thus, this research study endeavours to provide a theoretical model which could contribute to knowledge and understanding of community resilience in the Western Cape of South Africa.

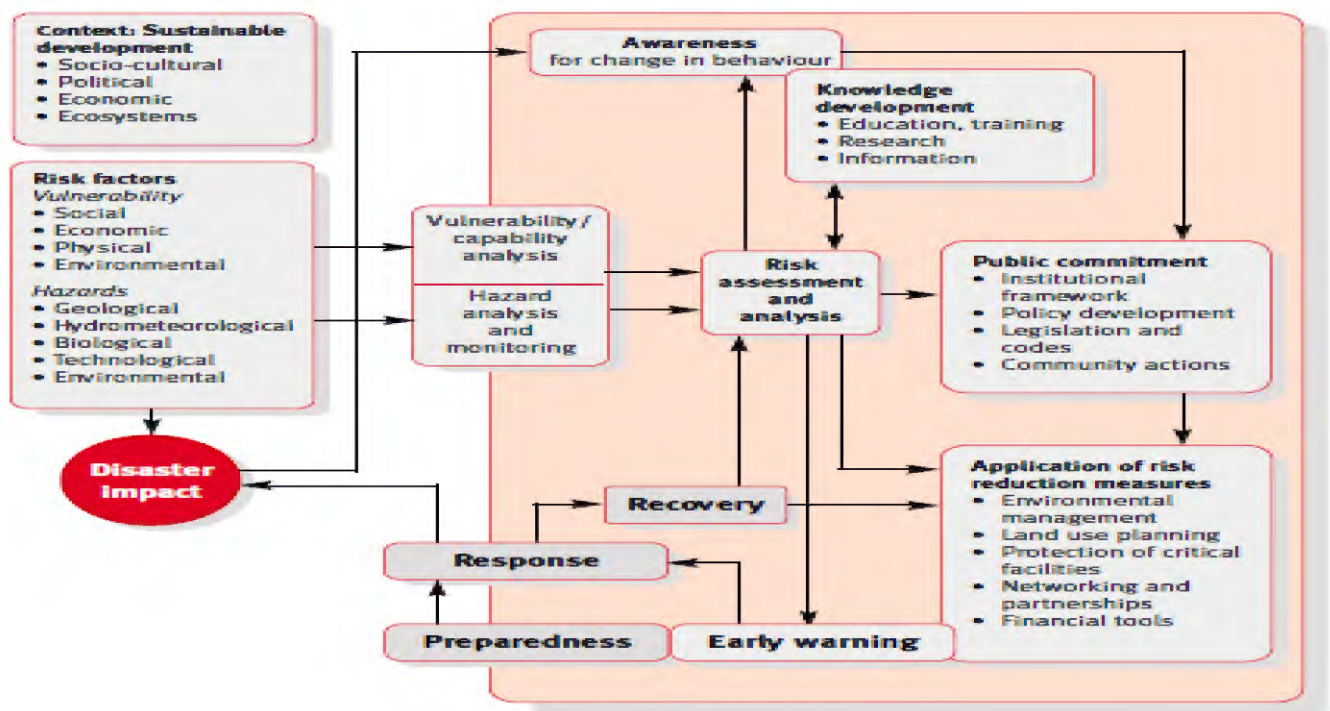


Figure 4. 1: A framework for disaster risk reduction: “Living with Risk: A Global View of Disaster Reduction Initiatives (Geneva: UN International Strategy for Disaster Reduction, 2002, p. 23:” Source: Twigg (2004, p.4).

The underlying focus of the framework above is on planning and implementation of risk reduction initiatives, which is also covered under preparedness (Twigg, 2004). However, this research study has proposed community resilience as another means of attempting to reduce disaster risk in the Western Cape, which could form part of the framework. Therefore, the research study agrees with the framework above and intends to contribute to knowledge through the results obtained.

In 2005, in order to reduce disaster risk, South African disaster management authorities developed several key performance areas (KPA) designed to reduce disaster risk. These KPAs include: “to focus on the establishment of institutional arrangements, to address the need for disaster risk assessment and monitoring, to introduce disaster risk management planning and implementation and to implement priorities concerned with disaster response and recovery” (RSA.gov, 2005, p.2-3). Despite these KPAs, disasters in the Western Cape still have significant impact.

The United Nations Office for Disaster Reduction (UNISDR) and World Meteorological Organization (WMO), (2012), asserted that disaster risk reduction (DRR) should focus on the reduction of damage done by natural disasters like earthquakes, floods, droughts and cyclones, with the emphasis on prevention. Examples of their disaster risk reduction methods include: intelligent organisation and management of the environment; enhancing preparedness and early warning for negative events; exposure to hazard reduction and minimising the vulnerability of people and properties (UNISDR & WMO, 2012). Despite these recommended methods, disasters in the Western Cape still have significant impact.

There are some characteristics identified in these disaster risk reduction strategies which can be attributed to the development of community resilience. These characteristics are briefly explained in the next section and can be linked to the focus of this study.

4.3.1.1 The choice of disaster risk reduction

The gravity of a disaster depends on the extent of the effect of hazards on the communities, as the level of the effects depends on the choices made by the people for their lives and communities (UNISDR & WMO, 2012). These choices are related to how food is grown, how homes are constructed, the kind of government in power, the policies enacted, the support of

financial systems and education, i.e. what people are taught in schools (UNISDR & WMO, 2012). The decisions or choices made are what makes the communities either more vulnerable to disaster risk or more resilient to disaster risk. The objectives of this research study are aligned with these choices, as resilience development should be based on better choices made by governments, communities and all the people involved.

4.3.1.2 Disaster risk reduction: everyone's challenge

Disaster risk reduction is linked to sustainable development, which involves regulation and training around key disciplines: disaster management, disaster mitigation and disaster preparedness. Everyone's involvement is necessary to develop and sustain these activities and disciplines to reduce disaster risk (UNISDR & WMO, 2012). Therefore, in order to enable successful community sustainable development, disaster risk reduction should involve all the key societal stakeholders: the government, the private sector and disaster management professionals.

4.3.1.3 The concept of "pathways to permanence" for disaster risk reduction and response

Flores and Meaney (2012, p.11-13) believed that "Pathways to Permanence is the process of mitigating exposure and assisting disaster-affected families and communities using holistic program interventions that enable additional progress toward the achievement of permanent, long-lasting shelter and settlements."

This approach mainly focuses on the sheltering processes as it focuses on the products that may assist it. Shelter components will often be used in different ways and actual shelter products may also be designed differently, depending on the situations (Flores & Meaney, 2012). The products that support the process may involve, but are not limited to, core housing schemes, technical assistance for disaster damage assessments, transitional shelters and technical assistance for affirmation of property rights, emergency shelter kits, as well as disaster risk reduction training (Flores & Meaney, 2012, p.12).

Furthermore, the concept of the "pathways to permanence" is a good strategy but is not entirely focused on building the resilience of communities. The concept focuses more on the recovery process of those already affected by disaster through providing shelter for them (Flores & Meaney, 2012). Therefore, this study intends to contribute to discovering better "pathways to

permanence” concepts, which could relate to resilience, from disaster inception through to the recovery stage.

The figure below explains how the “pathways to permanence” concept works and the products of the process.

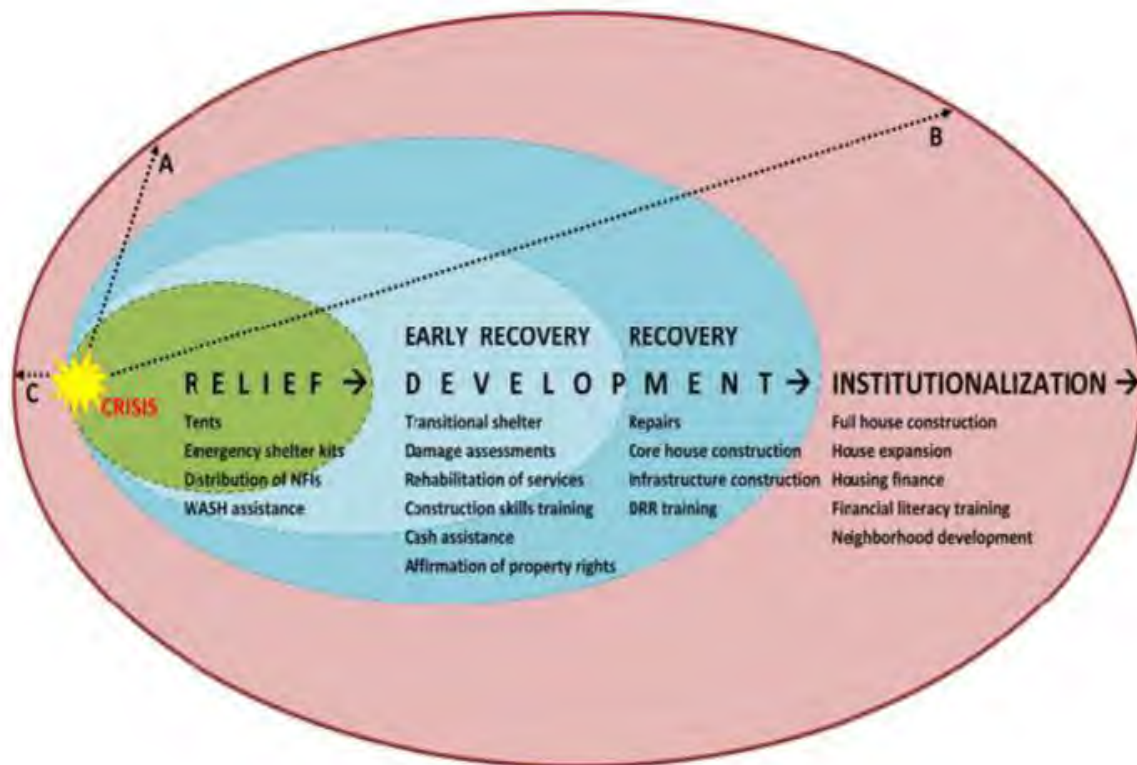


Figure 4.2: The concept of “pathways to permanence”: A strategy for disaster response and beyond. Source: Flores and Meaney (2012, p.12).

There are three families modelled in the above diagram. Families A and B take different *pathways*. Many shelter assistance interventions allow for faster advancement to shelter situations. For instance, in this example, Family C has the means to quickly resort back to its pre-disaster permanent housing situation (Flores & Meaney, 2012, p.12).

4.3.1.4 A grounded challenge for disaster risk reduction in South Africa

Disasters could increasingly jeopardise South Africa’s population, its economy and sustainable community development (UNISDR & WMO, 2012). South Africa, according to Roth and Becker (2012, p.443), “is a complex and dynamic society, with increasing issues of disaster

risk in the vulnerable urban communities in and around its rapidly growing metropolitan centres.”

The reason for this study is to attempt to reduce disaster risk by understanding the underlying mechanisms influencing the resilience of communities faced with disaster risk. However, there are challenges to disaster risk reduction which are systemic and they are often tackled ineffectually and separately (Roth & Becker 2012). The five key challenges shown in the figure below were viewed as an open box.

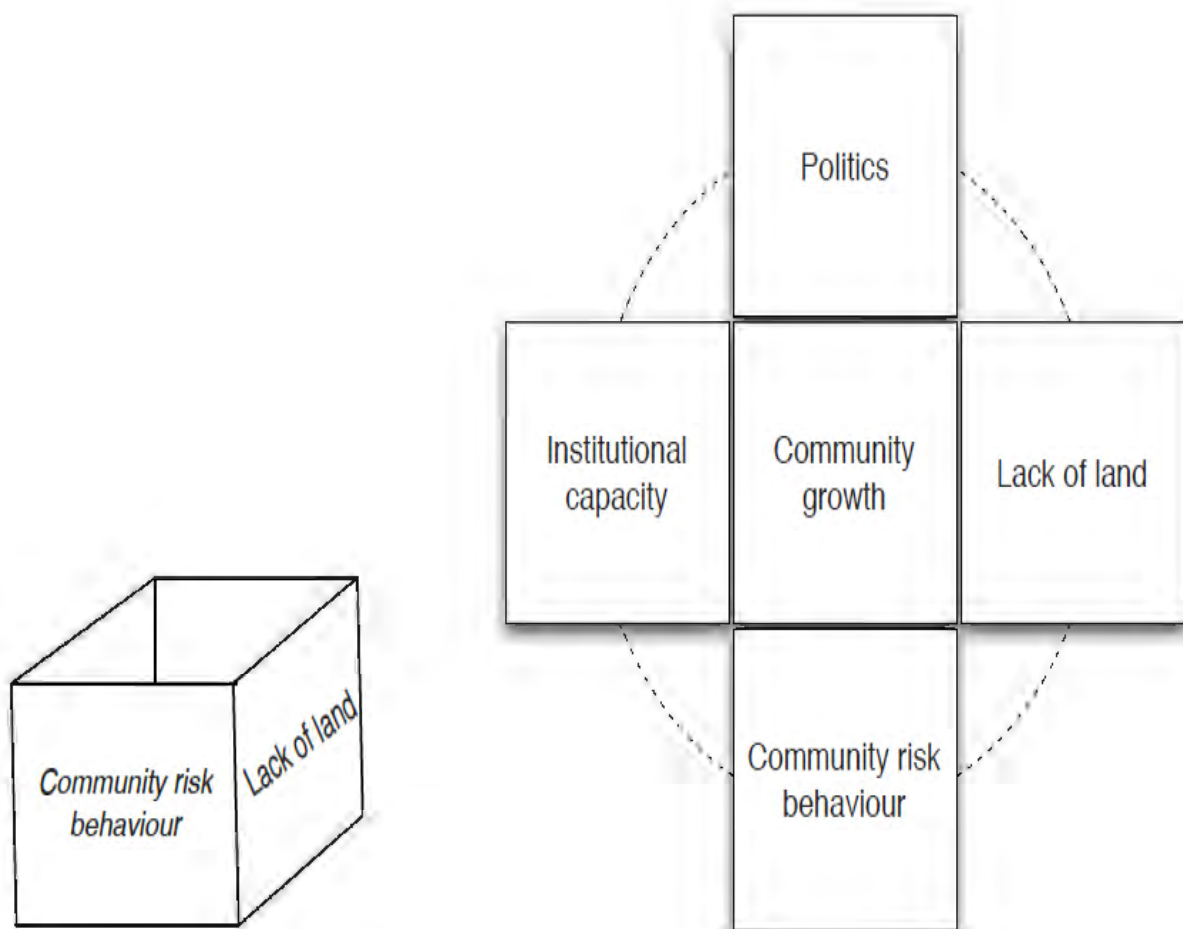


Figure 4.3: The “box analogy as an overview of the challenges for disaster risk reduction” in South Africa. Source: Roth and Becker (2012, p.449).

The community growth challenge at the bottom of the box is surrounded by the other four challenges. To enable community growth, the four walls must also be built up, thus addressing the additional challenges. If this does not happen, the box will be unstable and might not be

able to withstand disaster risk (Roth & Becker, 2012) . The four challenges represented by the walls are linked: politics is linked to institutional capacity and land unavailability, while all these challenges connect back to community risk behaviour. For the box to stand, each part of the box must be tackled simultaneously as the population creates a particular community (Roth & Becker, 2012). These challenges were incorporated into this research study. Even in developed countries, the challenges mentioned above can be encountered and counter measures should be put into place before resilience can be developed.

4.3.1.5 Linking the communities with disaster risk reduction

Shelter-cluster (2010) indicated that a community or an environment has a significant part to play in disaster risk reduction and the effect of disaster events, because proper ecosystem management can mitigate the risk of hazards such as landslides, flooding and storm surges. Scammon and Borders (2007, p.20) also stated that “disasters were considered to be an act of God which are beyond human control, but today there are widespread agreements that though natural disasters cannot be controlled, their effects can be managed.”

For more than 50 years, the four-phase traditional model of disaster management - namely, mitigation, preparedness, response and recovery - has been utilised and has led to several research studies on disaster risk (Mileti, 1999). This four-phase traditional model can work better when resilience development (mitigation) is part of the model. This is because preparedness, response and recovery without building resilience (mitigation) in the communities or informal settlements might lead to the recurrence of disasters. This has made the four-phase traditional model a common disaster management approach.

Shelter-cluster argued further that most disasters are caused by environmental degradation. This environmental degradation is as a result of extended drought conditions, although drought conditions can also be caused by patterns of cropping, overgrazing, poor conservation techniques, depletion of surface and subsurface supply of water and unchecked urbanisation. In addition, there are root causes of human conflicts which lead to conflict over natural resources, such as timber in Liberia, water in Bolivia and diamonds in Sierra Leone (Shelter-cluster, 2010).

4.3.2 Comprehensive concept analysis of key concepts of the parent discipline (Level 0)

The literature review of level 0 has given insights into the components of disaster risk reduction and response, with their antecedents, attributes and consequences. These also gave an insight into the identification of the key components of disaster risk reduction and response, as well as how they affect community resilience. The table below presents the concept analysis and the integration of the consequences with the antecedents, depicted by the dotted lines.

Table 4. 2: The concept analysis of underlying key concepts (level 0).

CONCEPTS	ANTECEDENTS	ATTRIBUTES	CONSEQUENCES
DISASTER RISK REDUCTION	The occurrence of natural hazards like earthquakes, floods, droughts and wildfire.	Disaster risk reduction and redefining development.	Sustainable development activities.
	Poverty and non-political commitments amongst government.	Disaster preparedness.	Reduction of damage caused by natural hazards.
	Lack of holistic programme interventions.	Mitigating exposures.	Overtaken by the rate at which the wealth itself is being created.
DISASTER RESPONSE	Research on disaster response.	Disaster response activities.	The capability of communities to recover from catastrophes.
	Marginal natural hazards.	Effective risk communication approach.	Short-term disaster relief and provision of shelter.
	Behavioural changes.	Comprehensive and integrated management practices.	Encouragement of self-protective behaviours.

4.4 Level 1: Research focus

In level 1, the question to ask is: what is the researcher looking for? The answer to this question lies in identifying the key underlying concepts of the research focus. The research focus is to understand the underlying mechanisms influencing the resilience level of communities vulnerable to disaster. The key underlying concept of the research focus is *community resilience*. The overarching concept is ‘understanding community resilience’ and the ‘contribution of individual resilience’ to community resilience (see chapter 3).

The research focus is the discipline that answers the ‘*what*’ question of developing the community resilience model. Since the research focus discipline is identified, the comprehensive concept analysis of the overarching concept will be done to set the antecedents, attributes and consequences. The key overarching concept was identified as community resilience. The level 1 concept analysis is linked to level 0, and level 1 also explains the key concepts in level 0 in connection with the research design.

4.4.1 Understanding community resilience

In this study, disaster risk in the Western Cape is viewed as a complex adaptive system. This view challenges simple cause and effect assumptions and recognises that components in a system are connected and interact in ways that cannot be predicted. This study focuses on 1) understanding the mechanisms influencing the level of resilience of communities vulnerable to disaster risk and 2) recommending improvements to the mechanisms, thereby influencing community resilience and attempting to reduce disaster risk. South Africa, as a developing country, needs to pay more attention to understanding this. As mentioned on page 5 of this dissertation, community resilience is gradually becoming the most common strategy for disaster risk management in developed countries (Ostadtaghizadeh et al. 2015).

Although numerous research studies like Bergstrand et al (2015); Joerin et al (2012) have assessed the relationship between disaster risk and community resilience, and how to improve resilience, in many places, challenges still remains in replicating these results from other countries for the Western Cape situation, and understanding the mechanisms influencing the resilience level of the communities in the Western Cape, is not straightforward. Isa et al (2018) explained that, even without mitigation and adaptation, the informal settlements should have

the capability to cushion or decrease the effects of (flood) disaster risk, through community resilience. Therefore, resilience development is being adopted for this research study.

The benefits of understanding the mechanisms producing the level of resilience found in communities faced with disaster risks include: 1) possible cost savings on disaster recovery or emergency relief, as well as 2) improvements in disaster response. As indicated in *section 1.2*, studies have shown that tackling vulnerability using resilience development is cheaper than emergency relief (Venton et al. 2012). The objective of understanding resilience is correct; but it is a concept and term that is commonly challenged by hidden complexities, contradictions and vagueness (Kaplan, 2003). This is because different levels of understanding must be considered when trying to understand the level of resilience in communities.

Cutter et al (2008) argued that there is substantial research interest in the measurement and meaning of resilience from several research approaches, including those studies focused on disasters and global change environments. Although there might be an identification of the risks in many communities, hazard reduction and vulnerability are mostly not of significant interest until after there is a disaster occurrence, because the community members seem to have other issues that are a priority to them (Cutter et al. 2008). In addition, government-elected officials might not want to linger over the vulnerability of their communities, as they feel it may affect economic investment and growth.

4.4.1.1 Defining resilience to hazards

Holling (1973, p.14) first used the word resilience to represent a “...measure of the perseverance of systems and their capability to absorb change and disturbances and still maintain the same relationships between populations or state variables.” There are many definitions for resilience in the literature; therefore, there is no single definition of resilience (Klein et al. 2003; Manyena, 2009).

Resilience is defined by Cutter et al (2008) as the capacity of a social system to recover from disasters and has characterised states that enable the system to absorb shocks and cope with post-disaster events, as well as adaptive procedures that promote the capacity of the social system to withstand threats. Adger et al (2005); Folke (2006); Klein et al (2003) record that resilience also does not only involve a system’s capacity to fall back to the state or several

states existing prior to disturbance, but to promote the state by learning and adaptation processes. Resilience is also defined as a system’s ability to absorb shocks and restructure into a complete performing system (Harris, 2013; Walker et al. 2004)

After looking at the available definitions of resilience, the researcher has chosen a definition of resilience that is concordant with this research project. As indicated in chapter 1 of this dissertation, resilience is therefore defined as a positive turnaround, outcome or adaptation of a competent individual or community exposed to risk, difficulties, significant challenges or adversities. This is because people need to know and understand resilience to be able to build it within themselves or their communities, in the context of withstanding disaster risk (Cutter et al. 2008; Lew et al. 2016).

4.4.1.2 Disaster resilience of place (DROP) model

Acknowledging the contributions of current models and their restrictions around resilience and vulnerability, the ‘DROP’ model was proposed as a discovered concept of natural disaster resilience. This model was designed to show the theoretically grounded connection between vulnerability and resilience; which can be applied to tackle real challenges in real places (Cutter et al. 2008). This model is concordant with this research study as it shows the relationship between hazards and resilience, indicating that hazards can be tackled by resilience development. Further explanation of the DROP model can be obtained in Cutter et al. (2008, p.602); but Figure 4.3 below illustrates the model further.

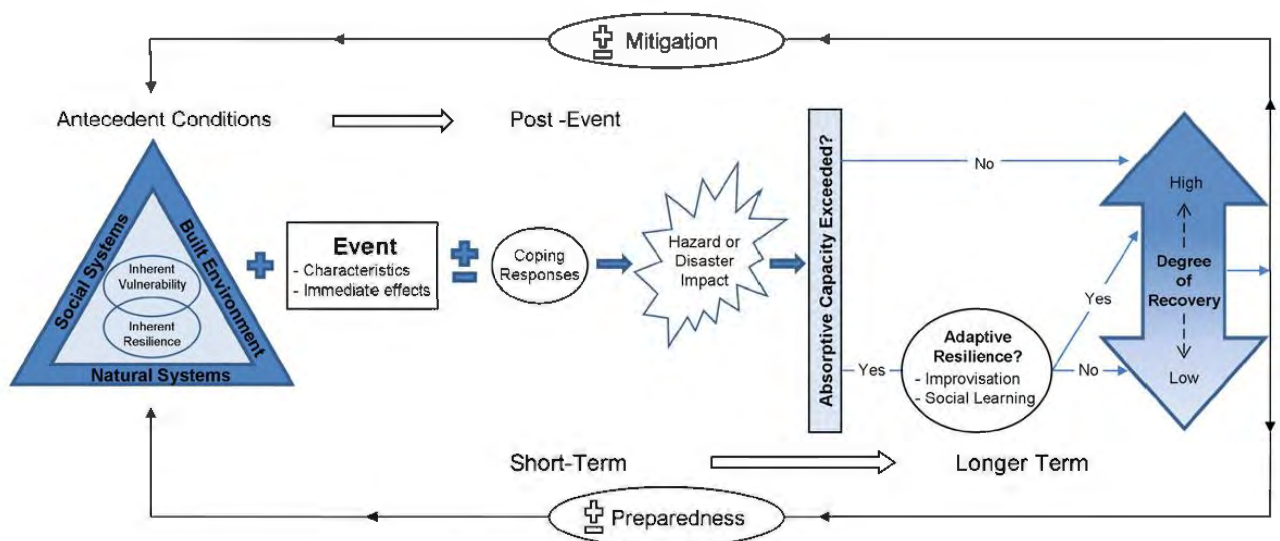


Figure 4.4: “Schematic representation of the disaster resilience of place (DROP) model.”

Source from: Cutter et al. (2008, p.602).

4.4.2 Resilience of individuals

Hegney et al (2007, p.1) stated that "...Not all members of the community are resilient because there are more or less resilient groups within a community, and resilience was not a steady-state within an individual, rather, an individual's level of resilience could vary over their lifetime". As mentioned, individual resilience is crucial during times of disaster to promote, nurture and encourage community resilience. Carpenter et al (2008) confirms this by arguing that individual resilience is seen as the primary ingredient for attaining the most favourable community resilience, because, if individuals can richly display resilience in the face of adversity or during shocks, they can enhance community resilience. Furthermore, when an individual is unable to exhibit individual resilience, he or she finds it challenging to enhance community resilience, thereby becoming part of the issue as against contributing to the solution (Carpenter et al. 2008).

In another view, individual resilience is also the ability of a person to be able to adapt to adversity or disaster risk and join or help others to create positive change and adapt (Bædkel et al. 2017). As said, "...Some people naturally are more resilient than others, but it is important to realize that resilience is not genetically encoded but can be learnt, the same way someone can train the body to perform better under hardship, people can also train their mind not only to endure hardship but grow from it" (Bædkel et al. 2017, p.38).

In support of the above, the result of the research cycle 3 study (chapter 3) reflects what the researcher calls the positive component dynamic of the tragedy of the commons. It means that, for the community resilience to keep growing and developing, it must stay within the carrying capacity limits of the individual resilience (Kim & Anderson, 2011, p.113). Whitehead (1948, p.17) stated that "...the essence of dramatic tragedy is not always unhappiness," which means that, if the goal is to grow or maximise something, the decisive component in the research cycle 3 causal loop diagram will be a function of increase, addition and improvements (Hardin, 1968). Then, the level of individual resilience could be seen as a "resource", while the level of community resilience is seen as a "total activity" (Kim & Anderson, 2011, p.113-115).

Therefore, for a community to be called resilient, the individuals should be resilient (Emerson, 2004), because if the individuals in the community have been able to adapt to setbacks, they will already know what to do at a more significant disaster level. This is because there cannot

be a community resilience without having a sense of individual resilience first (Emerson, 2004).

4.4.2.1 Characteristics of resilient individuals

Resilient individuals have many characteristics. According to a study by Hegney et al (2007, p.6), their participants explained some characteristics they believe are essential in resilient individuals. These characteristics are "...individuals being able to move on, bouncing back, hope and tolerance, resourcefulness, embracing change, being positive, being flexible and adaptable, being creative, innovative and proactive, having goals or vision for the future". Similarly, the participants mentioned "...being willing to have a go, being ahead of their time, being tough, working hard, using humour, seeking help from others and having faith in God" (Hegney et al. 2007, p.6). They noted that the characteristics mentioned above were evident at different levels of the people's lifespan and this indicates that resilience was not a stable state (Hegney et al. 2007, p.6).

In this study, characteristics of resilience which could be used to improve the resilience level of the non-resilient individuals in the communities are in agreement with Hegney et al (2007); and they are: 'change commitment and progressive acceptance to change by individuals'; 'concept of resourcefulness in individuals'; 'innovative, creative and proactive individuals in the community'; 'positive emotions in individuals'; 'motivated and transformational leadership of individuals'; 'contribution of individual resilience to community resilience'; 'self-esteem and taking responsibilities by individuals'; and 'individual good problem-solving skills' (see Table 3.3 and Figure 3.5).

4.4.3 Comprehensive concept analysis of key concepts of the research focus (Level 1)

The level of disaster risk reduction (level 0) depends on the understanding of community resilience attributes and the contribution of individual resilience attributes (level 1): this is the link between the two levels. In addition, how these attributes change will influence the level of disaster risk reduction and response. The communities, individuals and government agencies need to understand resilience, formulate ideas on these variables and accept that disaster risk can be mitigated, given the level of understanding of community resilience and the contribution of individual resilience provided (Cutter et al. 2008; Lew et al. 2016).

The literature review of this level 1 has given insights into the components of mechanisms influencing the resilience level of communities that are identified with their antecedents, attributes and consequences below. These also gave an insight into the identification of the components of community resilience and the contribution of individual resilience to community resilience, as well as how they impact on the research focus.

The table below shows the concept analysis of the concepts and the integration of the consequences with the antecedents, depicted by the dotted lines:

Table 4. 3: The concept analysis of underlying key concepts (level 1).

CONCEPTS	ANTECEDENTS	ATTRIBUTES	CONSEQUENCES
UNDERSTANDING SYSTEMIC (COMMUNITY) RESILIENCE	Propagation of research to state and local officials.	Resilience model.	Accurate assessment of the community level of resilience.
	Knowledge of how resilience is determined and managed.	Inherent vulnerability and resilience.	Exhibition of resilience through effective distribution of prepared means.
	Learning and self-monitoring.	Natural disaster resilience.	Disaster-resistant community.
CONTRIBUTION OF INDIVIDUAL RESILIENCE	Cognitive learning and sharing of experience.	Young people should be exposed to resilience education at early stage.	Individuals helped to turn crisis into opportunities.
	Individual resilience assessment, strength enhancement and maintenance.	Resilience intervention and location.	Enhancement of community resilience.
	Mastering relevant and meaningful knowledge.	Educators who will educate other individuals on resilience development.	Ability to cope with the impact of a disaster and lessen its impact.

4.4.4 Research design and the key concepts

In connection with the research design and the reviewed literature, the key concepts were looked at briefly for the validation of their knowledge and contributions towards attaining the goals of the research and the potential research questions. The figure below, which was briefly introduced in chapter 1, explains the model of the research design:

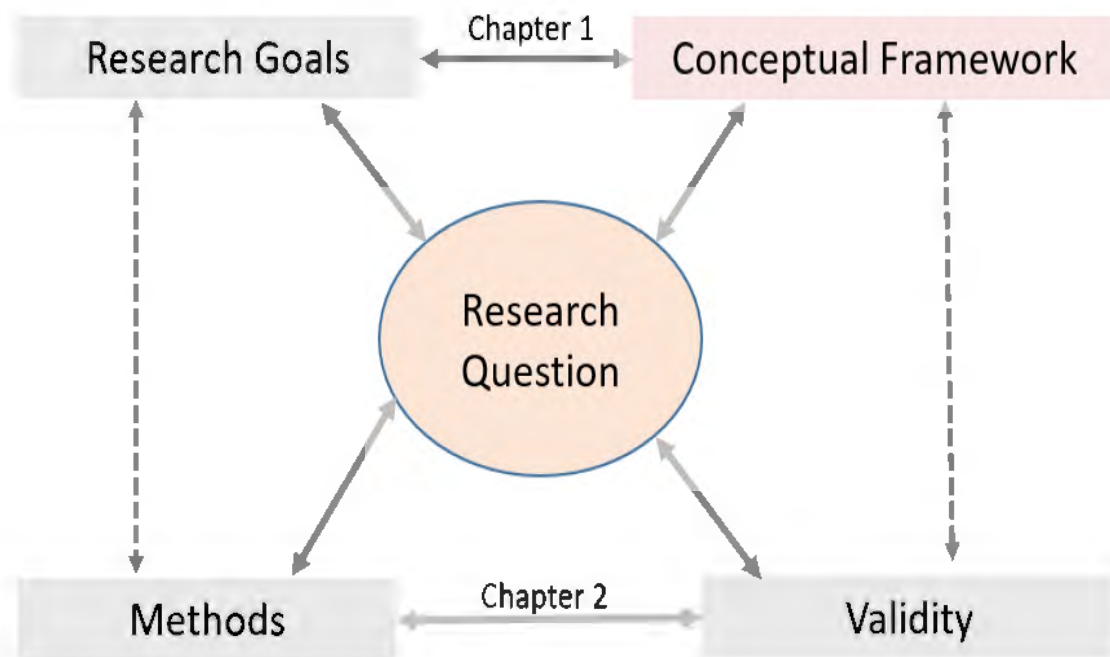


Figure 4. 5: The interactive model of the research design. Adapted from (Maxwell, 2005).

The research concern variable is ‘development of community resilience’ through the understanding of mechanisms influencing the resilience of communities faced with disaster risk. The mechanisms were identified and were finalised in this study, as they were used to make decisions about the research focus. These mechanisms are actions and are, therefore, part of the main research areas of this dissertation. The goals of the research also went through amendments throughout the cycles of the research process, which led to the emergence of the research focus in the cycles.

Understanding and explaining these concepts in the literature review has assisted in building the theoretical causal loop diagram (model), which identifies the leverage of the factors that positively impact on the concern variable (figure 1.2). The main conceptual framework also

changed throughout the cycles as the process continued until the last cycle of the research study (see figure 6.1). The validity or trustworthiness of the study was also explained in chapter 2 and 3 and will still be briefly explained in chapter 6 of this dissertation.

In conclusion, for level 1, the key concepts of disaster risk reduction and response from level 0 were extended to the concepts of 1) the understanding of community resilience and 2) the contribution of individual resilience. How the concepts assisted in the achievement of the research goals and potentially answering the research questions were viewed.

The consequences of these key concepts are linked to the attributes of the level 0 concepts and the key concepts of level 1, which explain that the consequences of the key concepts in level 1 are as a result of the attributes of level 0. The discussions of level 1 will lead to the core categories derived from the last research cycle, i.e. level 2.

4.5 Level 2: Core variables

In cycle four of this dissertation, nine core variables emanated from the research process. These variables have their underlying concepts and their interrelationship influences the other variables (see Table 3.4). The antecedents, the attributes and the consequences of each category were developed and are shown below as the follow-up context for level 2 and level 1 of the literature review respectively. This is drawn from the knowledge derived from the four cycles of data collection already completed.

A comprehensive concept analysis of each core variable was done using the literature and the consequences of the impacts of each core variable on the concern variable indicated. At the end of the core variable descriptions, the key antecedents, attributes and consequences were summarised. The nine core variables discussed below were generated using a concern variable of the degree of positive emotion in individuals. However, this concern variable is still one of the nine variables derived from this study.

Note that according to this research study, all nine variables or themes discussed below were identified as the underlying mechanisms influencing the resilience level of the community.

4.5.1 Degree of positive emotions in individuals

As indicated in *section 3.5.1*, In past years, positive emotions has received increased scientific attention (Fredrickson, 2008). Positive emotions is not just an outcome but has been studied as markers of individuals point of resilience, well-being, and happiness (Diener & Seligman, 2004). Although, positive emotion is not an outcome in this research study, in broad well-controlled research studies, it has been studied to contribute to different outcomes of life satisfaction and research (Lyubomirsky et al. 2005), improve longevity (Danner et al. 2001; Levy et al. 2002; Moskowitz, 2003), increase immune capacity (Cohen et al. 2003) and reduces impairment, pains and mortality in chronic disease individuals (Cohen & Fredrickson, 2006; Gil et al. 2004).

If the individuals in a community can contribute this variable, they could be able to recover from setbacks, overcome adversities and connect with others (Tugade & Fredrickson, 2004). This implies that, the combination of attributes and skills influence the degree to which individuals demonstrate positive emotion. Fredrickson (1998, p.365-368) explained that “positive emotion is an active ingredient within trait resilience and resilient people could thrive through it”. The ten universal positive emotions are joy, gratitude, serenity, interest, hope, pride, amusement, inspiration, awe, and love (Fredrickson, 2009).

Furthermore, this variable could be used for contribution to resilience level (Fredrickson, 2009; Tugade & Fredrickson, 2004). Therefore, as argued by Professor Fredrickson, the communities could develop positive emotion by raising their positive ratio; this was explained further with a study of the measurement of resilience levels where the daily variations of individuals’ emotions were tracked (Fredrickson, 2009). It was noted that the individuals who scored high in the measurement were reported to experience more positivity and they experienced fewer negative emotions. It was also found that the more positivity individuals experienced, the more their resilience levels increased over time (Fredrickson, 2009).

According to Fredrickson's (2001) presentation on open mind, positive emotions enable people to see more, unlock their mind and broaden their minds. She also explained that the linkages between our minds and hearts increase positive emotions and shift our world view on a basic level, increasing our ability to see our ordinary humanity in others (Fredrickson, 2001). People

also become more creative, more trusting and could recover from disaster challenges due to harnessing positivity (Fredrickson, 2001).

Traditionally, in positive psychology, a disciplinary source drawn on in this dissertation for formulating the problem and conducting an inquiry to find a contribution, the view is that an understanding of positive emotion could lead to improved well-being and help moderate behaviour in some instances (Fredrickson, 2001; Fredrickson, 2000).

This variable is therefore vital in understanding the development of community resilience, should be given attention and further research is recommended to understand or identify the role of positive emotion in creating community resilience.

4.5.2 Ability to manage emotions

One of the challenges of recovering from disaster is the inability of individuals in communities to accept or manage their emotions after disaster events (Ostir et al. 2000). The management of emotions is important to contribute to community resilience, because it is necessary for individuals to regulate or manage their emotions in their everyday life (Tugade & Fredrickson, 2007). This is characterised by individuals in communities coming together to accept and agree on positive changes and commitments towards achieving resilience and reducing disaster risk (Lines, 2004).

According to this research study, emotion management are linked to recovery for resilient people. The possible mechanisms that confirm this link were explained in more detail by Tugade & Fredrickson (2007). Tugade and Fredrickson (2007, p.311) established that "...our everyday lives are governed by a host of complex processes of emotion management/regulation".

Therefore, in considering the responses to disasters or negative events, people can create the appearance of acceptance and emotional management in the form of celebrations for example, which may be an important way of making people feel better, as well as uplift their lives and feelings for a long period of time (Langston, 1994). Above all, such actions may contribute to resilience, which is the principal concern for the research.

Research has been done on understanding how individuals can manage negative emotions as a means of coping with adverse events, without much awareness given to the administration of emotions (Gross, 1999). However, it is understood from the findings from analysis of the case study data, that emotional management has been a means for people to cope and build resilience, and the best way to bounce back is by accepting that it has happened, manage emotions, look for the good in it and build resilience.

In addition, the consequences of this core variable could impact on the concern variable of the research study by helping to build resilience in the face of stressful or disaster events, influence psychological well-being, and generate a higher level of dispositional mindfulness for the communities.

4.5.3 Ability to improve tolerance level

As discussed in the level 1 section of this chapter, tolerance is key characteristics of resilient individuals, who were found to be resilient during resilience measurements and investigations (Hegney et al. 2007). It is essential to realise that resilience is not genetically encoded but can be learned (Bædkel et al. 2017); therefore, there is a need for communities to expand their tolerance level and build hope in the fact that disaster risks can be reduced, while building a high resilience level.

According to Hori et al (2013, p.1), “...stress tolerance is the ability to be relaxed and composed when faced with difficulties, because tolerating stress is the ability to remain calm without being moved by strong emotions of helplessness and hopelessness”. This implies that for a community to build a high resilience level, they should be familiar with the characteristics of stress tolerance. The community should be able to be in a relaxed mood, which will allow them to come together, think together and agree on good decisions on how to reduce disaster risk and build resilience in the service of successful sustainable community development. The next section outlines a number of traits of a tolerant community:

4.5.3.1 Traits of a tolerant individual

There are many traits found in individuals who are tolerant and hopeful. These traits help individuals remain calm and focused, so that they can arrive at solutions for disaster events. Below are five such traits according to Hori et al (2013):

i. Paying attention: This trait is crucial and is characterised by individuals engaging in self-awareness and guarding themselves against overwhelming experiences. This trait could help to develop resilience because as the community members focus their attention on the detail of the disaster event, they could be able to identify ways of solving the problems it causes.

ii. Evaluating priorities: It is vital for individuals to evaluate all areas of their lives and prioritise them and for the researcher also to be aware of those prioritised activities. If the stress or shock affecting an individual during a disaster does not allow them to go ahead with any activity, it would be better for the individual to avoid the activities instead of hindering the development of resilience.

When an individual is worried, it would be better not to try to force that individual into any activity that would cause more harm. It is better, that individual can be left alone for a while to calm down. This trait was beneficial in this study during fieldwork.

iii. Focusing on one issue at a time: The focus on more than one type of stress in a particular disaster event might build anxiety and render the individuals overwhelmed (Hori et al. 2013). This, in turn, can lead to a negative influence in resilience levels. It is necessary for the community members and disaster management agencies to take control of the problems at hand by making a list of the pressing challenges and tackling the most pressing challenges first; then moving on to others. This will reduce tension in both the disaster victims and disaster management agencies. This practice was also helpful during data collection.

iv. Talking positively and seeing the big picture: When a disaster happens, it is better to be positive and say positive things to keep the people calm. In the *level 1* section of this chapter, the researcher mentioned about the characteristics of individual resilience and what a belief in their Gods can do to keep people calm. Saying to yourself that '*I can do this, I am strong and capable, this is temporary, and I can overcome,*' and saying other affirmations, can keep an individual tolerant and full of hope during disaster events (Hori et al. 2013). In addition, community members could see the bigger picture after a disaster event, for instance, the longer developmental view, and this can help to reduce stress and help the community focus more (Hori et al. 2013).

v. Additional suggestions: It is usually better to have a support system and people who can be trusted when in a disaster situation. When a disaster happens, people would need encouragement and suggestions on how to overcome that stress. It is imperative to talk about it to others who are more knowledgeable about the issue at hand. For example, some of the community members revealed some issues which might help solve some problems, and when there were no alternative suggestions, they were referred to the disaster management agencies, who were available during data collection.

In addition, the consequences of this core variable impact on the concern variable of the research study by giving the community the belief and expectation of a better future, which in turn helps the community members, stakeholders and the government see the bigger pictures.

4.5.4 Level of stress management

Inferring from the disciplines of engineering, psychology, sociology and medical studies, community (family) stress can be defined as the disruption in the balanced state of community physiology (Zhang Creaser, 2017). This variable is similar to the mind-body skills used for regulating systems which is often referred to as the autonomic nervous system (Moore et al. 2011). To build resilience, the community would need voluntary stress control. Therefore, this variable refers to the support or control from the province or government of the Western Cape. This is because communities might have difficulty in surviving and managing stress without the support and control of the government or leaders (Shi, 2012).

Although some individuals are constitutionally more resilient in managing stress than others in the community, it is important for the community to be able to manage stress to avoid being immobilized due to disaster or crisis (Zhang Creaser, 2017). Community resilience is approached not by avoiding stress, but by facing stress at a time in a way that allows self-confidence and social competence to increase through mastery and appropriate responsibilities (Rutter, 1985: p. 608).

Thus, this core variable is a significant part of the theory-building process underlying this research study. Therefore, the consequences of this variable impact on the concern variable of this research study by helping the community, stakeholders or the government make correct

decisions, fostering effective coping strategies against disaster risk, providing proper social supports and reducing stress.

4.5.5 Ability to avoid guilt

The variables derived in chapter 3 of this dissertation were generated from the data collected. This variable also emerged from the data. The community members indicated during the interviews that they feel guilty if a disaster happens and they are unable to generate a solution to it. In disaster and stress management, dealing with guilt is important in gaining positive outcomes from negative events (Johnson 2015).

In this research study, guilt can be seen as a feeling that comes up in an individual through signs of unhappiness and blame (Johnson 2015). This can be linked to the second variable explained above, namely ability to manage emotions. The impact of guilt on emotions and sense making, as well as how guilt and anger impact decision making, has been investigated by Johnson (2015), where it was understood that guilt is more beneficial as it helps individuals focus on the future and different outcomes for the disaster situation. Therefore, when an individual feels guilty during a disaster event, it is important to focus on what can help build resilience in that situation.

Problem-solving could be achieved if the individuals learn to quickly avoid guilt and start thinking of the future and what to do to build resilience (Hannula, 2015; Woods et al. 1997). This is related to the traits of tolerance discussed above. This implies that, an individual who wants to solve a problem must also learn to remain calm, accept responsibility for the situation, evaluate the situation, identify the problems and find a quick solution to the situation. This variable cannot be overlooked when building resilience as it has considerable impact on the concern variable of this research study. There are many authors like Belavkin (2001); Danilowski (2010); Hannula (2015); Joe Robinson (2013), who believe that there is a link between guilt or emotions, resilience and problem solving.

In addition, the consequences of this core variable impact on the concern variable by affecting the level of performance, because any individual that has less guilt and more problem-solving skills could become an asset to the community. A problem-solving approach could enhance

creative thinking and bring community members together as a team to achieve the same goals (Belavkin, 2001).

4.5.6 Effects of pushing limits to increase performances

Resilience development is more than merely pushing the limits. Individuals usually think that being able to survive disaster challenges means that they are highly resilient. Often, people might believe they are doing well because they can increase performance despite multiple stress factors. However, research has argued that functioning under a long period of stress is unsustainable (Stein, 2019). Yerkes-Dodson Law and Stein (2019) in their article corroborated that people can get to a tipping point and then reach burn-out.

However, individuals need to exhibit mental toughness for them to build resilience (Clough et al. 2002). This is how the core variable influences the concern variable of this research study. Mental toughness is gotten when individuals in the community are self-aware and confident through pushing limits (Clough et al. 2002), believing that the solution is right inside them. Any community that exhibits mental toughness traits, which are commitment, control and confidence, could develop an ability to push limits, increase performance and build sustainable resilience (Stein, 2019).

In addition, the consequences of this core variable thereby impact on the concern variable of this research study by helping the disaster victims push beyond limits and develop mental toughness, helping the victims reinvent other strategies of survival and helping build resilience.

4.5.7 Level of self-determination to govern the community

Self-determination is one of the ways of improving resilience (Aumann & Rosser, 2011). The quality of resilience in individuals continues to develop or decrease throughout the lifespan of individuals (Richardson et al. 1990); individuals should need a considerable degree of determination to maintain the communities and sustainable development.

From observations in the case study, the researcher noticed that individuals who lack determination are problematic with regard to the building of resilience and other developments, whereas an individual who is determined is seen as a leader and governs the outcomes that are generated from any situation. This distinction is very important.

Self-determination would affect the concern variable of the study with regard to resilience, as has been demonstrated in some research studies; self-determination and resilience were applied to individuals with disabilities (Aumann & Rosser, 2011), and this made the researchers ask the following question: is self-determination an element of resilience or resilience an element of self-determination? The researcher concluded that conceptually, self-determination is linked to resilience and resilience is linked to self-determination because the opportunity to learn and practice determination usually begins in childhood (Aumann & Rosser, 2011); thus, a resilient individual could be self-determined and vice versa.

In this study, it was found that the individuals who are not determined have barriers to self-determination. These barriers include low self-confidence, low self-awareness, emotional difficulties, helplessness and many other traits. Some of these barriers are called *intrapersonal barriers* (Aumann & Rosser, 2011). There are also *environmental barriers* which include the absence of responsibilities, lack of family support, segregation, lack of education, problems within the family, stress and many other factors (Aumann & Rosser, 2011); thus, the importance of self-determination to the concern variable cannot be overlooked.

In addition, the consequences of this core variable impact on the concern variable of the research study by assisting in the result building, increasing performance from community members, stakeholders, the government, and aiding spontaneous satisfaction and motivation.

4.5.8 Degree of undoing the consequences of negative events

Every disaster outbreak has negative effects, therefore, resilience can be applied to mitigate the negative effects generated during a disaster outbreak (Fredrickson et al. 2000). This variable is also essential to the concern variable of the research study as it is a means of tackling the consequences of disasters. This is because, according to this research study, any disaster event which is not fully resolved does not build long-term resilience (Bergstrand et al. 2015).

Negative events are regulated by positive events, and positive events are one of the essential concerns when building resilience (Fredrickson et al. 2000). Positive events make people feel good and balance people's emotions by contributing to their assessment of their life satisfaction (Diener & Larsen, 1993). This implies that the communities do not feel a need to achieve community resilience when the effects of the disaster are still present. The consequences of the

disasters need to be remedied for resilience to remain. This is another impact on the concern variable of this research study.

From observations in the case study, it appears most of the individuals who commit crimes and have the urge to attack are those who are usually scared of negative events. Specifically, their minds and bodies are infused with fear, leading them to some action tendencies. Based on this research study and the observations made in the case study, individuals with these action tendencies or anger might not be resilient, thereby becoming problems for the community's endeavours. Thus, undoing the effects of negative events is vital to the concern variable of this research study.

In addition, consequences of this core variable impact on the concern variable of the research study by helping to great contentment among community members and provide a more rapid turnaround in the face of negative events.

4.5.9 Ability to improve morale level

This section is similar to the tolerance section (4.5.2) explained above. The difference is that morale level help individuals in a community to build their ability to assist others in recovering from disaster outbreaks. Therefore, based on this research study and observations made during in the informal settlement, the level of confidence exhibited by an individual or a community when in stressful situations like a disaster event is a better way of defining morale. This has a considerable impact on the concern variable because the individuals with this characteristic become examples to the less resilient individuals. This was confirmed when some members of the communities asked that "...whom they look up to in order to bounce back?" and one of their answers was "...those with morale and enduring spirit".

There is a saying that 'by endurance we conquer'. This saying is crucial because, based on this research study and observations made in the informal settlement, some individuals tend to give up once there is a negative situation. Additionally, this means that, according to this research study, every resilient individual could have good morale level, and this could make them an exemplar to the others. This would explain why community members answered the question above as they did.

The consequences of this core variable impact on the concern variable by providing peer support among community members, thereby making them knowledgeable of what is happening and what must be done to better their future.

4.5.10 Summary of core variables concept analysis

The literature review of the core variables allowed the identification of the components of community resilience by highlighting their antecedents, attributes and consequences, which is shown in Table 4.4 below. The concept analysis gave insight into the identified components of community resilience and shows how they contribute to the research study. The consequences of each core variable affected the concern variable of the research study.

Below is the summary and the listing of the key attributes, antecedents and consequences of the core variables.

Table 4. 4: Summary of the concept analysis of core variables: Listing the key attributes, antecedents and consequences.

	Ability to manage emotions	Ability to improve tolerance level	Level of stress management	Ability to avoid guilt	Effects of pushing limits to increase performance	Level of self-determination to govern the community	Degree of undoing the consequences of negative events	Ability to improve morale level
ATTRIBUTES	Mindfulness	The emotional, cognitive process	Social support	Problem solving	Leadership	Self-determination theory	Positive emotions	Endurance and coping mechanisms
	Coping	Stress tolerance	Problem solving	Creativity	Pushing through	Work motivation	Negative emotions	Resistance and resilience
	Self-acceptance	Hardship alleviation	Resilience	Innovation	Team limits	Effective performance	Cardiovascular recovery	Adaptive behaviour
ANTECEDENTS	Accepting progressive change	Provide information	Poor social support	Inexperienced individuals	Communities with limits	Lack of motivation	Neglect of positive emotions	Overburdened nature
	Poor mood regulation	Evaluate priorities	Social isolation	Less ability to think	Focus on disaster	Quality of resilience	Anger leading to attack	Poorly managed systems
	Low positive emotionality	Pay attention	Stressful situations	Problem statements	Mental toughness	Individual differences	Sadness	Unhealthy behaviours

	Ability to manage emotions	Ability to improve tolerance level	Level of stress management	Ability to avoid guilt	Effects of pushing limits to increase performance	Level of self-determination to govern the community	Degree of undoing the consequences of negative events	Ability to improve morale level
CONSEQUENCES	Build resilience to stressful events	Belief and expectation of a better future	Helps for good decision making	Enhances the highest level of performance	Development of mental toughness	Increase results	Gives contentment	Leads to more effective and responsive systems
	Influence psychological well-being	Help to see bigger picture	Foster effective coping strategies	Enhances creative thinking	Reinvention and dynamism in strategy	Leads to effective performance	Gives amusement and happiness	Provides peer support
	A higher level of dispositional mindfulness	Determines stress response	Excellent social support and stress reduction	Brings together teams of people	Accepting personal/joint responsibility	Aids spontaneous satisfaction and work motivation	Provides rapid turnaround of negative effects	Helps people become knowledgeable

4.6 Overview of level 0, level 1 and level 2 (linking the levels)

The literature review showed the concepts underpinning community resilience. The concept analysis was used to link all the levels together (see Figure 4.5). This means that the consequences and the antecedents were connected, which leads to the results. The overview has also shown how the nine core categories, as described in section 4.5.1 to 4.5.9, influences the development of community resilience in relation to individual resilience, which could potentially contribute to disaster risk reduction, which in turn relates to disaster response, thereby creating thriving, sustainable community development. This is explained further in chapter 5.

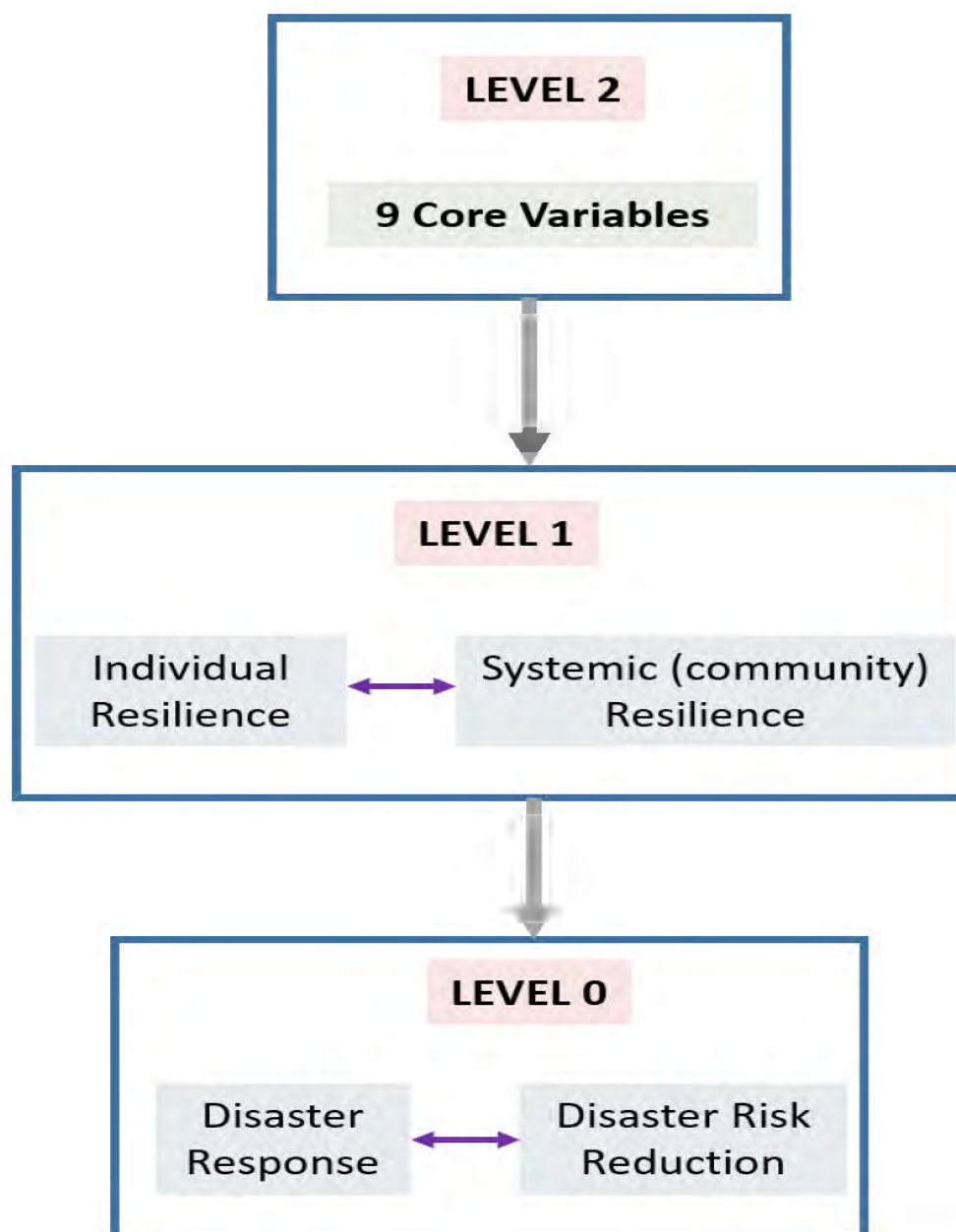


Figure 4. 6: Overview of level 0, level 1 and level 2 three-level review framework.

The level 2 overview gave a review of the core variables which were used to develop the research result. These core variables were thoroughly analysed to identify which consequences were linked to the level 2 antecedents before continuing with the research. The same process was followed for level 1 and level 0.

Most of the consequences that were linked to the antecedents showed they impacted on the concern variable, which led to the research result in chapter 5. Therefore, the nine variables that have been accepted are expanded on in chapter 5.

4.7 Conclusion

In this chapter, the literature review was presented by drawing on literature at three levels: level 0, level 1 and level 2. These were 1) the parent discipline, 2) the research focus and 3) the core categories developed and identified in other parts of this research study. The chapter started with the discussion on the parent discipline, i.e. *why* solve the research question? (4.3). The discussion of the research focus followed. The reason for solving the research question was identified and reviewed in literature and observations, (4.4). This led to the concern variable, which was also reviewed. The chapter ended with the discussions of the core variables which impacted on the concern variable, (4.5).

It was possible to gain a body of knowledge from the literature review, which is relevant to community resilience. It was indicated that the research was conducted in cycles and the variable ‘positive emotion’ emerged as the concern variable in the cycle 4. This does not imply that positive emotion is the main driver for low resilience in informal settlements, but it is one of the nine themes identified from the analysis described as variables. Therefore, additional variables, such as funding, are also necessary for further research.

Furthermore, with the knowledge gained from the literature review, it is possible to connect the core variables through the consequences they produce to formulate a resilience theory for communities vulnerable to disaster risk. This theory is presented in chapter 5 as a synthesis in summary of the phenomena described in the previous chapters.

5.1 Introduction

This chapter engages with the empirical results of the grounded theory and the literature review to develop the theory to answer the research question. This is because identifying the core variables will not produce the results on their own unless they are framed together to generate a theoretical model that would address the research question. The core variables from the research study and the concepts derived from the review of literature were used to build the theory by drawing on the scientific model building process developed by Stafford Beer (1994, p.114), from his work, “Decision and control, the meaning of operational research and management cybernetics.”

This chapter also presents an introduction and application of the systems archetypes used to develop the system dynamics model, which helps to envisage how variables behave to produce the system. This was done by building on the analysis of data and the theoretical understandings derived from the literature review section through the antecedents, the attributes and the consequences of the core variables.

5.2 Key concepts of the analogical process

Beer (1994, p.114) referred to the modelling procedures that were used for the theory building in this research study as the “...model to build a theoretical managerial theory by joining it into a well-accepted scientific model.” This modelling approach was used because of its relevance for management research, and because of the process of using known models to construct conceptual models of new phenomena.

This work by Stafford Beer was developed and adopted by Tsoukas (1991, p.575), which draws on metaphors for model building, where information is transferred to a new or unspecified domain (which *can be called the target domain*) from a comparatively familiar domain (which *can be called the base domain*) (Johnson-Laird, 1989; Ortony, 1975; Vosniadou, & Ortony, 1989).

By the same token, the metaphors and analogical reasoning allow for the constructing procedures of a scientific model that hypothesises the mechanisms that influence the resilience level of the communities faced with disaster and later improve such resilience level. Figures

5.1 and 5.3 below explain the analogical scientific model building process, with the understanding that metaphors, similes and analogies help to generate the reality and how it should be looked at and put into evaluations and not just describing the reality externally (Keeley, 1980).

5.3 Theory building process

The theory-building steps are the analogy steps and the isomorphism steps that compensate for the theory-building process. The theory-building process of section 5.3 is separated from the application of the theory-building process in section 5.4. The intention for this is not for repetition, but to systematically illustrate the processes. This process, in figure 5.1 and 5.3 below, explains how metaphors and analogical reasoning can be used to build the theory.

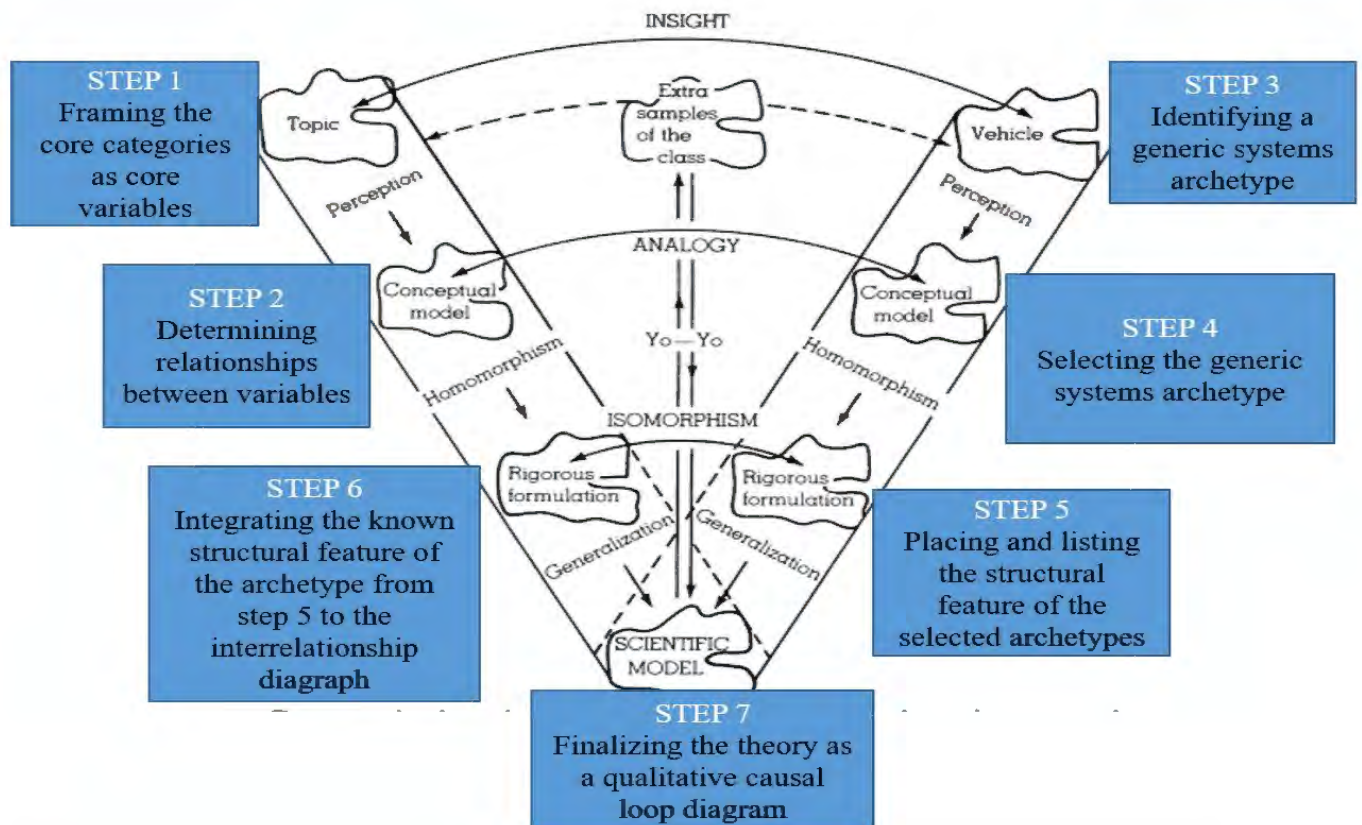


Figure 5.1: The scientific model building process: “A transformational view of metaphors in organisation science.” Retrieved from: Beer (1984, p.7-25).

STEP 1: Framing the core categories as core variables:

Concept analysis was done on the nine-core variables generated in the research study, which was done to get more insights into the core categories. In this step, the analysis of the data

derived from the study were used to choose a variable for the categories within the context of the study and paying attention to its importance.

STEP 2: Determining relationships between variables:

An interrelationship diagram was used as a systematic way of checking the relationships between the core variables that were derived from the analysis in chapter three of this study, by drawing on the interview data for evidence of the relationships.

STEP 3: Identifying a generic systems archetype:

In step 3, an archetype was selected from the Wolstenholme’s generic archetypes and Braun’s archetypes (Braun, 2002; Wolstenholme, 2003) depending on the details and understanding derived from them, and this starts from the concern variable. Further explanations of the archetype are presented in the next section of this chapter.

STEP 4: Selecting the Wolstenholme systems archetype:

This was the part used to select a systems archetype identified and initiated. See figure below:

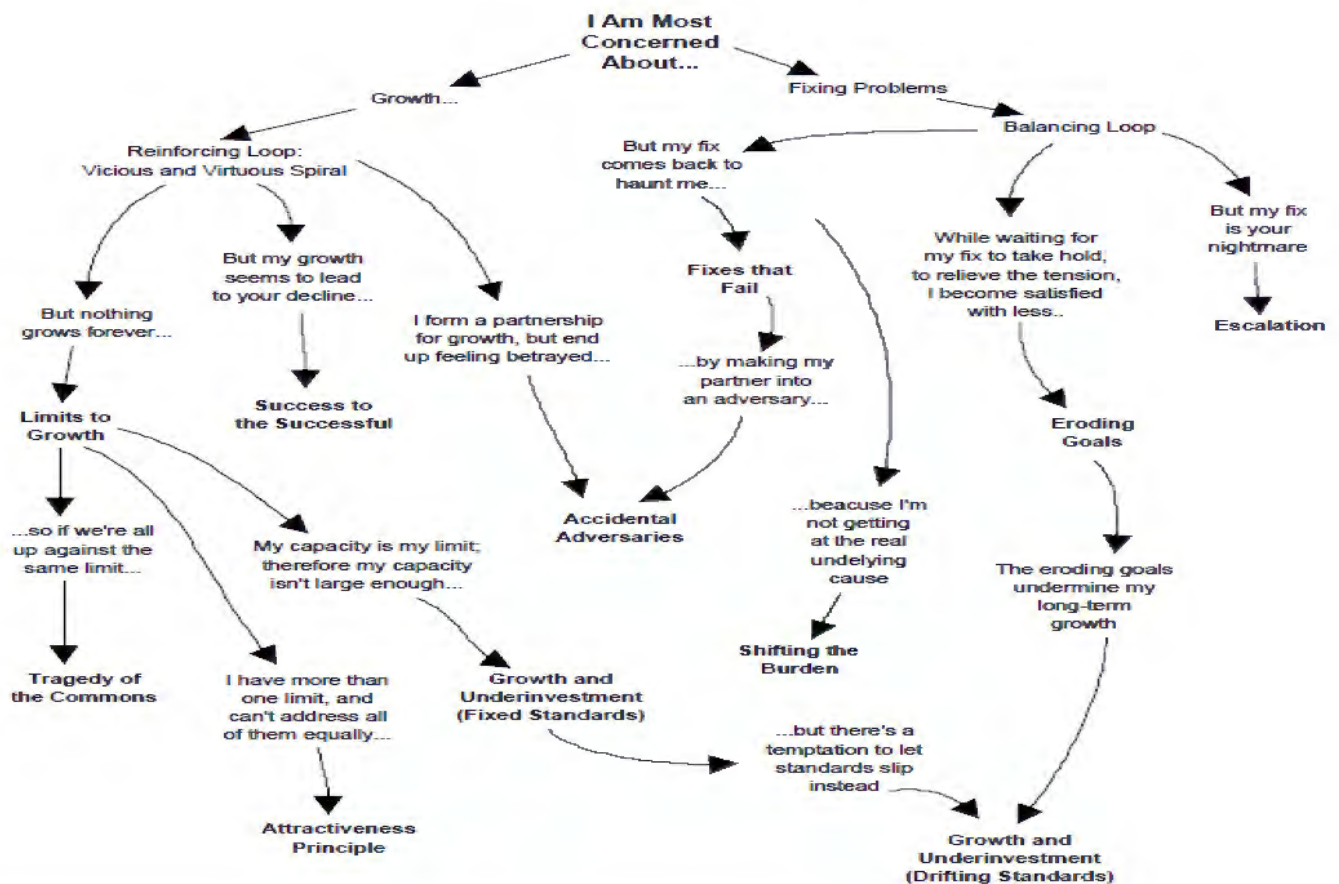


Figure 5. 2: Framework for selecting systems archetypes (Braun, 2002, p.27).

STEP 5: Placing and listing the structural feature of the selected archetypes:

This step involves the feedback of the causal loops, how they affect each other and the outside environments. The process allows for the documentation of the identified known structural feature of the selected archetypes. Further explanations on step 5 is presented in the next section of this chapter.

STEP 6: Integrating the known structural feature of the archetype from step 5 to the interrelationship diagram:

This is where the causal loop diagram (system dynamics model) that communicates to the concern variable is generated, which means that the new findings and understanding derived from the causal loop diagram of the research study is explained here. This includes the variables from the causal loop diagram into an essential segment of the selected systems archetype in a way that makes it sensible in terms of the data and analysis

STEP 7: Finalising the theory as a qualitative causal loop diagram:

As soon as the structural feature of the selected systems archetype is inferred into the interrelationship diagram, the finalised model can then be constituted as a causal loop diagram that communicates precisely to the concern variable of the research study or research problems.

This section has described the theory building process and the next section below will show the applications of the theory building process in detail. As explained in *page 127*, the intention for this, is not for the purpose of repetition, but to systematically illustrate the processes.

5.4 Applying the theory building process

The structure mapping process explaining the analogical reasoning was used in the theory-building process application. The structure mapping is described as a theory used to interpret analogical reasoning (Gavetti & Rivkin, 2005) (see Figure 5.3). Analogical reasoning is an essential part of the theory-building process in this research study; and an analogy is the identification of a specific item called the base domain, which are not strictly similar to the target domain (Leboea, 2017).

The structure mapping process allows for the development of a new theory during the result building process, depending on the conclusions reached, since the analogical reasoning is an involved segment of the result building procedure. Kieras and Bovair (1984) says that there are

two types of analogical reasoning, the first one allows for a better insight on the operation of two means and an inbuilt understanding of how the means functions allow for the reasoning of how similar means operates or to understand how a bigger system works. The second type is an insight that is used for reasoning, and it is already inbuilt to dictate a solution to a problem, this is the domain insight (Kieras & Bovair, 1984). Leboea (2017, p.79) further stated that “...In the theory-building process, the base domain metamorphoses into the Wolstenholme generic archetypes and the target domain discovered becomes the interrelationship diagraph and the variables.”

The next headings further explain the theory-building process discussed in *section 5.3*, and the figure below gives an understanding of the structure mapping used in the theory-building process application.

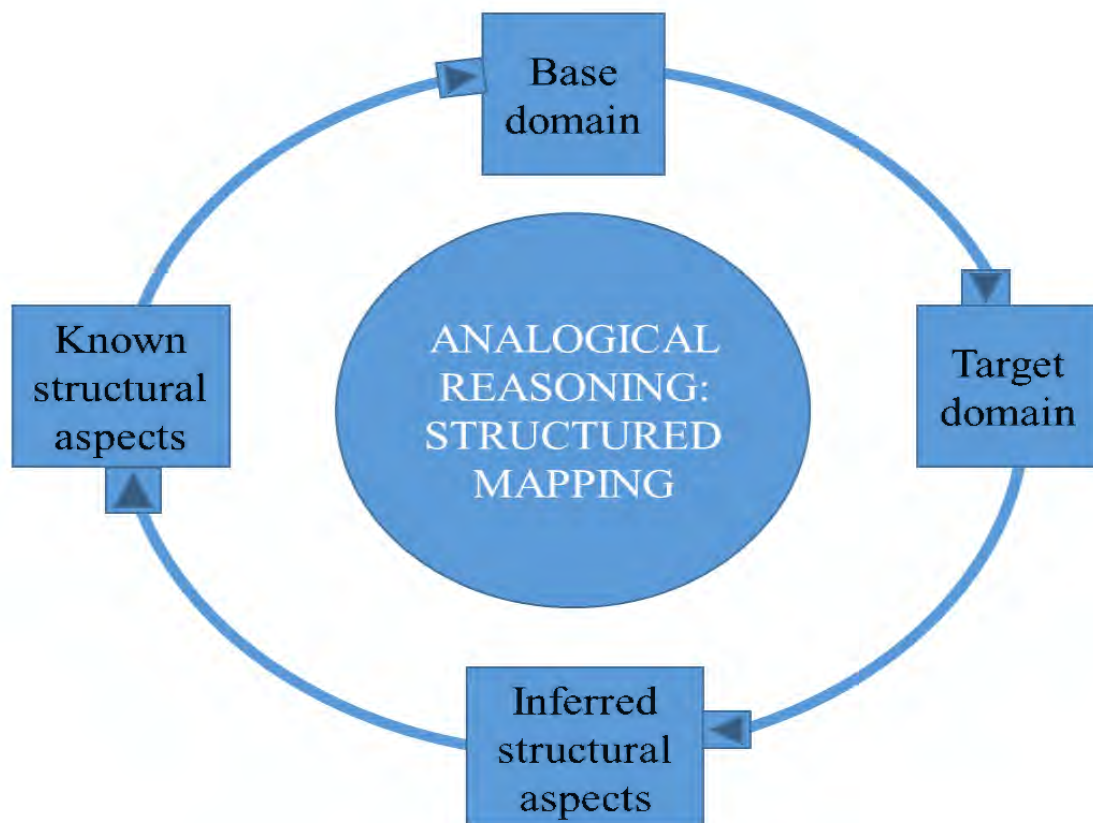


Figure 5. 3: A “representation of the structured mapping process, explaining the analogical reasoning.” Retrieved from: Gavetti and Rivkin (2005, p.54-63).

The section below illustrates the application of the process of theory building, which was used to achieve the result of the research study.

5.4.1 Step 1: Formulating the core categories as core variables

Through the different parts of the research process and cycles, which is the grounded theory methodology used, nine-core categories were developed. These nine-core categories were developed as core variables re-named in a dynamic way, rather than a static way (see appendix A5). These variables are also shown in the table below.

Table 5. 1: Core categories framed as variables (renamed variables). See appendix A5

CORE CATEGORIES	CORE VARIABLES
Deeper self-acceptance, self-determination and efficient, emotional regulation	Ability to manage emotions
Expand tolerance, hope and love	Ability to improve tolerance level
Reduce stress, disaster risk and mobilising appropriate autonomic support	Level of stress management
Avoid guilt by providing problem-solving techniques	Ability to avoid guilt
Increases performance, creative and push the limits	Effect of pushing limits to increase performances
Flourishing the community and rediscover themselves and strength	Level of self-determination to govern the community
Lessen resonance of negative events	Degree of undoing the consequences of negative events
Improve morale and endurance level	Ability to improve morale level
Positive emotions	Positive emotions in individuals

5.4.2 Step 2: Interrelationship diagram of core variables

The interrelationship diagram was developed by using the variables chosen from the core categories and direct mapping relationships while ignoring the indirect relationships. The interrelationship diagram explains the relationship between core variables because the indirect

relationships are not individually meaningful, and as to avoid over counting. The interrelationship diagram was derived by evaluating the factors driving each other, which is shown by the arrows. See the figure below.

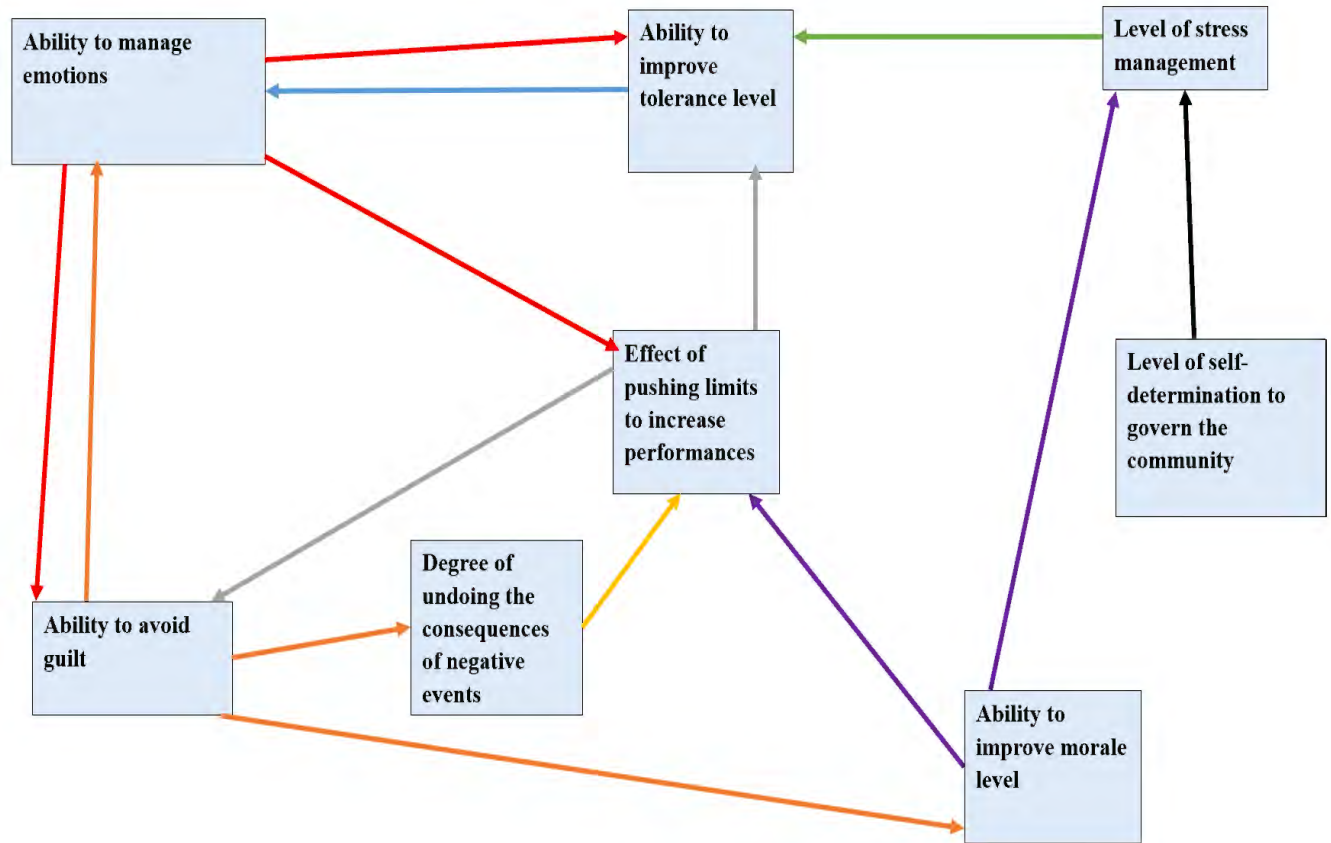


Figure 5. 4: Interrelationship diagram of core variables.

The variables influence or drives each other in the interrelationship diagram above. The core variables derived from the grounded theory analysis, could be the elements of community resilience mentioned in chapter 3 and 4 of this study, which are the mechanisms influencing the resilience of communities faced with disaster risk.

5.4.3 Step 3: Identifying a Wolstenholme generic systems archetype

The relative achievement archetype is when achievement is realised at the detriment of another sector (Wolstenholme, 2003). This archetype was found to be suitable for this study based on the relationships of the variables derived from the grounded theory analysis. Wolstenholme (2003, p.7-26), stated that "...this type of archetypes consists of a reinforcing loop intended to achieve a relative advantage from an initiative." The concern variable of the research study focuses on the understanding of the mechanisms influencing the level of community resilience

and recommending improvements. This means the research wants to increase something. The framework of Braun in Figure 5.2 (above) and Figure 5.6 below has shown the path that is most important to the concern variable of the research study. See figure below for the generic system archetype selected.

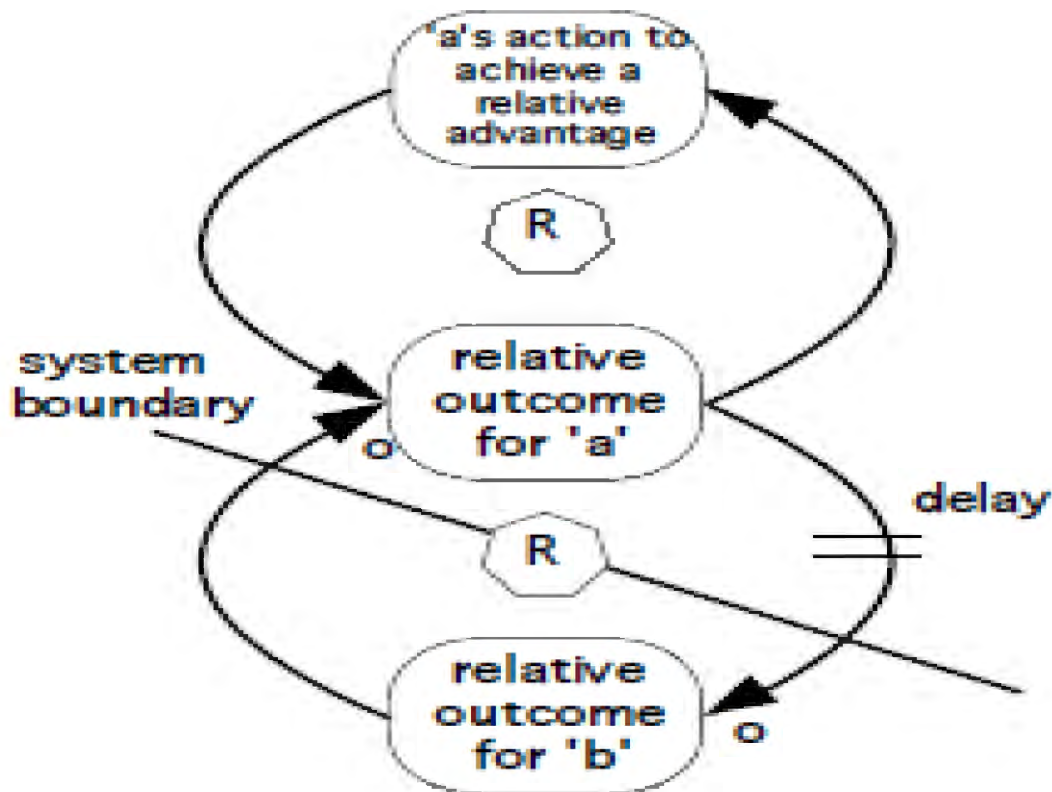


Figure 5. 5: Relative achievement archetype: retrieved from Wolstenholme (2003, p7-26).

Through the Wolstenholme’s four generic archetypes, the relative achievement archetype was chosen because the concern variable exhibits behaviour according to this archetype. The concern variable of the research study intends to grow or achieve something after the research study, and the relative achievement archetype also “intends to achieve a relative advantage from an initiative” (Wolstenholme, 2003:12).

5.4.4 Step 4: Initiating the identified Wolstenholme generic systems archetype and selecting a Braun archetype

Wolstenholme (2003, p.5-26), stated that “...the key to identifying solution archetypes lies in understanding both the magnitude of the delay and the nature of the organisational boundary

present, and the solutions required by system actors when instigating a new action should attempt to remove or make transparent the organisational boundary masking the side effect.”

The success to success archetype structure explains that growth in a system, on the other hand, leads to a decrease of the next system. The figure below shows how the success to success archetype was selected further.

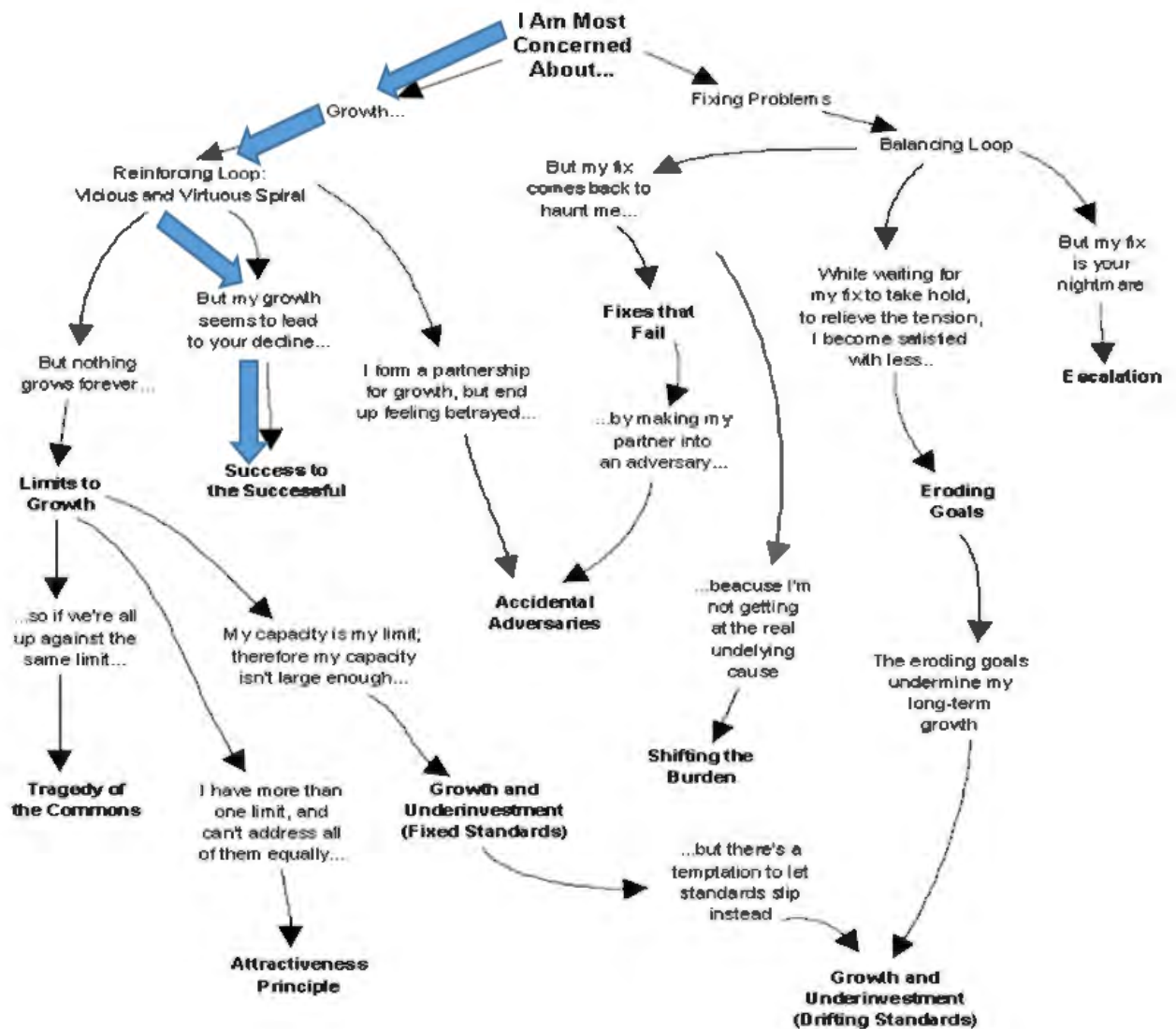


Figure 5. 6: Systems archetype selection framework: Source: Braun (2002, p.27).

5.4.5 Step 5: Placing and listing the structural feature of the selected archetypes

This process involves the interaction of the causal loop feedback and the environment. This is where the structural features of the selected archetypes are recorded. This shows the structural archetype selected for placing and listing.

Noticeably, success to success archetype structure explains that growth in a system, on the other hand, leads to a decrease of the next system. Kim and Anderson (2011, p.87), asserted that “...in a success to the successful situation, two or more individuals, groups, projects, initiatives and systems are vying for a limited pool of space to gain success, when one of them starts to become more successful (or is historically already more successful) than the other, it tends to garner more spaces, thereby increasing the likelihood of continued success.”

The figure below shows the success to success archetype used for this research study:

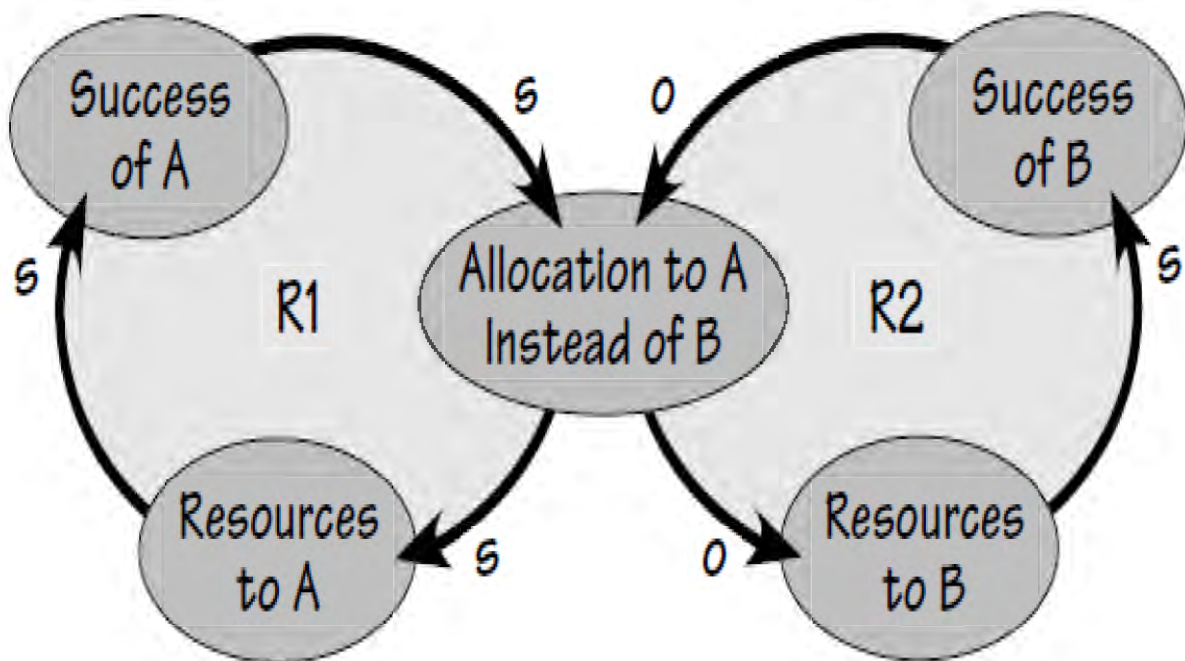


Figure 5. 7: The success to success archetype: Source: Kim & Anderson (2011, p.87).

5.4.6 Step 6: Inferring the known structural feature of the archetype from step 5 to the interrelationship diagram

This is a process where the variables derived are inferred appropriately into the selected segments of the systems archetype in a way that their relationships are in line with the other variables inferred into the systems archetype. This should also speak to the concern variable in understanding the causal loop diagram.

Most CLD's (causal loop diagram) can be categorised under some generic identified CLD's (Kamprath, 2014; Kiani et al. 2009; Kim & Anderson, 2011; Ríosb, 2006). What this means is that the CLD would most likely be one of the generic archetypes. Figure 5.8 below shows the inferred known structural feature of the archetype to the CLD. The variables were inferred to the structure to match it appropriately.

Systems archetypes are naturally arising combinations of reinforcing and balancing feedback loops and are necessary for acquiring knowledge into the "nature" of the underlying issues and for giving an initial foundation upon which a model can be further developed and established.

The aim is to achieve something at the maximum level or lowest level, which could be illustrated by a reinforcing loop. The archetype chosen is to control something, and that led to the decision of the loop applicable to the research. This means that the respective generic CLD was selected because it applies to the research focus of the research study.

The research variables were looked at, and the researcher considered how they would fit into the generic CLD. Kim and Anderson (2011, p.91) established that "...The key to diagramming success to the success is identifying the central variable involving choice and allocation of resources".

The figure below illustrates further and gives the CLD of the research study.

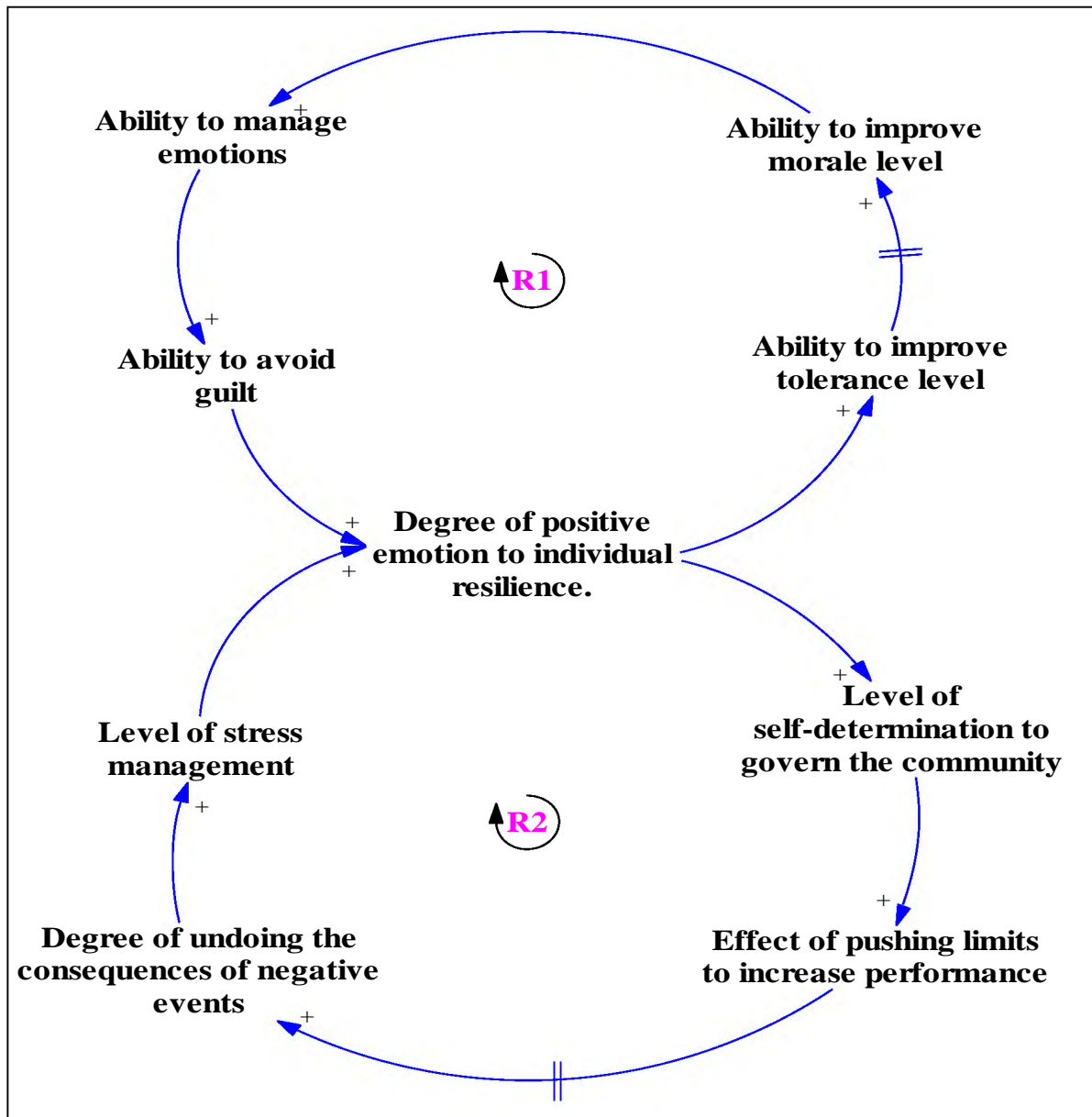


Figure 5.8: Inferring of the known structural feature of the archetype to the interrelationship diagram (illustration of the inferring of the core variables).

The behaviour over time graph for the success of the successful archetype is more of a diverging curve, where one goes up, and the other goes down (Braun, 2002, p.11). This means that if we represented the resources **A** as community resilience (**CR**) and the resources **B** as the disaster risk (**DR**), it will mean that the success or increase in the level of community resilience will lead to the decrease of the disaster risk. This is illustrated by the hypothesis below.

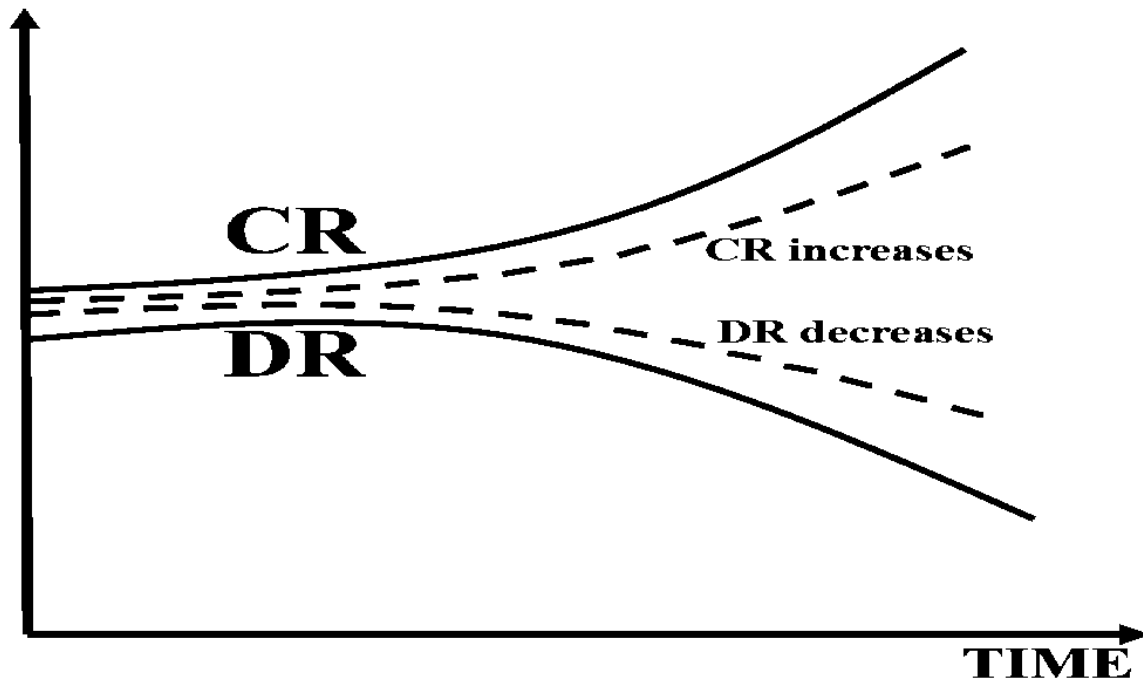


Figure 5. 9: Behaviour over time of the success to successful archetype represented with CR and DR: Adapted from Braun (2002, p.11).

It can be inferred from Figure 5.9 that the community resilience (CR) is saying to the disaster risks (DR) that my increase leads to your decrease. This illustration explains the practical goal, the relationship between community resilience and disaster risk reduction and led to answer the second question of this research study.

5.4.7 Step 7: Finalising the model (the scientific model for the research study)

The theoretical model below explains how the fundamental behaviour of the relative achievement archetype relates to the development of community resilience. This explains the mechanisms that influence the level of community resilience in the Western Cape.

Relocated themes from the relative achievement model, which was used to correspond with the variables from the interrelationship diagraph were illustrated above, which recognises the themes in the success of successful CLD. These themes were assessed, and insights were given considering their effects on the other variables in the CLD. Interchangeable loops were found through the interrelationship diagraph derived from the research process, and more insights obtained from the review of the literature were used to equal the themes or the variables of the CLD through interchangeable attributes to the generic archetype.

The equality might not be in perfect state, but the loops of the relationship remain in shape. This directed the researcher to go beyond the simple archetypes by embedding the variables inferred in the archetype to a system that is more complex or selecting the archetype in more depth and range of application to actualise the theoretical model or research result required for this research study. Figure 5.10 below relates the above phenomenon and offers more understanding.

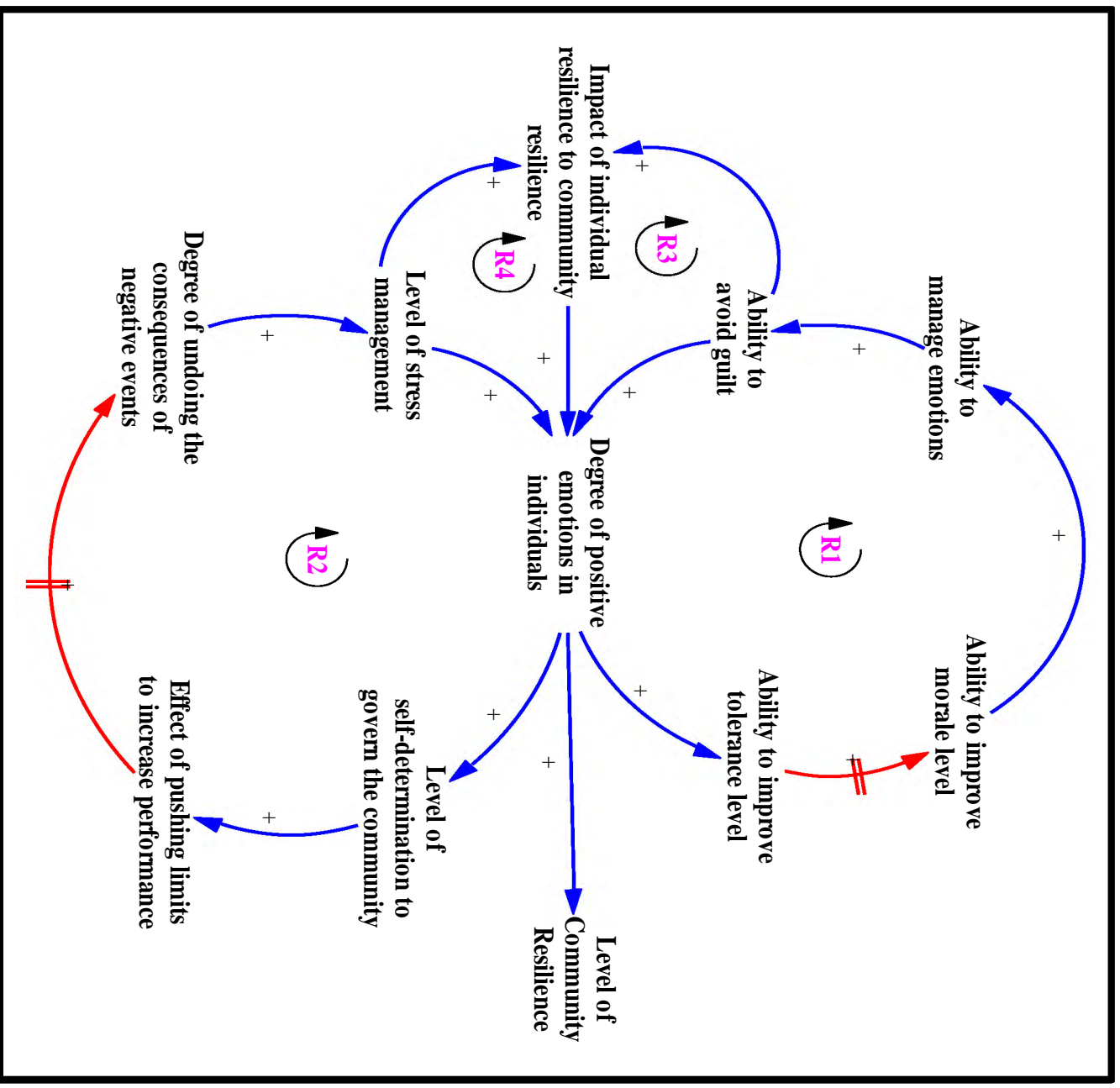


Figure 5.10: The integrated theoretical model of community resilience, based on the community vulnerable to disaster risk.

The compatible variables were inferred into the relative achievement archetype to develop the CLD, which is related to the concern variable of developing of community resilience in the Western Cape. The researcher went beyond the simple archetypes by embedding the archetype or variables inferred in the archetype to derive the recommended variable (impact of individual resilience to community resilience), which improved the theoretical model to answer the research question.

The theoretical model provides an insight into how the similar concepts and core variables interact with each other to develop or influence the *community resilience*. The variables are also the identified mechanisms influencing the level of resilience of the vulnerable community.

Therefore, the question of *'What are the underlying mechanisms influencing the resilience of communities faced with disaster risk?'* was answered in figure 5.10.

To further explain the model, a description is provided for each of the four reinforcing feedback loops below:

5.5 Theoretical description of the community resilience model

The theoretical model is made up of individual core variables interacting together as reinforcing feedback loops, which indicates the causal relationships existing in the community resilience model. The nature of the variables makes them difficult to measure quantitatively as they require access to the experiences of people. The dynamics of these relationships are explained below:

The four feedback loops in the model, explains the reciprocal relationship between individual resilience and community resilience through interlinking variables and loops. Reinforcing loops 1 (**R1**) and reinforcing loop 2 (**R2**) both demonstrates how aspects of agency in individuals can contribute to community resilience. Reinforcing loop 1 (**R1**), explains the attributes of individuals, such as tolerance, morale, emotional management, avoiding guilts and positive emotions, that contribute to a positive outlook, while reinforcing loop 2 (**R2**) represents skills in relation to self-determination, pushing limits, undoing consequences of disaster events and stress management. This combination of attributes and skills influence the degree to which individuals demonstrate resilience in the community. Individual resilience in

this sense represents the ability to improve these mechanisms or attributes. This ability therefore can contribute to the contribution that the individual makes to the resilience of the community.

In the systemic structure of the causal loop diagram (model), there is a need to improve these mechanisms in order to influence community resilience; this explains the reinforcing loop 3 (**R3**) and reinforcing loop 4 (**R4**) on the model (see figure 5.10).

The dynamics of these relationships will also be illustrated separately below for each of the four-reinforcing feedback for more elaboration and relating to literature.

5.5.1 Reinforcing loop 1 (R1)

According to the first reinforcing feedback loop (figure 5.10), a resilient individual is hypothesised to have positivity (Fredrickson, 2009; Tugade & Fredrickson, 2004), this will influence the ‘ability to improve tolerance level’ (Hori et al. 2013, p.1). Chapter 4 of this research study has established that tolerance is a part of the characteristics of a resilient individual (Hegney et al. 2007).

The extent of the ability of an individual to develop tolerance level influences the ‘ability to improve morale level’ of the individuals in the community. This further establishes that the ability to improve morale level will influence the ability of the individuals in the community to ‘manage their emotions’, because, it is essential for individuals in a community to exhibit emotional management in their everyday life to promote resilience (Tugade & Fredrickson, 2007).

The ability to manage emotions by individuals in the community influences the ability of the individuals to be able to ‘avoid guilt’ by demonstrating problem-solving techniques (Belavkin, 2001; Hannula, 2015). This is because, based on the findings from analysis of the case study interview data, and as explained in chapter 4 (section 4.5.5), it indicates that the individuals fail to demonstrate problem-solving skills whenever they begin to feel guilty and blame one another for the disaster events. Guilt, on the other hand, should help the individuals think about the future and make sense of the disaster events (Johnson, 2015), instead of hindering them from providing a solution to disaster events.

All these descriptions are illustrated in the reinforcing loop 1 (R1) of the figure 5.10 above.

5.5.2 Reinforcing loop 2 (R2)

According to the second reinforcing feedback loop, a resilient individual is also hypothesised to have positivity (Fredrickson, 2009; Tugade & Fredrickson, 2004), which influences the level of the individual's 'self-determination to govern the community' (Aumann & Rosser, 2011). This is because the quality of resilience in individuals is not constant through the life span of the individual, thus, the individuals need determination to contribute to the community (Richardson et al. 1990). As indicated in chapter 4, it has been established that determination is part of resilience development (Aumann & Rosser, 2011).

The extent to which an individual is of benefit to the community by being determined will also influence the 'effect of pushing limits to increase performances' by the individuals. This is because the individuals who push the limits show signs of mental toughness (Clough et al. 2002; Stein, 2019), and a belief that disaster risk reduction could be attempted by being confident; being in control of the situation and by performing better (see section 4.5.6).

The effect of pushing the limits to increase performance influences the 'degree of undoing the consequences of negative events' (Bergstrand et al. 2015). It was evident that for the community members to increase performance for building resilience, they will need to experience fewer negative events and the after-effects thereof because, at this stage, the community members are putting in enough performance which could build resilience (Fredrickson et al. 2000). The undoing of the consequences of negative events influences the 'level of stress management' by mobilising autonomous supports' (Rutter, 1985). This means that instead of externalising blame (for example, blaming the government or the disaster management agencies) community members should seek to support one another and use the resilient elements as an exemplar to the non-resilient individuals to manage stress and adverse conditions (Moore et al. 2011; Skertich et al. 2013; Varvogli & Darviri, 2011).

All these descriptions are according to the reinforcing loop 2 of the figure 5.10 above.

5.5.3 Reinforcing loops 3 and 4 (R3 and R4)

Loop 3 and 4 establishes that the influence of the variables mentioned in the **R1** and **R2** on individuals will influence the contribution of individual resilience to the community (see figure 5.10).

In other words, the individual resilience in the theoretical model is the recommended variable with the potential 'to improving the mechanisms influencing the level of community resilience', because a capable, resilient individual would demonstrate at least some of the themes or variables mentioned in this research result (model) (Bædkel et al. 2017; Hegney et al. 2007). This also led to the answer of the practical goal.

All these descriptions are according to the four reinforcing loops of the figure 5.10 above.

5.6 Practical adequacy of the theoretical model

The theoretical model explains the connection between the corresponding themes or variables that are related to community resilience. Sayer (2000) found that it is necessary to indicate if the theory can be termed as practically adequate when compared with the real world and that the theory can bring about an adequate or manageable solution to the real-world circumstances.

The theoretical model is reinforcing in nature, which makes it possible for it to explain how to influence the level of resilience in the community. In addition, the theoretical model is sufficiently abstracted that it could be applied to different communities, informal settlements, refugee camps and disaster-prone areas around the Western Cape, South Africa environs, and any other situation that requires the development of community resilience. However, this study was conducted in a single geographic location, and the transferability thereof would have to be considered through engagement with the detailed methodological descriptions and explanations of the theoretical model.

The theoretical model also provides an understanding that in focusing on disasters, community 'resilience' could attempt to reduce disaster risk by focusing on using the model or the mechanisms that make up the model for insights that could contribute to understanding disaster risks reduction (DRR). This has also achieved the research purpose of knowing the relationship between community resilience and disaster risk reduction (see figure 5.9).

5.7 Theoretical model validity

There is a possibility that the theoretical model can be termed adequate regarding the real-world situations, and a possibility that the model was developed as a result of what would like to be seen and not what is happening, these possibilities was handled in this section.

For the enrichment and maintenance of the validity, the research design was iterative. To enrich the validity of the study, the researcher took the part in defining the conceptual framework from the start of the research study to provide the trustworthiness criteria of credibility and confirmability, increasing the data collection reliability, using theoretical sampling to check the upcoming ideas, using the literature review and used the different coding processes to get trustworthiness criteria of dependability.

For the transferability of the derived theory, diverse sources of data were used for the enrichment of the validity of the research study. The analogical stance was also used to apply the systems archetype to the related concepts allowing for the alignment of accepted models used to develop the theoretical model, thereby, increasing the theoretical validity.

The theoretical model developed went through a checklist, especially against data to indicate that the model explains the real-world outcome and that the model applies to the case study.

5.8 Conclusion

In this chapter, a theoretical model was developed to understand the mechanisms influencing the resilience of communities faced with disaster risks, using the methods and understanding derived from the previous chapters of this research study. The analogical reasoning process were used to develop the theory, which resulted in a causal loop diagram explaining the results.

This chapter also described the research cycles, field work, literature review and analogical process to address the validity of the concepts and produce the theoretical model that hypothesises the development of community resilience. The conclusion and evaluation of this research are explained further in the next chapter.

Chapter 6 Conclusion and Evaluation

6.1 Introduction

In this study, a theoretical model was developed to answer the research questions and to illustrate the understanding of the mechanisms influencing the resilience level of the community vulnerable to disaster risk and its potential for improvement of the management of such risk.

In this chapter, the research questions are revisited, and the model developed was evaluated as the answer to these questions. Thereafter, recommendations based on the results are considered, and opportunities for further research and a discussion on the limitations of the study are presented. Also, the validity of the theoretical model is considered, and the ethical implications are discussed.

6.2 Implications and consequences of the model

Community resilience was proposed as an answer to the question of how communities could reduce disaster risk and improve their disaster response to achieve sustainable community development in a local context. As stated in chapter one, studies have shown that to address vulnerability through the approach of resilience development is more cost-effective than crisis relief (Venton et al. 2012). Furthermore, countries such as the United States has used the idea of community resilience to think about the challenges of disaster risk and has asserted that it has become the basis of disaster risk reduction and response (Ostadtaghizadeh et al. 2015).

This research study has explored the social interrelations between individuals in a community and how these interrelationships contribute to resilience in the community faced with disaster risk. The research result explains how community resilience emerged through dynamic relationships between variables.

The primary research question was: *‘What are the underlying mechanisms influencing the resilience of communities faced with disaster risk?’* The answer to this question is the nine variables, the relationships between them and how they influence one another with feedbacks to produce reinforcing loops (see figure 5.10).

The sub-research question of this study was: *‘How can the mechanisms be improved to develop the community resilience?’* The answer to this question is established in the model as the

‘impact of the contribution of individual resilience’ as the recommended variable with the potentials to improve the mechanisms (see Figure 5.10). The relationship between disaster risk reduction (DRR) and community resilience (CR) is also presented in chapter 5 (see figure 5.9).

Regarding the main research question, their interests were adjusted to the underlying mechanisms that influence the resilience of communities vulnerable to disaster risk. For the concern variable, the concern variable was adjusted to the development of community resilience, which was derived from the research study, and through the evolution of the research focus (see Figure 6.1 below and appendix B4).

For the intellectual and practical goal, it was adjusted to understand the mechanisms influencing the resilience level of the communities faced with disaster risk and how to improve such mechanisms.

6.3 The RUVE evaluation

In the section below, the study is evaluated by considering R (relevance), U (utility), V (Validity), and E (Ethics).

6.3.1 Relevance

The relevance is the understanding of why this research was worth doing. The purpose for this research study was to understand how communities vulnerable to disasters develop resilience and possibly contribute to knowledge and practice. Any community whose resilience capacity is low, might have difficulty in responding to disaster risk, because a resilient community should have a balance between adapting and resisting adverse conditions (Bergstrand et al. 2015).

In line with the research themes of the Southern African Systems Analysis Centre (SASAC), the Western Cape Disaster Management Centre, Habitat for Humanity South Africa and the research initiative at International Institute for Applied Systems Analysis (IIASA), this research study targets some of their core research focuses of advanced systems analysis, disaster risk reduction and response, as well as resilience. All these are in order to promote sustainable development, manage and govern natural disasters, address climate change and ease the technological and ecological transitions to sustainability.

According to the vision statement “our future – make it work” of the South Africa National Development Plan 2030, building environmental sustainability and resilience, building safer communities and reducing inequality are part of the plans and higher demands. Therefore, research that contributes understanding of the agency of individuals in relation to these goals, and how communities can contribute to this agenda is important.

The results from this study could be relevant for the Western Cape Government because it has the potential to contribute to knowledge about community resilience and disaster response in the geographical areas for which they are responsible and the attendant consequences. Furthermore, the theoretical model derived in this research study provides an insight into community resilience, which could inform the development of resilience through education and guide the allocation of resources, monitoring and training. However, research findings often do not influence policy or practice (that is, although this research findings have relevance, the work done in masters dissertations and PhD theses does not often get translated into practice), (Ion et al. 2019; Ion & Iucu, 2015).

Figure 6.1 below establishes the relevance and behaviour of the concern variables from research cycle one to the research cycle four, illustrating how the research focus evolved with each iteration. This is an illustration of the research process described in chapter three of this dissertation (see research cycle one to research cycle four in chapter three).

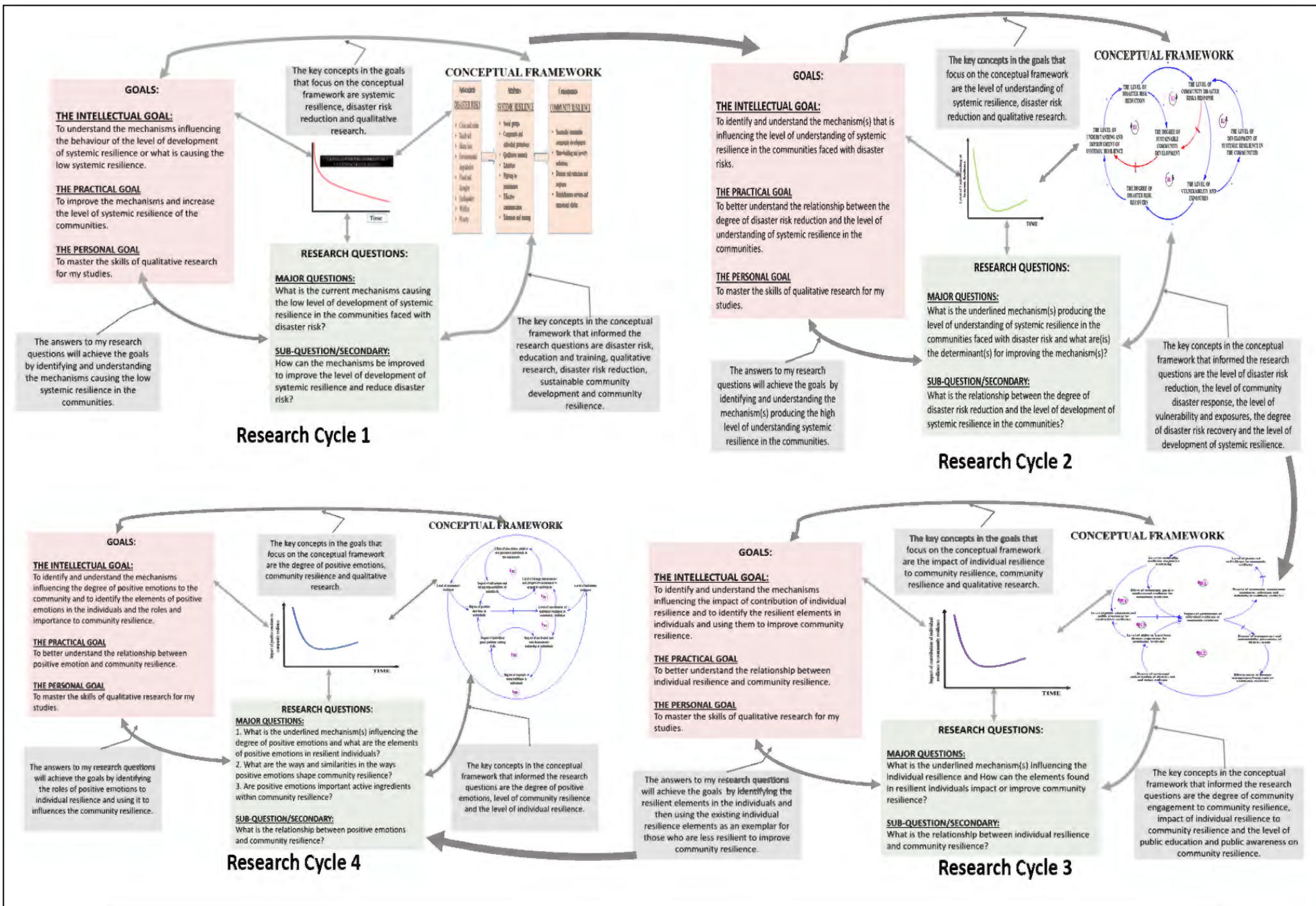


Figure 6. 1: Establishing the relevance and behaviour of the concern variable: Evolution of the research focus (see appendix B1-B4).

6.3.2 Utility

Utility considers the value the researcher derived from the research process and the usefulness of the research study.

The processes used to achieve the utility of the research result are:

1. The researcher developed a conceptual and theoretical foundation of the theory building and modelling process,
2. The researcher framed core categories as core variables,
3. The researcher used the core variables to build a theoretical model that answers the research question,
4. The researcher assessed practical adequacy of the theoretical model,
5. The researcher used the systems archetype, which was used to correspond with the components from the interrelationship diagram,
6. The researcher went beyond the simple archetype which embedded in a more complex system.

The research questions for this study has been mentioned above, and the concern variable for the study is the development of community resilience. Therefore, the utility seeks to know: *does the answer (causal loop diagram (CLD)) to the research question adequately explain the behaviour of the concern variable?* The answer to this question is ‘yes’ because the concern variable explains what the research is going to change after the research and the concern variable shows that there is low or decreasing resilience level in the vulnerable community and they have difficulties in recovering from disaster risk because of this. Therefore, understanding the mechanisms influencing the level of resilience could develop or influence community resilience in the informal settlement (see figure 5.10 and 1.2).

Meanwhile, the CLD answered the question by giving an understanding of the mechanisms influencing the resilience level in the community and showing the recommended variable for improving the mechanisms. This was done through different research cycles where the evolution of the research concern variables was considered until the last research cycle (see Figure 6.1). The figure 6.2 below illustrates the utility of the research study.

In order to achieve this, I did a conceptual and theoretical foundations of the theory building and modelling process. I framed core categories as core variables. I then renamed them and used the core variables to build a theory that answers the research question. Finally, I did an assessment of practical adequacy of the theory.

MAJOR QUESTIONS:

What are the mechanism(s) influencing the resilience of communities faced with disaster risks?

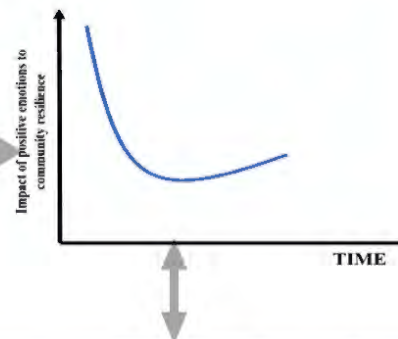
SUB-QUESTION/SECONDARY:

How can the mechanisms be improved to develop the community resilience?

YES! The CLD answered the research question and explains the behaviour of the concern variable of this research study (see figure 1.2). Below are the explanations according to the CLD:

The 9 variables from the CLD (R1 and R2) are identified as the mechanisms influencing the resilience level of the community faced with disaster risks. The ways and similarities these nine variables could shape community resilience is by using the variables found as an exemplar for the less resilient individuals to improve their resilience levels. This will in turn influence community resilience as indicated in the research cycle 4 (see figure 5.10).

The relationship between disaster risk reduction (DRR) and community resilience (CR) is that, as the individual resilience (IR) increases (R3 and R4), it could impact on community resilience (see figure 5.9 and section 5.4.6). The development of community resilience due to the nine mechanisms found in the model could attempt to reduce disaster risk.



The concern variable shows that the individuals need to develop resilience in order to have community resilience. This explains that it is impossible for the community's resilience level to increase without the individuals being resilient and for the individual resilience to exist, nine variables as the ingredients are needed.

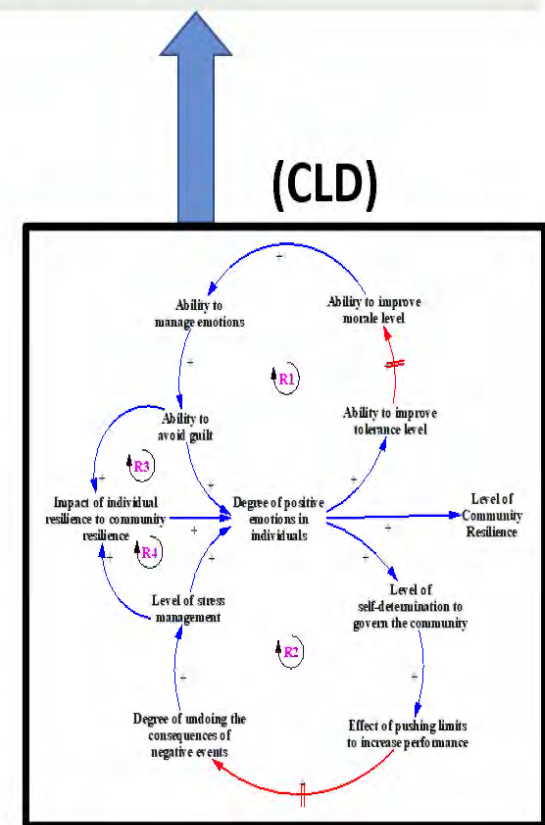


Figure 6. 2: Establishing the utility of the research study: Does the CLD answer the research question?

The intellectual research goal and practical goal were focused on gaining an understanding of the mechanisms influencing the resilience of communities faced with disaster risk or to understand the mechanisms causing the low level or decreasing development of community resilience and recommend improvements. With the achievement of the intellectual and practical goals, the researcher will continue to pursue the personal goal with a higher research study in the future to contribute to knowledge wherever the researcher finds himself.

6.3.3 Validity

As a qualitative study, the term trustworthiness can replace validity. Considerations of trustworthiness helped to address the issues of how the results and conclusions might be wrong and why the readers or other researchers should believe the results. The relevance of the validity is to demonstrate the actual value, provide the basis for applying it and allowing outward perception to be made about the consistency of the procedures and the neutrality of the findings.

All the research processes and steps mentioned in the previous chapters of this study, was conducted iteratively, which means that the qualitative research process used was not static at any stage of the research study. To instil the confidence that the research result is worth paying attention to or worth considering, the data confirmability, dependability and credibility procedures were addressed. These terms were introduced by Guba et al (1982) to replace the terms commonly used for quantitative research.

6.3.3.1 Data credibility (*how credible is the data?*)

The credibility of the study considers how well the phenomenon, that was the focus of the study was recorded. Among the criteria's addressed by quantitative researchers is the internal validity, which guarantees that the quantitative study measures the actual intention of the researchers (Shenton, 2004). However, the qualitative researchers ask the question: How does the findings agree with reality (Merriam, 1998). It has been argued that, making sure of credibility is one of the key elements of establishing trustworthiness (Lincoln, 1985).

Therefore, the researcher endeavoured to improve on credibility and promote confidence that the phenomena under scrutiny have been accurately recorded by following the provisions like: 1) the use of a well-established methodology and systematic process of data collection, 2) the analysis which contributes to the credibility of the study (see chapter 2 and appendix A), 3) the

research process and project plan, from the gathering of the propositions to developing the core categories which were done to achieve the research result (see chapter 2, appendix A1 and A2). Additionally, triangulation of data and descriptive validity were used respectively for the data consistency and for capturing and storing of data correctly to achieve the credibility of the data. Some of these provisions has been discussed and addressed in this research study (see sections 3.7 – 3.7.8).

Furthermore, the data credibility of the internet research was reduced to a barest minimum by investigating the authenticity of the data; the qualifications and achievements of the authors, the databases and the endorsement of the websites as being trustworthy. Similarly, the data derived from the internet or web was further validated with triangulation which portrays the dependability of the data from the existence of the data or ideas in several origins and authors (Thurmond, 2001).

6.3.3.2 Data dependability (the rigorous use of the GT process)

The dependability of the research was based on how rigorously the researcher documented the data collection activities and grounded theory analytical process. This implies that the dependability is about how the researcher have documented the research process and descriptions, so that if someone else replicated the study with similar research participants in similar conditions, they should get similar results (Cope, 2014; Koch, 2006). This was illustrated in the previous chapters of this dissertation (for example, see chapter 2 and see Appendix A1 – A6).

Therefore, for the enablement of the readers of the study to develop an in-depth understanding of the effectiveness of the methods, the researcher devoted the following sections below in the *chapter 2* of this dissertation (Shenton, 2004):

1. The implementation of the research design: that is, the description of the research plans, which should be implemented on a strategic level (see sections 2.2 – 2.6.4).
2. The operational detail of data collection: that is, conveying the technicalities of what was done in the field or case study (see sections 2.5 – 2.5.2).
3. The appraisal of the research study: that is the reflective evaluation of the effectiveness of the process of inquiry done (see chapter 2).

Furthermore, the constant comparison and member checking process (see sections 3.7.6 and 3.7.8), were used respectively to allow new concepts to be developed and to allow for the dependability of the categories which were used for the basis to achieve the theoretical model. The use of the systems archetype and going beyond the system archetype (see sections 5.4.7), was also used to allow for a dependable research framework leading to the theoretical model.

6.3.3.3 Data confirmability (detailed documentation of the research process and its milestones)

According to Shenton (2004: p.72) “steps must be taken to help ensure as far as possible that the study findings are the result of the experiences and ideas of the informants, rather than the characteristics and preferences of the researcher.” The confirmability shows how the researcher generates data from the proposition log to the causal loop diagram (theoretical model), which means showing the key milestones along the process and how this has been documented in this research study (also see appendix A1-A5 and chapter three). It is argued that the “concept of confirmability is the qualitative investigator’s comparable concern to objectivity” (Shenton, 2004: p.72).

The confirmability has assessed the development of the theoretical model. The methodological triangulation (see section 3.7.3), was used to dictate the confirmability of the research result, and the theoretical validity (see section 5.7), also suggests that the theoretical model has a reflection, and can predict what is happening in the real world. Figure 6.3 below explains the craft of the validity of the research study:

6.3.3.4 Data transferability

The data transferability is the extent to which the result can apply to other contexts. The evidence of the transferability is provided by the detail descriptions of the research process and detail provisions to allow researchers to make judgements regarding transferability and application to other contexts.

A qualitative research is said to have met the criteria’s of the study if the results provides an understanding or meaning to the readers who are not part of the study, and if these readers can relate these results to their own experience (Cope, 2014). However, this is determined by the aim of the qualitative study which could only be relevant if the study intends for generalisations about the phenomenon (Sandelowski, 1986).

In conclusion, the research satisfies the trustworthiness criteria of credibility, dependability, confirmability and transferability.

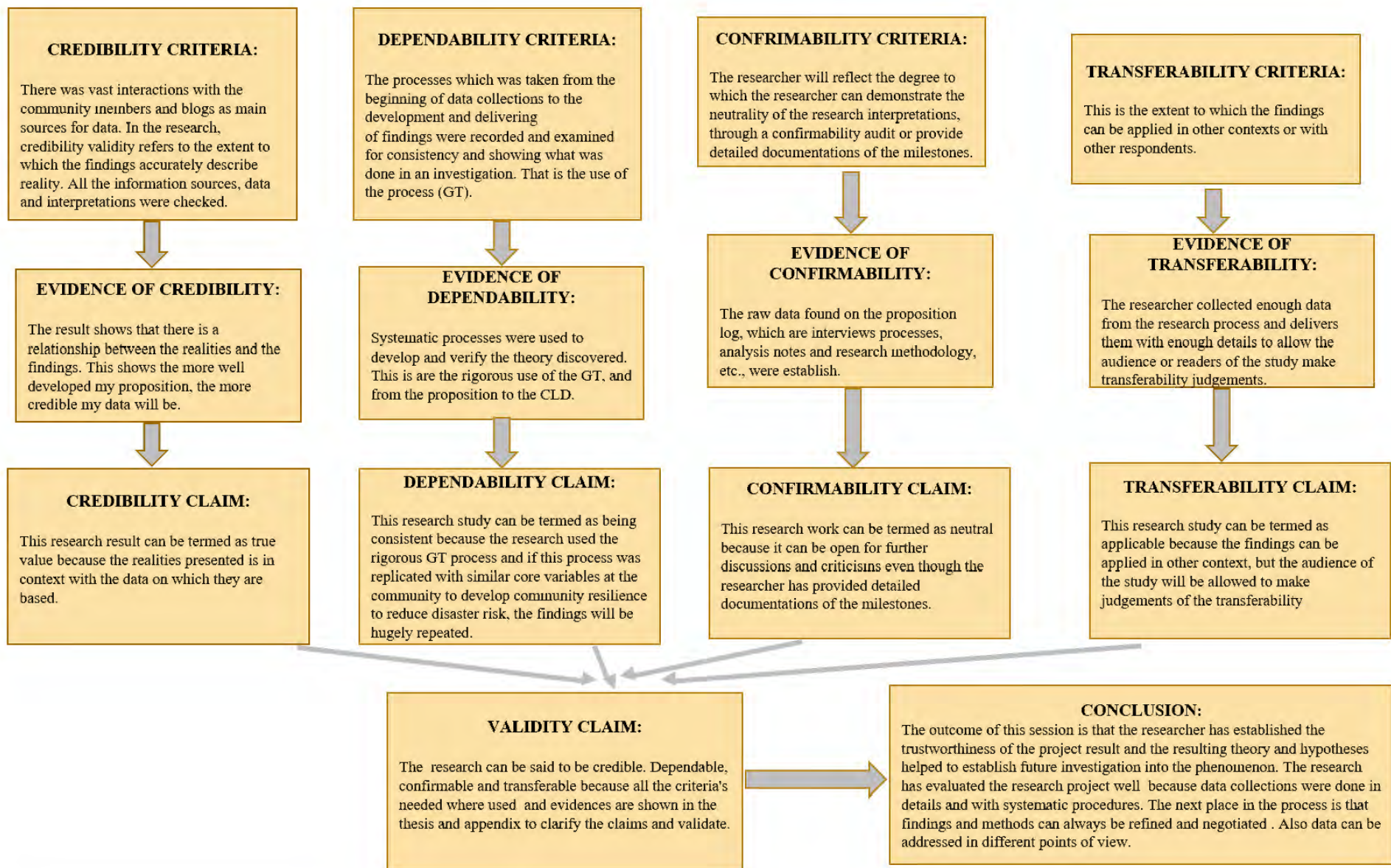


Figure 6. 3: Establishing the crafting of the validity.

6.3.4 Ethics

As noted in chapter two, ethics is based on justifiable standards of right and wrong that specifies what people should do mostly in terms of rights, responsibilities, and benefits to society, fairness or virtues, which could be right to life, freedom, injury and privacy. Such standards are suitable standards of ethics because they support dependable and justifiable grounds. Ethics in this research is seen as a study and formulation of one's ethical standards. It is essential to always check one's standards to ensure that they are reasonable and justifiable.

In this research, no harm was anticipated as care was taken to protect the identities of participants, therefore, the research was done ethically, and there was no discrimination on any group or persons. The researcher conducted the fieldwork of the disaster management entre by visiting Phola Park, which is the research case study, and had meetings with some of the community members after permission had been granted.

The participants were also informed before the interview and consent forms were signed by the participants who would allow for the use of audio recording, group discussions and they were informed that they could stop participating anytime if they are uncomfortable (see supplementary material - appendix H). The research and interview participants were voluntary; thus, no benefits or cost was determined or giving. Nevertheless, there were refreshment cost for those who needed them. Interviews were also conducted on a workday, and via telephones if the participants were not physically available.

As indicated, the participants were informed before participating that it is voluntary and that he/she does not need to answer any question or take part in the interview if he/she feels the questions are too personal or if talking about them makes him/her uncomfortable. Also, the participants had the right to choose a comfortable place for the interview.

In summary, this research study has indicated that it was conducted ethically, and it was done with the University of Cape Town's ethics approval (see appendix C).

6.4 Limitations and recommendations of this Study

The theory generated is based on data collected in the Western Cape. Therefore, it can serve as a hypothesis which will allow for further study to further develop the grounded theory. The

researcher recommends that multiple sites or contexts should be used to confirm and further develop the theory.

The researcher also recommend that the theoretical model could be used as a basis for understanding possible behaviour before, during and after disasters. The research result could be applied in another context, but the audience of the research study are to make judgements of the transferability.

6.5 Further research

The theoretical model developed has identified nine themes or elements as variables for attaining community resilience and individual resilience for improving the variables. The theoretical model has also indicated that disaster risk reduction in the Western Cape could be attempted through adoption of community resilience.

Therefore, additional research can be undertaking to understand further the roles of the nine variables and individual resilience to community resilience. Deductive studies using theoretical frameworks from disciplines of engineering management and psychology or sociology may provide further insight into these variables and the possibilities for supporting and recognising it in communities that are at risk.

6.6 Conclusion

The development of community resilience in vulnerable communities would continue to be one of the critical approaches to reducing disaster risk and be a determinant for successful sustainable community development in South Africa. The theoretical model was found to provide understanding of the nine elements or themes identified as variables and their interactions to develop or influence community resilience.

In line with the community resilience model identified, the impact which it has on the nine variables, and individual resilience in the informal settlement has been recognised. It is apparent that through the variables, an individual's resilience level is affected, which impacts on the resilience level of the community.

Specifically, it was indicated that the relevant variables in the theoretical model contribute towards the development of community resilience collectively and the impacts on individual resilience has been highlighted. The theoretical model, through its reinforcing loops, provided enough clarification on how community resilience is influenced (see figure 5.10).

Through the illustration of the data credibility, the data dependability and the data confirmability of the research and its results, the trustworthiness of the research process was established. Ethical approval was also secured and keenly followed to avoid any harm to all participants involved.

In conclusion, a topic such as resilience to disasters is relevant to engineering management as engineers are tasked with development and sustainability through, for example, the provision of infrastructure and renewable energy (Lili & Zhe, 2018; Lloyd-Jones et al. 2009; Malalgoda et al. 2010). In selecting to view the problem of resilience to disasters as a complex system and selecting the methodological approach of grounded theory, the focus of the problem is dictated by the data. It became clear that rather than a techno-social view of the problem, the problem was perceived by participants and the literature selected as a social problem, hence the development of a model that represents a social system (with the elements of disciplines such as psychology and sociology) rather than only a technical or socio-technical system.

As engineering management is interdisciplinary, and systems theory is transdisciplinary, the researcher has to be responsive and have the ability to draw on disciplinary sources that are appropriate for formulating the problem and conducting an inquiry to find a solution. Should the study have been conducted with a different set of methods, tools and techniques, the outcomes may well have a more techno-social or technical focus. Because of the nature of complex problems, researchers should take multiple perspectives to the problem such as social views, technical views, organisational views, political views in order to get a more complete understanding of such problems.

In this study, such a perspective has been provided that can inform our understanding of the very complex problem as resilience and disaster risk.

Bibliography

- Ackroyd, S. (2004). Methodology for Management and Organisation: Some Implications for Critical Realism. In S. Fleetwood, S. & Ackroyd (Ed.), *Critical Realist Applications in Organisation and Management Studies*. Routledge.
- Adger, W.N., Hughes, T.P., Folke, C., Carpenter, S.R., Rockstrom, J. (2005). Social-ecological resilience to coastal disasters. *Science*, 309 (5737), 1036–1039.
- Ahmed, J. U. (2010). Documentary Research Method: New Dimensions. *Indus Journal of Management & Social Science*, 1(4), 2–10.
- Al-Amoudi, I. & Willmott, H. (2011). Where Constructionism and Critical Realism Converge: Interrogating the Domain of Epistemological Relativism. *Organization Studies*, 32(1), 27–46. <https://doi.org/DOI: 10.1177/0170840610394293>.
- Alderson, P. (2016). *The philosophy of critical realism and childhood studies*. <https://doi.org/10.1177/2043610616647640>.
- Alesandrini, K. & Larson, L. (2002). Teachers bridge to constructivism. *The Clearing House*, 119–121.
- Amigun, B., Musango, J.K. and Stafford, W. (2011). Biofuels and sustainability in Africa. *Renewable and Sustainable Energy Reviews*, 15(2), 1360–1372.
- Anne Dencker Bædke, Klaus Æ. Mogensen, Leonie Thalmann, N. L. (2017, February). Individual resilience: A guide. *Scenario*, 38. <http://www.scenariomagazine.com/individual-resilience/>
- Archer, M. (1998). Introduction, realism in the social sciences. In C. Archer, M., Bhaskar, R. & A. A., Lawson, T., & Norrie (Eds.), *Critical Realism, Essential Readings*. Routledge.
- Ardalan, A., & Paton, D. (2015). *Community Disaster Resilience: a Systematic Review on Assessment*. <http://currents.plos.org/disasters/article/community-disaster-resilience-.1-19>. <https://doi.org/10.1371/currents.dis.f224ef8efbdfcf1d508dd0de4d8210ed>. Revisions.
- Aumann, K., & Rosser, M. (2011). *Self-determination and Resilience : 2 empowerment approaches for youth with disabilities and their parent carers • Both have been applied to individuals with disabilities*. April.
- Bailey, K. (1994). *Methods of Social Research* (Fourth ed). The Free Press.
- Barker, D., Macrae, J., Rose, S., Waites at DFID, T., Brauman, R., Daley, R., Jasani, R., Redmond, T., Carter, B., Lucas, B., Mcloughlin, C., Rao, S., & Clara Wiggins, proofreader. (2014). *Disaster Resilience Topic Guide* www.gsdr.org. http://www.gsdr.org/wp-content/uploads/2014/02/GSDRC_DR_topic_guide.pdf

- Baskerville, R., & Pries-Heje, J. (1999). Grounded action research: a method for understanding IT in practice. *Accounting, Management and Information Technologies*, 9(1), 1–23.
- Beer, S. (1984). The viable system model: Its provenance, development, methodology and pathology. *Journal of the Operational Research Society*, 35(1)(7–25).
- Beer, Stafford. (1994). *The meaning of operational research and management*.
- Belavkin, R. V. (2001). The role of emotion in problem solving. *Proceedings of the AISB '01 Symposium on Emotion, Cognition and Affective Computing*.
- Bell, E., Bryman, A. and Harley, B. (2018). *Business research methods*. Oxford university press.
- Bergstrand, K., Mayer, B., Brumback, B., & Zhang, Y. (2015). Assessing the Relationship Between Social Vulnerability and Community Resilience to Hazards. *Social Indicators Research*. <https://doi.org/10.1007/s11205-014-0698-3>.
- Bhaskar, R. (1978). *A Realist Theory of Science. Second edition*. Verso.
- Bhaskar, R. (1989). *The Possibility of Naturalism* (Second edi). Harvester.
- Bhaskar, R. (1998). *The Possibility of Naturalism: A Philosophical Critique of the Contemporary Human Sciences* (3rd editio). Routledge.
- BL Fredrickson, M. C. (2008). Positive emotions. In & L. B. M. Lewis, JM Haviland-Jones (Ed.), *Handbook of emotions* (pp. 777–796). The Guilford Press.
- Bonnie, N. (2016). *Qualitative research. Sampling and sample size considerations*. School of psychology program.
- Braun, W. (2002). The system archetypes. *System*, 1–26.
http://www.myewb.ca/site_media/static/attachments/group_topics_grouptopic/86984/systemarchetypes.pdf.
- Brent, A., Simelane, T., & Clifford-Holmes, J. K. (2018). Introduction to system dynamics as a decision-support tool for developmental planning, in A. Brent & T. Simelane (eds). In *System dynamics models for Africa's developmental planning* (pp. 1–14). Africa Institute of South Africa.
- Cabrera, D., Colosi, L. and Lobdell, C. (2008). Systems thinking. *Evaluation and Program*, 31(3), 299–310.
- Carpenter, S., & Brock, W. (2008). Adaptive capacity and traps. *Ecology and Society*, 13(2).
- Charmaz, K. (2006). *Constructing Grounded Theory: A practical guide through Qualitative Analysis*. SAGE Publications LTD.

- Charmaz, K. (2008). Grounded Theory as an Emergent Method. In S. H.-B. & P. & Leavy (Eds.), *Handbook of Emergent Methods* (pp. 155–172). The Guilford Press.
- Charmaz, K. (2014). *constructing grounded theory*. SAGE Publications LTD.
- Charmaz, Kathy. (1990). ‘Discovering’ Chronic Illness: Using Theory. *Social Science and Medicine*, 30(11), 1161–1172.
- Charmaz, Kathy. (2015). Teaching theory construction with initial grounded theory tools: A reflection on lessons and learning. *Qualitative Health Research*, 25(12), 1610–1622. <https://doi.org/10.1177/1049732315613982>.
- Checkland, P. (1979). The shape of the systems movement. *Journal of Applied Systems Analysis*, 6, 129–135.
- Checkland, P. (1981). Systems Thinking. In *Systems Practice*. John Wiley and Sons.
- Christophe, J., Coze, L., & Pettersen, K. (2004). *Is resilience engineering realist or constructivist?*
- Clark-Ginsberg, A. (2013). *Disaster Risk Risk Reduction Reduction for Disaster for Disaster Risk Reduction for Community Resilience : Resilience : Community Community Resilience : July*. <https://doi.org/10.13140/RG.2.2.23987.12329>.
- Clough, P. J., Earle, J., & Sewell, D. (2002). Mental toughness: The concept and its measurement. In *In Solutions in Sporting Psychology* (Cockerill, pp. 32–43).
- Cohen, L., Manson, L., & Morrison, K. (2000). *Research Methods in Education*,. RoutledgeFalmer.
- Cohen, S., Doyle, W. J., Turner, R. B., Alper, C. M., & Skoner, D. P. (2003). Emotional style and susceptibility to the common cold. *Psychosomatic Medicine*. <https://doi.org/10.1097/01.PSY.0000077508.57784.DA>.
- Cohn, M. A., & Fredrickson, B. L. (2006). Beyond the moment, beyond the self: Shared ground between selective investment theory and the broaden-and-build theory of positive emotions. In *Psychological Inquiry*.
- Cope, D. G. (2014). Methods and meanings: Credibility and trustworthiness of qualitative research. *Oncology Nursing Forum*. <https://doi.org/10.1188/14.ONF.89-91>.
- Corson, D. (1991). Bhaskar’s Critical Realism and Educational Knowledge. *British Journal of Sociology of Education*, 12(20), 223–241.
- Creswell, J. & Miller, D. (2000). Determining Validity in Qualitative Inquiry. *Theory into Practice*, 39(3), 124–130.
- Creswell, J. (2012). *Qualitative inquiry and research design: Choosing among five*

- approaches*. Sage.
- Cutter, S. L., Barnes, L., Berry, M., Burton, C., Evans, E., Tate, E., & Webb, J. (2008). A place-based model for understanding community resilience to natural disasters. *Global Environmental Change*, *18*(4), 598–606.
<https://doi.org/10.1016/j.gloenvcha.2008.07.013>.
- Dall’Alba, G., & Barnacle, R. (2007). An ontological turn for higher education. *Studies in Higher Education*, *32*(6), 679–691.
- Daniłowski, J. (2010). *How Can Fredrickson ’ s Broaden -and-Build Theory Enhance Personal Resources ? 1998*, 1–8.
- Danner, D. D., Snowdon, D. A., & Friesen, W. V. (2001). Positive emotions in early life and longevity: Findings from the nun study. *Journal of Personality and Social Psychology*.
<https://doi.org/10.1037/0022-3514.80.5.804>.
- Department for International Development. (2011). Defining Disaster Resilience. *A DFID Approach Paper*, 1–20.
https://doi.org/https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/186874/10.
- Diener, E., & Larsen, R. J. (1993). The experience of emotional well-being. In M. L. & J. M. & Haviland (Eds.), *Handbook of emotions* (pp. 405–415). Guilford Press.
- Diener, E., & Seligman, M. E. P. (2004). Beyond Money: Toward an Economy of Well-Being. *Psychological Science in the Public Interest*. <https://doi.org/10.1111/j.0963-7214.2004.00501001.x>.
- Disaster response Shelter Catalogue*. (2012).
- Disaster Risk Reduction for the Built Environment. (2017). In *Disaster Risk Reduction for the Built Environment*. <https://doi.org/10.1002/9781119233015>.
- DMFRS. (2015). Western Cape Strategic Framework for Fire and Burn Injury Prevention. *Western Cape Strategic Framework for Fire and Burn Injury Prevention, Western Cape Disaster Management & Fire Rescue Services*, 8–32.
- Douglas, D. (2003). Inductive theory generation: A grounded approach to business inquiry. In *Electronic Journal of Business Research Methods: Vol. 2(1)* (pp. 47–54).
- Duijnhoven, H., & Neef, M. (2014). Framing Resilience. From a Model-based Approach to a Management Process. *Procedia Economics and Finance*, *18*(September), 425–430.
[https://doi.org/10.1016/s2212-5671\(14\)00959-9](https://doi.org/10.1016/s2212-5671(14)00959-9).
- Easterby-Smith, M., Thorpe, R., & Jackson, P. R. (2012). *Management research* (Third Edit).

SAGE Publications LTD.

- Egon, G., Clark, D., Havlicek, L., Mclaughlin, J., Miskel, C., Guba, E., & Lincoln, Y. (1982). ERIC / ECTJ Annual Review Paper Criteria for Assessing the Trustworthiness of Naturalistic Inquiries. *Educational Communication and Technology*, 29(4), 75–91. <https://doi.org/10.1126/science.146.3642.347>.
- Emerson Kelly, S. (2004). *Personal and community resilience: building it and sustaining it*. <https://doi.org/10.4135/9781412952392.n301>.
- Eriksson, P. & Kovalainen, A. (2011). *Qualitative Methods in Business Research*. SAGE Publications LTD.
- Fairclough, N. (2005). Discourse analysis in organization studies: The case for critical realism. *Organization Studies*, 26(6), 915–939. <https://doi.org/10.1177/0170840605054610>.
- Fire Protection Association of South Africa. (2017). SA Fire Loss Statistics 2015. *Fire Protection*, June, 23–36. <http://www.fpsa.co.za/images/FireStats//JUNE-2017-STATS-FOR-LIBRARY.pdf>.
- Folke, C. (2006). Resilience: the emergence of a perspective for social-ecological systems analyses. *Global Environmental Change*, 16 (3), 253–267.
- Forrester, J. (1973). *Confidence in models of social behaviour with emphasis on system dynamics models*. MIT System Dynamics Group.
- Forrester, J. (1994). System dynamics, systems thinking, and soft OR. *Systems Dynamics Review*, 10(2), 1–4.
- Fredrickson, B. (2009). *Positivity*. Harmony.
- Fredrickson, B. L. (2001). *Positive emotions open mind*. A Presentation. Greater Good Science Centre. <https://www.youtube.com/watch?v=Z7dFDHzV36g>.
- Fredrickson, Barbara L. (2000). Cultivating positive emotions to optimize health and well-being. *Prevention & Treatment*, 3(1), 1–25. <https://doi.org/10.1037/1522-3736.3.1.31a>.
- Fredrickson, Barbara L., Mancuso, R. A., Branigan, C., & Tugade, M. M. (2000). The undoing effect of positive emotions. *Motivation and Emotion*, 24(4), 237–258. <https://doi.org/10.1023/A:1010796329158>.
- Fredrickson, Barbara L. (1998). What Good Are Positive Emotions? Why Have Positive Emotions Been Marginalized? *Review of General Psychology*, 2(3), 300–319.
- Gavetti, G. & Rivkin, J. (2005). How strategists really think: Tapping the power of analogy. *Harvard Business Review*, 83(4), 54–63.

- Gibbs, G. (2008). *Analysing qualitative data*. Sage.
- Gil, K. M., Carson, J. W., Porter, L. S., Scipio, C., Bediako, S. M., & Orringer, E. (2004). Daily Mood and Stress Predict Pain, Health Care Use, and Work Activity in African American Adults with Sickle-Cell Disease. *Health Psychology*.
<https://doi.org/10.1037/0278-6133.23.3.267>.
- Gill, P., Stewart, K., Treasure, E. and Chadwick, B. (2008). Methods of data collection in qualitative research: interviews and focus groups. *British Dental Journal*, 204(6), 291.
- Glaser, B. G., Strauss, A. L., & Paul, A. T. (2010). Grounded theory. In *strategien qualitativer forschung*. Huber.
- Glaser, Barney & Strauss, A. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Aldine.
- Glaser, B. (1992). *Basics of grounded theory analysis*. Sociology Press.
- Glaser, B. G., Jones, J. W., Xie, S. L., & Roderick, C. (2009). The Grounded Theory Review : An international journal Appropriate Research Methodology for a Dissertation : One student's perspective Striking a Balance between Program Requirements and GT Principles: Writing a compromised GT proposal Learning Classic. *The Grounded Theory Review*, 8(2), 79.
- Golden-Biddle, k. and Locke, k. (1993). Appealing work: an investigation of how ethnographic texts convince. *Organisation Science*, 4(2), 595–616.
- gov, R. (2005). *National Disaster Management Framework*. 7(1), 117.
<https://www.westerncape.gov.za/text/2013/July/sa-national-disaster-man-framework-2005.pdf>.
- Gray, D. E. (2014). *Doing Research in the Real World* (3rd ed). SAGE Publications LTD.
- Gross, J. (1999). *No Title Emotion regulation: Past, present, future, Cognition and Emotion*. 13, 551–573.
- Gruber TR. (1995). Toward principles for the design of ontologies used for knowledge sharing. *International Journal of HumanComputer Studies*, 43, 907928.
- Guba, E.G. & Lincoln, Y. (1998). competing paradigms in qualitative research. In *In Denzin, N.k. & Lincoln, Y.S. (Eds.) The Landscape of Qualitative Research, Sage, Thousand Oaks, CA*.
- Guba, Eg, & Lincoln, Y. (1994). Guba & Lincoln 1994.pdf. In *Handbook of qualitative research* (pp. 105–117).
<https://doi.org/http://www.uncg.edu/hdf/facultystaff/Tudge/Guba%20&%20Lincoln%20>

1994.pdf.

- Guba, Egon, & Lincoln, Y. (1989). Guba, Lincoln (1989) Fourth Generation Evaluation Foreword. pdf. In *Fourth Generation Evaluation* (pp. 7–19).
- Guion, D. T., Scammon, D. L., & Borders, A. L. (2007). Weathering the storm: A social marketing perspective on disaster preparedness and response with lessons from Hurricane Katrina. *Journal of Public Policy and Marketing*, 26(1), 20–32. <https://doi.org/10.1509/jppm.26.1.20>.
- Haferburg, C. (2002). The informal settlement Phola Park in the context of Cape Town's plans for socio-spatial integration. In *Urban Forum*, 13, 26–46. <https://doi.org/https://doi.org/10.1007/s12132-002-0012-3>.
- Hammersley, M., & Atkinson, P. (1995). *Ethnography: Practices and principles*. Routledge.
- Hannula, M. S. (2015). Emotions in Problem Solving. In *Selected Regular Lectures from the 12th International Congress on Mathematical Education*. https://doi.org/10.1007/978-3-319-17187-6_16.
- Hardin, G. (1968). The tragedy of the commons. In *Science: Vol. 162(3859)* (pp. 1243–1248).
- Harris, D. T. M. and K. (2013). Resilience: A risk management approach. *Aviation Space and Environmental Medicine*. <https://doi.org/10.3357/ASEM.3719.2013>.
- Hegney, D. G., Buikstra, E., Baker, P., Rogers-Clark, C., Pearce, S., Ross, H., King, C., & Watson-Luke, A. (2007). Individual resilience in rural people: a Queensland study, Australia. *Rural and Remote Health*, 7(4), 620.
- Helen, H. & Cowley, S. (2004). Developing a grounded theory approach: a comparison of Glaser and Strauss. *International Journal of Nursing Studies*, 41, 141–150.
- Henry, D., & Verma, D. (2009). Usefulness of the Human Body as a Metaphor to Study the Resilience of Systems and Enterprises: A Preliminary Investigation. *Systems Engineering*, 2009(April).
- Holling, C. (1973). Resilience and stability of ecological systems. *Annual Review of Ecology and Systematics*, 4, 1–23.
- Hollnagel, E., Woods, D. D., & Leveson, N. (Eds). (2006). *Resilience engineering: Concepts and precepts*. Ashgate Publishing, Ltd., 2006.
- Hyland, K. (2001). Humble servants of the discipline? Self-mention in research articles. *English for Specific Purposes*, 20(3), 207–226. [https://doi.org/10.1016/S0889-4906\(00\)00012-0](https://doi.org/10.1016/S0889-4906(00)00012-0).
- Ion, G., & Iucu, R. (2015). Does Research Influence Educational Policy? The Perspective of

- Researchers and Policy-Makers in Romania. In *The European Higher Education Area*.
https://doi.org/10.1007/978-3-319-20877-0_52.
- Ion, G., Marin, E., & Proteasa, C. (2019). How does the context of research influence the use of educational research in policy-making and practice? *Educational Research for Policy and Practice*. <https://doi.org/10.1007/s10671-018-9236-4>.
- Isa, M., Sugiyanto, F. X., & Susilowati, I. (2018). *Jàmbá-Journal of Disaster Risk Studies*.
<https://doi.org/10.4102/jamba.v10i1.356>.
- Joe Robinson. (2013). *How Positive Thinking Can Make You a Better Problem Solver*.
 GROWTH STRATEGIES: Magazine Contributor.
- Joerin, J., Shaw, R., Takeuchi, Y., & Krishnamurthy, R. (2012). Assessing community resilience to climate-related disasters in Chennai, India. *International Journal of Disaster Risk Reduction*, 1(1), 44–54. <https://doi.org/10.1016/j.ijdr.2012.05.006>.
- John E. Williams. (2007). *Internet-Based Research*. American Psychological Association.
<https://www.apa.org/science/about/psa/2007/05/williams>.
- Johnson-Laird, P. N. (1989). Similarity and analogical reasoning: In S. Vosniadou & A. Ortony (Ed.), *Analogy and the exercise of creativity* (pp. 313–331). Cambridge University Press.
- Johnson, D. (2015). *Emotions and Sensemaking: How Anger, Guilt, and Emotion Regulation Impact Ethical Decision Making* [UNIVERSITY OF OKLAHOMA].
<http://weekly.cnbnews.com/news/article.html?no=124000>.
- Kamprath, M. (2014). Analogical reasoning and business model ideation - Search processes to gain inspiration for business models - Evidence from case studies. *Working Paper Presented at Research Seminar Department of People, Organizations and Society Grenoble Ecole de Management*, 1–38.
- Kaplan, H. B. (2003). *Resilience*. 39–40.
- Karen Stein. (2019a). Resilience – it’s more than simply pushing through. In *LinkedIn*. Partner & Executive Coach, Deloitte. <https://www.linkedin.com/pulse/resilience-its-more-than-simply-pushing-through-karen-stein>.
- Keeley, M. (1980). Organizational analogy: A comparison of organismic and social contract models. *Administrative Science Quarterly*, 25(2), 337–362.
<https://doi.org/doi:10.2307/2392458>.
- Kennedy, T. J. T., & Lingard, L. A. (2006). Making sense of grounded theory in medical education. *Medical Education*, 40(2), 101–108. <https://doi.org/10.1111/j.1365->

2929.2005.02378.x.

- Kiani, B., Gholamian, M. R., Hamzehei, A., & Hosseini, S. H. (2009). *Using causal loop diagram to achieve a better understanding of e-business models*. January.
- Kieras, D. E., & Bovair, S. (1984). The role of a mental model in learning to operate a device. *Cognitive Science*.
- Kim, D. H. (1996). From Event Thinking to Systems Thinking. *The Systems Thinker*, 7(4), 1–7.
- Kim, D. H., & Anderson, V. (2011). *From Story to Structure*.
- Kirkwood, C. (1998). *System dynamics methods: A quick introduction*. Tempe.
- Klein, R.J., Nicholls, R.J. & Thomalla, F. (2003). Resilience to natural hazards: How useful is this concept. *Journal of Global Environmental Change Part B: Environmental Hazards*, 5 (1), 35–45. <https://doi.org/10.1016/j.hazards.2004.02.001>.
- Koch, T. (2006). Establishing rigour in qualitative research: the decision trail. 1993. *Journal of Advanced Nursing*. <https://doi.org/10.1111/j.1365-2648.2006.03681.x>.
- Kuhn, T. (1962). *The Structure of Scientific Revolution*. University of Chicago Press.
- Langston, C. (1994). Capitalising on and coping with daily-life events: Expressive responses to positive events. *Journal of Personality and Social Psychology*, 67, 1112–1125.
- Leboea, S. T. (2017). The Factors Influencing SME Failure in South Africa. *Grugate School of Business University of Cape Town, February*, 136.
- Lee, R. (2000). *Unobtrusive Methods in Social Research*. Open University Press.
- Levy, B. R., Slade, M. D., Kunkel, S. R., & Kasl, S. V. (2002). Longevity increased by positive self-perceptions of aging. In *Journal of Personality and Social Psychology*. <https://doi.org/10.1037/0022-3514.83.2.261>.
- Lew, A. A., Ng, P. T., Ni, C. cheng (Nickel), & Wu, T. chiung (Emily). (2016). Community sustainability and resilience: similarities, differences and indicators. *Tourism Geographies*, 18(1), 18–27. <https://doi.org/10.1080/14616688.2015.1122664>.
- Lichtman, M. (2014). A Detailed Examination of Common Approaches. In *Qualitative Research for the Social Sciences* (pp. 97–134). SAGE Publications LTD.
- Lili, X., & Zhe, Q. (2018). On civil engineering disasters and their mitigation. *Earthquake Engineering and Engineering Vibration*. <https://doi.org/10.1007/s11803-018-0420-6>.
- Lincoln, Y. S. & Denzin, N. K. (Eds. (2000). *The handbook of Qualitative Research*. SAGE Publications LTD.
- Lincoln, Y. G. (1985). *Naturalistic Inquiry*.

- Lines *, R. (2004). Influence of participation in strategic change: resistance, organizational commitment and change goal achievement. *Journal of Change Management*, 4(3), 193–215. <https://doi.org/10.1080/1469701042000221696>.
- Lloyd-Jones, T., Kalra, R., Mulyawan, B., & Theis, M. (2009). The Built Environment Professions in Disaster Risk Reduction and Response. In *Max Lock Centre at the University of Westminster*. <https://doi.org/10.1103/PhysRevLett.90.138102>.
- Lyubomirsky, S. L., King, L., & Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin*, 131, 803–855.
- M, U. M. and G. (1996). Ontologies: principles, methods and applications. *Knowledge Engineering Review*, 11, 93155.
- Malalgoda, C., Amaratunga, D., & Pathirage, C. (2010). Exploring Disaster Risk Reduction in the Built Environment. *University of Salford, United Kingdom*.
- Malterud, K., Hollnagel, H., & Witt, K. (2001). Gendered health resources and coping - A study from general practice. *Scandinavian Journal of Public Health*, 29(3), 183–188. <https://doi.org/10.1177/14034948010290030401>.
- Manyena, S. B. (2009). Disaster resilience in development and humanitarian interventions. In *Chemistry &* <https://doi.org/10.1017/CBO9781107415324.004>.
- Martin, P.Y. and Turner, B. . (1986). Grounded theory and organizational research. *The Journal of Applied Behavioral Science*, 22(2), 141–157.
- Maxwell, J. (1992). Understanding and validity in qualitative research. *Harvard Educational Review*, 62(3), 279–302.
- Maxwell, J. (1996). *Qualitative Research Design an Interactive Approach*. SAGE Publications, Inc.
- Maxwell, J. (2005). *Conceptual Framework: What do you think is going*. *Qualitative Research Design: An interactive approach*.
- Maxwell, J. (2008). Designing a Qualitative Study. *The SAGE Handbook of Applied Social Research Methods*, 214–253. <https://doi.org/10.4135/9781483348858.n7>.
- McGrath, J. E., & Johnson, B. (2003). *Methodology makes meaning: How both qualitative and quantitative paradigms shape evidence and its interpretation*.
- Mensah, P., Katerere, D., Hachigonta, S. and Roodt, A. (2018). *Systems analysis approach for complex global challenges*.
- Merriam, S. B. (1998). Merriam S 1998 S1.pdf. In *Qualitative Research and Case Study Applications in Education*.

- Miles, M. B., & Huberman, A. M. (1984). *Qualitative Data Analysis : Handout. A Sourcebook of New Methods. California; SAGE Publications Inc.*
- Mileti, D. (1999). Disasters by Design. In *A Reassessment of Natural Hazards in the United States*. Joseph Henry Press.
- Mingers, J. (1999). Synthesising Constructivism and Critical Realism: Towards Critical Pluralism. In H. & V. der V. Aerts, D., Van Bell (Ed.), *Worlds views and the problem of synthesis: the yellow book of 'Einstein meets Magritte*. Kluwer Academic Publishers, VUB University Press.
- Mingers, J. (2000). The Contribution of Critical Realism as an Underpinning Philosophy for OR/MS and Systems. *The Journal of the Operational Research Society*, 51(11), 1256–1270.
- Mock, C., Peck, M., Krug, E., & Haberal, M. (2009). Confronting the global burden of burns: A WHO plan and a challenge. *Burns*, 35(5), 615–617.
<https://doi.org/10.1016/j.burns.2008.08.016>.
- Moore, M., Brown, D., Money, N., & Bates, M. (2011). *Measures of autonomic nervous system regulation defense centers of excellence for psychological health and traumatic brain injury*. April, 2–60. file:///C:/Users/Merve/Desktop/Chrysalis Data analysis/Resources/DCoE.2011.pdf.
- Moskowitz, J. T. (2003). Positive affect predicts lower risk of AIDS mortality. *Psychosomatic Medicine*. <https://doi.org/10.1097/01.PSY.0000073873.74829.23>.
- Nastasi, B. K., Moore, R. B., & Varjas, K. M. (2004). Applying psychology to the schools. School-based mental health services: Creating comprehensive and culturally specific programs. *American Psychological Association*, Washington, DC, US.
<https://doi.org/http://dx.doi.org/10.1037/10724-000>.
- Nicholls, D. (2009). Qualitative research: Part two- Methodologies. *International Journal of Therapy and Rehabilitation*, 16(11), 586–592.
- Northwest Earth Institute. (n.d.). *A systems thinking model: THE ICEBERG*. 2.
- Ortony, A. (1975). Why metaphors are necessary and not just nic. *Educational Theory*, 25(1), 45–53.
- Ostir, G. V., Markides, K. S., Black, S. A., & Goodwin, J. S. (2000). Emotional well-being predicts subsequent functional independence and survival. *Journal of the American Geriatrics Society*. <https://doi.org/10.1111/j.1532-5415.2000.tb04991.x>.
- Outhwaite, W. (1998). Realism and social science. In L. Archer, M., Bhaskar, R., Collier, A.

- & A. T., & Norrie (Eds.), *Critical realism, essential readings*. Routledge.
- Papert, S.; Harel, I. (1991). *Constructionism*. Ablex Publishing Corporation.
- Ponterotto, J. G. (2005). *Qualitative Research in Counseling Psychology : A Primer on Research Qualitative Research in Counseling Psychology : A Primer on Research Paradigms and Philosophy of Science*. April 2005. <https://doi.org/10.1037/0022-0167.52.2.126>.
- Ramalho, R., Adams, P., Huggard, P., & Hoare, K. (2015). Literature Review and Constructivist Grounded Theory Methodology Literature Review and Constructivist Grounded Theory Methodology [24 paragraphs]. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, 16(3)(July). <https://doi.org/http://nbn-resolving.de/urn:nbn:de:0114-fqs1503199>.
- Raymond, G. (1992). *Basic interview skills*. F.E. peacock publishers.
- Richardson, G.E., Neiger, B.L., Jensen, S. & Kumpfer, K. . (1990). The resiliency model. *Health Education*, 21 (6), 33–39.
- Ríosb, M. S. and J. P. (2006). *System Dynamics Review*. 22(22), 2006. <https://doi.org/10.1002/sdr>.
- Roth, A. S., & Becker, P. (2012). Challenges to disaster risk reduction: A study of stakeholders' perspectives in Imizamo Yethu, South Africa. *Jàmbá: Journal of Disaster Risk Studies*, 3(2), 443–452. <https://doi.org/10.4102/jamba.v3i2.41>.
- Rutter, M. (1985). Resilience in the face of adversity: Protective factors and resistance to psychiatric disorder. *The British Journal of Psychiatry*, 147(6), 598-611. (1985). *British Journal Of Psychiatry*, 598–611. <https://doi.org/10.1192/bjp.147.6.598>.
- SABC (2012). *Census 2011*. South African Census Bureau.
- Sandelowski, M. (1986). The problem of rigor in qualitative research. *ANS. Advances in Nursing Science*. <https://doi.org/10.1097/00012272-198604000-00005>.
- Sayer, A. (1992). *Method in social science, A realist approach* (secondEdition (Ed.)). Routledge.
- Sayer, A. (2000). *Realism and Social Science*. SAGE Publications LTD.
- Schmolke, M. (2005). The concept of resilience in psychological research. *Symposium on Resilience in Mental Health Promotion*: http://www.wpanet.org/uploads/Sections/Preventive_Psychiatry/concept-of-resilience.pdf.
- Schwandt, T. A. (1994). Constructivist, interpretivist approaches to human inquiry.

- Handbook of Qualitative Research, January 1994*, 118–137.
<http://psycnet.apa.org/psycinfo/1994-98625-006>.
- Sharp, R. (1998). Critical realism and research methodology. *Opening Remarks at the Second Plenary*.
- Shaw, C. (2013). *Learning systemic management practice* (Issue February). University of Cape Town.
- Sheltercluster GRRT. (2010). *Disaster risk reduction*.
- Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, 22(2), 63–75. <https://doi.org/10.3233/EFI-2004-22201>.
- Shi, P. (2012). On the role of government in integrated disaster risk governance—Based on practices in China. *International Journal of Disaster Risk Science*.
<https://doi.org/10.1007/s13753-012-0014-2>.
- Silverman, D. (2000). *Doing Qualitative Research: A Practical Handbook*. SAGE Publications LTD.
- Skertich, R. L., Johnson, D. E. A., & Comfort, L. K. (2013). A Bad Time for Disaster: Economic Stress and Disaster Resilience. *Administration and Society*.
<https://doi.org/10.1177/0095399712451884>.
- Sterman, J. (1991). A sceptic's guide to computer models. In G. et al Barney (Ed.), *Managing a Nation: The Microcomputer Software Catalog*. Boulder, CO (pp. 209–229). Westview Press.
- Stern, P.N., Allen, L.M., & Moxley, P. a. (1984). Qualitative research: The nurse as grounded theorist. *Health Care for Women International*, 5(5-6), 371–385.
- Steve O. (2004). *A systemic management approach to skills development with an organization*.
- Stratton-Berkessel, R. (n.d.). *How Positive Emotions Make us Better Problem Solvers*. Positive Strategies.
- Strauss, Anselm & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Sage.
- Strauss, & Corbin. (1990). Basics of Qualitative Research. In *Www.Genderopen.De*.
<https://doi.org/https://doi.org/10.5072/genderopen-develop-7> Empfohlene.
- Studer R, Benjamins R, and F. D. (1998). Knowledge engineering: principles and methods. *Data and Knowledge Engineering*, 25, 161197.
- Suddaby, R. (2006). What grounded theory is not. *Academy of Management Journal*, 49(4),

633–642.

- Tavakol, M., Torabi, S., & Akbar Zeinaloo, A. (2006). Grounded Theory in Medical Education Research. *Medical Education Online*, *11*(1), 4607.
<https://doi.org/10.3402/meo.v11i.4607>.
- The Institute Of Professional Tourist Guides Of Southern Africa. (2018). *Western Cape Province*. IPTGSA. <https://www.iptgsa.org/node/332>.
- Tsoukas, H. (1991). The missing link: A transformational view of metaphors in organizational science. *Academy of Management Review*, *16*(3), 566–585.
<https://doi.org/https://journals.aom.org/doi/abs/10.5465/amr.1991.4279478>.
- Tugade, M. M., & Fredrickson, B. L. (2004). Resilient Individuals Use Positive Emotions to Bounce Back From Negative Emotional Experiences. *Journal of Personality and Social Psychology*, *86*(2), 320–333. <https://doi.org/10.1037/0022-3514.86.2.320>.
- Tugade, M. M., & Fredrickson, B. L. (2007). Regulation of positive emotions: Emotion regulation strategies that promote resilience. *Journal of Happiness Studies*, *8*(3), 311–333. <https://doi.org/10.1007/s10902-006-9015-4>.
- Twigg, J. (2004). *Good Practice Review Disaster risk reduction*. *44*(0).
- Twigg, J., Christie, N., Haworth, J., Osuteye, E., & Skarlatidou, A. (2017). Improved methods for fire risk assessment in low-income and informal settlements. *International Journal of Environmental Research and Public Health*, *14*(2).
<https://doi.org/10.3390/ijerph14020139>.
- United Nations Office for Disaster Reduction (UNISDR), & (WMO), W. M. O. (2012). Disaster risk and resilience: Thematic think piece. *UN System Task Team on the Post-2015 UN Development Agenda*, May. http://www.un.org/millenniumgoals/pdf/ThinkPieces/3_disaster_risk_resilience.pdf.
- Varvogli, L., & Darviri, C. (2011). Stress management techniques: Evidence-based procedures that reduce stress and promote health. In *Health Science Journal*.
- Vennix, J. A. (1999). Group model-building: Tackling messy problems. *Systems Dynamics Review*, *15*(4), 379–401.
- Venton, C. C. C., Fitzgibbon, C., Shitarek, T., Coulter, L., & Dooley, O. (2012). The Economics of Early Response and Disaster Resilience: Lessons from Kenya and Ethiopia. *London: June*, 1–84.
[http://collection.europarchive.org/tna/20121003151823/http://dfid.gov.uk/Documents/publications1/Econ-Ear-Rec-Res-Full-Report .pdf](http://collection.europarchive.org/tna/20121003151823/http://dfid.gov.uk/Documents/publications1/Econ-Ear-Rec-Res-Full-Report.pdf).

- Veronica A. Thurmond. (2001). The point of triangulation. *Journal of Nursing Scholarship : An Official Publication of Sigma Theta Tau International Honor Society of Nursing*.
<https://doi.org/DOI:10.1111/j.1547-5069.2001.00253.x>.
- Vosniadou, S., & Ortony, A. (1989). Similarity and analogical reasoning. In Vosniadou & A. Ortony (Ed.), *Similarity and analogical reasoning: A synthesis* (pp. 1–17). Cambridge University Press.
- Walker, B., Holling, C. S., Carpenter, S. R., & Kinzig, A. (2004). Resilience, adaptability and transformability in social-ecological systems. *Ecology and Society*.
<https://doi.org/10.5751/ES-00650-090205>.
- Walls, R., Olivier, G., & Eksteen, R. (2017). Informal settlement fires in South Africa: Fire engineering overview and full-scale tests on “shacks.” *Fire Safety Journal*, 91(March), 997–1006. <https://doi.org/10.1016/j.firesaf.2017.03.061>.
- WCDMC. (2016). *What is Disaster*. Western Cape Government.
<https://www.westerncape.gov.za/general-publication/western-cape-disaster-management-centre-wcdmc>.
- Whitehead A.N. (1948). *Science and the modern world*. Mentor.
- Willitts-King, B., & Harvey, P. (2005). *Managing the risks of corruption in humanitarian relief operations A study for the UK Department for International Development*
Managing the risk of corruption in humanitarian relief operations: a report for DFID. March.
- Windows, M., Corporation, M., Hori, K., & Sakajiri, A. (2013). *Stress Tolerance*.
- Wolstenholme, E. F. (2003). Towards the definition and use of a core set of archetypal structures in system dynamics. *System Dynamics Review*, 19(1), 7–26.
<https://doi.org/http://doi.org/10.1002/sdr.259>.
- Wolstenholme, Eric F. (1985). A Methodology for Qualitative System Dynamics.
Proceedings of the 1985 International System Dynamics Conference, 2(January 1985), 1049–1058.
- Woods, D.R., Hrymak, A.N., Marshall, R.R., Wood, P.E., Crowe, C.M., Hoffman, T.W., Wright, J.D., Taylor, P.A., Woodhouse, K.A. and Bouchard, C. (1997). Developing problem solving skills: The McMaster problem solving program. *Journal of Engineering Education*, 86(2), 75–91.
- Xyrichis, A., & Ream, E. (2007). *Teamwork : a concept analysis*. September.
<https://doi.org/10.1111/j.1365-2648.2007.04496.x>.

- Yeung, H. (1997). Critical realism and realist research in human geography: a method or a philosophy in search of a method. *Progress in Human Geography*, 21(1)(51–74).
- Zhang Creaser, C. (2017). Family Stress Management: A Contextual Approach . *Journal of Family Theory & Review*. <https://doi.org/10.1111/jftr.12235>.
- Zlatanova, S. (2007). Geomatics Solutions for Disaster Management. *Lecture Notes in Geoinformation and Cartography*, May. <https://doi.org/10.1007/978-3-540-72108-6>.

Appendix A: Research Cycle Four (Summary of the data collection and data analysis process)

A1: Summary of the proposition log

The appendix A is a summary of the research cycle's milestones and the grounded theory research process used for data collections and analysis for this research study. The appendix A is for the research cycle four, and the same steps were also taken for the research cycle one to cycle three in order to achieve the results. The research cycle one to cycle three are found in the supplementary material submitted.

No.	Ref.	Data (observation, description passage)	Relevance (to concern variable)	Impact (on concern variable) D/R	Proposition Subject-Relevance Predicate-Impact
RESEARCH CYCLE 4.1 (PROPOSITION LOG)					
1.	1	The broaden-and-build theory posits that experiences of positive emotions broaden people's momentary thought action repertoires, which in turn serves to build their enduring personal resources, ranging from physical and intellectual resources to social and psychological resources. Preliminary empirical evidence supporting the broaden-and-build theory is reviewed, and open empirical questions that remain to be tested are identified. The theory and findings suggest that the capacity to experience positive emotions may be a fundamental human strength central to the study of human flourishing.	This is relevant because positive emotions may broaden the individual's momentary thought actions repertoires which helps to increase resilience.	The positive emotions impact on resilience because it builds the individuals enduring personal resources which means that as you increase their personal resources, you increase resilience – D .	Positive emotions might increase resilience by broadening momentary thought action repertoires and enduring personal resources of the individuals in a community.
2.	1	The mission of positive psychology is to understand and foster the factors that allow individuals, communities, and societies to flourish (Seligman & Csikszentmihalyi, 2000). Positive emotions serve as markers of flourishing, or optimal well-being. Positive emotions signal flourishing. But this is not the whole story: Positive emotions also produce flourishing. Moreover, they do so not simply within the present, pleasant moment but over the long term as well. The take-home message is that positive emotions are worth cultivating, not just as end states in themselves but also to achieving psychological growth and improved well-being over time.	This is relevant because you may use positive emotions to increase community flourishing to the present and in a long-term moment.	This impact because you can use positive emotions to flourish a community which means that as you increase resilience, you increase the flourishing of the community – D .	Positive emotions might increase resilience in a community by flourishing the community in the present and in a long-term moment.

3.	1	<p>Positive affect, according to numerous theorists, facilitates approach behaviour (Cacioppo, Gardner, & Berntson, 1999; Davidson, 1993; Watson, Wiese, Vaidya, & Teilegen, 1999) or continued action (Carver & Scheier, 1990; Clore, 1994). From this perspective, experiences of positive affect prompt individuals to engage with their environments and partake in activities, many of which are adaptive for the individual, its species, or both. This link between positive affect and activity engagement provides an explanation for Her often-documented positivity offset, or the tendency for individuals to experience mild positive affect frequently, even in neutral contexts (Diener & Diener, 1996; Ito & Cacioppo, 1999). Without such an offset, individuals most often would be unmotivated to engage with their environments. Yet with such an offset, individuals exhibit the adaptive bias to approach and explore novel objects, people, or situations. (See Watson et al., 1999, for a related explanation for diurnal patterns of positive emotional activation).</p>	<p>This is relevant because positive emotions may affect the behavioural approach, continues action of the individuals and prompts them to engage with their environments and partake in activities.</p>	<p>The positive emotions impact on resilience by affecting the continues behavioural actions of the individuals and prompting them to engage and partake in community activities which means that without positive emotions, individuals in the communities would be unmotivated to engage with their environments – R.</p>	<p>Positive emotions might increase resilience by affecting the continuous behavioural actions and activity engagements of individuals in the communities.</p>
4	1	<p>Fear, for example, is linked with the urge to escape, anger with the urge to attack, disgust with the urge to expel, and so on. It is not that people invariably act out these urges when feeling emotions. Rather, people's ideas about possible courses of action narrow in on a specific set of behavioural options. A key idea from this perspective is that a specific action tendency is what makes an emotion evolutionarily adaptive: These are among the actions that presumably worked best in helping human ancestors survive life-or-death situations (Tooby & Cosmides, 1990).</p>	<p>This is relevant because positive emotion may be evolutionary adaptive to individuals which is possible by a specific action tendency.</p>	<p>This impacts on resilience because individuals become evolutionary adaptive which helps them to survive life-or-death situations. This means that as the evolution adaptively increases, it increases resilience – D.</p>	<p>Positive emotions might increase resilience by making the individuals in the community evolutionary adaptive in-order to survive life-or-death situations.</p>

5	1	<p>Another key idea from the specific emotion’s perspective is that specific action tendencies and physiological changes go hand in hand. So, for example, when someone experiences an urge to escape when feeling fear, that person’s body reacts by mobilizing appropriate autonomic support for the possibility of running (Levenson, 1994). Although specific action tendencies have been invoked to describe the function of specific positive emotions as well, the action tendencies identified for positive emotions are notably vague and underspecified (Fredrickson & Levenson, 1998).</p>	<p>This is relevant because positive emotions may help individuals react to shock positively by mobilizing appropriate autonomic support which helps to increase resilience.</p>	<p>This impacts on resilience because the functions of positive emotions are described by specific action tendencies, which means that as the specific action tendencies increases, resilience increases – D.</p>	<p>Positive emotions might increase community resilience by mobilizing appropriate autonomic support for the individuals to react to shocks which is described by specific action tendencies.</p>
6	1	<p>Although positive emotions can occur in adverse circumstances, the typical context of positive emotions is not a life-threatening situation. As such, a psychological process that narrows a person’s momentary thought-action Repertoire to promote quick and decisive action may not be needed. Instead, the positive emotions of joy, interest, contentment, pride, and love appear to have a complementary effect: They broaden people’s momentary thought action repertoires, widening the array of the thoughts and actions that come to mind (Fredrickson, 1998; Fredrickson & Branigan, 2001).</p>	<p>This is relevant because positive emotions may widen the individual’s array of thought actions that comes to mind which helps to increase resilience.</p>	<p>The positive emotions impact on resilience because it has a complementary effect, can occur in adverse situations which means that as you increase the complementary effect, you increase resilience – D.</p>	<p>Positive emotions might increase resilience by widening array of thoughts actions of individuals and gives complementary effects to the individuals in a community.</p>
7	1	<p>Conceptual analyses of a range of positive emotions support this claim. Joy, for instance, broadens by creating the urge to play, push the limits, and be creative. These urges are evident not only in social and physical behaviour, but also in intellectual and artistic behaviour (Ellsworth & Smith, 1988; Frijda, 1986).</p>	<p>This is relevant because positive emotions may help the individuals in the communities push the limits and become creative due to joy which helps to increase resilience.</p>	<p>The positive emotions impact resilience because it gives the individuals in the communities the urge to be creative. This means that if you increase joy you increase resilience – D.</p>	<p>Positive emotions might increase resilience by increasing the communities urge to be creative and push the limits in different behaviours due to joy.</p>

8	1	Interest, a phenomenologically distinct positive emotion, broadens by creating the urge to explore, take in new information and experiences, and expand the self in the process (Csikszentmihalyi, 1990; Izard, 1977; Ryan & Deci, 2000; Tomkins, 1962).	This is relevant because positive emotions may help the individuals in the communities explore, take in new information and experiences and expand self-processes due to interest which helps to increase resilience.	The positive emotions impact resilience because it gives the individuals in the communities the urge to expand self-processes and take in new information and experiences. This means that if you increase urge you increase resilience – D .	Positive emotions might increase resilience by increasing the communities urge to take in new information and experiences, explore and expand due to interest .
9	1	Contentment, a third distinct positive emotion, broadens by creating the urge to savour current life circumstances and integrate these circumstances into new views of self and of the world (Izard, 1977). Pride, a fourth distinct positive emotion that follows personal achievements, broadens by creating the urge to share news of the achievement with others and to envision even greater achievements in the future (Lewis, 1993).	This is relevant because positive emotions may help the individuals in the community's savour current life circumstances and envision greater achievements due to contentment and pride which helps to increase resilience.	The positive emotions impact resilience because it gives the individuals in the communities the urge to savour current life circumstances and envision greater achievements. This means that if you increase urge you increase resilience – D .	Positive emotions might increase resilience by increasing the communities urge to savour current life circumstances and envision greater achievements due to contentment and pride.
10	1	Emotions (e.g., joy, interest, contentment) experienced within contexts of safe, close relationships (Izard, 1977), broadens by creating recurring cycles of urges to play with, explore, and savour experiences with loved ones. These various thought-action tendencies— to play, to explore, to savour and integrate, or to envision future achievement—each represent ways that positive emotions broaden habitual modes of thinking or acting (Fredrickson, 1998, 2000a; Fredrickson & Branigan, 2001).	This is relevant because positive emotions may help individuals broaden habitual modes of thinking or acting which helps to increase resilience.	The positive emotions impact on resilience because it creates recurring cycles of urges to overcome. This means that as urges to withstand increases, resilience increases – D .	Positive emotions might increase resilience by broadening habitual modes of thinking and acting and creates recurring cycles of urges for the individuals in a community.
11	1	In doing so, the theory provides a new perspective on the evolved adaptive significance of positive emotions. Human ancestors who succumbed to the urges sparked by positive emotions to play, explore, and so on would have	This is relevant because positive emotions may provide greater odds of	The positive emotions impact on resilience because the capacity to	Positive emotions have the tendency of increasing resilience by providing greater odds of survivals and

		by consequence accrued more personal resources. When these same ancestors later faced inevitable threats to life and limb, their greater personal resources would have translated into greater odds of survival, and, in turn, greater odds of living long enough to reproduce. To the extent, then, that the capacity to experience positive emotions is genetically encoded, this capacity, through the process of natural selection, would have become part of universal human nature.	survivals for the individuals in the community which helps to increase resilience.	experience it is genetically encoded through the process of natural selection. This means that those who are not genetically encoded might find it difficult to experience positive emotions. – R.	avoiding genetic encoded experiences in the communities.
12	1	Empirical support for several key propositions of the broaden-and-build theory can be drawn from multiple sub disciplines within psychology, ranging from cognition and intrinsic motivation to attachment styles and animal behaviour (for a review, see Fredrickson, 1998). This evidence suggests that positive emotions broaden the scopes of attention, cognition, and action and that they build physical, intellectual, and social resources.	This is relevant because positive emotions may broaden the scopes of attention, cognition and actions of the individuals in the community, which helps to increase resilience.	The positive emotions impact on resilience by building physical, intellectual and social resources of the communities. Which means that as their motivations increases, resilience increases – D.	Positive emotions might increase resilience by broadening the scopes of attention, cognition and actions of the individuals in the communities and building their physical, intellectual and social resources.
13	1	Tallying the things each participant listed, Branigan and I found support for the broadening hypothesis. Participants in the two positive emotions conditions (joy and contentment) identified more things that they would like to do right then relative to those in the two negative emotion conditions (fear and anger) and, more important, relative to those in the neutral control condition. Those in the two negative emotion conditions also named fewer things than did those in the neutral control condition (Fredrickson & Branigan, 2000).	This is relevant because positive emotions may help the individuals of the communities identify more things to be done during disaster, which helps to increase resilience.	The positive emotions can impact on resilience by enabling the individuals in the communities to identify more things to be done. Which means that as there are more things to be done to withstand disaster, resilience is increased – D.	Positive emotions might increase resilience by bring about Identification of more solutions or more things to be done by the community members to withstand disaster.

14	1	<p>These data provide preliminary evidence that two distinct types of positive emotion—a high activation state of joy and a low activation state of contentment—each produce a broader thought-action repertoire than does a neutral state. Likewise, two distinct types of negative emotion—fear and anger—each produce a narrower thought action repertoire than does a neutral state. This pattern of results supports a core proposition of the broaden-and-build theory: that distinct positive emotions widen the array of thoughts and actions that come to mind. By contrast, distinct negative emotions, as models based on specific action tendencies would suggest, shrink this same array.</p>	<p>This is relevant because positive emotions may broaden the individual’s momentary thought actions repertoires which helps to increase resilience.</p>	<p>The positive emotions impact on resilience because it builds the individuals enduring personal resources which means that as you increase their personal resources, you increase resilience – D.</p>	<p>Positive emotions might increase resilience by broadening momentary thought action repertoires and enduring personal resources of the individuals in a community.</p>
15	1	<p>Evidence for the broadening hypothesis has clear implications for the strategies that people use to regulate their experiences of negative emotions. If negative emotions narrow the momentary thought-action repertoire and positive emotions broaden this same repertoire, then positive emotions ought to function as efficient antidotes for the lingering effects of negative emotions. In other words, positive emotions might correct or undo the aftereffects of negative emotions; my colleagues and I call this the undoing hypothesis (Fredrickson & Levenson, 1998; Fredrickson, Mancuso, Branigan, & Tugade, in press). The basic observation that positive emotions (or key components of them) are somehow incompatible with negative emotions is not new and has been demonstrated in earlier work on anxiety disorders (e.g., systematic desensitization; Wolpe, 1958), motivation (e.g., opponent-process theory; Solomon & Corbit, 1974), and aggression (e.g., principle of incompatible responses; Baron, 1976). Even so, the precise mechanism ultimately responsible for this incompatibility has not been adequately identified.</p>	<p>This is relevant because positive emotions may function as efficient antidotes for the lingering effects of negative emotions, which helps to increase resilience.</p>	<p>The positive emotions impact on resilience because its undo’s the aftereffects of negative emotions and this can be called the undoing hypothesis. This means that as it corrects the negative emotions, resilience increases – D.</p>	<p>Positive emotions might increase resilience by functioning as efficient antidotes for the lingering effect of negative emotions or undoing the after effect of negative emotions called the undoing hypothesis.</p>

16	1	The undoing hypothesis predicts that those who experience positive emotions on the heels of a high-activation negative emotion will show the fastest cardiovascular recovery. My colleagues and I tested this by measuring the time elapsed from the start of the randomly assigned film until the cardiovascular reactions induced by the negative emotion returned to baseline levels. In three independent samples, participants in the two positive emotion conditions (joy and contentment) exhibited faster cardiovascular recovery than did those in the neutral control condition. Participants in the sadness condition exhibited the most protracted recovery (Fredrickson & Levenson, 1998; Fredrickson et al., in press).	This is relevant because communities who shows positive emotions during disasters may show the faster cardiovascular recovery or disaster recovery which helps to increase resilience.	The positive emotion impact on resilience because it shows that communities with negative emotions exhibit the most protracted recovery. This means that as the recovery becomes protracted, resilience decreases - R.	Positive emotions might increase resilience by helping the communities show faster disaster recovery.
17	1	Phenomenological, positive emotions may help people place the events in their lives in broader context, lessening the resonance of any negative event. Perhaps pointing to physiological markers of broadening effects, some have suggested that parasympathetic cardiac control (measured as heart rate variability or respiratory sinus arrhythmia) underlies positive emotions as well as the ability to regulate negative emotions (Fox, 1989; McCraty, Atkinson, Tiller, Rein, & Watkins, 1995; Porges, 1995). Testing these suggestions and extending the work to other emotions and other contexts provide a road map for future research.	This is relevant because positive emotions may help the communities place the events in their lives in broader context which may help to increase resilience.	The positive emotion impact on resilience because it may help communities lessen resonance of negative events. This means that as it lessens, resilience increases – D.	Position emotions might increase resilience by helping communities lessen resonance of negative events and place the events in their lives in broader context.
18	1	Evidence for the undoing effect of positive emotions suggests that people might improve their psychological wellbeing, and perhaps also their physical health, by cultivating experiences of positive emotions at opportune moments to cope with negative emotions (Fredrickson, 2000a). Folkman and colleagues have made similar claims that experiences of positive affect during chronic stress help people cope (Folkman, 1997; Folkman & Moskowitz, 2000; Lazarus, Kanner, & Folkman, 1980). Evidence supporting this claim can be drawn from experiments showing that positive affect facilitates attention to negative, self-relevant information (Reed & Aspinwall, 1998; Trope & Neter, 1994; Trope & Pomerantz, 1998; for a review, see Aspinwall, 1998). Extrapolating from these findings, Aspinwall (2001) described how positive affect and positive beliefs serve as resources for people coping with adversity (see also Aspinwall & Taylor, 1997; Taylor, Kemeny, Reed, Bower, & Gruenewald, 2000).	This is relevant because positive emotions may improve the psychological well-being and physical health of the communities, which may help increase resilience.	Positive emotions impact on resilience because it may help the communities cope with negative emotions. This means as they cope, resilience increases – D.	Positive emotions might increase resilience by helping the communities improve their psychological well-being and physical health. It may also help them cope with negative emotions.

19	1	<p>It seems plausible that some individuals, more than others, might intuitively understand and use the benefits of positive emotions to their advantage. One candidate individual difference is psychological resilience. Resilient individuals are said to recover from stressful experiences quickly and efficiently, just as resilient metals bend but do not break (Carver, 1998; Lazarus, 1993). This theoretical definition of resilience suggests that, relative to their less resilient peers, resilient individuals would exhibit faster cardiovascular recovery following a high-activation negative emotion. Additionally, the broaden-and-build theory suggests that this ability to recover to cardiovascular baseline may be fuelled by experiences of positive emotion.</p>	<p>This is relevant because communities who shows positive emotions during disasters may show the faster cardiovascular recovery or disaster recovery which helps to increase resilience.</p>	<p>The positive emotion impact on resilience because it shows that communities with negative emotions exhibit the most protracted recovery. This means that as the recovery becomes protracted, resilience decreases - R.</p>	<p>Positive emotions might increase resilience by helping the communities show faster disaster recovery.</p>
20	1	<p>Resilience did, however, predict participants' reports of positive emotions. Before the speech task was even introduced, more resilient individuals reported higher levels of pre-existing positive affect on an initial mood measure. When later asked how they felt during the time-pressured speech preparation phase, more resilient individuals reported that alongside their high anxiety, they also experienced higher levels of happiness and interest. As predicted by the theoretical definition of psychological resilience, more resilient participants exhibited significantly faster returns to baseline levels of cardiovascular activation following the speech task. Moreover, as predicted by the broaden-and-build theory, this difference in time needed to achieve cardiovascular recovery was mediated by differences in positive emotions (Tugade & Fredrickson, 2000).</p>	<p>This is relevant because positive emotions may bring about higher levels of happiness and interest in the communities, which may increase resilience.</p>	<p>The positive emotions impact on resilience because it helps individuals return faster to baseline during disaster risk. This means as they return faster, resilience is increased – D.</p>	<p>Positive emotions may increase resilience by bringing about higher levels of happiness and interest among the community members.</p>
21	1	<p>These data suggest that positive emotions may fuel psychological resilience. In effect, then, resilient individuals maybe—wittingly or unwittingly—expert users of the undoing effect of positive emotions. Again, questions arise from this initial study: Do resilient individuals intentionally recruit positive emotions to cope? If so, how do they do it? Folkman and Moskowitz (2000) identified three kinds of coping that can generate positive affect during stressful circumstances: positive reappraisal, problem-focused coping, and the infusion of ordinary events with positive meaning. Do resilient individuals use any or all of these? Strategies? If so, can these strategies be taught to less resilient individuals? Finally, do resilient individuals think more broadly, as the broaden-and-build theory would suggest? If so, does broadened thinking enable people to find</p>	<p>This is relevant because positive emotions may help communities with strategies of problem-focused coping, which may increase resilience.</p>	<p>The positive emotions impact on resilience because it may make the individuals of the communities become experts of undoing effect of negative emotions and may also fuel community resilience. This means as it helps to do all that, resilience increases – D.</p>	<p>Positive emotions may increase resilience by providing strategies of problem-focused coping and making the individuals experts of undoing negative effects, thereby fuelling community resilience.</p>

		positive meaning within adversity? Again, these remaining questions provide directions for future work.			
22	1	Preliminary evidence suggests that positive emotions may fuel individual differences in resilience. Noting that psychological resilience is an enduring personal resource, the broaden-and-build theory makes the bolder prediction that experiences of positive emotions might also, over time, build psychological resilience, not just reflect it. That is, to the extent that positive emotions broaden the scopes of attention and cognition, enabling flexible and creative thinking, they should also augment people's enduring coping resources (Aspinwall, 1998, 2001; Isen, 1990).	This is relevant because positive emotions may enable flexible and creative thinking of the community members, which may increase resilience.	The positive emotions impact resilience because it may help to build community resilience. This means that resilience increase with continues improvements – D .	Positive emotions might increase resilience by enabling flexible and creative thinking among the community members and by building community resilience.
23	1	In turn, by building this psychological resource, positive emotions should enhance people's subsequent emotional well-being. Consistent with this view, studies have shown that people who experience positive emotions during bereavement are more likely to develop long-term plans and goals. Together with positive emotions, plans and goals predict greater psychological well-being 12 months post-bereavement (Stein, Folkman, Trabasso, & Richards, 1997; for related work, see Bonanno & Keltner, 1997; Keltner & Bonanno, 1997).	This is relevant because positive emotions may enhance individual's subsequent emotional well-being, which may increase resilience.	The positive emotion impact resilience because it helps individuals develop long-term plans and goals during disaster risk. This means that long-term plans may increase resilience – D .	Positive emotions might increase resilience by enhancing subsequent emotional well-being of the individuals in the community and helps in developing long-term plans and goals .
24	1	One-way people experience positive emotions in the face of adversity is by finding positive meaning in ordinary events and within the adversity itself (Affleck & Tennen, 1996; Folkman & Moskowitz, 2000; Fredrickson, 2000a). It is important to note that the relation between positive meaning and positive emotions is considered reciprocal: Not only does finding positive meaning trigger positive emotion, but also positive emotions, because they broaden thinking, should increase the likelihood of finding positive meaning in subsequent events (Fredrickson, 2000a).	This is relevant because positive emotions may help the communities find positive meaning in the face of adversity, which can increase resilience.	The positive emotions impact resilience because it has a reciprocal relationship with positive meaning and broaden thinking. This means as the communities think broad, resilience increases – D .	Positive emotions might increase resilience by helping communities find positive meaning and become broad thinkers .
25	1	Our data revealed clear evidence for an upward spiral. Individuals who experienced more positive emotions than others became more resilient to adversity over time, as indexed by increases in broad-minded coping. In turn, these enhanced coping skills predicted increased positive emotions over time (Fredrickson & Joiner, 2000). These findings suggest that positive emotions and broad-minded coping mutually build on one another. Not only do positive emotions make people feel good in the present, but	This is relevant because positive emotions may help in making the communities feel good in the present and future, which an increase resilience.	The positive emotions impact resilience because it helps the communities become more resilient during adversity and give them broad-minded coping skills. As they increase	Positive emotions may increase resilience by making the communities feel good and become more resilient and by helping them develop broad-minded coping skills .

		also, through their effects on broadened thinking, positive emotions increase the likelihood that people will feel good in the future.		broad-minded coping skills, resilience increases – D .	
26	1	Without minimizing the importance of these functions, the broaden-and-build theory casts positive emotions in a much larger role. The theory suggests that positive emotions, although fleeting, also have more long-lasting consequences. From the perspective of the broaden-and-build theory, positive emotions are vehicles for individual growth and social connection: By building people's personal and social resources, positive emotions transform people for the better, giving them better lives in the future.	This is relevant because positive emotions may help as vehicles for individual growth and social connection, which can increase resilience.	The positive emotion impact resilience because it can help to transform individuals in the community for the better. As they are transformed for the better, resilience increases – D .	Positive emotions may increase resilience by being vehicles for individual growth and social connection and by transforming individuals in the community for the better.
27	2	Of course, our response to any emotion can become a gateway to resilient action. Anger fuels our fight against injustice and oppression, sadness can lead us to reach out to others for comfort and support, guilt can lead to making amends, even as joy sparks the urge to play and be creative, interest sparks the urge to explore and learn, and serenity helps us savour the goodness of life just as it is.	This is relevant because positive emotions may become a gateway to resilient action and fuels fight against injustice, which can increase resilience.	Positive emotions impact resilience because it can help the communities reach out to others for comfort and support. As the comfort and support increases, resilience increases – D .	Positive emotions may increase resilience by becoming a gateway to resilient action and by helping the communities reach out to others for comfort and supports .
28	2	The reflections below explore how positive emotions especially broaden our mind-set to see new possibilities and solutions and build resources for long-term resilience and fulfilment. I also describe Frederickson's empirically validated positivity ratio – the tipping point of three positive emotional experiences every one negative experience – that “seeds” our resilient thriving. If you wish to achieve that 3-to-1 positivity ratio, the exercises in the practice section below draw on Frederickson's suggestions to decrease negativity and increase positivity and tip you into that 3-to-1 ratio that science shows help us move from languishing to flourishing.	This is relevant because positive emotions may help the communities see new possibilities and solutions and build resources for long-term resilience and fulfilment, which can increase resilience.	Positive emotions impact resilience because it can help the communities move from languishing to flourishing. As they flourish, resilience is increased – D .	Positive emotions may increase resilience by helping the communities see new possibilities and solutions and by helping them move from languishing to flourishing .
29	2	Positive emotions help us feel good and improve our physical, psychological, mental and social health: positive emotions reduce stress, lower blood pressure, improve the immune system, reduce the risk of heart disease, stroke, and diabetes, and help people live longer (7-9 years longer).	This is relevant because positive emotions may help to reduce stress and the risk of disaster, which can increase resilience.	Positive emotions impact resilience because it may help to improve the mental and social health of the individuals in the communities. As these	Positive emotions may increase resilience by helping to reduce stress and disaster risk and by improving the mental and social health of the individuals in the communities.

				increases, resilience increases – D .	
30	2	Positive emotions have a cause and effect relationship to resilience, not merely a correlation. I.e., positive emotions are not simply a reflection of resilience – the capacity to recover from setbacks. Positive emotions help produce resilience;	This is relevant because positive emotions may help to produce resilience, which can also increase resilience.	Positive emotions impact resilience because it may have a cause and effect relation and not just a correlation. When it has not only correlations, resilience decreases – R .	Positive emotions may increase resilience by helping to produce resilience and help the communities to recover from setbacks .
31	2	Positive emotions change how the brain functions, making it easier to learn new skills, new points of view, new ways of being; positive emotions build resonant connections with other people and help us move from “me” to “we.”	This is relevant because positive emotions may help to build resonant connections between the individuals in the communities, which can increase resilience.	Positive emotions impact resilience because it helps the brain function well by making the individuals learn new skills and new ways of being. This can increase resilience – D .	Positive emotions may increase resilience by helping the communities build resonant connections and by making they learn new skills and new ways of being .
32	2	Puts the brakes on negativity, un-does the impact of negative emotions on the body, on our thinking, on our choices; positivity helps us reset and rebound. Frederickson is clear, positivity is never about denying or suppressing negative emotions. It’s about being nimble and agile with them. We are to approach all emotions with curiosity and compassion. It’s about engaging with emotions mindfully – with awareness and acceptance – and then shifting focus to skilfully “practice” positive emotions instead, even most of the time.	This is relevant because positive emotions may help the communities reset and rebound, which can increase resilience.	Positive emotions may impact resilience because it helps to undo the impact of negative emotions on the individuals. As the negative emotions decreases, resilience increases – D .	Positive emotions may increase resilience by helping the communities reset and rebound and by undoing the impact of negative emotions .
33	2	“Broadens” the possibilities of perception and response beyond the narrower range of basic survival responses. Positive emotions open the mind and heart to new ideas, new behaviours of coping, and new outlooks on life. There’s more mental space for exploration and learning. Positivity expands the horizons and allows us to see the forest and the trees, to see the bigger picture more accurately, and to connect the dots in new ways. Positivity leads to more optimism, more confidence, more creativity, and more collaboration with others, more spontaneous yet accurate decision making, and more win-win solutions.	This is relevant because positive emotions may lead to more optimism and spontaneous accurate decision making among the community members, which can increase resilience.	Positive emotions may impact resilience because it gives more mental space for exploration and learning. As the communities learn new things, resilience increases – D .	Positive emotions may increase resilience by leading to more optimism of the communities and allows for spontaneous and accurate decision making among the community members.

34	2	Builds” resources to draw on long-term. Frederickson found that positivity is not a placebo with effects that are large, immediate and that may disappear, nor are the effects of positivity random or isolated. The effects of cultivating positive emotions are small, incremental, predictable, and permanent. There is a cumulative effect beyond the immediate moment of joy or interest or awe that can alter the trajectory of an entire life. With more positivity, there is deeper self-acceptance (less shame-blame, more relaxation, forgiveness and inner peace); greater sense of purpose, meaning and fulfilment; more resonant connections with others; more receptivity, flexibility and creativity; a better balance between gravity and levity; a more buoyant, dynamic, yet realistic “ready for anything” vitality; more openness to the inter-connectedness of all of humanity; more impetus to make a lasting contribution to the larger community.	This is relevant because positive emotions may allow for deeper self-acceptance in the communities, which can increase resilience.	Positive emotions may impact resilience because it helps the individuals make lasting contribution to the community. As the community members contribute, resilience is increased – D .	Positive emotions may increase resilience by allowing for deeper self-acceptance in the communities and by helping individuals make lasting contributions to the community.
35	2	Dispute negative thinking – a hallmark of cognitive behavioural therapy, this is a tool to dispute distorted thinking that de-rails a sense of capacity and competence with realistic thinking that remembers and claims competence. It means facing the situation, checking the facts, and dissolving the distortion with more realistic facts. For practice, create a set of index cards, one negative thought per card. Shuffle the deck, pick a card, and practice disputing it with realistic facts right in that moment. Over time, continue practicing in-the-moment disputation until you’ve practiced with every negative thought in the deck.	This is relevant because positive emotions may help the community’s dispute negative thinking during disaster, which can increase resilience.	The positive emotions may impact resilience because it can give a sense of capacity and competence to the communities. As they become more competent, resilience increases – D .	Positive emotions may increase resilience by helping the community’s dispute negative thinking during disaster and by given the community members a sense of capacity and competence .
36	2	Break the grip of rumination – we get stuck in previous habits of thinking or the worry of what if’s which block our seeing clearly so we can dispute negative thoughts. Frederickson suggests using healthy distraction – go for a walk, cook a meal, call a friend – to re-direct the mind’s attention and switch the channel. Have a list of healthy distractions at hand for varying life circumstances – work, home, even various weather conditions. Become more mindful – attend to inner experience with awareness and acceptance, step back, see any thought as a thought, and let it go.	This is relevant because positive emotions may help the communities break the grip of rumination, which can increase resilience.	The positive emotions may impact resilience because it can enable the communities to become more mindful and attend to inner experience with awareness and acceptance. As they do the above, resilience increases – D .	Positive emotions may increase resilience by helping the communities break the grip of rumination and by helping the communities become more mindful and attend to inner experience with awareness and acceptance .
37	2	Defuse negativity landmines – we all need to identify what our landmines are, conditions, circumstances, events, routines, that de-rail our positivity and our resilience. Then, either change the conditions, (drive a different way to work or at a different time) focus attention differently (what’s right	This is relevant because positive emotions may help to defuse negativity landmines	The positive emotions may impact resilience because it can expand the tolerance and love of the community	Positive emotions may increase resilience by helping the communities defuse negativity landmines and by

		with this wrong?) or perceive the meaning differently (what's the gift in this mistake?) Frederickson suggests specifically: a) assess your media diet, too much violence or negativity in the news without enough positivity to balance it out zaps empathy and kindness; b) avoid gossip and sarcasm (wise speech of wise relationships anyway); c) apply social aikido to toxic people: neutralize the impact of their aggression by expanding your tolerance and love: be kinder yourself, appreciate anything good in them, see them as a teacher in disguise, an opportunity to practice.	in the communities, which can increase resilience.	members and help them avoid gossip and sarcasm. With gossip and sarcasm, resilience is decreased – D .	helping them expand tolerance and love and avoid gossip and sarcasm.
38	3	How do you think positive emotions can influence or turn around difficult situations? Having a positive viewpoint or outlook can increase a person's perception on the ability to solve the problem and therefore having the energy to source ways to cope. As one could imagine the opposite of having no hope and giving up. Positive emotions can drive the person to cope. In the recent Wuppertal Fire event the community, because of the faith in God, voiced that they trust God for His help. The positive outlook in their faith in itself brought comfort and strength to mobilize the community.	This is relevant because positive emotions may help to drive the people to cope better during disaster risk, which can increase resilience.	The positive emotions may impact resilience because it can bring comfort and faith in God among the communities. The more faith and comfort, resilience increases – D .	Positive emotions may increase resilience by driving the people to cope during disaster risk and by helping them have faith in God .
39	3	What do you think are the roles and importance of positive emotions (When facing a difficulty situation)? The role of positive emotions is important to a mental health and wellbeing which contributes to community's ability to cope.	This is relevant because positive emotions may help to drive the people to cope better during disaster risk, which can increase resilience.	The positive emotions may impact resilience because it can bring good mental health and wellbeing among the communities. The better wellbeing, resilience increases – D .	Positive emotions may increase resilience by given the communities the ability to cope better during disaster.
40	3	Are positive emotions important active ingredients within the people facing difficulty situations? why if yes? Yes. Positive emotions are important part of resilience in the recovery phase as it will drive the communities to solve the crises.	This is relevant because positive emotions might help the recovery phase of disaster risk, which can increase resilience.	The positive emotions may impact resilience as it can give the communities a drive to solve crisis. The more they solve the crisis, the more resilience increases – D .	Positive emotions may increase resilience by helping to drive communities to solve problems .
41	4	How do you think positive emotions can influence or turn around difficult situations? Positive emotions can influence difficult situations and even turn them around because:	This is relevant because positive emotions may prevent the people from giving up and rather feel them	The positive emotions may impact resilience as it can enable the individuals see the difficult situations in a	Positive emotions may increase resilience by helping to prevent the people not to give up rather feel them with positive energy .

		<p>i. staying positive energizes you not to give up, helping you to feel positive energy about the problem. In this way, your positive emotions have greatly influenced the problem.</p> <p>ii. It gives you hope when you stay positive about the difficult situation, hoping that the situation will turn around to your favour.</p> <p>iii. It opens you up to seek solutions to the problem. This enables you to see the difficult situation in a positive way and hence you become interested in seeking solutions to the problem.</p>	up with positive energy, which can increase resilience.	positive way, which helps to see solutions to the problems. The more positive energy, the more resilience increases – D .	
42	4	What do you think are the roles and importance of positive emotions (When facing a difficulty situation)? I think the role of positive emotions is to enable you not to give up in a difficult situation. Because if you don't stay positive, you may want to commit suicide or harm yourself.	This is relevant because positive emotions may prevent the people from giving up and rather feel them up with positive energy, which can increase resilience.	The positive emotions may impact resilience as it can enable the individuals see solutions to the problems. The more positive energy, the more resilience increases – D .	Positive emotions may increase resilience by helping to prevent people from giving up .
43	4	What do you think are the ways and similarities in the way's positive emotions shape resilience? I think positive emotions shape resilience in the fact that it is a strong backbone for you to thrive and become resilient in a difficult situation. You must have it, to help you stay strong and hence increase your resilience level to the difficult situation that you are facing.	This is relevant because positive emotions may be a strong backbone for the communities to thrive, which can increase resilience.	The positive emotions may impact resilience as the individuals may need to stay strong. The more they stay strong, the more resilience increases – D .	Positive emotions may increase resilience by being a strong backbone for the people to withstand shocks and disaster risks.
44	4	Are positive emotions important active ingredients within the people facing difficulty situations? Why if yes? Not everyone who faces difficulty maintains a positive attitude. Positive emotion is therefore one of the traits that differentiates people who succeed from those who fail.	This is relevant because positive emotions may make the people in the community successful, which can increase resilience.	The positive emotions may impact resilience as it can help everyone maintain a positive attitude. The less positive attitude, the less resilience – R .	Positive emotions may increase resilience by making people in the community succeed and by given them positive attitude .
45	4	How do you think positive emotions can be improved? I. exposing yourself to positive materials and books ii. exposing oneself to hearing positive sermons iii. Communicating with someone that can listen to you and speak positively back to you with words of encouragements based on the problem you shared with the person. iv. Self-determination is a key action to improve positive emotions.	This is relevant because positive emotions may help the people of the community to have self-determination, which can increase resilience.	The positive emotion may impact resilience as it can help the individuals in the communities communicate properly with each other. The more they communicate with each	Positive emotions may increase resilience by making the individuals in the community have elf-determination and communication skills .

				other; the more resilience is increased – D .	
46	5	How do you think positive emotions can influence or turn around difficult situations? The only thing that can stop you from giving up on anything in life is hope, hope that things will get better. Hope that Christians refer to as faith. Each time you feel like this is the last blow I believe what doesn't kill you makes you stronger therefore hope that the phase will pass is the changing factor of adversity .	This is relevant because positive emotion may give the communities hope that things will be alright, which can increase resilience.	The positive emotion may impact resilience as it can make the individuals stronger. The stronger they are, the more resilience increases – D .	Positive emotion may increase resilience by giving hope to the communities to changing factor of adversity and making them also stronger .
47	5	What do you think are the roles and importance of positive emotions (When facing a difficulty situation)? They give you something to look forward to. if you look on the brighter side things could be worse in fact, they are worse for other people out there.	This is relevant because positive emotion may give the communities things to look up to, which can increase resilience.	The positive emotion may impact resilience as it can help the communities look on the brighter side of things. The more they see the brighter side of the situations, the more resilience increases – D .	Positive emotion may increase resilience by helping the communities see things from the brighter side and giving them something to look up to .
48	5	What do you think are the ways and similarities in the way's positive emotions shape resilience? They give you strength a positive mind always looks for the good in every situation.	This is relevant because positive emotion may help to give strength to the communities during difficult situations, which can increase resilience.	The positive emotion may impact resilience as it can help the communities see well in everything. The more they see the good in difficult situations, the more resilience increases – D .	Positive emotions may increase resilience by helping the communities see the good in every difficult situation and giving them strength to withstand .
49	5	Are positive emotions important active ingredients within the people facing difficulty situations? Why if yes? Most people are unable to look on the brighter side resulting in depression and mental illness.	This is relevant because positive emotion may give the communities things to look up to, which can increase resilience.	The positive emotion may impact resilience as it can help the communities look on the brighter side of things. The more they see the brighter side of the situations, the more resilience increases – D .	Positive emotion may increase resilience by helping the communities see things from the brighter side and giving them something to look up to .
50	5	How do you think positive emotions can be improved? I advise individuals to spend more time on introspection. Attempt to rediscover yourself each	This is relevant because positive emotions may help	The positive emotion may impact resilience as It can	Positive emotions may increase resilience by helping the individuals

		time you hit a dead end in life. Rediscover your strengths and unique qualities as everybody is an individual with a purpose and a destiny. That should push you forward when it gets a little tough.	individuals in the community’s rediscover themselves and their strength each time, they hit a dead end, which can increase resilience.	help the communities push forward when it gets tough. The more they push forward, the more resilience increases – D .	rediscover their selves and strengths and help them push forward during tough times.
51	6	How do you think positive emotions can influence or turn around difficult situations? Positive emotions can influence or turn around difficult situations only if you allow your positive thoughts to overshadow your negative thoughts because the way you feel depends only on you or what you think you deserve.	This is relevant because positive emotions may be able to overshadow negative thoughts, which can increase resilience.	The positive emotion may impact resilience as it can help the individuals in the communities know what they deserve. The more they know what they deserve, the more resilience increases - D .	Positive emotions may increase resilience by allow positive thoughts overshadow negative thoughts and by helping the individuals of the communities know what they deserve .
52	6	What do you think are the roles and importance of positive emotions (When facing a difficulty situation)? The roles and importance of positive emotions are basically related during difficulty situations which can be highlighted below as: 1. Overshadowing negative situations. 2. Creating comfort out of discomfort situations to suit your difficult moments. 3. Achieving possibility out of impossible situations. 4. Dealing with one's fear through self-confidence or self-reliance. 5. Doing what you like or love to do most and achieving a positive result from it. 6. Receiving a positive result when least expected. 7. Positive emotions are antidotes to a healthy relationship. 8. Positive emotions keep you healthy all the time.	This is relevant because positive emotion may help the individuals in the communities create comfort and self-reliance, which can increase resilience.	The positive emotion may impact resilience as it allows the individuals to do what they love to do and stay healthy. The more they are healthy, the more resilience increases – D .	Positive emotion may increase resilience by creating comfort and self-reliance for the individuals in the communities and helping them do what they love to do and remaining healthy .
53	6	What do you think are the ways and similarities in the way’s positive emotions shape resilience? The ways and similarities in the ways positive emotions shape resilience are given below as: 1. By not giving in to any negative emotions. 2. By being strong while undergoing a difficult situation. 3. Concentrating on attaining positive results out of every moment whether comfortable or not comfortable.	This is relevant because positive emotion may help the communities apply past experiences to stabilize their future activities, which can increase resilience.	The positive emotion may impact resilience as it may allow help the communities concentrate on attaining positive results. The more concentration they have,	Positive emotion might increase resilience by helping the communities apply experience to stabilize their future activities and help them concentrate on attaining positive results .

		4. Always been on the positive side of everything you do whether difficult or stressful. 5. Adopt a system of applying your experience to stabilize your future activities.		the more resilience increases – D .	
54	6	Are positive emotions important active ingredients within the people facing difficulty situations? Why if yes? Yes, because a positive emotion lightens up the moment of self-reliance in whatever you do or doing that incurs positive into your life.	This is relevant because positive emotion may help to lighten up moments of self-reliance, which can increase resilience.	The positive emotion may impact resilience by helping the communities incur positivity in their lives. The positivity they incur, the more resilience increases - D .	Positive emotion may increase resilience by helping the communities lighten up their moment of self-reliance in whatever they do that incurs positive into their lives.
55	6	How do you think positive emotions can be improved? It could be improved if the one is ready to see positive impulses in whatever he or she does because only you can establish moment of happiness or enthusiasm in your life irrespective of upsurge counselling. Your life can only be controlled by you and it is only dependent on what you are involved in. Always find yourself a meaningful moment by engaging what makes you happy. Also, environmental conditions dictate some part of our emotional state.	This is relevant because positive emotion may help the individuals in the communities see positive impulses, which can increase resilience.	The positive emotion may impact resilience by helping to put the environmental condition right in the communities. The more the environmental condition is right, the more resilience is increased – D .	Positive emotion may increase resilience by allowing a good environmental condition and making the individuals see a positive impulse .
56	7	How do you think positive emotions can influence or turn around difficult situations? Yes, positive emotions can influence difficult situations by enabling a solutions mindset. When one has a positive emotion or attitude, they see beyond the challenge and look for solutions to the problem.	This is relevant because positive emotion may help the individuals in the communities have a solution mindset towards any problem, which can increase resilience.	The positive emotion may impact resilience by helping the communities see beyond challenges during disasters. The more they see the challenges, the less resilience – R .	Positive emotion may increase resilience by helping the communities have a solution mindset and seeing beyond the challenges during disasters.
57	7	What do you think are the roles and importance of positive emotions (When facing a difficulty situation)? Positive emotions stop one from quitting or resigning to fate.	This is relevant because positive emotion may help to stop the communities from quitting, which can increase resilience.	The positive emotion may impact resilience by helping the communities resign to fate. The more they resign to fate, the more they are resilient – D .	Positive emotion may increase resilience by stopping the communities from quitting and helping them resign to fate .

58	7	What do you think are the ways and similarities in the way's positive emotions shape resilience? Everyone will face difficulties, but not everyone will maintain a positive attitude in the face of challenges. Positive emotions increase the probability of one overcoming a challenge as it reinforces position behaviour that are focused on solving the problem, rather than quitting. Therefore, positive emotions increase resilience.	This is relevant because positive emotion may increase the probability of overcoming challenges, which can increase resilience.	The positive emotion may impact resilience by reinforcing position behaviour to solve problems. The more there is problems solving, the more resilience increases – D .	Positive emotion may increase resilience by helping to increase probability of communities overcoming challenges and reinforces position behaviour that are focused on solving the problems.
59	7	Are positive emotions important active ingredients within the people facing difficulty situations? why if yes? Not everyone who faces difficulty maintains a positive attitude. Positive emotion is therefore one of the traits that differentiates people who succeed from those who fail.	This is relevant because positive emotion may help to explain the traits that differentiates those who succeed from those who don't, which can help to increase resilience.	The positive emotion may impact resilience by helping communities maintain positive attitude. The more positive attitude, the more resilience increases – D .	Positive emotion might increase resilience by differentiating traits of successful people from those not successful and by giving a positive attitude.
60	7	How do you think positive emotions can be improved? I believe peer groups, leadership and knowledge are important to improving position emotion within a community. Inspirational leadership and support structures are important who people face challenges.	This is relevant because positive emotion may help to improve resilience by use of peer groups and inspirational leaderships in the communities, which can increase resilience.	The positive emotion may impact resilience by helping to give knowledge to the individuals on her to withstand shocks. This can increase resilience – D .	Positive emotion might increase resilience by bringing inspirational leadership and support structure in the communities.
61	8	The authors used a multimethod approach in 3 studies to predict that resilient people use positive emotions to rebound from, and find positive meaning in, stressful encounters. Mediation analyses revealed that the experience of positive emotions contributed, in part, to participants' abilities to achieve efficient emotion regulation, demonstrated by accelerated cardiovascular recovery from negative emotional arousal (Studies 1 and 2) and by finding positive meaning in negative circumstances (Study 3). Implications for research on resilience and positive emotions are discussed.	This is relevant because positive emotion may help to regulate emotions efficiently during stress and disaster events in the communities, which can increase resilience.	The positive emotion may impact resilience by helping the communities rebound and find positive meaning in stressful encounter. The more they find positive meaning, the more resilience increases – D .	Positive emotion might increase resilience by creating efficient emotional regulation and by helping the communities rebound from and find positive meaning in stressful encounters.
62	8	There are individuals who seem to "bounce back" from negative events quite effectively, whereas others are caught in a rut, seemingly unable to get out of their negative streaks. Being able to move on despite negative	This is relevant because positive emotion may help to regulate emotions efficiently	The positive emotions may impact resilient if the communities also not only	Positive emotion might increase resilience by creating efficient emotional regulation and by helping

		stressors does not demonstrate luck on the part of those successful individuals but demonstrates a concept known as resilience. Psychological resilience refers to effective coping and adaptation although faced with loss, hardship, or adversity. Resilience to certain events has been likened to elasticity in metals (Lazarus, 1993). For example, cast iron is hard, brittle, and breaks easily (not resilient), whereas wrought iron is soft, malleable, and bends without breaking (resilient). This metaphor can be carried over to psychological resilience, which entails a similar resistance to the psychological strain associated with negative experiences. This investigation examines psychological resilience, focusing on its subjective, cognitive, and physiological qualities.	during stress and disaster events in the communities, which can increase resilience.	be positive but also cope properly. The more they don't cope, the more resilience increases – R .	the communities rebound from and find positive meaning in stressful encounters.
63	8	Coping researchers have begun to investigate the utility of positive emotions in stressful contexts. A review of recent evidence indicates that positive emotions help buffer against stress (Folkman & Moskowitz, 2000). For instance, positive coping strategies, such as positive reappraisal, problem-focused coping, and infusing ordinary events with positive meaning are related to the occurrence and maintenance of positive affect (Folkman & Moskowitz, 2000) and predict increases in psychological well-being and health (Affleck & Tennen, 1996). These findings suggest that positive emotions are valuable tools for establishing enhanced outcomes in well-being. Even so, an important question emerges.	This is relevant because positive emotions may help to buffer against stress, which can increase resilience.	The positive emotion may impact resilience by helping to established enhanced outcomes in well-being. The more well-being, the more resilience is increased – D .	Positive emotion might increase resilience by helping to buffer against stress and establishes enhanced outcomes in well-being in the communities.
64	8	Indeed, evidence from a recent experience-sampling study found that greater emotion knowledge (especially the ability to discriminate among negative emotions) was associated with larger repertoires of emotion regulation strategies, indicating that the ability to use emotion knowledge can have beneficial effects on emotion regulation (Feldman Barrett, Gross, Christensen, & Benvenuto, 2001). It is plausible that the knowledge and effective use of positive emotions might provide advantages in the coping process as well.	This is relevant because positive emotions might help to provide advantage in the coping process of the communities, which can increase resilience.	The positive emotion may impact resilience by helping the communities can use emotion knowledge to benefit. The more ability towards, the more resilience is increased – D .	Positive emotion might increase resilience by helping to provide advantage in the coping process of the communities during disaster risk.
65	8	Along these lines, Salovey and colleagues (Salovey & Mayer, 1989–1990) described emotional intelligence as the ability to monitor one's own and others' feelings and emotions, to discriminate among them, and to use this information to guide one's thinking and action. It is important to note that there are individual differences in the ability to process this information and use it to one's benefit when coping with negative circumstances.	This is relevant because positive emotion might help to guide the individuals thinking and actions, which can increase resilience.	The positive emotion may impact resilience by helping the communities learn to process information better. The more they can do this, the	Positive emotion might increase resilience by helping to guide ones thinking and actions and help to process information's better among the individuals of the communities.

				more resilience increases – D.	
66	8	It is possible, then, that emotional intelligence plays a significant role in the lives of resilient people. Specifically, what might distinguish low and high-resilient people is their capacity to learn from life’s setbacks and use this knowledge to cope more effectively (Salovey, Bedell, Detweiler, & Mayer, 1999).	This is relevant because positive emotion might help to play significant roles in the lives of resilience people, which can help to increase resilience the more.	The positive emotion may impact resilience by helping the individuals of the communities learn from life’s setbacks and cope better. The more the learn, the more resilience is increased – D.	Positive emotion might increase resilience by helping to play significant roles in the lives of resilience people and help individuals learn from life’s setbacks and cope more effectively.
67	8	Resilient individuals may recognize the benefits that positive emotions have on negative emotion regulation. As proposed by the broaden-and-build theory (Fredrickson, 1998, 2001), experiences of positive emotions during times of stress prompt individuals to pursue novel and creative thoughts and actions. Thus, through exploration and experimentation, in time they may be able to build an arsenal of effective coping resources that help buffer (psychologically and physiologically) against negative emotional life experiences.	This is relevant because positive emotion may help to build an arsenal of effective coping resources, which can increase resilience.	The positive emotion may impact resilience by prompting individuals pursue novel and creative thoughts during times of disaster risks. The more effective thoughts, the more resilience increases – D.	Positive emotion might increase resilience by helping to prompt the pursue of novel and creative thoughts during disasters and helping to build an arsenal of effective coping resources .
68	9	When it comes to happiness and success in life, emotional intelligence (EQ) matters just as much as intellectual ability or IQ. Emotional intelligence helps you build stronger relationships, succeed at school and work, and achieve your career and personal goals.	This is relevant because positive emotion might help to build stronger relationships amongst the individuals in the communities, which can increase resilience.	The positive emotion might impact resilience by helping the communities achieve personal goals. The more personal goals they achieve, the more resilience is increases – D.	Positive emotion may increase resilience by helping to build stronger relationships amongst the individuals in the community and by helping to achieve personal goals by the individuals.
69	9	Building your emotional intelligence can also help you to connect with your feelings, manage stress, turn intention into action, and make informed decisions about what matters most to you. Learn more about why emotional intelligence is so important and how you can boost your own EQ by mastering a few key skills.	This is relevant because positive emotion may help the individuals of the communities connect with feelings, which can increase resilience.	The positive emotion might impact resilience by helping the communities manage stress during disaster risk. The more they can manage stress, the more resilience increases – D.	Positive emotions may increase resilience by helping the communities connect with feelings and manage stress .

70	9	Emotional intelligence (otherwise known as emotional quotient or EQ) is the ability to understand, use, and manage your own emotions in positive ways to relieve stress, communicate effectively, empathize with others, overcome challenges and defuse conflict. EQ also allows you to recognize and understand what others are experiencing emotionally. For the most part, this is a nonverbal process that both informs your thinking and influences how well you connect with others.	This is relevant because positive emotion might allow for effective communication, which can increase resilience.	The positive emotion may impact resilience by given the individuals the understanding of what others are experiencing emotionally. The more they understand, the more resilience is increased – D .	Positive emotion might increase resilience by allowing for effective communication and helping the individuals in the communities understand what others are experiencing emotionally .
71	9	You have empathy. You can understand the emotions, needs, and concerns of other people, pick up on emotional cues, feel comfortable socially, and recognize the power dynamics in a group or organization.	This is relevant because positive emotion might help the communities grow to social awareness, which can increase resilience.	The positive emotion may impact resilience by given the individuals the understanding of what others are experiencing emotionally. The more they understand, the more resilience is increased – D .	Positive emotion may increase resilience by helping to increase social awareness among the people in the communities.
72	9	You recognize your own emotions and how they affect your thoughts and behaviour. You know your strengths and weaknesses and have self-confidence. You're able to control impulsive feelings and behaviours, manage your emotions in healthy ways, take initiative, follow through on commitments, and adapt to changing circumstances.	This is relevant because positive emotion might help the communities grow to self-awareness, which can increase resilience.	The positive emotion may impact resilience by given the individuals the understanding of what others are experiencing emotionally. The more they understand, the more resilience is increased – D .	Positive emotion may increase resilience by helping to increase self-awareness among the people in the communities.
73	9	Emotions are important pieces of information that tell you about yourself and others, but in the face of stress that takes us out of our comfort zone, we can become overwhelmed and lose control of ourselves. With the ability to manage stress and stay emotionally present, you can learn to receive upsetting information without letting it override your thoughts and self-control. You'll be able to make choices that allow you to control impulsive feelings and behaviours, manage your emotions in healthy ways, take initiative, follow through on commitments, and adapt to changing circumstances.	This is relevant because positive emotion might help the communities make choices and control impulsive feelings, which can increase resilience.	The positive emotion may impact resilience by helping the individuals in the communities follow through on commitments. The more they follow on commitments, the more resilience increases – D .	Positive emotions might increase resilience by helping the communities make choices and control impulsive feelings and by helping the individuals follow through commitments .

74	9	Managing stress is just the first step to building emotional intelligence. The science of attachment indicates that your current emotional experience is likely a reflection of your early life experience. Your ability to manage core feelings such as anger, sadness, fear, and joy often depends on the quality and consistency of your early life emotional experiences. If your primary caretaker as an infant understood and valued your emotions, it's likely your emotions have become valuable assets in adult life. But, if your emotional experiences as an infant were confusing, threatening or painful, it's likely you've tried to distance yourself from your emotions.	This is relevant because positive emotions might help the individuals of the communities manage core feelings such as fear and sadness, which can increase resilience.	The positive emotion might impact resilience by helping the people manage stress. The more stress they can manage, the more resilience is increased – D .	Positive emotions may increase resilience by helping the communities manage core feelings and manage stress during disasters.
75	9	Mindfulness is the practice of purposely focusing your attention on the present moment—and without judgment. The cultivation of mindfulness has roots in Buddhism, but most religions include some type of similar prayer or meditation technique. Mindfulness helps shift your preoccupation with thought toward an appreciation of the moment, your physical and emotional sensations, and brings a larger perspective on life. Mindfulness calms and focuses you, making you more self-aware in the process.	This is relevant because positive emotions may help to cultivating mindfulness amongst the individuals in the communities, which can increase resilience.	The positive emotion might impact resilience by bringing a larger perspective on the lives of the individuals. The more it is, the more resilience increases – D .	Positive emotions might increase resilience by helping the communities cultivate mindfulness on the present and the future.
76	9	Paying attention to others doesn't diminish your own self-awareness. By investing the time and effort to really pay attention to others, you'll gain insight into your own emotional state as well as your values and beliefs. For example, if you feel discomfort hearing others express certain views, you'll have learned something important about yourself.	This is relevant because positive emotion might help the individuals learning to pay attention to others, which can increase resilience.	The positive emotion may impact resilience by helping the community members gain insight into their own emotional state, values and beliefs. As they do these, resilience increases – D .	Positive emotion may increase resilience by helping the community members paying attention to others in time of need and distress.
77	9	Working well with others is a process that begins with emotional awareness and your ability to recognize and understand what other people are experiencing. Once emotional awareness is in play, you can effectively develop additional social/emotional skills that will make your relationships more effective, fruitful, and fulfilling.	This is relevant because positive emotion may help for the working together of the individuals in the communities, which can increase resilience.	The positive emotion may impact resilience by helping the community member's development fruitful relationships. The more good relationship they develop, the more resilience increases – D .	Positive emotion might increase resilience by assisting the community member's working well together and develop fruitful relationship .
78	9	It's impossible to avoid sending nonverbal messages to others about what you think and feel. The many muscles in the face, especially those around	This is relevant because positive emotion helps the	The positive emotion may impact resilience by	Positive emotion might increase resilience by helping the individuals

		the eyes, nose, mouth and forehead, help you to wordlessly convey your own emotions as well as read other peoples' emotional intent. The emotional part of your brain is always on—and even if you ignore its messages—others won't. Recognizing the nonverbal messages that you send to others can play a huge part in improving your relationships.	individuals become aware of non-verbal communications used, which can increase resilience.	helping the individuals recognize that non-communications used can play a huge role in improving relationships. If relationships are improving, resilience increases – D .	become aware of non-verbal communication in order to make sure they do not hurt other feelings.
79	9	Humour, laughter and play are natural antidotes to stress. They lessen your burdens and help you keep things in perspective. Laughter brings your nervous system into balance, reducing stress, calming you down, sharpening your mind and making you more empathic.	This is relevant because positive emotion might help the individuals learn how use humour to reduce stress, which can increase resilience.	The positive emotion may impact resilience by helping the individuals become able to reduce stress with laughter. The more they laugh; the more resilience is increased – D .	Positive emotion may increase resilience by helping the individuals of the communities learn how to use humour and laughter to reduce stress.
80	9	Conflict and disagreements are inevitable in human relationships. Two people can't possibly have the same needs, opinions, and expectations always. However, that needn't be a bad thing. Resolving conflict in healthy, constructive ways can strengthen trust between people. When conflict isn't perceived as threatening or punishing, it fosters freedom, creativity, and safety in relationships.	This is relevant because positive emotion helps the community members see conflicts or setbacks as opportunity to grow, which can increase resilience.	The positive emotion may impact resilience by helping the community members learn ways to resolve conflict constructively – D .	Positive emotion might increase resilience by helping the community members see conflict as an opportunity to grow together and helping them resolve conflict constructively .
81	10	Think about the last time you went into work feeling negative. Chances are, you had a difficult time coming up with creative ideas, your interactions with colleagues were uninspiring or strained, and your productivity was lower than usual. When you go into work feeling positive, however, possibilities and opportunities seem to be everywhere.	This is relevant because positive emotion might help the communities become productive, which can increase resilience.	The positive emotion may impact resilience by helping the communities create possibilities even in impossible situations – D .	The positive emotion might increase resilience by helping the communities become productive and create possibilities .
82	10	You feel open and receptive to new ideas; your relationships are easy and supportive, and you get things done. Most of us know intuitively that, when we're in a positive frame of mind, we work better that day. However, we may not appreciate that, when we're happy, we also become more effective in the longer term. This forms the basis of Broaden and Build Theory.	This is relevant because positive emotion may help the help the people open and receptive to new ideas. Which can increase resilience.	Positive emotion impacts resilience by helping the community members become more effective in a long term. The more effective they become for a long term, the more resilience increases – D .	The positive emotion may increase resilience by helping to make the community member's open and receptive to new ideas and make them more effective in a longer term .

83	10	The theory says that positive emotions do much more than cause us happiness, joy and contentment in the moments we experience them. They also broaden behaviours (“thought-action repertoires”), such as awareness, play, discovery, and curiosity. The more positive emotions we experience, the wider the range of thought-action repertoires we have – in other words, the happier we are, the more flexible and creative we are in the way that we work.	This is relevant because positive emotion helps to broaden behaviours of the individuals in the communities, which can increase resilience.	Positive emotion impacts on resilience by giving the community members happiness. The happier they are, the more resilience is increased – D .	The positive emotion may increase resilience by helping the community members to broaden behaviours and by giving happiness to the people.
84	10	Think about it this way – if someone is being chased by a tiger, he’d better be very focused on survival: it could be disastrous to waste “energy” on play, discovery or curiosity! By contrast, a designer who’s worried about her job is unlikely to come up with daring, innovative, award-winning designs – she’s focused on safety and survival, and not much else.	This is relevant because positive emotion helps to give safety to the individuals in the communities, which can increase resilience.	Positive emotion impacts on resilience by providing survival means for the community members. The more they survive, the more resilience is increased – D .	The positive emotion might increase resilience by providing safety and by helping to focus on survival .
85	10	These resources last much longer than the initial positive emotions that led to their creation, and they contribute significantly to our long-term well-being and success. These broadened resources also help us cope with stress, and unhappy emotions or situations – essentially, we have stronger skills, and these help us deal better with difficult situations.	This is relevant because positive emotion helps to give longer resources to the individuals in the communities, which can increase resilience.	Positive emotion impacts on resilience by helping to make this resource last longer. The more the resources, the more resilience is increased – D .	Positive emotion may increase resilience by giving longer resources to the communities.
86	10	You then need to make sure that people have the means and resources to build on these positive emotions. This, in turn, can improve morale, strengthen team bonds, boost productivity, encourage innovation, and enhance communication.	This is relevant because positive emotion helps to improve morale of the individuals in the communities, which can increase resilience.	Positive emotion impacts on resilience by helping to encourage innovation. The more the innovations, the more resilience is increased – D .	The positive emotion might increase resilience by helping to improve morale of the people and by encouraging innovation .
87	10	Once your people are experiencing more positive emotions, you can help them build their skills and mental resources by giving them the tools they need to do this.	This is relevant because positive emotion helps to build skills for the individuals in the communities, which can increase resilience.	Positive emotion impacts on resilience by helping to build mental resources. The more the resources, the more resilience is increased – D .	The positive emotion may increase resilience by helping the people build skills and mental resources .
88	11	The broaden-and-build theory of positive emotions predicts that positive emotions broaden the scopes of attention and cognition, and, by	This is relevant because positive emotion helps to	Positive emotion impacts on resilience by helping to	Positive emotion might increase resilience by helping to initiates

		consequence, initiate upward spirals toward increasing emotional well-being. The present study assessed this prediction by testing whether positive affect and broad-minded coping reciprocally and prospectively predict one another.	initiate upward spirals in the communities, which can increase resilience.	increase emotional wellbeing. The more wellbeing is increased, the more resilience is increased – D .	upward spirals toward increasing emotional well-being.
89	11	As hypothesized, regression analyses showed that initial positive affect, but not negative affect, predicted improved broad-minded coping, and initial broad-minded coping predicted increased positive affect, but not reductions in negative affect. Further mediational analyses showed that positive affect and broad-minded coping serially enhanced one another. These findings provide prospective evidence to support the prediction that positive emotions initiate upward spirals toward enhanced emotional wellbeing.	This is relevant because positive emotion helps to enhance broad-minded coping of the individuals, which can increase resilience.	Positive emotion impacts on resilience by helping to increase positive effect in the community. As this is increased, the more resilience increases – D .	The positive emotion might increase resilience by helping to enhances broad-minded coping of the community members.
90	11	Positive emotions feel good. Plus, the balance of people’s positive and negative emotions contributes to judgments of life satisfaction (Diener & Larsen, 1993). Are these the only reasons people should care about positive emotions? We think not. We propose that positive emotions not only feel good in the present, but also increase the likelihood that one will feel good in the future. That is, we suggest that positive emotions trigger upward spirals toward enhanced emotional wellbeing.	This is relevant because positive emotion helps to contribute to the judgments of life satisfactions, which can increase resilience.	Positive emotion impacts on resilience by helping to increase the likelihood that one will feel good in the future. As this is increases, the more resilience increases – D .	The positive emotion might increase resilience by helping to contribute to judgements of life satisfaction.
91	11	Other experiments have shown that positive emotions produce patterns of thought that are notably unusual, flexible, creative, and receptive (Isen, 1987). In general terms, positive emotions “enlarge” the cognitive context (Isen, 1987), an effect linked to increases in brain dopamine (Ashby, Isen, & Turken, 1999).	This is relevant because positive emotion helps to produce notably unusual thoughts in the individuals, which can increase resilience.	Positive emotion impacts on resilience by helping to increase the brain dopamine. As this is increases, the more resilience increases – D .	The positive emotions might increase resilience by helping to produces notably unusual thoughts in the individuals of the communities.
92	11	Finding positive meaning also predicts increases in well-being and health (Davis, Nolen-Hoeksema, & Larson, 1998). The relation between positive meaning and positive emotions is considered reciprocal: Not only does finding positive meaning trigger positive emotion, but also positive emotions—because they broaden thinking—increase the likelihood of finding positive meaning in subsequent events (Fredrickson, 2000).	This is relevant because positive emotion helps to trigger positive meaning in disaster events, which can increase resilience.	Positive emotion impacts on resilience by helping to increase the likelihood of finding positive meaning. As this is increases, the more resilience increases – D .	Positive emotions may increase resilience by helping to trigger positive meaning in disaster events in the communities.
93	11	That is, the effects of positive emotions should accumulate and compound: The broadened attention and cognition triggered by earlier experiences of	This is relevant because positive emotion helps to	Positive emotion impacts on resilience by helping to	The positive emotion might increase resilience by helping to facilitate

		positive emotion should facilitate coping with adversity, and this improved coping should in turn predict future experiences of positive emotion. As this cycle continues, people build their psychological resilience and enhance their emotional well-being.	facilitate coping with adversity, which can increase resilience.	build psychological resilience in the communities. As this is built, the more resilience increases – D .	coping with adversity and build psychological resilience in the communities faced with disasters.
94	11	It may also explain how positive emotions promote longevity (Danner, Snowdon, & Friesen, 2001). Although an isolated experience of positive emotion is unlikely to increase emotional well-being or longevity, the broaden-and-build theory predicts that positive emotions accumulate and compound. The psychological broadening sparked by one positive emotion increases the odds that an individual will find positive meaning in subsequent events and experience additional positive emotions. This upward spiral can, over time, build psychological resources and optimize people's lives.	This is relevant because positive emotion helps to promote longevity of resilience, which can increase resilience.	Positive emotion impacts on resilience by helping to optimize people's lives. As their lives are optimized, the more resilience increases – D .	The positive emotions may increase resilience by helping to promote longevity of resilience and by helping to optimize people's lives .
95	12	Fredrickson's Broaden and Build Theory says that positive emotions such as joy, interest, contentment, love and pride can broaden, or increase, our thoughts and actions. By exploring, savouring, integrating or visualizing future success, positive emotions can broaden our habitual ways of thinking or acting to deliver a better result or feelings about life.	This is relevant because positive emotion helps the people of the communities visualize future success, which can increase resilience.	Positive emotion impacts on resilience by helping to great habitual ways of thinking. As they think more, resilience increases more – D .	The positive emotion might increase resilience by helping the people of the community to visualize future success and cope better.
96	12	Leaders who are more positive tend to have followers who are more positive (Avey, Avolio, & Luthans, 2011).	This is relevant because positive emotion helps to bring about good leadership among the members of the communities, which can increase resilience.	Positive emotion impacts resilience by helping to create good followership in the communities. The more people follow their leaders to do the right things, the more resilience is increased D .	Positive emotion may increase resilience by helping to bring about good leadership and followership in the communities.
97	12	Take time to find things you are grateful for in your life and reflect on what is going well and how you have contributed to those situations. This practice will build more positive emotion.	This is relevant because positive emotion helps to the community members reflect about what is going on well, no matter the situation, which can increase resilience.	Positive emotion impact resilience by helping the community members not to focus only on things that are going on badly. The more they look at bad	Positive emotions might increase resilience by helping the community members to reflect on what is going well in the community and in any situation.

				events, the more resilience decreases – R .	
98	12	Optimism is the belief that one will generally experience good outcomes in life (Scheier & Carver, 1992). People who are optimistic are more likely to be resilient to stressful life events (Carver, Scheier & Segerstrom, 2010). People who are optimistic experience a range of physical and psychological wellbeing benefits and research highlights that: Optimism helps people during times of adversity and has been linked to improved post-operative outcomes, reduced post-natal depression and better readjustment to college life (Scheier & Carver, 1992)	This is relevant because positive emotion helps the community become optimistic, which can increase resilience.	Positive emotion impact resilience by giving the optimistic individuals in the communities a psychological wellbeing and resilience benefit experience. The more they benefit from this, the more resilience increases – D .	Positive emotion may increase resilience by helping the individuals of the communities to be optimistic and have resilience benefits .
99	12	Increases in positive emotions are shown to have a more significant impact on employee wellbeing and a range of other people and performance-related outcomes, than a comparable reduction in levels of employee negative emotions (Cotton & Hart, 2003; Hart, Caballero & Cooper, 2010).	This is relevant because positive emotion helps to give community wellbeing, which can increase resilience.	Positive emotion can impact resilience by given the communities a performance related outcome. The more performance exhibited; the more resilience is increased – D .	Positive emotion might increase resilience by increasing the community well-being and performance for a longer period.
100	12	Life insurance salespeople who were more optimistic salesmen sold more life insurance than less optimistic ones and were less likely to quit their job (Seligman and Schulman, 1986). Young men who had a more pessimistic explanatory style were more likely to experience physical illness in later life (Peterson, Seligman & Vaillant, 1988).	This is relevant because positive emotion gives life insurance to the individuals in the communities, which can increase resilience.	Positive emotion impact resilience by giving the optimistic individuals in the communities a psychological wellbeing and resilience benefit experience. The more they benefit from this, the more resilience increases – D .	Positive emotion might increase resilience by giving life insurance to the individuals in the community, because optimistic people make life assured for others.
101	13	Mediation modelling revealed indirect effects, in that both approach coping and self-help coping predict positive emotions experiencing which, in turn, foster ego-resilience. Accommodation coping directly predicts ego-resilience without the mediation of positive emotions.	This is relevant because positive emotion helps to bring approach and self-help coping among the members of the communities, which can increase resilience.	Positive emotion impact resilience by helping to foster ego-resilience in the communities. The more there is ego-resilience, the	The positive emotion may increase resilience by helping to brings approach and self-help coping in the communities and by fostering ego-resilience .

				more resilience is increased – D .	
102	13	Psychologists described ego-resilience as the “ability to bounce back from negative emotional experiences and by flexible adaptation to the changing demands of stressful experiences” (Tugade & Fredrickson, 2004, p. 320). Coping represents behavioural and cognitive efforts to deal with stressful encounters (Lazarus, 2006).	This is relevant because positive emotion helps the people to deal with stressful encounters, which can increase resilience.	Positive emotion impact resilience by helping the people to adapt to the changing demands of stressful experiences. The more they adapt, the more resilience increases – D .	The positive emotion may increase resilience by helping the people to deal with stressful encounters and helping the people to adapt to the changing demands of stressful experiences .
103	13	According to this theory, PE are the causes and the consequences of broad-minded coping (Fredrickson & Joiner, 2002). Also, they are responsible with building ego-resilience as a psychological resource. Studies which approached the relationship between PE and ego-resilience during and after crises found that people scoring high on trait resilience experienced more PE and these ones, in turn, fostered higher resilience (Fredrickson et. al., 2003; Cohn et. al., 2009).	This is relevant because positive emotion helps the people to score high on trait resilience, which can increase resilience.	Positive emotion impact resilience by helping to foster higher resilience in the communities. The more there is higher resilience, the more resilience they are – D .	Positive emotion might increase resilience by helping the people to score high on trait resilience and by helping to foster higher resilience .
104	13	More specifically, people who tend to maintain their emotional well-being while facing with stress (self-help coping) or involve themselves in problem-solving activities directed at the source of stress (approach coping) are experiencing PE, which, in turn, facilitate ego-resilience. People who accept the impossibility to solve the problems related with the stressors and who find positive meaning for them (accommodation coping) become resilient, without necessarily experiencing PE.	This is relevant because positive emotion helps the people of the communities to maintain their emotion well-being during disaster events, which can increase resilience.	Positive emotion impact resilience by facilitating ego-resilience in the communities. The more this is facilitated, the more resilience is increased – D .	Positive emotion may increase resilience by helping the people to maintain emotional well-being while facing with stress.
105	13	The data obtained could provide support for more clinical applications. Clients could become more resilient, more adaptive in changing demands of stressful experiences (Tugade & Fredrickson, 2004), after using, in the therapeutic context, problem-solving techniques, reframing or emotion-focused techniques. Also, we suppose that using techniques designated to	This is relevant because positive emotion enables the people to use the problem-solving techniques during disaster events, which can increase resilience.	Positive emotion impact resilience by helping the people use emotion-focused techniques during disaster events. The more they can do this, the more resilience increases – D .	Positive emotion might increase resilience by enabling the people to use the problem-solving techniques and the emotion-focused techniques during disaster events.

		stimulate directly PE experiencing could be fertile types of interventions for facilitating therapeutic change and positive adaptation of clients.			
106	14	Positive emotionality, then, emerges as an important element of psychological resilience. Surprisingly, however, few studies have yet to explore specifically why positive emotions are useful: Are positive emotions merely by-products of resilient modes of thinking, or do they serve some function in the ability of resilient individuals to cope effectively in the face of stress?	This is relevant because positive emotion serves as some function in the ability of resilient individuals to cope effectively in the face of stress, which can increase resilience.	Positive emotion impact resilience by emerging as an important element of community resilience. The more this is known, the more resilience is increased – D .	Positive emotion might increase resilience by serving as functions and ability for the communities to cope better in the face of stress.
107	14	Our final hypothesis stated that positive emotions would mediate the effect of resilience on duration of cardiovascular reactivity following the speech preparation task. The statistical analysis framework suggested by Baron and Kenny (1986) was used to test for mediation effects. This entailed conducting three separate equations.	This is relevant because positive emotion helps to mediate effect of resilience during disaster events which can build resilience.	Positive emotion impact resilience by emerging as an important element of community resilience. The more this is known, the more resilience is increased – D .	Positive emotions may increase resilience by helping to mediate effect of resilience during disaster events in the communities.
108	14	Findings from Study 2 provide support for the prediction that positive emotions and appraisals of challenge (vs. threat) are important factors that contribute to psychological resilience. Indeed, these findings are promising because they suggest that those with low levels of psychological resilience are not necessarily destined to poor consequences of emotion regulation: With the use of positive appraisals to generate positive emotion, they also have the capacity to effectively regulate negative emotional experiences.	This is relevant because positive emotions provide supports for the individuals in the communities, which can increase resilience.	Positive emotion impact resilience by helping to predict outcomes during disaster events. The more things are predicted correctly, the more resilience is increased – D .	Positive emotion may increase resilience by helping to provide supports and predictions in the communities during disaster events.
109	14	Throughout this research, we found that high-resilient individuals tend to experience positive emotions even amidst stress. Some might argue that these effects reflect unbridled optimism, or the so-called “Pollyanna effect,” in which individuals tend to focus on more pleasant information.	This is relevant because positive emotion allows the individuals a tendency to focus on more pleasant information’s, which can increase resilience.	Positive emotion impact resilience by showing that individuals tends to show positive emotions amidst stress. The more they tend to do this; the more resilience is increased – D .	Positive emotion may increase resilience by allowing the individuals a tendency to focus on more pleasant information during disaster events.

110	14	They do not recognize the severity of problems, and they perceive no harm in stressful situations (Matlin & Gawron, 1979). According to this interpretation, resilient individuals may not care or are relatively unconcerned about their problems.	This is relevant because positive emotion helps people not careless of the problems, which can increase resilience.	The positive emotion impact resilience by helping the people perceive no harm in stressful situations. The more this is done, the more resilience is increased – D .	Positive emotion might increase resilience by helping the people not careless of the problems or perceive no harm in stressful situations .
111	14	Together, these characteristics set trait resilience apart from similar constructs, such as optimism. Along these lines, the high-resilient participants in our research did not appear blind to negativity: Findings indicated they experienced high levels of anxiety and frustration, indicating that they did indeed recognize the negativity of the stressful situations they encountered (i.e., were not Pollyannish), yet they were able to experience positive emotions even amidst these negative emotions. Thus, positive emotions amidst stress may have advantages in the coping process.	This is relevant because positive emotion helps to give advantages in the coping process, which can increase resilience.	Positive emotion impact resilience by setting resilience traits apart from similar constructs such as optimism. This allows for increase in resilience – D .	Positive emotion might increase resilience by giving the people of the community’s advantages in the coping process .
112	14	An important finding in the current research is that positive emotions contribute to the ability for resilient individuals to physiologically recover from negative emotional arousal. This finding may be especially important in examining the health-promoting qualities associated with positive emotions.	This is relevant because positive emotion makes it able for individuals to recover, which can increase resilience.	Positive emotion impact resilience by showing the health-promoting qualities associated with positive emotions – R .	Positive emotion might increase resilience by making it able for resilience individuals to physiologically recover from negative emotional arousal.
113	14	For example, individuals with greater tendencies to use humour to cope (Lefcourt, Davidson-Katz, & Kueneman, 1990) and who report daily positive mood (Stone et al., 1994) have stronger immune system defences.	This is relevant because positive emotion gives stronger immune system to the individuals in the	Positive emotion impact resilience by helping people to regain and maintain positive	Positive emotion may increase resilience by helping to give stronger immune system to the people in the communities and by helping them

		In addition, people who can regain and maintain positive emotional states are less likely to get sick or to use medical services when faced with stressful events (Goldman, Kraemer, & Salovey, 1996).	communities during disaster events, which can increase resilience.	emotional states. The more this is regained, the more resilience is increased – D.	regain and maintain positive emotional states.
114	15	The Rev. Frank Reuter, pastor of the First Southern Baptist Church in Coalinga, Calif., site of the devastating earthquake last month, recalled: "Three hours after it happened, I saw people throwing Frisbees and setting up tents and campers." Then the elation dissolves rapidly in the face of reality and depression, ranging from mild to extreme, sets in. Finally, recuperation begins.	This is relevant because positive emotions help the community members to recuperate speedily, which can increase resilience.	Positive emotion impacts resilience by helping the people recover after disaster events by restarting lives again. The more they can restart life, the more resilience increases – D.	Positive emotion may increase resilience by allowing for speedy recuperation after disaster events.
115	15	According to Dr. Lystad, "There are six typical initial responses: fear, numbness and shock, confusion and difficulty in making decisions, desire for information, seeking help for oneself and family, and helpfulness to others."	This is relevant because positive emotion allows for seeking help for oneself and family, which can increase resilience.	Positive emotion impact resilience by allowing for helpfulness to others during and after disaster events. The more others help others, the more resilience is increased – D.	Positive emotion might increase resilience by allowing for seeking help for oneself and family and for helpfulness to others during and after disaster events.
116	15	Delayed responses, which can surface months later, include, she said, changes in appetite, headaches, inability to sleep, anger, suspicion, apathy, depression, withdrawal from family and friends, disillusionment with official help, and guilt at not having been able to prevent or avoid the emergency.	This is relevant because positive emotion helps to avoid guilt of not able to prevent the disaster by the communities, which can increase resilience.	Positive emotion impact resilience by helping to encourage against delayed responses, which could hinder resilience growth - R.	Positive emotion may increase resilience by helping the community members to avoid guilt of not able to prevent the disaster and encourage speedy responses.
117	15	The pain can be particularly profound when friends or neighbours are lost, or social support is unavailable or when a home is destroyed. "Losing a home is like losing a limb," said Bill O'Callahan, assistant director of emergency services for the Golden Gate Chapter of the American Red Cross, who arrived in Coalinga three hours after the quake on May 2 and remained for a month.	This is relevant because positive emotion helps to provide social support to the communities, which can increase resilience.	Positive emotion impact resilience by helping to encourage against lack of support, which could hinder resilience growth - R.	Positive emotions may increase resilience by helping to provide social support for the members of the communities.

118	15	Another difficulty is predicting who will make healthy adjustments and who will not. The victim's situation at the time - someone who has recently undergone surgery is likely to experience more emotional turmoil than one who has not, for instance - along with the availability of support systems appear to be among the factors that make a big difference.	This is relevant because positive emotion helps to provide support system to the communities, which can increase resilience.	Positive emotion impact resilience by helping to encourage against lack of support, which could hinder resilience growth - R .	Positive emotions may increase resilience by helping to provide support system for the members of the communities.
119	15	Mr. O'Callahan said. "Some families rediscover themselves and their real values." On the other hand, couples can undergo severe strain if they are unable to comfort each other or if they were already having difficulties. Indeed, the consequences can drastically alter the way partners view each other.	This is relevant because positive emotion helps to provide self-recovery in the communities, which can increase resilience.	Positive emotion impact resilience by helping to encourage against lack of personal support, which could hinder resilience growth - R .	Positive emotions may increase resilience by helping the people to have self-re-discovering in the communities.
120	16	Relatively little research has been done on the experience of positive emotion in traumatic and stressful situations, but it is an important element in psychological resilience (Frederickson et al. 2003). It has tended to be ignored or dismissed by some writers as a form of unhealthy denial (for example, Bowlby 1980), but research has shown 'positive emotions can help reduce levels of distress by quieting or undoing negative emotions and by increasing continued contact with, and support from, important people in the person's social environment' (Bonanno and Keltner 1997	This is relevant because positive emotion helps to reduce levels of distress in the communities, which can increase resilience.	Positive emotion impact resilience by helping to provide supports from important people in the communities. The more supports they provide; the more resilience is increased - D .	Positive emotions may increase resilience by helping to reduce levels of distress among the community members.
121	16	Occurrence of positive psychological states during the stress of care giving has significant implications for our understanding of the coping process. [The latter] has traditionally focused on coping that ... manages or reduces negative states. The co-occurrence of [both] positive and negative psychological states throughout enduring and profoundly stressful circumstances challenges us to consider a model of coping that takes positive states into account. (Folkman 1997 Folkman, S. 1997).	This is relevant because positive emotion helps to reduce negative states in the communities, which can increase resilience.	Positive emotion impact resilience by helping to enhance endurance level in the communities. The more they learn to endure; the more resilience is increased - D .	Positive emotion may increase resilience by helping to reduce negative states and enhance endurance level among the community members.
122	16	For instance, cross-national studies in the UK show that social workers experience enjoyment in relationships and in working with people	This is relevant because positive emotion helps to bring enjoyments among the	Positive emotions impact resilience by helping to make differences in	Positive emotion may increase resilience by bringing enjoyments

		(Cameron 2003). Furthermore, as noted in Collins (in press), social workers have positive feelings about making a difference to people's lives and their communities, being valued, enjoying good colleague relationships, challenging work and a wide variety of tasks.	people, which can increase resilience.	people's lives. The more differences that is made, the more resilience is increased – D .	and helping to make differences in people's lives after disaster events.
123	16	The message again is that positive emotions are common in difficult situations. There are positive outcomes of stress; growth and change are possible amidst considerable demands and there are benefits, possibilities and opportunities (Lazarus 1999 Lazarus, R. 1999).	This is relevant because positive emotion helps to bring about positive changes among the people, which can increase resilience.	Positive emotions impact resilience by helping to bring growths in the communities. The more growth that is made, the more resilience is increased – D .	Positive emotion might increase resilience by helping to bring about possible changes and growth .
124	16	Positive affect has not been entirely neglected in models of stress. For instance, 'it has been discussed in the primary appraisal of stressful situations as challenges, which signals the possibility of mastery or gain and is characterized by positively toned emotions, such as eagerness, excitement and confidence' (Folkman and Moskowitz 2000).	This is relevant because positive emotion helps to bring about possibility of mastery among the people, which can increase resilience.	Positive emotion impacts resilience by helping to create gains in the face of disaster events. The more they see gains; the more resilience is increased – D .	Positive emotion may increase resilience by bringing about possibility of mastery and gains in the communities.
125	16	Hence in social work, even when stress is present, rewards are also evident. Furthermore, in Gibson, McGrath, and Reid's (1989 Gibson, F., McGrath, A. and Reid, N. 1989) study of stressed Northern Ireland social workers, only one in 10 respondents found social work 'dissatisfying' or 'very dissatisfying', with three quarters of respondents finding it 'very satisfying' or 'satisfying'.	This is relevant because positive emotion helps to bring rewards to the people, which can increase resilience.	Positive emotion impacts resilience by helping to bring satisfaction in the communities. The more satisfied, the more resilience is increased – D .	Positive emotion might increase resilience by helping to bring rewards and satisfactions to the community members.

126	16	Coping in social work is a very significant topic, which has been explored in depth (Collins in press). Here we will concentrate on positive emotions and coping. Lazarus, Kanner, and Folkman (1980) suggested that under stressful circumstances where negative emotion predominates, positive emotions can help people cope in three ways. They may: provide a ' <u>breather</u> ', a psychological break; act as a ' <u>sustained</u> ', which enhances self-esteem and feelings of effectiveness; act as a ' <u>restorer</u> ', where people feel resources are replenished and that they are cared about.	This is relevant because positive emotion acts as a sustained to the people of the communities and provide breather, which can increase resilience.	Positive emotion impacts resilience by helping to restore the communities. The more they are restored; the more resilience is increased – D .	Positive emotion might increase resilience by helping to provide breather and acts as a sustained and restorer to the community members.
127	16	Salovey et al. (1999) have discussed emotional intelligence as the ability to monitor one's own and others' feelings and emotions, to use this information to guide thinking and actions when coping with negative circumstances, to learn from life's setbacks, to incorporate the experience and cope more effectively.	This is relevant because positive emotion helps to provide emotional intelligence in the people, which can increase resilience.	Positive emotion impacts resilience by helping the community members learn from lives setbacks. The more they are aware; the more resilience is increased – D .	Positive emotion might increase resilience by helping to provide emotional intelligence in the community members to help them overcome stressful situations.
128	16	Isen (2000) also goes on to emphasize that positive emotion reduces hostility between members of groups and moderates some of the worst effects of discrimination. It enables people to share common themes, encouraging members to treat other groups as members of their own group, with less emphasis on 'outsiders' and 'the other', thus breaking down barriers, for example, between social workers and colleagues from different professional groups.	This is relevant because positive emotions help to reduce hostility between community members and help them share common themes, which can increase resilience.	Positive emotions impact resilience by helping to moderate discriminations among the community members. This reduces resilience – R .	Positive emotion might increase resilience by helping to reduces hostility between members of communities and moderate discrimination and enables people share common themes .

A2: Summary of the categories

RESEARCH CIRCLE 3.2 (CATEGORIZATION)

NO	CATEGORY	PROPOSITION					MEMO
1.	<p>Broadening momentary thought action repertoires</p> <p>Enduring personal resources</p> <p>produce notably unusual thoughts</p>	<p>Positive emotions might increase resilience by broadening momentary thought action repertoires and enduring personal resources of the individuals in a community.</p>	<p>Positive emotions might increase resilience by widening array of thoughts actions of individuals and gives complementary effects to the individuals in a community.</p>	<p>Positive emotions might increase resilience by broadening habitual modes of thinking and acting and creates recurring cycles of urges for the individuals in a community.</p>	<p>Positive emotions might increase resilience by broadening momentary thought action repertoires and enduring personal resources of the individuals in a community.</p>	<p>The positive emotions might increase resilience by helping to produce notably unusual thoughts in the individuals of the communities.</p>	<p>This explains that positive emotions help the people to think wide about actions to take and taking some resources personally to keep them going.</p>
2.	<p>Flourishing the community</p>	<p>Positive emotions might increase resilience in a community by flourishing the community in the present and in a long-term moment.</p>					<p>This indicates that where there are positive emotions in a country, the community tend to flourish both in the short term and long term.</p>
3	<p>Evolutionary adaptive</p>	<p>Positive emotions might increase resilience by making the individuals in the community evolutionary adaptive in-order to survive life-or-death situations.</p>	<p>Positive emotion might increase resilience by giving the people of the community's advantages in the coping process.</p>				<p>This means that positive emotions can makes the individuals in the communities become gradually adaptive.</p>

4	Mobilizing appropriate autonomic support	Positive emotions might increase community resilience by mobilizing appropriate autonomic support for the individuals to react to shocks which is described by specific action tendencies .	Positive emotion might increase resilience by allowing for seeking help for oneself and family and for helpfulness to others during and after disaster events.	Positive emotions may increase resilience by helping to provide social support for the members of the communities.	Positive emotions may increase resilience by helping to provide support system for the members of the communities.		This means that positive emotion can help to great in house supports to in time of disaster events.
5	Urge to be creative and push the limits enabling flexible and creative thinking	Positive emotions might increase resilience by increasing the communities urge to be creative and push the limits in different behaviours due to joy.	Positive emotions might increase resilience by enabling flexible and creative thinking among the community members and by building community resilience.	The positive emotion may increase resilience by helping the people build skills and mental resources .			This says that positive emotion can help the communities become more creative and try to push their luck even in bad situations.
6	Savour current life circumstances Envision greater achievements New possibilities and solutions solution mind-set visualize future success	Positive emotions might increase resilience by increasing the communities urge to savour current life circumstances and envision greater achievements due to contentment and pride.	Positive emotions have the tendency of increasing resilience by providing greater odds of survivals and avoiding genetic encoded experiences in the communities.	Positive emotions may increase resilience by helping the communities see new possibilities and solutions and by helping them move from languishing to flourishing .	Positive emotion may increase resilience by helping the communities have a solution mind-set and seeing beyond the challenges during disasters.	The positive emotion might increase resilience by helping the people of the community to visualize future success and cope better.	This is indicating that positive emotion gives the communities the urge to recover and look forward to achieving resilience.

7	<p>Broadening the scopes of attention and cognition</p> <p>Building their physical, intellectual and social resources</p>	<p>Positive emotions might increase resilience by broadening the scopes of attention, cognition and actions of the individuals in the communities and building their physical, intellectual and social resources.</p>	<p>The positive emotion might increase resilience by helping to enhances broad-minded coping of the community members.</p>				<p>This means that positive emotions can help the people become more attentive to details and improve their intellectuality.</p>
8	<p>Identification of more solutions or more things to be done</p> <p>problem-focused coping</p> <p>Problem-solving techniques</p>	<p>Positive emotions might increase resilience by bring about Identification of more solutions or more things to be done by the community members to withstand disaster.</p>	<p>Positive emotions may increase resilience by providing strategies of problem-focused coping and making the individuals experts of undoing negative effects, thereby fuelling community resilience.</p>	<p>Positive emotions may increase resilience by helping to drive communities to solve problems.</p>	<p>Positive emotion might increase resilience by helping the community members see conflict as an opportunity to grow together and helping them resolve conflict constructively.</p>	<p>Positive emotion might increase resilience by enabling the people to use the problem-solving techniques and the emotion-focused techniques during disaster events.</p>	<p>This shows that positive emotions show the people of more solutions to solve problems and what to do.</p>
9	<p>Functioning as efficient antidotes for the lingering effect of negative emotions</p> <p>Lessen resonance of negative events</p> <p>Undoing the after effect of negative emotions</p>	<p>Positive emotions might increase resilience by functioning as efficient antidotes for the lingering effect of negative emotions or undoing the after effect of negative emotions called the undoing hypothesis.</p>	<p>Position emotions might increase resilience by helping communities lessen resonance of negative events and place the events in their lives in broader context.</p>	<p>Positive emotions may increase resilience by allow positive thoughts overshadow negative thoughts and by helping the individuals of the communities</p>			<p>This signifies that positive emotion can help to undue negative effects that is already in place.</p>

	Undoing hypothesis			know what they deserve.			
10	<p>Show Faster disaster recovery</p> <p>Physiologically recovery</p> <p>Speedy recuperation</p>	Positive emotions might increase resilience by helping the communities show faster disaster recovery.	Positive emotion might increase resilience by making it able for resilience individuals to physiologically recover from negative emotional arousal.	Positive emotion may increase resilience by allowing for speedy recuperation after disaster events.			The communities and disaster agents will show quick recovery once they have positive emotions in them.
11	<p>Improve psychological well-being and physical health</p> <p>Initiates upward spirals</p>	Positive emotions might increase resilience by helping the communities improve their psychological well-being and physical health. It may also help them cope with negative emotions.	Positive emotion might increase resilience by helping to initiates upward spirals toward increasing emotional well-being.				This proves that those with positive emotions improve their health and psychological wellbeing.
12	<p>Higher levels of happiness and interest</p> <p>contribute to judgements of life satisfaction</p>	Positive emotions may increase resilience by bringing about higher levels of happiness and interest among the community members.	The positive emotion may increase resilience by helping the community members to broaden behaviours and by giving happiness to the people.	The positive emotion might increase resilience by helping to contribute to judgements of life satisfaction.	Positive emotion may increase resilience by bringing enjoyments and helping to make differences in people's lives after disaster events.		People with positive emotions exhibit happiness and interest to move forward and recover.

13	Development of long-term plans and goals Longer resources	Positive emotions might increase resilience by enhancing subsequent emotional well-being of the individuals in the community and helps in developing long-term plans and goals.	Positive emotion may increase resilience by giving longer resources to the communities.				Community members with positive emotion tend to have proper plans and goals for the future.
14	Positive meaning Trigger positive meaning	Positive emotions might increase resilience by helping communities find positive meaning and become broad thinkers .	Positive emotion may increase resilience by helping the communities see things from the brighter side and giving them something to look up to .	Positive emotions may increase resilience by helping the communities see the good in every difficult situation and giving them strength to withstand .	Positive emotions may increase resilience by helping to trigger positive meaning in disaster events in the communities.	Positive emotions might increase resilience by helping the community members to reflect on what is going well in the community and in any situation.	Communities with positive emotion find positive meanings even in the face of disaster and distress.
15	Broad-minded coping skills and feeling good Ability to cope Strength to withstand Advantage in the coping process build an arsenal of effective coping resources	Positive emotions may increase resilience by making the communities feel good and become more resilient and by helping them develop broad-minded coping skills.	Positive emotions may increase resilience by given the communities the ability to cope better during disaster.	Positive emotions may increase resilience by helping the communities see the good in every difficult situation and giving them strength to withstand .	Positive emotion might increase resilience by helping to provide advantage in the coping process of the communities during disaster risk.	Positive emotion might increase resilience by helping to prompt the pursue of novel and creative thoughts during disasters and helping to build an arsenal of effective coping resources.	The community with positive emotion feels good all the time and have a broad thinking mind.

16	<p>Individual growth and social connection</p> <p>Individual transformation</p>	Positive emotions may increase resilience by being vehicles for individual growth and social connection and by transforming individuals in the community for the better.	Positive emotion might increase resilience by helping to bring about possible changes and growth.				Positive emotion can transform the lives of the individuals in the community and helping them grow.
17	<p>reach out to others for comfort and supports</p> <p>Gateway to resilient action</p>	Positive emotions may increase resilience by becoming a gateway to resilient action and by helping the communities reach out to others for comfort and supports.	Positive emotion may increase resilience by helping the individuals of the communities learn how to use humour and laughter to reduce stress.	Positive emotions may increase resilience by helping to reduce levels of distress among the community members.			Communities with positive emotion have comforts and support each other, which can lead them to being resilient.
18	<p>Reduce stress and disaster risk</p> <p>Recover from setbacks</p> <p>manage stress</p>	Positive emotions may increase resilience by helping to reduce stress and disaster risk and by improving the mental and social health of the individuals in the communities.	Positive emotions may increase resilience by helping to produce resilience and help the communities to recover from setbacks.	Positive emotion may increase resilience by helping to increase probability of communities overcoming challenges and reinforces position behaviour that are focused on solving the problems.	Positive emotion might increase resilience by helping to buffer against stress and establishes enhanced outcomes in well-being in the communities.	Positive emotions may increase resilience by helping the communities connect with feelings and manage stress.	Positive emotion will go a long way to reduce disaster risk as it helps the communities move on gradually.

19	<p>Build resonant connections</p> <p>Learn new skills</p> <p>Build stronger relationships</p>	Positive emotions may increase resilience by helping the communities build resonant connections and by making them learn new skills and new ways of being.	Positive emotion may increase resilience by helping to build stronger relationships amongst the individuals in the community and by helping to achieve personal goals by the individuals.	Positive emotion might increase resilience by assisting the community member's working well together and develop fruitful relationship.	Positive emotion may increase resilience by bringing about possibility of mastery and gains in the communities.	Positive emotion might increase resilience by helping to bring rewards and satisfactions to the community members.	Positive emotions help the community to increase their connections and come together to learn new ways to deal with disaster risk.
20	<p>Reset and rebound</p> <p>Rediscover themselves and strengths</p> <p>psychological resilience</p>	Positive emotions may increase resilience by helping the communities reset and rebound and by undoing the impact of negative emotions.	Positive emotions may increase resilience by helping the individuals rediscover themselves and strengths and help them push forward during tough times.	Positive emotion might increase resilience by creating efficient emotional regulation and by helping the communities rebound from and find positive meaning in stressful encounters.	Positive emotions may increase resilience by helping the communities manage core feelings and manage stress during disasters.	The positive emotion might increase resilience by helping to facilitate coping with adversity and build psychological resilience in the communities faced with disasters.	Positive emotion can help the communities, get back to normal, by re-organizing themselves for a comeback.
21	<p>Spontaneous and accurate decision making</p>	Positive emotions may increase resilience by leading to more optimism of the communities and allows for spontaneous and accurate decision making among the community members.					People tend to make good and immediate decisions when they have positive emotion.

22	Deeper self-acceptance and make lasting contributions	Positive emotions may increase resilience by allowing for deeper self-acceptance in the communities and by helping individuals make lasting contributions to the community.	Positive emotions may increase resilience by helping the communities break the grip of rumination and by helping the communities become more mindful and attend to inner experience with awareness and acceptance.	Positive emotions may increase resilience by helping the people to have self-re-discovering in the communities.			Positive emotions can make the individuals accept themselves even after disaster events and contribute till the end.
23	Sense of capacity and competence	Positive emotions may increase resilience by helping the community's dispute negative thinking during disaster and by given the community members a sense of capacity and competence.	The positive emotion may increase resilience by helping the people to deal with stressful encounters and helping the people to adapt to the changing demands of stressful experiences.				Positive emotion can help the people of the communities believe that they are competent enough to handle disaster events.
24	Expand tolerance and love avoid gossip and sarcasm paying attention	Positive emotions may increase resilience by helping the communities defuse negativity landmines and by helping them expand tolerance and love and avoid gossip and sarcasm.	Positive emotion may increase resilience by helping the community members paying attention to others in time of need and distress.				Positive emotion can help the people tolerate each other and showing love to all.

25	Faith in God Optimistic	Positive emotions may increase resilience by driving the people to cope during disaster risk and by helping them have faith in God .	Positive emotion may increase resilience by helping the individuals of the communities to be optimistic and have resilience benefits.				People with positive emotion always have faith in God that they will stay alive and overcome shocks during disaster events.
26	Positive energy and attitude Resign to fate	Positive emotions may increase resilience by helping to prevent the people not to give up rather feel them with positive energy.	Positive emotions may increase resilience by helping to prevent people from giving up .	Positive emotions may increase resilience by making people in the community succeed and by given them positive attitude.	Positive emotion may increase resilience by stopping the communities from quitting and helping them resign to fate.		People with positive emotion get energy to carry out activities and not giving up.
27	Strong backbone Functions and ability	Positive emotions may increase resilience by being a strong backbone for the people to withstand shocks and disaster risks.	Positive emotion might increase resilience by serving as functions and ability for the communities to cope better in the face of stress.				Positive emotion is very important that it is needed by everyone to be able to withstand shocks and stay alive.
28	Self-determination and communication skills	Positive emotions may increase resilience by making the individuals in the community have self-determination and communication skills.	Positive emotion might increase resilience by allowing for effective communication and helping the individuals in the communities understand what others are experiencing emotionally.	Positive emotion might increase resilience by helping the individuals become aware of non-verbal communication in order to make sure they do not hurt other feelings.			Positive emotion gives the people the ability to be determined and communicate properly either to get help or to teach people how to survive.

29	Hope and Stronger	Positive emotion may increase resilience by giving hope to the communities to changing factor of adversity and making them also stronger.					Communities with positive emotions are stronger communities that have got so much hope.
30	Application of experience Concentrating on positive results	Positive emotion might increase resilience by helping the communities apply experience to stabilize their future activities and help them concentrate on attaining positive results.	Positive emotion might increase resilience by helping to play significant roles in the lives of resilience people and help individuals learn from life's setbacks and cope more effectively.				Communities with positive emotion apply past experiences in to help their future. In order words, they do not make the mistakes of the past, they concentrate more on the positive results.
31	Self-reliance	Positive emotion may increase resilience by helping the communities lighten up their moment of self-reliance in whatever they do that incurs positive into their lives.	Positive emotion may increase resilience by creating comfort and self-reliance for the individuals in the communities and helping them do what they love to do and remaining healthy.				Positive emotion community is self-reliance. They do not wait for anybody before withstanding adversities.
32	Creates good environmental condition positive impulse	Positive emotion may increase resilience by allowing a good environmental condition and making the individuals see a positive impulse.	Positive emotions might increase resilience by helping the communities make choices and control impulsive feelings and by helping the individuals follow through commitments.				A positive emotion community is always full of good environment.

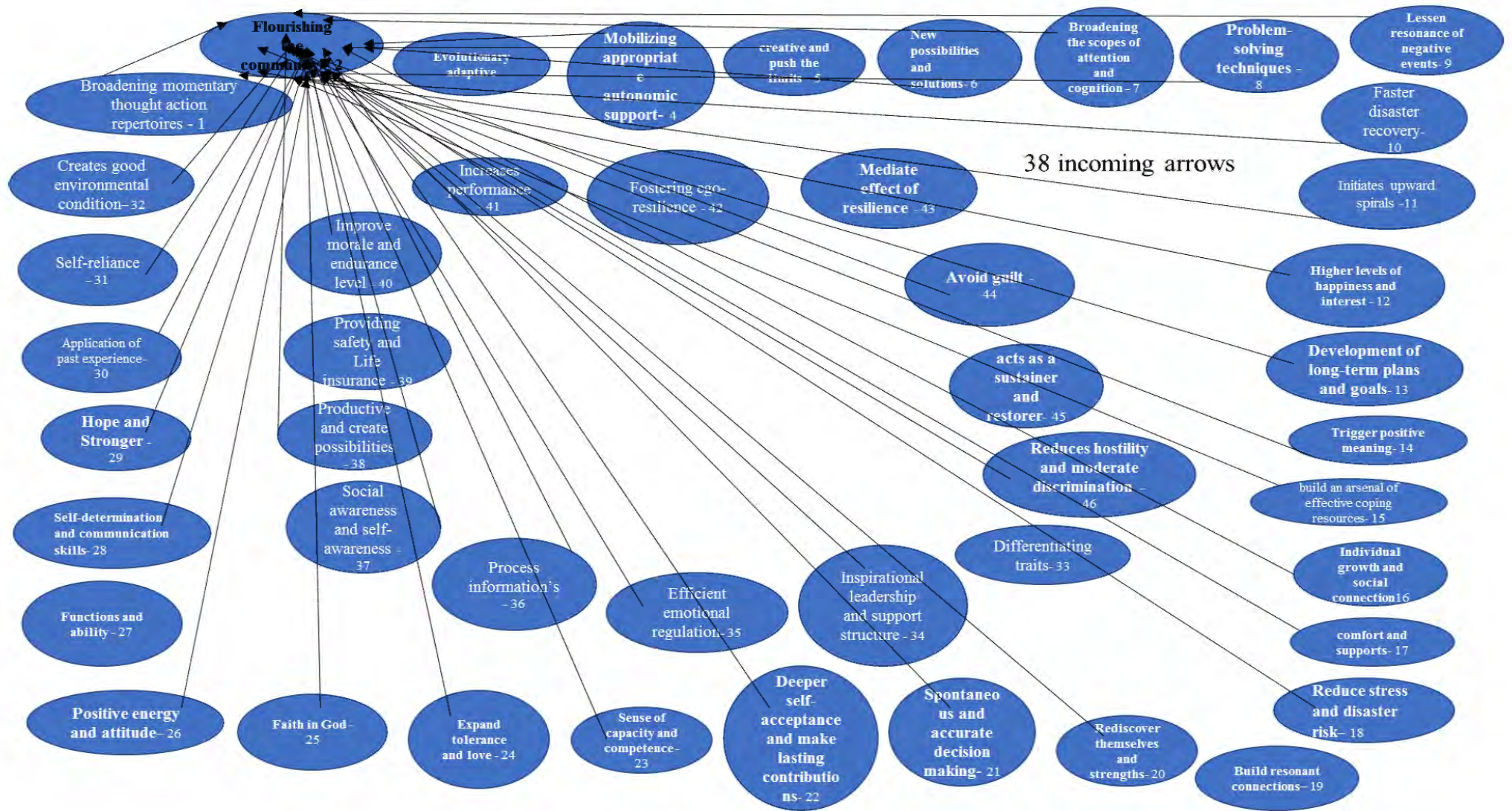
33	Differentiating traits	Positive emotion might increase resilience by differentiating traits of successful people from those not successful and by giving a positive attitude .	Positive emotion might increase resilience by helping the people to score high on trait resilience and by helping to foster higher resilience .				Positive emotion allows you to know the successful people in the communities, which can help others become resilient.
34	Inspirational leadership and support structure provide supports and predictions	Positive emotion might increase resilience by bringing inspirational leadership and support structure in the communities.	Positive emotion may increase resilience by helping the to bring about good leadership and followership in the communities.	Positive emotion may increase resilience by helping to provide supports and predictions in the communities during disaster events.			Positive emotion individuals can become leaders in the communities and inspire others and providing support structures for all.
35	Efficient emotional regulation maintain emotional well-being Emotional intelligence	Positive emotion might increase resilience by creating efficient emotional regulation and by helping the communities rebound from and find positive meaning in stressful encounters.	Positive emotion may increase resilience by helping the people to maintain emotional well-being while facing with stress.	Positive emotion may increase resilience by helping to give stronger immune system to the people in the communities and by helping them regain and maintain positive emotional states .	Positive emotion might increase resilience by helping to provide emotional intelligence in the community members to help them overcome stressful situations.		Positive emotion can help the people regulate their emotions in the right ways.
36	Process information's Urge to take in new information and	Positive emotion might increase resilience by helping to guide ones thinking and actions and help to process information's better	Positive emotions might increase resilience by increasing the communities urge to take in new information and experiences, explore	The positive emotion may increase resilience by helping to make the community	Positive emotion may increase resilience by allowing the individuals a tendency to focus		Positive emotion helps the individual's process the information's given to them during and after disaster events.

	<p>experiences, explore and expand</p> <p>open and receptive to new ideas</p> <p>focus on more pleasant information</p>	among the individuals of the communities.	and expand due to interest.	member's open and receptive to new ideas and make them more effective in a longer term.	on more pleasant information during disaster events.		
37	<p>Social awareness and self-awareness</p> <p>cultivate mindfulness</p>	Positive emotion may increase resilience by helping to increase social awareness among the people in the communities.	Positive emotion may increase resilience by helping to increase self-awareness among the people in the communities.	Positive emotions might increase resilience by helping the communities cultivate mindfulness on the present and the future.	Positive emotion might increase resilience by helping the people not careless of the problems or perceive no harm in stressful situations.		Positive emotion individuals are always aware of disaster events and what they need to do.
38	Productive and create possibilities	The positive emotion might increase resilience by helping the communities become productive and create possibilities.					Positive emotion allows the communities to be productive in all their endeavours.
39	Providing safety and Life insurance	The positive emotion might increase resilience by providing safety and by helping to focus on survival.	The positive emotions may increase resilience by helping to promote longevity of resilience and by helping to optimize people's lives.	Positive emotion might increase resilience by giving life insurance to the individuals in the community, because optimistic people			Positive emotion communities are always safe as they can withstand shocks and focus on survival disaster risks only.

				make life assured for others.			
40	Improve morale Encouraging innovation enhance endurance level	The positive emotion might increase resilience by helping to improve morale of the people and by encouraging innovation.	Positive emotion may increase resilience by helping to reduce negative states and enhance endurance level among the community members.				The positive emotion makes communities have confident and helps them to do extraordinary things to be safe.
41	Increases performance	Positive emotion might increase resilience by increasing the community well-being and performance for a longer period.					Positive emotion communities can increase or improve their performances and be successful.
42	Fostering ego-resilience	The positive emotion may increase resilience by helping to bring approach and self-help coping in the communities and by fostering ego-resilience.					When the people can help themselves, their positive emotion is increased, thereby given them ego-resilience.
43	Mediate effect of resilience	Positive emotions may increase resilience by helping to mediate effect of resilience during disaster events in the communities.					Positive emotion can be used to moderate or judge resilience individuals' people.

44	Avoid guilt	Positive emotion may increase resilience by helping the community members to avoid guilt of not able to prevent the disaster and encourage speedy responses.					Positive emotion helps the people to move on instead thinking it is their fault that disaster events occurred.
45	provide breather acts as a sustained and restorer	Positive emotion might increase resilience by helping to provide breather and acts as a sustained and restorer to the community members.					Positive emotion helps the individuals to relax even in the face of distress and help to sustain and restore the communities.
46	Reduces hostility and moderate discrimination	Positive emotion might increase resilience by helping to reduces hostility between members of communities and moderate discrimination and enables people share common themes.					Positive emotion helps to avoid violence and discrimination among the members of the communities.

A3: Summary of the reduction sampling step 1



A4: Summary of the reduction sampling step 2

RESEARCH CIRCLES 4.3 STEP 2 (REDUCTION SAMPLING)

CATEGORIES	Deeper self-acceptance, self-determination and efficient emotional regulation	Expand tolerance, hope and love	Reduce stress, disaster risk and mobilizing appropriate autonomic support	Avoid guilt and problem-solving techniques	Increases performance, creative and push the limits	Flourishing the community and rediscover themselves and strength	Lesson resonance of negative events	Improve morale and endurance level
REF. NO:	32	34	35	36	37	38	39	42
RENAMED CATEGORIES	Ability to manage emotions	Ability to improve tolerance level	Level of stress management	Ability to avoid guilt	Effect of pushing limits to increase performances	Level of self-determination to govern the community	Effect of undoing the consequences of negative events	Ability to improve morale level
	Positive emotions may increase resilience by allowing for deeper self-acceptance in the communities and by helping individuals make	Positive emotions may increase resilience by helping the communities defuse negativity landmines and by helping them expand tolerance and love and	Positive emotions might increase community resilience by mobilizing appropriate autonomic support for the individuals to	Positive emotion may increase resilience by helping the community members to avoid guilt of not able to prevent the disaster and encourage	Positive emotion might increase resilience by increasing the community well-being and performance for a longer period.	Positive emotions might increase resilience in a community by flourishing the community in the present and in a long-term moment.	Positive emotions might increase resilience by functioning as efficient antidotes for the lingering effect of negative emotions or undoing the after effect of negative	The positive emotion might increase resilience by helping to improve morale of the people and by encouraging innovation.

	lasting contributions to the community.	avoid gossip and sarcasm.	react to shocks which is described by specific action tendencies .	speedy responses.			emotions called the undoing hypothesis.	
	Positive emotions may increase resilience by helping the communities break the grip of rumination and by helping the communities become more mindful and attend to inner experience with awareness and acceptance .	Positive emotion may increase resilience by helping the community members paying attention to others in time of need and distress.	Positive emotion might increase resilience by allowing for seeking help for oneself and family and for helpfulness to others during and after disaster events.	Positive emotions might increase resilience by bring about Identification of more solutions or more things to be done by the community members to withstand disaster.	Positive emotion may increase resilience by allowing a good environmental condition and making the individuals see a positive impulse.	Positive emotions may increase resilience by helping the communities reset and rebound and by undoing the impact of negative emotions .	Position emotions might increase resilience by helping communities lessen resonance of negative events and place the events in their lives in broader context .	Positive emotion may increase resilience by helping to reduce negative states and enhance endurance level among the community members.
	Positive emotions may increase resilience by helping the people to have self-re-	Positive emotion may increase resilience by giving hope to the communities to changing factor of adversity and	Positive emotions may increase resilience by helping to provide social support for the	Positive emotions may increase resilience by providing strategies of problem-focused coping and making the	Positive emotions might increase resilience by helping the communities make choices and control impulsive	Positive emotions may increase resilience by helping the individuals rediscover themselves and strengths and	Positive emotions may increase resilience by allow positive thoughts overshadow negative thoughts and by	Positive emotions might increase resilience by making the individuals in the community evolutionary adaptive in-order

	discovering in the communities.	making them also stronger.	members of the communities.	individuals experts of undoing negative effects , thereby fuelling community resilience.	feelings and by helping the individuals follow through commitments.	help them push forward during tough times.	helping the individuals of the communities know what they deserve.	to survive life-or-death situations.
	Positive emotions may increase resilience by making the individuals in the community have self-determination and communication skills.	Positive emotions might increase resilience by broadening momentary thought action repertoires and enduring personal resources of the individuals in a community.	Positive emotions may increase resilience by helping to provide support system for the members of the communities.	Positive emotions may increase resilience by helping to drive communities to solve problems.	Positive emotions might increase resilience by increasing the communities urge to be creative and push the limits in different behaviours due to joy.	Positive emotion might increase resilience by creating efficient emotional regulation and by helping the communities rebound from and find positive meaning in stressful encounters.	The positive emotion might increase resilience by providing safety and by helping to focus on survival.	Positive emotion might increase resilience by giving the people of the community's advantages in the coping process.
	Positive emotion might increase resilience by allowing for effective communication and helping the individuals in the communities	Positive emotions might increase resilience by widening array of thoughts actions of individuals and gives complementary	Positive emotions may increase resilience by helping to reduce stress and disaster risk and by improving the	Positive emotion might increase resilience by helping the community members see conflict as an opportunity to grow together	Positive emotions might increase resilience by enabling flexible and creative thinking among the community members and by building	Positive emotions may increase resilience by helping the communities manage core feelings and	The positive emotions may increase resilience by helping to promote longevity of resilience and by helping to	Positive emotions might increase resilience by helping the communities improve their psychological well-being and physical health. It

	understand what others are experiencing emotionally.	effects to the individuals in a community.	mental and social health of the individuals in the communities.	and also helping them resolve conflict constructively.	community resilience.	manage stress during disasters.	optimize people’s lives.	may also help them cope with negative emotions.
	Positive emotion might increase resilience by helping the individuals become aware of non-verbal communication to make sure they do not hurt other feelings.	Positive emotions might increase resilience by broadening habitual modes of thinking and acting and creates recurring cycles of urges for the individuals in a community.	Positive emotions may increase resilience by helping to produce resilience and help the communities to recover from setbacks.	Positive emotion might increase resilience by enabling the people to use the problem-solving techniques and the emotion-focused techniques during disaster events.	The positive emotion may increase resilience by helping the people build skills and mental resources.	The positive emotion might increase resilience by helping to facilitate coping with adversity and build psychological resilience in the communities faced with disasters.	Positive emotion might increase resilience by giving life insurance to the individuals in the community, because optimistic people make life assured for others	Positive emotion might increase resilience by helping to initiates upward spirals toward increasing emotional well-being.
	Positive emotion might increase resilience by creating efficient emotional regulation and by helping the communities rebound from and find positive meaning in	Positive emotions might increase resilience by broadening momentary thought action repertoires and enduring personal resources of the individuals in a community.	Positive emotion may increase resilience by helping to increase probability of communities overcoming challenges and reinforces position behaviour that	Positive emotions might increase resilience by increasing the communities urge to savour current life circumstances and envision greater achievements due	Positive emotions might increase resilience by enhancing subsequent emotional well-being of the individuals in the community and helps in developing long-	Positive emotions might increase resilience by helping communities find positive meaning and become broad thinkers.		Positive emotions may increase resilience by being vehicles for individual growth and social connection and by transforming individuals in the

	stressful encounters.		are focused on solving the problems.	to contentment and pride.	term plans and goals.			community for the better.
	Positive emotion may increase resilience by helping the people to maintain emotional well-being while facing with stress.	The positive emotions might increase resilience by helping to produce notably unusual thoughts in the individuals of the communities.	Positive emotion might increase resilience by helping to buffer against stress and establishes enhanced outcomes in well-being in the communities.	Positive emotions have the tendency of increasing resilience by providing greater odds of survivals and avoiding genetic encoded experiences in the communities.	Positive emotion may increase resilience by giving longer resources to the communities.	Positive emotion may increase resilience by helping the communities see things from the brighter side and giving them something to look up to.		Positive emotion might increase resilience by helping to bring about possible changes and growth.
	Positive emotion may increase resilience by helping to give stronger immune system to the people in the communities and by helping them regain and maintain positive	Positive emotions might increase resilience by broadening the scopes of attention, cognition and actions of the individuals in the communities and building their physical,	Positive emotions may increase resilience by helping the communities connect with feelings and manage stress.	Positive emotions may increase resilience by helping the communities see new possibilities and solutions and by helping them move from languishing to flourishing.	Positive emotions may increase resilience by being a strong backbone for the people to withstand shocks and disaster risks.	Positive emotions may increase resilience by helping the communities see the good in every difficult situation and giving them strength to withstand.		

	emotional states.	intellectual and social resources.						
	Positive emotion might increase resilience by helping to provide emotional intelligence in the community members to help them overcome stressful situations.	The positive emotion might increase resilience by helping to enhances broad-minded coping of the community members.	Positive emotions might increase resilience by helping the communities show faster disaster recovery.	Positive emotion may increase resilience by helping the communities have a solution mind-set and seeing beyond the challenges during disasters.	Positive emotion might increase resilience by serving as functions and ability for the communities to cope better in the face of stress.	Positive emotions may increase resilience by helping to trigger positive meaning in disaster events in the communities.		
	Positive emotions may increase resilience by making the communities feel good and become more resilient and by helping them develop broad-minded coping skills.	Positive emotions may increase resilience by bringing about higher levels of happiness and interest among the community members.	Positive emotion might increase resilience by making it able for resilience individuals to physiologically recover from negative emotional arousal.	The positive emotion might increase resilience by helping the people of the community to visualize future success and cope better.	Positive emotion might increase resilience by helping to guide ones thinking and actions and help to process information's better among the individuals of the communities.	Positive emotions might increase resilience by helping the community members to reflect on what is going well in the community and in any situation.		

	Positive emotions may increase resilience by given the communities the ability to cope better during disaster.	The positive emotion may increase resilience by helping the community members to broaden behaviours and by giving happiness to the people.	Positive emotion may increase resilience by allowing for speedy recuperation after disaster events.	Positive emotions may increase resilience by helping the communities build resonant connections and by making them learn new skills and new ways of being .	Positive emotions might increase resilience by increasing the communities urge to take in new information and experiences, explore and expand due to interest.	Positive emotion may increase resilience by helping the communities lighten up their moment of self-reliance in whatever they do that incurs positive into their lives.		
	Positive emotions may increase resilience by helping the communities see the good in every difficult situation and giving them strength to withstand.	The positive emotion might increase resilience by helping to contribute to judgements of life satisfaction.	Positive emotions may increase resilience by becoming a gateway to resilient action and by helping the communities reach out to others for comfort and supports.	Positive emotion may increase resilience by helping to build stronger relationships amongst the individuals in the community and by helping to achieve personal goals by the individuals.	The positive emotion may increase resilience by helping to make the community member's open and receptive to new ideas and make them more effective in a longer term .	Positive emotion may increase resilience by creating comfort and self-reliance for the individuals in the communities and helping them do what they love to do and remaining healthy .		
	Positive emotion might increase resilience by helping to	Positive emotion may increase resilience by bringing	Positive emotion may increase resilience by helping the	Positive emotion might increase resilience by assisting the	Positive emotion may increase resilience by allowing the	Positive emotion may increase resilience by allowing a good		

	provide advantage in the coping process of the communities during disaster risk.	enjoyments and helping to make differences in people's lives after disaster events.	individuals of the communities learn how to use humour and laughter to reduce stress.	community member's working well together and develop fruitful relationship .	individuals a tendency to focus on more pleasant information during disaster events.	environmental condition and making the individuals see a positive impulse.		
	Positive emotion might increase resilience by helping to prompt the pursue of novel and creative thoughts during disasters and helping to build an arsenal of effective coping resources.	Positive emotions may increase resilience by driving the people to cope during disaster risk and by helping them have faith in God .	Positive emotions may increase resilience by helping to reduce levels of distress among the community members.	Positive emotion may increase resilience by bringing about possibility of mastery and gains in the communities.	The positive emotion might increase resilience by helping the communities become productive and create possibilities .	Positive emotions might increase resilience by helping the communities make choices and control impulsive feelings and by helping the individuals follow through commitments .		
	Positive emotions may increase resilience by leading to more optimism of the communities and allows for spontaneous and	Positive emotion may increase resilience by helping the individuals of the communities to be optimistic and	Positive emotion might increase resilience by bringing inspirational leadership and support structure	Positive emotion might increase resilience by helping to bring rewards and satisfactions to the community members.				

	accurate decision making among the community members.	have resilience benefits.	in the communities.					
	Positive emotion might increase resilience by differentiating traits of successful people from those not successful and by giving a positive attitude.	Positive emotions may increase resilience by helping to prevent the people not to give up rather feel them with positive energy.	Positive emotion may increase resilience by helping to bring about good leadership and followership in the communities.	Positive emotions may increase resilience by helping the community's dispute negative thinking during disaster and by given the community members a sense of capacity and competence.				
	Positive emotion might increase resilience by helping the people to score high on trait resilience and by helping to foster higher resilience.	Positive emotions may increase resilience by helping to prevent people from giving up.	Positive emotion may increase resilience by helping to provide supports and predictions in the communities during disaster events.	The positive emotion may increase resilience by helping the people to deal with stressful encounters and helping the people to adapt to the changing demands of				

				stressful experiences.				
	Positive emotion might increase resilience by helping to provide breather and acts as a sustainer and restorer to the community members.	Positive emotions may increase resilience by making people in the community succeed and by given them positive attitude.	The positive emotion may increase resilience by helping to bring approach and self-help coping in the communities and by fostering ego-resilience.	Positive emotion might increase resilience by helping the communities apply experience to stabilize their future activities and help them concentrate on attaining positive results.				
		Positive emotion may increase resilience by stopping the communities from quitting and helping them resign to fate.	Positive emotions may increase resilience by helping to mediate effect of resilience during disaster events in the communities.	Positive emotion might increase resilience by helping to play significant roles in the lives of resilience people and help individuals learn from life's setbacks and cope more effectively.				

			Positive emotion might increase resilience by helping to reduce hostility between members of communities and moderate discrimination and enables people share common themes.	Positive emotion may increase resilience by helping to increase social awareness among the people in the communities.				
				Positive emotion may increase resilience by helping to increase self-awareness among the people in the communities.				
				Positive emotions might increase resilience by helping the communities cultivate mindfulness on				

				the present and the future.				
				Positive emotion might increase resilience by helping the people not careless of the problems or perceive no harm in stressful situations.				

A5: Summary of the theoretical sampling

RESEARCH CIRCLES 4.4 (THEORETICAL SAMPLING)

CATEGORIES	Deeper self-acceptance, self-determination and efficient emotional regulation	Expand tolerance, hope and love	Reduce stress, disaster risk and mobilizing appropriate autonomic support	Avoid guilt and problem-solving techniques	Increases performance, creative and push the limits	Flourishing the community and rediscover themselves and strength	Lesson resonance of negative events	Improve morale and endurance level
REF. NO:	32	34	35	36	37	38	39	42
RENAMED CATEGORIES	Ability to manage emotions	Ability to improve tolerance level	Level of stress management	Ability to avoid guilt	Effect of pushing limits to increase performances	Level of self-determination to govern the community	Degree of undoing the consequences of negative events	Ability to improve morale level
	Self-acceptance is defined as “an individual’s acceptance of all of his/her attributes, positive or negative.” It includes body	People have different preferences and when choosing the audios solely for relaxation or for sleep, it is best to choose them according to your	Stress is a feeling of being under abnormal pressure. This pressure can come from different aspects of your day to day life. Such as an	Natural disasters such as floods, bushfires and earthquakes can cause people to experience unusually strong reactions which may interfere	Support innovation. To stay ahead, innovation is required. The most successful businesses are those that remain flexible and	When allowed to govern themselves, indigenous peoples demonstrate remarkable capacity to innovate in	Affect plays an important functional role in coping with stress. Both positive and negative affect co- occurs during stressful	It's the small things every day that can bring down employee morale and it's the small things every day that can raise it as well. When

<p>acceptance, self-protection from negative criticism, and believing in one's capacities.</p> <p>Some people with low self-acceptance try to bolster it by accomplishing great things. But this only helps your self-esteem for a while. That's because achievement is a poor substitute for intimacy. In addition, these people are often under the impression that "taking it" when suffering is the main reflection of their value. It's hard for them to believe</p>	<p>preferences. However, if you want to learn how to use them as a mindful method to develop emotional tolerance, it is important to expand beyond what you like. Emotional tolerance is the ability to bear uncomfortable emotions without a strong negative reaction.</p>	<p>increased workload, a transitional period, an argument you have with your family or new and existing financial worries. You may find that it has a cumulative effect, with each stressor building on top of one another.</p> <p>During these situations you may feel threatened or upset and your body might create a stress response. This can cause a variety of physical symptoms, change the way you behave, and lead you to experience more</p>	<p>with their normal ability to function. Although each person will react differently there are common responses that are experienced by those involved in, or those with family or friends affected by such events. Your response will depend on your personal circumstance, temperament and life at the time. Some people react immediately, some after a period, some intensely and some have</p>	<p>innovative and build on current successes without consistently overtaxing their teams. It can be difficult to demand innovation and creativity, but you can help set up a workplace that supports them. Ideas flow more readily in a relaxed and agile work environment.</p> <p>Allow team members to work when they feel most productive, whether that's the middle of the night or 5 a.m. Encourage regular breaks and informal brainstorming sessions. Celebrate breakthroughs, and don't get hung up</p>	<p>culturally appropriate, environmentally sensitive ways. Indeed, self-governance has proved the most effective tool to overcome challenges that history and modernity have imposed on indigenous peoples around the globe.</p>	<p>experiences. Unlike previously, there is an increased effort to examine the adaptation significance of positive affect. Empirical evidence illustrates how positive affect helps to deal with stress effectively and overcome its harmful consequences quickly. Positive affect predisposes one to appraise the stressful situation as challenging, fostering hope, and belief that it may be beneficial in some way. While the coping processes used to deal with stress</p>	<p>money is tight and raises are non-existent or when the heavy workload seems never-ending, managers tend to forget the "basics" of management- that the supervisor's recognition and appreciation are the key drivers for employee motivation and morale.</p> <p>Here are seven quick, inexpensive things managers can do that will keep workers motivated during tough times.</p>
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	<p>in genuine caring, and when it does come their way, they are suspicious of it.</p> <p>Of course, self-acceptance (or lack thereof) does not exist in a vacuum — it has profound effects on your physical and psychological health. For that reason, it is worth understanding what these effects are, and what you can do about it.</p>		<p>intense emotions.⁵</p> <p>Stress affects us in several ways, both physically and emotionally and in varying intensities.¹</p>	<p>delayed responses.</p>	<p>on attempts that didn't succeed.</p>		<p>tend to generate and sustain positive affect.</p>	
	<p>Without self-acceptance, your psychological well-being can</p>	<p>Comfort with the unpleasant. How many times do you say to yourself "I</p>	<p>Everyone experiences stress. However, when it is</p>	<p>Coming to terms with devastating events requires significant</p>	<p>Leadership matters. Innovation comes from inspiration.</p>	<p>Recent research by Stephen Cornell (University of</p>	<p>Most of the research in coping with stress has</p>	<p>Say thank you. Show appreciation for</p>

<p>suffer, and often, beneficial interventions are less helpful for you than for others with higher self-acceptance.</p> <p>For example, practicing mindfulness can help many people reduce the impact of stress. But when you cannot accept yourself, it becomes less effective. Also, if you have a physical illness such as rheumatoid arthritis, not accepting yourself can make you more anxious about your body. In</p>	<p>can't stand this!" or "I wish this was over" or "Can it get any worse?" Most of the time people try to escape unpleasant experiences. However, there are many times you can't escape such as a work meeting or a medical test or a school project. Does it do any good to keep reminding yourself how much you don't like it? No, it makes it worse because you are focused on the negative. When you can learn to be more comfortable with things you don't like or don't enjoy, these</p>	<p>affecting your life, health and wellbeing, it is important to tackle it as soon as possible, and while stress affects everyone differently, there are common signs and symptoms you can look out for:15</p> <p>feelings of constant worry or anxiety</p> <p>feelings of being overwhelmed</p> <p>difficulty concentrating</p> <p>mood swings or changes in your mood</p> <p>irritability or having a short temper</p>	<p>adjustment in a person's life. It can affect their physical and emotional well-being, their behaviour and their thinking. Outlined below are some of the normal reactions that are part of the recovery process as people try to make sense of what has happened.</p> <p>Emotional (feelings)</p> <p>Feeling shock, fear, anger, sadness, shame, guilt, irritability, depression, grief, overwhelmed, abandoned or powerless,</p>	<p>Teams must be led by managers that go beyond balancing budgets and schedules. The strongest leaders set goals, priorities and roles for their teams, and encourage each team member to achieve their personal best while keeping strategic goals in mind.</p> <p>Leaders must be clear on vision, know where the team is going and have a clear idea of how individual efforts lead to accomplishing important strategic goals. If done well, leadership can create a culture of continuous improvements to</p>	<p>Arizona) and Joseph P. Kalt (Harvard University) correlates substantial indigenous self-government with economic and community development improvements in indigenous communities.</p> <p>Based on their in-depth research with Native Alaskans—coupled with their broad knowledge of indigenous economic and community development in the lower 48 states—Cornell and Kalt</p>	<p>focused on unpleasant, maladaptive negative thoughts and consequences rather than on positive ones. It is often surprising as to why PA has been side lined. However, there is a major shift in focus in response to the developments in positive psychological science. There is a growing emphasis to refocus our efforts from negative debilitating thoughts and behaviours towards more integrative,</p>	<p>good work by baking a batch of cookies for the team or surprising them with pizza, or sending those flowers, chocolate or a bunch of balloons. It shows your people that you care and appreciate them.</p> <p>Have informal coffee talks.</p> <p>Pull an entire work team together to openly talk about what's going on in the world and how it affects business. Encourage employee questions. This decreases</p>
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	<p>this context, your automatic negative thoughts increase.</p>	<p>experiences won't seem as unpleasant.</p>	<p>difficulty relaxing depression low self-esteem eating more or less than usual changes in your sleeping habits using alcohol, tobacco or illegal drugs to relax aches and pains, particularly muscle tension diarrhoea and constipation feelings of nausea or dizziness loss of sex drive.</p>	<p>worrying about others, wanting to hide, feeling unsafe and/or anticipating danger. Cognitive (thinking) Thinking others don't care/aren't interested/won't understand, frequent thoughts of the event, flashbacks, trying to avoid painful memories, believing nothing else is important except the event, poor concentration, poor attention span, poor memory, difficulty making</p>	<p>productivity. Leaders should be open to new ideas and willing to take risks in order to reach higher performance levels.</p>	<p>conclude that "self-determination is the only federal policy that has had any broad, positive, sustained impact on Native poverty."</p>	<p>affirmative positive aspects of life, particularly in coping processes.</p>	<p>negative rumours and gets employees focused on work rather than on griping.</p>
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				decisions, difficulty solving problems, confusion, disorientation, irrational thinking, difficulty making calculations, difficulty recalling names and/or slow thinking.				
	In addition, if you feel negatively about yourself, the brain regions that help you control emotions and stress have less grey matter than someone with a greater degree of self-acceptance — that is, these	Emotional balance. Much of our emotional balance comes from the ability to be at peace with unpleasant experiences. When you place demands on yourself or the world around you then your emotions become more intense: “It	. Realize when it is causing you a problem Try to make the connection between feeling tired or ill and the pressures you are faced with Look out for physical warnings such as tense muscles, over-	If you are experiencing some of the reactions listed above here is a list of useful tips that may help you cope as you come to terms with what has happened. These tips are compiled from comments made	Keep learning. Productivity is increased when team members have all the skills they need to succeed. If you identify someone with great enthusiasm who lacks practical skills, encourage them to take an online course or be mentored by a	Federally imposed, one-size-fits-all governmental designs fail because they do not take varied and complex local conditions or indigenous culture into account. Self-government works because it	Affect has a tone and intensity. Unpleasant and pleasant affect reflect the basic experiences of ongoing events in people’s lives. Affective evaluations take form of emotion and moods. Though there is	Surprise with spontaneous treats. Rent an ice cream cart or a popcorn machine. Take coffee and donuts to each person's workstation. How about a package of Lifesavers™

	<p>regions have less tissue to “work with.” This lack of grey matter may also appear in regions of the brainstem that process stress and anxiety. Stress signals from these latter regions, in turn, disrupt the emotional control regions. So, poor self-acceptance may disrupt emotional control in two ways: directly, by disrupting the brain regions that control it, and indirectly, by increasing stress signals in your brain that subsequently</p>	<p>shouldn't be this way!” or “I should be able to handle this.” Anger often comes from these types of demands and expectations of others. When you can tolerate experiences, you may not like you can maintain greater control over your emotions.</p> <p>3) Resistance to pain. The ability to tolerate the unpleasant provides greater resistance to pain. The more you focus on how awful the pain is, the worse it becomes. Reducing demand thinking and developing emotional tolerance can often make pain more bearable.</p>	<p>tiredness, headaches or migraines³⁸</p> <p>2. Identify the causes</p> <p>Try to identify the underlying causes</p> <p>Sort the possible reasons for your stress into three categories 1) those with a practical solution 2) those that will get better given time and 3) those you can't do anything about</p> <p>Try to release the worry of those in the second and third groups and let them go</p>	<p>by others who have found the strategies useful:</p> <p>Get lots of rest and eat regular well-balanced meals (even if you do not feel like it).</p> <p>Make time for exercise and relaxation.</p> <p>Spend time with others. Visit people and be around friends</p> <p>Tell your friends you might need to just be with them</p> <p>Structure your time - try to maintain your normal routine wherever possible</p>	<p>colleague with more expertise. Be sure your team knows that skill development is expected, and that no one should rest on their laurels. Letting employees stretch their wings and take on new and different roles creates a culture of support for learning and innovation. Has a graphic designer interested in writing copy? Give him/her a chance to brainstorm with the marketing department. A project manager with a flair for event planning? Offer the chance to be part of planning the company picnic. Small changes to roles</p>	<p>empowers the communities most directly affected to make the critical decisions, rather than external governments.</p>	<p>often a debate about the nature and relationship between these two constructs. Emotions are generally thought to be short-lived reactions that are tied to specific events or external situations.</p> <p>Whereas moods are thought to be more diffused affective feelings not tied to any specific event. By examining the different kinds of affective reactions that people experience, we can understand the ways in which people evaluate conditions and</p>	<p>during a stressful time?</p> <p>Offer stress relief activities.</p> <p>Hire a local massage school to offer free 10-minute chair massages once a week. A distinctive and fun way for a company to convey that it recognizes the rough times and it cares about their staff's well-being.</p>
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	<p>disrupt these regions.</p>			<p>Keep a journal and write your way through those sleepless hours. Write out feelings that you are not ready to or cannot share</p> <p>Do things that make you feel good</p> <p>Do not overdo it with caffeine, cigarettes, alcohol and other drugs</p> <p>Make plans and break these into small, manageable steps</p> <p>Do not rush it through. You may need a lot of time. Treat yourself as you</p>	<p>can fuel enthusiasm.</p>		<p>events in their lives.</p>	
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				would treat a well-liked friend				
	<p>However, self-control may be less powerful than we think. The lack of self-acceptance can be deeply unconscious — that is, it can exist at a level beyond our conscious control. Also, when you do not accept or forgive yourself, “you” are still split from “yourself” — you do not feel “together.” Both parts — the one that needs to forgive, and the one that needs to be forgiven — are at odds with each other. In</p>	<p>Psychological flexibility. People who can adapt to change are happier and more successful. The ability to tolerate the discomfort of change allows you to focus more on the aspects of life that can lead to greater well-being. Instead of staring at a door saying “I wish it would open” flexibility allows you to find another door. My article Coping with Change: Psychological Flexibility explains this in greater detail.</p>	<p>Review your lifestyle</p> <p>Could you be taking on too much?</p> <p>Are there things you are doing which could be handed over to someone else?</p> <p>Can you do things in a more leisurely way?</p> <p>To act on the answer to these questions, you may need to prioritize things you are trying to achieve and re-organize your life</p> <p>This will help to release pressure that can come</p>	<p>Some people benefit from extra help during this period, which may extend for some months. It is not a sign of weakness to ask for help. Often the help needed will be only short and simple but can prevent long-term problems.</p> <p>You might ask for extra help if:</p> <p>You are worried about how you are coping</p> <p>You are concerned about your academic progress</p>	<p>Streamline processes.</p> <p>The start of a new year is a great time to step back and look at process integration in the workplace. Streamlining processes between teams and departments can go a long way towards maximizing productivity. Part of any process integration effort should focus on breaking down obvious silos and barriers in order to help groups and individuals feel more connected to the greater whole.</p>	<p>This issue of CSQ also contains examples of what happens when external governments, even well-meaning ones, deny indigenous peoples' right to self-governance. Not only are the results less effective and demeaning, they also are far more susceptible to exploitation, graft, and social unrest. For example, privatization of water rights in Chile and</p>	<p>PA includes pleasant emotions as joy, happiness, love, contentment, excitement, while negative affect (NA) includes unpleasant emotions as sadness, anger, fear, worry, anxiety and depression (Watson, Clark & Tellegen, 1988). PA reflects the extent to which an individual is enthusiastic, alert and active.</p>	<p>Support community involvement.</p> <p>Provide company time for teams of employees to serve dinner at a local shelter, help build houses, adopt a family for a holiday, or collect money for a common charity. It not only serves as a motivator in that people feel they are doing something with a purpose but also creates a positive public image.</p>

	<p>this situation, self-transcendence can be helpful.</p>		<p>from trying to do everything at once</p>	<p>You are finding it difficult to concentrate and are falling behind in your assignments</p> <p>You are experiencing financial problems as a result of what happened</p> <p>You are feeling hopeless and have lost motivation</p> <p>You feel numb, empty and find yourself doing things to avoid unpleasant thoughts and feelings like drinking too much alcohol</p> <p>You do not have any family or</p>	<p>Part of innovation and enhanced productivity comes from fine tuning existing processes and roles. Ask your team for their thoughts on ways to streamline processes and encourage brainstorming around process alignment.</p>		<p>High PA is a state of high energy, concentration, pleasurable engagement, whereas low PA is characterized by sadness and lethargy. NA on the other hand is a general dimension of subjective distress and displeasable engagement that subsumes a variety of aversive mood states as anger, contempt, disgust, guilt, fear and nervousness.</p> <p>Low NA is a state of calmness and serenity</p>	<p>Make people feel valuable.</p> <p>Talk with key employees about the types of projects, training, or experiences they would like to have. Times may be tough for people to get jobs, but your best people are also the most marketable. One of the main reasons people leave or are unmotivated is because they don't feel valued by their manager or company.</p>
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				<p>friends to talk to about your experience</p> <p>You are worried about a friend or family member</p> <p>Someone you know has been injured, killed or is missing</p>			(Watson, Clark & Tellegen, 1988).	
	<p>For inward searching to be truly effective and life changing, we must listen to what is going on inside of ourselves while maintaining an expectation of inward discovery. This goes against the cultural tendency to identify with what we already</p>	<p>Instead of just listening to the audios you find most pleasant, try expanding your experience. It is easy to listen to what you like but if you truly want to develop emotional tolerance, listen to the audios that are not as immediately pleasant for you and see if you can get something out</p>	<p>Be mindful</p> <p>Mindfulness is a mind-body approach to life that helps us to relate differently to experiences. It involves paying attention to our thoughts and feelings in a way that increases our ability to manage difficult situations and make wise choices</p>	<p>Assistance for Students</p> <p>If you or your family have been affected by a natural disaster, there are many supports available to help you at this time. Most students will be able to cope with support from friends, family and the</p>	<p>Build commitment.</p> <p>Use your company's leadership around vision and values to build employee commitment. A competitive business plan and strategy are important, yet a company culture that celebrates innovation and dedication to that vision and strategy will do as much to</p>	<p>As Cornell and Kalt's research shows, undoing the harm caused by imposing external governmental systems on indigenous peoples costs the larger society far more than enabling indigenous self-government. In some cases, as with the Embara-Katio of</p>	<p>Every now and then we experience stress in our lives. Though both PA & NA tend to cooccur in a stressful situation</p> <p>(Khosla, 1999; 2001), focus is mostly on NA than on PA. Most models of stress do not attempt to explore PA and its adaptation significance.</p>	<p>Supervision Success Tip</p> <p>Sometimes, simple works best. These seven morale boosters are a great way to create positive energy, develop pride and keep workers motivated during tough times.</p> <p>Free car washes.</p>

	<p>know about ourselves and stop the exploration there. When we have an expectation of self-discovery, we will surprise ourselves with what we uncover.</p>	<p>of them through a mindful focus.</p> <p>Think of it this way: no matter how much you might dislike certain audios, in the scheme of things, they are not that awful. The only pain or problem they can cause is due to your thoughts about them. For instance, if you are trying to sleep and your neighbour's air conditioner is making noise, the more you think about it the more it disturbs you. When you develop a greater tolerance for the unpleasant noise, the more likely it blends into the background.</p>	<p>Try to practice mindfulness regularly</p> <p>Mindfulness meditation can be practiced anywhere at any time</p> <p>Research has suggested that it can reduce the effects of stress, anxiety and related problems such as insomnia, poor concentration and low moods, in some people⁴⁴</p> <p>Our Be Mindful website features a specially developed online course in mindfulness, as well as details of</p>	<p>Counselling service. UniSA Counselling help you to:</p> <p>Call home free of charge</p> <p>Access appropriate support services and resources available to you both inside and outside of the University</p> <p>Negotiate any specialized, personal, academic or visa requirements</p> <p>Negotiate extensions if you are unable to concentrate on study</p> <p>Work out solutions for any other problems</p>	<p>motivate employees.</p> <p>Recognize team members who go the extra mile and are willing to take risks on implementing new ideas. Clear communication is paramount. Team communications should be transparent and factual. Employees whose ideas and concerns are listened to and acted upon by management will feel connected and part of the decision-making process. Feeling part of goes a long way toward building commitment and dedication.</p>	<p>Colombia who were forcibly relocated to a war zone to accommodate the construction of a large hydro-electric dam, the harm—measured in human lives—is irreparable.</p>	<p>There is ample research evidence showing how NA accompanies chronic stress.</p> <p>However, there is an increasing empirical evidence showing that PA also occurs during chronic stress, often with surprising frequency (Khosla, 2006) In another study both PA and NA were experienced by depressed and non-depressed participants in response to</p>	<p>Express exterior car washes cost around \$5 per wash. That means for \$100, you can give 20 employees a shiny car every month. Or have a fund raiser for a community organization on your parking lot. They bring the people and the supplies, and you pay them \$5 for each car washed. This tells the employee you appreciate them and tell the community you care.</p>
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		The same process can occur with the audios. As you accept the audio without the judgment you may find it is not as unpleasant as you thought.	local courses in your area	that you may be facing as a result of the natural disaster			depressive film stimuli in the laboratory (Khosla, 2001).	
	o experience this practice of self-discovery, have a friend ask you the question, who are you? Then, answer with the first thing that comes to your mind. Your friend then asks Who are you? Again. You again answer with the first thing that comes to your mind. Continue the process of asking and	The first step is learning to use the relaxation methods. During the initial learning it is best to use the audios that are more pleasant for you. However, as you become more skilled try audios you don't think you would like as much. If you like the beach but don't like the cold, then try the mountain cabin imagery. Or, if you don't like heat, try the tropical garden	Don't be too hard on yourself Try to keep things in perspective. Remember that having a bad day is a universal human experience When your inner critic or an outer critic finds faults, try and find truth and exception to what is being said If you stumble or feel you have	'Problem solving' is one of a series of five information sheets about general psychological strategies to help people to cope and recover after bushfires. Following bushfires, people can struggle with a variety of problems, from how to clean up their house	Get the team involved in managing resources. When you involve appropriate team members in the resource allocation process, you create a spirit of collaboration on important decisions. Plus, you probably get more accurate outcomes when recourses are being managed by the person who is most	They must educate themselves about the legacy of those wrongs for indigenous peoples and for themselves. They must change their laws to ensure that indigenous peoples can exercise their right to self-government. And they must learn the lesson that makes common sense	They experienced positive emotions significantly more frequently than negative emotions within a short time of occurrence of the negative experience that precipitated the chronic stress. Similarly Folkman (1997a) assessed every 2 months for	Resilience is the ability to thrive in challenging circumstances – it means you can recover quickly from difficult situations. This is commonly mistaken with endurance which is a more rigid mindset where you're continually pushing your body and mind to the limit without giving up.

	<p>responding for about five minutes. What you will uncover may surprise you as you delve into deeper levels of knowing who you are.</p>	<p>or the desert imagery.</p> <p>By mindfully experiencing these audios and being able to relax with the ones you don't like you will develop greater emotional tolerance. As you learn to tolerate different experiences with the audios you can eventually transfer that ability to other aspects of your life. However, it may take more practice than using the ones you find most pleasant.</p>	<p>failed, don't beat yourself up</p> <p>Act as if you were your own best friend be kind and supportive</p> <p>Take a few minutes each day to appreciate yourself</p>	<p>block to worrying about arguments with their partner or struggling to supervise children adequately in a new or altered environment.</p>	<p>knowledgeable in their area</p> <p>Prioritize project resources based on what is most critical to the company's mission; always stay focused on strategic vision and planning. If team members propose a change in priorities and have access to metrics to back up their case, hear them out. By including teams in resource allocation can go a long way toward company-wide buy-in for decisions.</p>	<p>to the Kankanaey: to sacrifice some of their advantages so that their indigenous neighbours, through the exercise of self-government, can achieve equal benefit.</p>	<p>2 years, 253 care giving partners of men with AIDS. They found that they experienced PA and NA with same frequency.</p> <p>This observation that PA and NA can occur during periods of intense stress indicates that despite the overriding stressful circumstances, events that prompt PA also occur</p>	
	<p>Moreover, cognitive regulation strategies, such as positive reappraisal,</p>	<p>Don't wait to feel loving and kind—recognize where you already feel it and then act "as if" in other areas of</p>	<p>Research has shown that stress can sometimes be positive. It can make you more alert and help you</p>	<p>Following disasters like the Adelaide Hills bushfires, people experience some</p>	<p>Everyone has dreams and goals. However, very few people achieve them. This is because majority of</p>	<p>Flourishing communities create space where people can live in dignity, in</p>	<p>There is increased effort to examine PA in stress processes. PA has not been entirely neglected</p>	<p>You don't have to spend long in the Challenger space to realize that what is really being</p>

	<p>predicted perceived resilience among students. Sociability (A factor of HSPQ, sociability) also correlated with resilience levels. Hence, these results are promising, implying that emotion regulation ability may act as a helpful tool preventing adolescents from irrational risky behaviours, commonly assumed at this developmental stage.</p>	<p>your life. It's not hypocritical, says Buddhist teacher Judy Lief—it's important training if you wish to increase your capacity to love.</p> <p>Once we have assessed our situation and thought about examples we might emulate, how can we begin to expand our capacity to love? When we are deep into one relationship, it is easy to create a kind of love bubble, a little world that feeds on itself and is cut off from the world around us.</p>	<p>perform better in certain situations.² However, stress has only been found to be beneficial if it is short-lived.</p> <p>Excessive or prolonged stress can contribute to illness such as heart disease³ and mental health problems such as anxiety and depression.⁴</p> <p>You may experience periods of constant worry, racing thoughts, or repeatedly go over the same things in your head. You may experience changes in your behaviour. You</p>	<p>common and often distressing reactions. These can include strong feelings of grief or anger, difficulty sleeping, or unhelpful behaviours like drinking more alcohol or arguing with people more than usual. But working on some basic coping skills can help a lot. For many survivors, these skills will be enough to enhance recovery and help tackle stressful issues. One very useful skill is problem solving.</p>	<p>us let our limits hold us back. These limits take various forms. Examples are physical inability, doubt, fear or a negative past. When you meet your personal limits, you feel resistance. This makes everything feel much harder to accomplish. Many people around the world are unable to hold on when it gets to this point. Therefore, they give up. It is important to learn how to beat your limits and overcome them. This enables you to achieve your goals.</p>	<p>security, enjoy the freedom to speak their minds, can realize their capacities and to participate in social, economic, cultural and spiritual life.</p> <p>In building and strengthening these communities we are making it possible to bring about change in society towards a more just, inclusive and sustainable world. This world will be one in which we share our global common goods¹</p>	<p>in models of stress. It has been discussed in relation to the primary appraisal of stressful situations, whereby affect helps to appraise the stressful situation as a challenge.</p> <p>Various positive emotions as eagerness, excitement and confidence help to master these challenges. PA has also been examined in relation to the appraisal of the resolution of the stressful encounter as favourable or</p>	<p>asked of an individual is something that requires you to be willing to dig very deep within yourself again and again. A sort of perpetual alertness to keep pushing the boundaries of your own comfort zone and that of others to deliver the big result, shake up the market or to change the playing field on which your competitors participate.</p> <p>In some cases, the most challenging work for leaders in this space is to slow things down,</p>
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			<p>may lose your temper more easily, act irrationally or become more verbally or physically aggressive.¹⁴ These feelings can feed on each other and produce physical symptoms, which can make you feel even worse. For example, extreme anxiety can make you feel so unwell, that you then worry you have a serious physical condition.</p>			<p>, where we make space for diversity and where we reach out to all those who share our dream of a just, inclusive and sustainable world.</p>	<p>successful, leading to positive emotions as happiness and pride (Folkman & Lazarus, 1985).</p>	<p>remain in the ambiguity, deliberately disrupt and disturb habitual patterns of business behaviour to create the conditions for something new to emerge. This kind of action takes courage and self-efficacy.</p>
	<p>Reviewing the literature, we have found studies that show the importance of</p>	<p>Settle Down. There must be a here to be a there, and a connection between the two. So, the first step is to slow</p>	<p>The process of mobilizing for emergencies and disasters requires consensus-building among</p>	<p>Identify the problem</p> <p>First, try to identify what the problem really is. Is this</p>	<p>Find someone to assist you</p> <p>Sometimes, all that you need to overcome your limits and keep</p>	<p>Responding to actual challenges</p> <p>Perhaps even more relevant now than it ever</p>	<p>PA is an integral part of everyday life.</p> <p>Sometimes certain positive emotions are</p>	<p>In Buddhism there is a very helpful idea that is referred to as the ‘near enemy’. In it we</p>

	<p>cognitive and emotional abilities predicting resilience. For example, Artuch-Garde et al. (2017) exposed in their cross-sectional research that the ability to self-regulate behaviour is associated with high levels of resilience in high-school students. Likewise, positive emotions appeared to aid resilient people to deal with daily strain (Tugade and Fredrickson,</p>	<p>down and let your mind settle enough that you can drop from the heights of conceptuality back into your body, a simple form in space. Can you really feel present, in your body as it is, right where you are?</p> <p>Pay Attention to Space. Notice the quality of space within you and around you. Pay attention to the boundaries of your physical body and the space in front, behind, and on each side of you. Also pay attention to the mental-emotional space that accommodates the comings and goings of sensations,</p>	<p>all actors so that activities are designed not only provide immediate aid, but also an assessment of the magnitude of damage and needs for humanitarian assistance.</p> <p>In the Americas, all countries have a national risk management and disaster response system of a multisectoral nature, with a central coordinating central agency whose name varies from country to country: Civil Protection or Défense Agency, National</p>	<p>your problem, or does it belong with someone else? Is this a problem you can do something about? If not, put it aside and choose one that you can do something about. And if you're feeling overloaded with all sorts of not-finished tasks, give yourself permission to let some problems wait till later.</p>	<p>moving towards your dreams is a little encouragement. It is important to have someone to support you when things get tough. They can be a counterbalance for any negative thinking or self-talk that you could have when the going gets hard. By showing you how strong you are, they can help you to shift focus from your limitations to your strengths. As a result, you can accomplish more and push yourself to do the things that exist beyond your comfort zone.</p>	<p>was, that core value is still a driving force in our work.</p> <p>Four trends are currently fuelling that drive and underlining the need to build flourishing communities.</p> <p>- Inequality is increasing all over the world and the willingness to share resources and benefits is diminishing. This is creating divisions within societies. 'Gated neighbourhoods' throughout the world is the most visible physical</p>	<p>experienced more intensely than other. PA helps to process emotional information accurately and efficiently, to solve problems, make plans and achieve in one's life. Though there are differences in the ability to intelligently use positive emotions as a means of guiding and understanding one's behaviour and experience. Traditional approaches have tended to overlook and ignore PA. However, the broaden-and-</p>	<p>can see that even admirable qualities like resilience can be easily confused with something else. It looks roughly the same, we can use similar words to describe it and yet it has a profoundly different effect on others and ourselves. I think that the near enemy of resilience is endurance.</p> <p>I should begin by saying there is nothing, absolutely nothing wrong with endurance. Our history is littered with inspiring</p>
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	2004; Ong et al., 2006).	thoughts, moods, and emotional upheavals.	Emergency Bureau or Commission, National Disaster Agency or Department, etc.			evidence of the inequality divide, while the discrimination of (lower) casts in India and indigenous communities in Guatemala are perhaps less visible, but no less impactful.	build theory of PA (Fredrickson, 1998, 2001) suggests that PA appears to broaden people's momentary thought - action repertoires and build them enduring personal resources.	examples of people who have endured extraordinary hardship and survived. We can often endure much more than we think we can.
		Jesus said, "As far as possibilities go, everything is possible for the person who believes" (Mark 9:23 GW). I come across people all the time that introduce themselves as "believers," but adamantly refuse to believe, for whatever reason, truths and promises	The purpose of a damage assessment and needs analysis (DANA) process is to describe, as quickly and objectively as possible, the health impact of an adverse event, while considering the response capacity of the sector and ascertaining what	Assessing the problem If the problem is big, break it into manageable parts. For example, if you're needing to clean up your block, perhaps you can break it down into house site, shedding, and the rest of your property.	The mind is the greatest weapon in our personal arsenals. It is capable of any thought hence can help us to accomplish anything we want. For many, it convinces them to quit when the path gets too challenging. Our minds instinctively protect us.	Building flourishing communities in areas of conflict and fragility Entrenched poverty is endemic in countries and areas that are, or have been, affected by conflict and where the structures of society have	PA produces patterns of thoughts that are notably unusual, flexible, creative, integrative, open to information and efficient (Isen, 1999) and broadens one's arrays of acceptable behavioural options. It	However, in the more common context of organizations, those leaders we coach who sometimes think they are resilient have fallen into the trap of enduring situations, cultures and practices which are frankly deadening to the

		<p>from the bible for their lives. If we refuse to believe that God can or will do something for us, even though there is biblical evidence for it, then we are simply cutting ourselves off from that possibility. Our lack of belief does not change God; it simply limits us from receiving from God in that area.</p>	<p>additional resources are required to address immediate and future effects.</p>	<p>Then decide what you're aiming for, like 'We need the site to be safe', or 'What I can salvage?', or 'I want a break from this mess'. Adopting a solution</p> <p>The final step is to sort through the options together with those close to you, or perhaps with a case manager, and choose several that best meet your goals. Then think what you need to do to give them a go.</p>	<p>Therefore, when we face imminent hardship, the first response is to give up. If you become used to accepting this, you will become a quitter. If done regularly, this can create a limit and keep you within it. To achieve your goals, you must overcome the desire to give up. This can be accomplished by looking up to someone whose resilience you admire such as your role model, a movie star, your parents or your mentor. Watch how they overcome the desire to give up.</p>	<p>become fragile and vulnerable. In these countries and areas, the ability to escape the vicious circle of poverty is limited because of a lack of security, empowerment and opportunities. There are little or no basic social services and, due to a lack of security, the possibilities for making a living (often through agriculture) are minimal to non-existent. It's in circumstances like these that flourishing</p>	<p>facilitates processing of important self-relevant information (even negative) and potentially damaging to self-esteem (Reed & Aspinwall, 1998). This improves well-being overtime with repeated experiences of PA. This broadened mind set becomes habitual. PA increases attentional focus and behavioural repertoire and the enhanced personal resources can be used to overcome or deal</p>	<p>spirit of energy and accomplishment. We learn to endure all sorts of subtle things in organizations; small things, which over time build up to a wall that desensitizes us to what a lively, creative, passionate and potent organization could really be like. And we go on to tell ourselves that our survival in such an organization in a leadership position is actually an example of how resilient we are, without realizing that as the years</p>
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						communities are a fundamental prerequisite to creating the basic conditions for human dignity.	distressing situation.	roll by bits of our original enthusiasm, our driving energy, our deep desire to do the right thing has been eroded by the fact that we have survived so many changes.
		Look at Mark 9:23 again. Jesus said, "...everything is possible for the person who believes." As we prepare for 2006, I believe this series will help us elevate our thinking towards God and our expectations for the New Year. In this series we will cover the following areas:	The weaknesses encountered through the damage assessment and needs analysis are grouped in order of importance according to the magnitude of their repercussions on health. Subsequently, potential solutions are analysed. Major problems that are easy to solve with	Brainstorming solutions Next, think up as many ways of achieving your goals as you can e.g., temporary fencing to keep children out of the rubble, organizing a working bee, accessing a government-funded service, or going away	Visualize yourself at the next level One of the most important activities to perform to push past your limits is to stay focused. Visualization is a handy tool that you can use towards this effect. You need to focus on what you want to get motivated in pursuing your plan despite your imagined limits. Many times, we	in times of disaster and emergencies Natural disasters and emergencies often destroy the basic physical and social infrastructures of a community and society. The necessity to build or rebuild a flourishing community is therefore very urgent in times of natural	PA also helps to recover from cardiovascular arousal quickly. Research conducted by Folkman (1997a) provides a useful compliment to Fredrickson's (1998, 2001) broaden-and-build theory. Under stressful conditions, PA	That is why it is the near enemy of resilience. It feels good to have endurance, but it can become the goal. If resilience is lively, challenging, bouncy and full of flexibility; endurance is characterized by stiffness, survival, cutting off from oneself to get through it.

		<p>1. God has no limits – He cannot fail</p> <p>2. God desires to overcome our limits with His limitless ability</p> <p>3. What we believe determines what we are available to receive</p> <p>4. We limit what our limitless God can do for us through our belief system</p> <p>5. As we expand our capacity to believe, we release God to freely operate in our lives</p>	<p>available resources will receive priority for action, while smaller problems that are not likely to have a major impact or are unlikely to be resolved quickly will receive lower priority.</p>	<p>for a short break. Try writing your ideas down and come up with lots a range of ideas can help at this stage!</p>	<p>know where we have been and where we currently are. However, we rarely know exactly where we need to go. Take the time to imagine where you want to be by a certain time in future. Visualize this every single morning when you get up. This will motivate you to go out of your comfort zone and achieve your goals.</p>	<p>disasters and emergencies. It brings people together in difficult and often unsafe circumstances, helps them overcome ethnic, religious and cultural barriers, and makes an important contribution to the empowerment of those people in rebuilding their lives and that of them communities.</p>	<p>broaden ones thought action repertoire by undoing the cardiovascular reactivity caused by the negative emotions while preparing the body for specific action. Because of broadening of thoughts and actions, PA build the personal resources to effectively regulate negative emotions.</p>	<p>That is not the act of a Challenger Leader; it is the act of someone dominated by the need to survive and to cling on.</p> <p>He had become a fortress; if you are going to be a successful challenger leader you need to become a river. You need to be able to flow with the currents and not cling to the sides.</p>
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A6: Summary of the concept development and analysis

RESEARCH CIRCLES 4.5, STEP 1 (CONCEPT DEVELOPMENT)

CATEGORIES	Deeper self-acceptance, self-determination and efficient emotional regulation	Expand tolerance, hope and love	Reduce stress, disaster risk and mobilizing appropriate autonomic support	Avoid guilt and problem-solving techniques	Increases performance, creative and push the limits	Flourishing the community and rediscover themselves and strength	Lessen resonance of negative events	Improve morale and endurance level
REF. NO:	32	34	35	36	37	38	39	42
RENAMED CATEGORIES	Ability to manage emotions	Ability to improve tolerance level	Level of stress management	Ability to avoid guilt	Effect of pushing limits to increase performances	Level of self-determination to govern the community	Degree of undoing the consequences of negative events	Ability to improve morale level
KEY CONCEPTS	Manage emotions	Tolerance	Stress management	Avoid	Pushing limits	Self-determination	Undoing the consequences of negative events	Moral level
	Self-acceptance is defined as “an individual’s	People have different preferences and	Stress is a feeling of being under abnormal	Natural disasters such as floods, bushfires and	Support innovation.	When allowed to govern themselves,	Affect plays an important functional role in	It's the small things every day that can bring

	<p>acceptance of all of his/her attributes, positive or negative.” It includes body acceptance, self-protection from negative criticism, and believing in one’s capacities.</p> <p>Some people with low self-acceptance try to bolster it by accomplishing great things. But this only helps your self-esteem for a while. That’s because achievement is a poor substitute for intimacy. In addition, these people are often under the impression that</p>	<p>when choosing the audios solely for relaxation or for sleep, it is best to choose them according to your preferences. However, if you want to learn how to use them as a mindful method to develop emotional tolerance, it is important to expand beyond what you like. Emotional tolerance is the ability to bear uncomfortable emotions without a strong negative reaction.</p>	<p>pressure. This pressure can come from different aspects of your day to day life. Such as an increased workload, a transitional period, an argument you have with your family or new and existing financial worries. You may find that it has a cumulative effect, with each stressor building on top of one another.</p> <p>During these situations you may feel threatened or upset and your body might create a stress response. This can cause a variety of</p>	<p>earthquakes can cause people to experience unusually strong reactions which may interfere with their normal ability to function. Although each person will react differently there are common responses that are experienced by those involved in, or those with family or friends affected by such events. Your response will depend on your personal circumstance, temperament and life at the time. Some people react immediately,</p>	<p>To stay ahead, innovation is required. The most successful businesses are those that remain flexible and innovative and build on current successes without overtaxing their teams. It can be difficult to demand innovation and creativity, but you can help set up a workplace that supports them. Ideas flow more readily in a relaxed and agile work environment.</p> <p>Allow team members to work when they feel most productive, whether that’s the middle of the night</p>	<p>indigenous peoples demonstrate remarkable capacity to innovate in culturally appropriate, environmentally sensitive ways. Indeed, self-governance has proved the most effective tool to overcome challenges that history and modernity have imposed on indigenous peoples around the globe.</p>	<p>copied with stress. Both positive and negative affect co- occurs during stressful experiences. Unlike previously, there is an increased effort to examine the adaptation significance of positive affect. Empirical evidence illustrates how positive affect helps to deal with stress effectively and overcome its harmful consequences quickly. Positive affect predisposes one to appraise the stressful situation as challenging, fostering hope,</p>	<p>down employee morale and it's the small things every day that can raise it as well.</p> <p>When money is tight and raises are non-existent or when the heavy workload seems never-ending, managers tend to forget the "basics" of management- that the supervisor's recognition and appreciation are the key drivers for employee motivation and morale.</p> <p>Here are seven quick,</p>
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	<p>“taking it” when suffering is the main reflection of their value. It’s hard for them to believe in genuine caring, and when it does come their way, they are suspicious of it.</p> <p>Of course, self-acceptance (or lack thereof) does not exist in a vacuum — it has profound effects on your physical and psychological health. For that reason, it is worth understanding what these effects are, and what you can do about it.</p>		<p>physical symptoms, change the way you behave, and lead you to experience more intense emotions.⁵</p> <p>Stress affects us in several ways, both physically and emotionally and in varying intensities.¹</p>	<p>some after a period, some intensely and some have delayed responses.</p>	<p>or 5 a.m. Encourage regular breaks and informal brainstorming sessions. Celebrate breakthroughs, and don’t get hung up on attempts that didn’t succeed.</p>		<p>and belief that it may be beneficial in some way. While the coping processes used to deal with stress tend to generate and sustain positive affect.</p>	<p>inexpensive things managers can do that will keep workers motivated during tough times.</p>
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	<p>Without self-acceptance, your psychological well-being can suffer, and often, beneficial interventions are less helpful for you than for others with higher self-acceptance.</p> <p>For example, practicing mindfulness can help many people reduce the impact of stress. But when you cannot accept yourself, it becomes less effective. Also, if you have a physical illness such as rheumatoid</p>	<p>Comfort with the unpleasant. How many times do you say to yourself “I can’t stand this!” or “I wish this was over” or “Can it get any worse?” Most of the time people try to escape unpleasant experiences. However, there are many times you can’t escape such as a work meeting or a medical test or a school project. Does it do any good to keep reminding yourself how much you don’t like it? No, it makes it worse because you are focused on the negative. When you</p>	<p>Everyone experiences stress. However, when it is affecting your life, health and wellbeing, it is important to tackle it as soon as possible, and while stress affects everyone differently, there are common signs and symptoms you can look out for:¹⁵</p> <p>feelings of constant worry or anxiety</p> <p>feelings of being overwhelmed</p> <p>difficulty concentrating</p>	<p>Coming to terms with devastating events requires significant adjustment in a person’s life. It can affect their physical and emotional well-being, their behaviour and their thinking. Outlined below are some of the normal reactions that are part of the recovery process as people try to make sense of what has happened.</p> <p>Emotional (feelings) Feeling shock, fear, anger, sadness, shame,</p>	<p>Leadership matters. Innovation comes from inspiration. Teams must be led by managers that go beyond balancing budgets and schedules. The strongest leaders set goals, priorities and roles for their teams, and encourage each team member to achieve their personal best while keeping strategic goals in mind.</p> <p>Leaders must be clear on vision, know where the team is going and have a clear idea of how individual efforts lead to accomplishing</p>	<p>Recent research by Stephen Cornell (University of Arizona) and Joseph P. Kalt (Harvard University) correlates substantial indigenous self-government with economic and community development improvements in indigenous communities.</p> <p>Based on their in-depth research with Native Alaskans—coupled with their broad knowledge of indigenous</p>	<p>Most of the research in coping with stress has focused on unpleasant, maladaptive negative thoughts and consequences rather than on positive ones. It is often surprising as to why PA has been side-lined. However, there is a major shift in focus in response to the developments in positive psychological science. There is a growing emphasis to refocus our</p>	<p>Say thank you.</p> <p>Show appreciation for good work by baking a batch of cookies for the team or surprising them with pizza, or sending those flowers, chocolate or a bunch of balloons. It shows your people that you care and appreciate them.</p> <p>Have informal coffee talks.</p> <p>Pull an entire work team together to openly talk about what’s going on</p>

	<p>arthritis, not accepting yourself can make you more anxious about your body. In this context, your automatic negative thoughts increase.</p>	<p>can learn to be more comfortable with things you don't like or don't enjoy, these experiences won't seem as unpleasant.</p>	<p>mood swings or changes in your mood</p> <p>irritability or having a short temper</p> <p>difficulty relaxing</p> <p>depression</p> <p>low self-esteem</p> <p>eating more or less than usual</p> <p>changes in your sleeping habits</p> <p>using alcohol, tobacco or illegal drugs to relax</p> <p>aches and pains, particularly muscle tension</p> <p>diarrhoea and constipation</p>	<p>guilt, irritability, depression, grief, overwhelmed, abandoned or powerless, worrying about others, wanting to hide, feeling unsafe and/or anticipating danger.</p> <p>Cognitive (thinking) Thinking others don't care/aren't interested/won't understand, frequent thoughts of the event, flashbacks, trying to avoid painful memories, believing nothing else is important except the event, poor</p>	<p>important strategic goals. If done well, leadership can create a culture of continuous improvements to productivity. Leaders should be open to new ideas and willing to take risks in order to reach higher performance levels.</p>	<p>economic and community development in the lower 48 states—Cornell and Kalt conclude that "self-determination is the only federal policy that has had any broad, positive, sustained impact on Native poverty."</p>	<p>efforts from negative debilitating thoughts and behaviours towards more integrative, affirmative positive aspects of life, particularly in coping processes.</p>	<p>in the world and how it affects business. Encourage employee questions. This decreases negative rumours and gets employees focused on work rather than on griping.</p>
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	In addition, if you feel negatively about yourself, the brain regions that help you control emotions and stress have	Emotional balance. Much of our emotional balance comes from the ability to be at peace with unpleasant experiences. When	. Realize when it is causing you a problem Try to make the connection between feeling tired or ill and the	If you are experiencing some of the reactions listed above here is a list of useful tips that may help you cope as you	Keep learning. Productivity is increased when team members have all the skills they need to succeed. If you identify someone with great	Federally imposed, one-size-fits-all governmental designs fail because they do not take varied and complex	Affect has a tone and intensity. Unpleasant and pleasant affect reflect the basic experiences of ongoing events in	Surprise with spontaneous treats. Rent an ice cream cart or a popcorn machine. Take coffee and

<p>less grey matter than someone with a greater degree of self-acceptance — that is, these regions have less tissue to “work with.” This lack of grey matter may also appear in regions of the brainstem that process stress and anxiety. Stress signals from these latter regions, in turn, disrupt the emotional control regions. So, poor self-acceptance may disrupt emotional control in two ways: directly, by disrupting the brain regions that control it,</p>	<p>you place demands on yourself or the world around you then your emotions become more intense: “It shouldn’t be this way!” or “I should be able to handle this.” Anger often comes from these types of demands and expectations of others. When you can tolerate experiences, you may not like you can maintain greater control over your emotions.</p> <p>3) Resistance to pain. The ability to tolerate the unpleasant provides greater resistance to pain. The more you focus on how awful the pain is, the worse it becomes.</p>	<p>pressures you are faced with</p> <p>Look out for physical warnings such as tense muscles, over-tiredness, headaches or migraines³⁸</p> <p>2. Identify the causes</p> <p>Try to identify the underlying causes</p> <p>Sort the possible reasons for your stress into three categories 1) those with a practical solution 2) those that will get better given time and 3) those you can’t do anything about</p> <p>Try to release the worry of those in the second and</p>	<p>come to terms with what has happened. These tips are compiled from comments made by others who have found the strategies useful:</p> <p>Get lots of rest and eat regular well-balanced meals (even if you do not feel like it).</p> <p>Make time for exercise and relaxation.</p> <p>Spend time with others. Visit people and be around friends</p> <p>Tell your friends you might need to just be with them</p>	<p>enthusiasm who lacks practical skills, encourage them to take an online course or be mentored by a colleague with more expertise. Be sure your team knows that skill development is expected, and that no one should rest on their laurels. Letting employees stretch their wings and take on new and different roles creates a culture of support for learning and innovation. Have a graphic designer interested in writing copy? Give him/her a chance to brainstorm with the marketing department. A project manager</p>	<p>local conditions or indigenous culture into account. Self-government works because it empowers the communities most directly affected to make the critical decisions, rather than external governments.</p>	<p>people’s lives. Affective evaluations take form of emotion and moods. Though there is often a debate about the nature and relationship between these two constructs. Emotions are generally thought to be short-lived reactions that are tied to specific events or external situations.</p> <p>Whereas moods are thought to be more diffused affective feelings not tied to any specific event. By examining the different kinds of affective reactions that people</p>	<p>donuts to each person's workstation. How about a package of Lifesavers™ during a stressful time?</p> <p>Offer stress relief activities.</p> <p>Hire a local massage school to offer free 10-minute chair massages once a week. A distinctive and fun way for a company to convey that it recognizes the rough times and it cares about their staff's well-being.</p>
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	and indirectly, by increasing stress signals in your brain that subsequently disrupt these regions.	Reducing demand thinking and developing emotional tolerance can often make pain more bearable.	third groups and let them go	<p>Structure your time - try to maintain your normal routine wherever possible</p> <p>Keep a journal and write your way through those sleepless hours. Write out feelings that you are not ready to or cannot share</p> <p>Do things that make you feel good</p> <p>Do not overdo it with caffeine, cigarettes, alcohol and other drugs</p> <p>Make plans and break these into small, manageable steps</p>	with a flair for event planning? Offer the chance to be part of planning the company picnic. Small changes to roles can fuel enthusiasm.		experience, we can understand the ways in which people evaluate conditions and events in their lives.	
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				Do not rush it through. You may need a lot of time. Treat yourself as you would treat a well-liked friend				
	<p>However, self-control may be less powerful than we think. The lack of self-acceptance can be deeply unconscious — that is, it can exist at a level beyond our conscious control. Also, when you do not accept or forgive yourself, “you” are still split from “yourself” — you do not feel “together.” Both parts — the one that needs to</p>	<p>Psychological flexibility. People who can adapt to change are happier and more successful. The ability to tolerate the discomfort of change allows you to focus more on the aspects of life that can lead to greater well-being. Instead of staring at a door saying “I wish it would open” flexibility allows you to find another door. My article Coping with Change: Psychological</p>	<p>Review your lifestyle</p> <p>Could you be taking on too much?</p> <p>Are there things you are doing which could be handed over to someone else?</p> <p>Can you do things in a more leisurely way?</p> <p>To act on the answer to these questions, you may need to prioritize things you are trying to</p>	<p>Some people benefit from extra help during this period, which may extend for some months. It is not a sign of weakness to ask for help. Often the help needed will be only short and simple but can prevent long-term problems.</p> <p>You might ask for extra help if:</p>	<p>Streamline processes.</p> <p>The start of a new year is a great time to step back and look at process integration in the workplace. Streamlining processes between teams and departments can go a long way towards maximizing productivity. Part of any process integration effort should focus on breaking down obvious silos and barriers in order to help groups and</p>	<p>This issue of CSQ also contains examples of what happens when external governments, even well-meaning ones, deny indigenous peoples' right to self-governance. Not only are the results less effective and demeaning, they also are far more susceptible to exploitation, graft, and social unrest. For example,</p>	<p>PA includes pleasant emotions as joy, happiness, love, contentment, excitement, while negative affect (NA) includes unpleasant emotions as sadness, anger, fear, worry, anxiety and depression (Watson, Clark & Tellegen, 1988). PA reflects the extent to which an individual is enthusiastic, alert and active.</p>	<p>Support community involvement.</p> <p>Provide company time for teams of employees to serve dinner at a local shelter, help build houses, adopt a family for a holiday, or collect money for a common charity. It not only serves as a motivator in that people feel they are doing something with a purpose but also</p>

	<p>forgive, and the one that needs to be forgiven — are at odds with each other. In this situation, self-transcendence can be helpful.</p>	<p>Flexibility explains this in greater detail.</p>	<p>achieve and re-organize your life</p> <p>This will help to release pressure that can come from trying to do everything at once</p>	<p>You are worried about how you are coping</p> <p>You are concerned about your academic progress</p> <p>You are finding it difficult to concentrate and are falling behind in your assignments</p> <p>You are experiencing financial problems as a result of what happened</p> <p>You are feeling hopeless and have lost motivation</p> <p>You feel numb, empty and find yourself doing things to avoid</p>	<p>individuals feel more connected to the greater whole.</p> <p>Part of innovation and enhanced productivity comes from fine tuning existing processes and roles. Ask your team for their thoughts on ways to streamline processes and encourage brainstorming around process alignment.</p>	<p>privatization of water rights in Chile and</p>	<p>High PA is a state of high energy, concentration, pleasurable engagement, whereas low PA is characterized by sadness and lethargy. NA on the other hand is a general dimension of subjective distress and pleasurable engagement that subsumes a variety of aversive mood states as anger, contempt, disgust, guilt, fear and nervousness.</p> <p>Low NA is a state of calmness</p>	<p>creates a positive public image.</p> <p>Make people feel valuable.</p> <p>Talk with key employees about the types of projects, training, or experiences they would like to have. Times may be tough for people to get jobs, but your best people are also the most marketable. One of the main reasons people leave or are unmotivated is because they don't feel valued by their manager or company.</p>
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				<p>unpleasant thoughts and feelings like drinking too much alcohol</p> <p>You do not have any family or friends to talk to about your experience</p> <p>You are worried about a friend or family member</p> <p>Someone you know has been injured, killed or is missing</p>			and serenity (Watson, Clark & Tellegen, 1988).	
	For inward searching to be truly effective and life changing, we must listen to what is going on inside of ourselves while maintaining an	Instead of just listening to the audios you find most pleasant, try expanding your experience. It is easy to listen to what you like but if you truly want to develop emotional	Be mindful Mindfulness is a mind-body approach to life that helps us to relate differently to experiences. It involves paying attention to our thoughts and	Assistance for Students If you or your family have been affected by a natural disaster, there are many supports available to help	Build commitment. Use your company's leadership around vision and values to build employee commitment. A competitive business plan and strategy are	As Cornell and Kalt's research shows, undoing the harm caused by imposing external governmental systems on indigenous peoples costs	Every now and then we experience stress in our lives. Though both PA & NA tend to co-occur in a stressful situation (Khosla, 1999; 2001), focus is	Supervision Success Tip Sometimes, simple works best. These seven morale boosters are a great way to create positive energy, develop

	<p>expectation of inward discovery. This goes against the cultural tendency to identify with what we already know about ourselves and stop the exploration there. When we have an expectation of self-discovery, we will surprise ourselves with what we uncover.</p>	<p>tolerance, listen to the audios that are not as immediately pleasant for you and see if you can get something out of them through a mindful focus.</p> <p>Think of it this way: no matter how much you might dislike certain audios, in the scheme of things, they are not that awful. The only pain or problem they can cause is due to your thoughts about them. For instance, if you are trying to sleep and your neighbour's air conditioner is making noise, the more you think about it the more it disturbs you. When</p>	<p>feelings in a way that increases our ability to manage difficult situations and make wise choices</p> <p>Try to practice mindfulness regularly</p> <p>Mindfulness meditation can be practiced anywhere at any time</p> <p>Research has suggested that it can reduce the effects of stress, anxiety and related problems such as insomnia, poor concentration and low moods, in some people⁴⁴</p> <p>Our Be Mindful website features a</p>	<p>you at this time. Most students will be able to cope with support from friends, family and the Counselling service. Unisa Counselling help you to:</p> <p>Call home free of charge</p> <p>Access appropriate support services and resources available to you both inside and outside of the University</p> <p>Negotiate any specialized, personal, academic or visa requirements</p>	<p>important, yet a company culture that celebrates innovation and dedication to that vision and strategy will do as much to motivate employees.</p> <p>Recognize team members who go the extra mile and are willing to take risks on implementing new ideas. Clear communication is paramount. Team communications should be transparent and factual. Employees whose ideas and concerns are listened to and acted upon by management will feel connected and part of the decision-</p>	<p>the larger society far more than enabling indigenous self-government. In some cases, as with the Embara-Katio of Colombia who were forcibly relocated to a war zone to accommodate the construction of a large hydro-electric dam, the harm—measured in human lives—is irreparable.</p>	<p>mostly on NA than on PA. Most models of stress do not attempt to explore PA and its adaptation significance. There is ample research evidence showing how NA accompanies chronic stress.</p> <p>However, there is an increasing empirical evidence showing that PA also occurs during chronic stress, often with surprising frequency (Khosla, 2006) In another study both</p>	<p>pride and keep workers motivated during tough times.</p> <p>Free car washes.</p> <p>Express exterior car washes cost around \$5 per wash. That means for \$100, you can give 20 employees a shiny car every month. Or have a fund raiser for a community organization on your parking lot. They bring the people and the supplies, and you pay them \$5 for each car washed. This tells the employee you appreciate them and tell the</p>
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		you develop a greater tolerance for the unpleasant noise, the more likely it blends into the background. The same process can occur with the audios. As you accept the audio without the judgment you may find it is not as unpleasant as you thought.	specially developed online course in mindfulness, as well as details of local courses in your area	Negotiate extensions if you are unable to concentrate on study Work out solutions for any other problems that you may be facing as a result of the natural disaster	making process. Feeling part of goes a long way toward building commitment and dedication.		PA and NA were experienced by depressed and non-depressed participants in response to depressive film stimuli in the laboratory (Khosla, 2001).	community you care.
	Experience this practice of self-discovery, have a friend ask you the question, who are you? Then, answer with the first thing that comes to your mind. Your friend then asks Who you are. Again. You again answer	The first step is learning to use the relaxation methods. During the initial learning it is best to use the audios that are more pleasant for you. However, as you become more skilled try audios you don't think you would like as much. If you like the beach but	Don't be too hard on yourself Try to keep things in perspective. Remember that having a bad day is a universal human experience When your inner critic or an outer critic finds faults, try and find truth	'Problem solving' is one of a series of five information sheets about general psychological strategies to help people to cope and recover after bushfires. Following bushfires,	Get the team involved in managing resources. When you involve appropriate team members in the resource allocation process, you create a spirit of collaboration on important decisions. Plus, you probably get more	They must educate themselves about the legacy of those wrongs for indigenous peoples and for themselves. They must change their laws to ensure that indigenous peoples can exercise their	They experienced positive emotions significantly more frequently than negative emotions within a short time of occurrence of the negative experience that precipitated the chronic stress. Similarly	Resilience is the ability to thrive in challenging circumstances – it means you can recover quickly from difficult situations. This is commonly mistaken with endurance which is a more rigid mindset where you're

	<p>with the first thing that comes to your mind. Continue the process of asking and responding for about five minutes. What you will uncover may surprise you as you delve into deeper levels of knowing who you are.</p>	<p>don't like the cold, then try the mountain cabin imagery. Or, if you don't like heat, try the tropical garden or the desert imagery.</p> <p>By mindfully experiencing these audios and being able to relax with the ones you don't like you will develop greater emotional tolerance. As you learn to tolerate different experiences with the audios you can eventually transfer that ability to other aspects of your life. However, it may take more practice than using the ones you find most pleasant.</p>	<p>and exception to what is being said</p> <p>If you stumble or feel you have failed, don't beat yourself up</p> <p>Act as if you were your own best friend be kind and supportive</p> <p>Take a few minutes each day to appreciate yourself</p>	<p>people can struggle with a variety of problems, from how to clean up their house block to worrying about arguments with their partner or struggling to supervise children adequately in a new or altered environment.</p>	<p>accurate outcomes when recourses are being managed by the person who is most knowledgeable in their area.</p> <p>Prioritize project resources based on what is most critical to the company's mission; always stay focused on strategic vision and planning. If team members propose a change in priorities and have access to metrics to back up their case, hear them out. By including teams in resource allocation can go a long way toward company-wide buy-in for decisions.</p>	<p>right to self-government. And they must learn the lesson that makes common sense to the Kankanaey: to sacrifice some of their advantages so that their indigenous neighbours, through the exercise of self-government, can achieve equal benefit.</p>	<p>Folkman (1997a) assessed every 2 months for 2 years, 253 care giving partners of men with AIDS. They found that they experienced PA and NA with same frequency. This observation that PA and NA can co-occur during periods of intense stress indicates that despite the overriding stressful circumstances, events that prompt PA also occur</p>	<p>continually pushing your body and mind to the limit without giving up.</p>
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<p>Moreover, cognitive regulation strategies, such as positive reappraisal, predicted perceived resilience among students. Sociability (A factor of HSPQ, sociability) also correlated with resilience levels. Hence, these results are promising, implying that emotion regulation ability may act as a helpful tool preventing adolescents from irrational risky behaviours, commonly assumed at this</p>	<p>Don't wait to feel loving and kind—recognize where you already feel it and then act "as if" in other areas of your life. It's not hypocritical, says Buddhist teacher Judy Lief—it's important training if you wish to increase your capacity to love.</p> <p>Once we have assessed our situation and thought about examples we might emulate, how can we begin to expand our capacity to love? When we are deep into one relationship, it is easy to create a kind of love bubble, a little world that feeds on</p>	<p>Research has shown that stress can sometimes be positive. It can make you more alert and help you perform better in certain situations.² However, stress has only been found to be beneficial if it is short-lived.</p> <p>Excessive or prolonged stress can contribute to illness such as heart disease³ and mental health problems such as anxiety and depression.⁴</p> <p>You may experience periods of constant worry, racing thoughts, or repeatedly go</p>	<p>Following disasters like the Adelaide Hills bushfires, people experience some common and often distressing reactions. These can include strong feelings of grief or anger, difficulty sleeping, or unhelpful behaviours like drinking more alcohol or arguing with people more than usual. But working on some basic coping skills can help a lot. For many survivors, these skills will be enough to enhance recovery and</p>	<p>Everyone has dreams and goals. However, very few people achieve them. This is because majority of us let our limits hold us back. These limits take various forms. Examples are physical inability, doubt, fear or a negative past. When you meet your personal limits, you feel resistance. This makes everything feel much harder to accomplish. Many people around the world are unable to hold on when it gets to this point. Therefore, they give up. It is important to learn how to beat your limits and overcome them.</p>	<p>Flourishing communities create space where people can live in dignity, in security, enjoy the freedom to speak their minds, can realize their capacities and to participate in social, economic, cultural and spiritual life.</p> <p>In building and strengthening these communities we are making it possible to bring about change in society towards a more just, inclusive and sustainable world. This</p>	<p>There is increased effort to examine PA in stress processes. PA has not been entirely neglected in models of stress. It has been discussed in relation to the primary appraisal of stressful situations, whereby affect helps to appraise the stressful situation as a challenge.</p> <p>Various positive emotions as eagerness, excitement and confidence help to master these challenges. PA has also been examined in relation to the appraisal of the</p>	<p>You don't have to spend long in the Challenger space to realize that what is really being asked of an individual is something that requires you to be willing to dig very deep within yourself again and again. A sort of perpetual alertness to keep pushing the boundaries of your own comfort zone and that of others to deliver the big result, shake up the market or to change the playing field on which your competitors participate.</p>
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	developmental stage.	itself and is cut off from the world around us.	over the same things in your head. You may experience changes in your behaviour. You may lose your temper more easily, act irrationally or become more verbally or physically aggressive. ¹⁴ These feelings can feed on each other and produce physical symptoms, which can make you feel even worse. For example, extreme anxiety can make you feel so unwell, that you then worry you have a serious physical condition.	help tackle stressful issues. One very useful skill is problem solving.	This enables you to achieve your goals.	world will be one in which we share our global common goods where we make space for diversity and where we reach out to all those who share our dream of a just, inclusive and sustainable world.	resolution of the stressful encounter as favourable or successful, leading to positive emotions as happiness and pride (Folkman & Lazarus, 1985).	In some cases, the most challenging work for leaders in this space is to slow things down, remain in the ambiguity, deliberately disrupt and disturb habitual patterns of business behaviour to create the conditions for something new to emerge. This kind of action takes courage and self-efficacy.
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<p>Reviewing the literature, we have found studies that show the importance of cognitive and emotional abilities predicting resilience. For example, Artuch-Garde et al. (2017) exposed in their cross-sectional research that the ability to self-regulate behaviour is associated with high levels of resilience in high-school students. Likewise, positive emotions appeared to aid resilient people</p>	<p>Settle Down. There must be a here to be a there, and a connection between the two. So, the first step is to slow down and let your mind settle enough that you can drop from the heights of conceptuality back into your body, a simple form in space. Can you really feel present, in your body as it is, right where you are?</p> <p>Pay Attention to Space. Notice the quality of space within you and around you. Pay attention to the boundaries of your physical body and the space in front, behind, and on each side of you. Also</p>	<p>The process of mobilizing for emergencies and disasters requires consensus-building among all actors so that activities are designed not only provide immediate aid, but also an assessment of the magnitude of damage and needs for humanitarian assistance.</p> <p>In the Americas, all countries have a national risk management and disaster response system of a multisectoral nature, with a central coordinating central agency whose name</p>	<p>Identify the problem</p> <p>First, try to identify what the problem really is. Is this your problem, or does it belong with someone else? Is this a problem you can do something about? If not, put it aside and choose one that you can do something about. And if you're feeling overloaded with all sorts</p> <p>of not-finished tasks, give yourself permission to let some problems wait till later.</p>	<p>Find someone to assist you</p> <p>Sometimes, all that you need to overcome your limits and keep moving towards your dreams is a little encouragement. It is important to have someone to support you when things get tough. They can be a counterbalance for any negative thinking or self-talk that you could have when the going gets hard. By showing you how strong you are, they can help you to shift focus from your limitations to your strengths. As a result, you can accomplish more and push yourself</p>	<p>Responding to actual challenges</p> <p>Perhaps even more relevant now than it ever was, that core value is still a driving force in our work.</p> <p>Four trends are currently fuelling that drive and underlining the need to build flourishing communities.</p> <p>- Inequality is increasing all over the world and the willingness to share resources and benefits is diminishing. This is creating divisions within</p>	<p>PA is an integral part of everyday life. Sometimes certain positive emotions are experienced more intensely than other. PA helps to process emotional information accurately and efficiently, to solve problems, make plans and achieve in one's life. Though</p> <p>there are differences in the ability to intelligently</p> <p>use positive emotions as a means of guiding and understanding one's behaviour and experience. Traditional</p>	<p>In Buddhism there is a very helpful idea that is referred to as the 'near enemy'. In it we can see that even admirable qualities like resilience can be easily confused with something else. It looks roughly the same, we can use similar words to describe it and yet it has a profoundly different effect on others and ourselves. I think that the near enemy of resilience is endurance.</p> <p>I should begin by saying there is nothing,</p>
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	to deal with daily strain (Tugade and Fredrickson, 2004; Ong et al., 2006).	pay attention to the mental–emotional space that accommodates the comings and goings of sensations, thoughts, moods, and emotional upheavals.	varies from country to country: Civil Protection or Défense Agency, National Emergency Bureau or Commission, National Disaster Agency or Department, etc.		to do the things that exist beyond your comfort zone.	societies. ‘Gated neighbourhoods’ throughout the world is the most visible physical evidence of the inequality divide, while the discrimination of (lower) casts in India and indigenous communities in Guatemala are perhaps less visible, but no less impactful.	approaches have tended to overlook and ignore PA. However, the broaden-and-build theory of PA (Fredrickson, 1998, 2001) suggests that PA appears to broaden people’s momentary thought - action repertoires and build them enduring personal resources.	absolutely nothing wrong with endurance. Our history is littered with inspiring examples of people who have endured extraordinary hardship and survived. We can often endure much more than we think we can.
		Jesus said, “As far as possibilities go, everything is possible for the person who believes” (Mark 9:23 GW). I come across people all	The purpose of a damage assessment and needs analysis (DANA) process is to describe, as quickly and objectively as	Assessing the problem If the problem is big, break it into manageable parts. For example, if	The mind is the greatest weapon in our personal arsenals. It is capable of any thought hence can help us to accomplish	Building flourishing communities in areas of conflict and fragility Entrenched poverty is	PA produces patterns of thoughts that are notably unusual, flexible, creative, integrative, and open to information and	However, in the more common context of organizations, those leaders we coach who sometimes think they are resilient

		<p>the time that introduce themselves as “believers,” but adamantly refuse to believe, for whatever reason, truths and promises from the bible for their lives. If we refuse to believe that God can or will do something for us, even though there is biblical evidence for it, then we are simply cutting ourselves off from that possibility. Our lack of belief does not change God; it simply limits us from receiving from God in that area.</p>	<p>possible, the health impact of an adverse event, while considering the response capacity of the sector and ascertaining what additional resources are required to address immediate and future effects.</p>	<p>you’re needing to clean up your block, perhaps you can break it down into house site, shedding, and the rest of your property. Then decide what you’re aiming for, like ‘We need the site to be safe’, or ‘What I can salvage?’, or ‘I want a break from this mess’.</p> <p>Adopting a solution</p> <p>The final step is to sort through the options together with those close to you, or perhaps with a case manager, and choose several that best meet</p>	<p>anything we want. For many, it convinces them to quit when the path gets too challenging. Our minds instinctively protect us. Therefore, when we face imminent hardship, the first response is to give up. If you become used to accepting this, you will become a quitter. If done regularly, this can create a limit and keep you within it. To achieve your goals, you have to overcome the desire to give up. This can be accomplished by looking up to someone whose resilience you admire such as your</p>	<p>endemic in countries and areas that are, or have been, affected by conflict and where the structures of society have become fragile and vulnerable. In these countries and areas, the ability to escape the vicious circle of poverty is limited because of a lack of security, empowerment and opportunities. There are little or no basic social services and, due to a lack of security, the possibilities for making a</p>	<p>efficient (Isen, 1999) and broadens one’s arrays of acceptable behavioural options. It facilitates processing of important self-relevant information (even negative) and potentially damaging to self-esteem (Reed & Aspinwall, 1998). This improves well-being overtime with repeated experiences of PA. This broadened mind set becomes habitual. PA increases attentional focus and behavioural repertoire and the</p>	<p>have fallen into the trap of enduring situations, cultures and practices which are frankly deadening to the spirit of energy and accomplishment. We learn to endure all sorts of subtle things in organizations; small things, which over time build up to a wall that desensitizes us to what a lively, creative, passionate and potent organization could really be like. And we go on to tell ourselves that our survival in such an</p>
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				your goals. Then think what you need to do to give them a go.	role model, a movie star, your parents or your mentor. Watch how they overcome the desire to give up.	living (often through agriculture) are minimal to non-existent. It's in circumstances like these that flourishing communities are a fundamental prerequisite to creating the basic conditions for human dignity.	enhanced personal resources can be used to overcome or deal with a distressing situation.	organization in a leadership position is actually an example of how resilient we are, without realizing that as the years roll by bits of our original enthusiasm, our driving energy, our deep desire to do the right thing has been eroded by the fact that we have survived so many changes.
		Look at Mark 9:23 again. Jesus said, "...everything is possible for the person who believes." As we prepare for 2006, I believe this series will help us elevate our thinking	The weaknesses encountered through the damage assessment and needs analysis are grouped in order of importance according to the magnitude of their	Brainstorming solutions Next, think up as many ways of achieving your goals as you can e.g., temporary fencing to keep	Visualize yourself at the next level One of the most important activities to perform so as to push past your limits is to stay focused. Visualization is a handy tool that you	in times of disaster and emergencies Natural disasters and emergencies often destroy the basic physical and social infrastructures of a community	PA also helps to recover from cardiovascular arousal quickly. Research conducted by Folkman (1997a) provides a useful compliment to	That is why it is the near enemy of resilience. It feels good to have endurance, but it can become the goal. If resilience is lively, challenging,

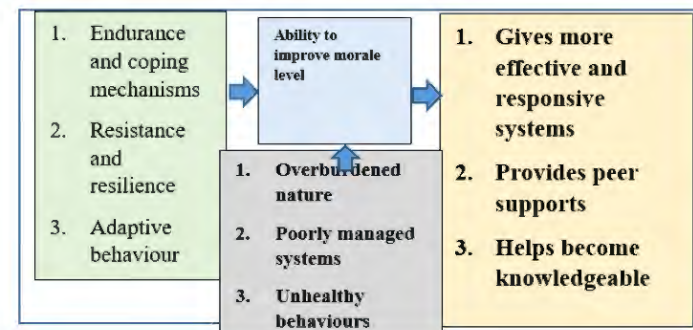
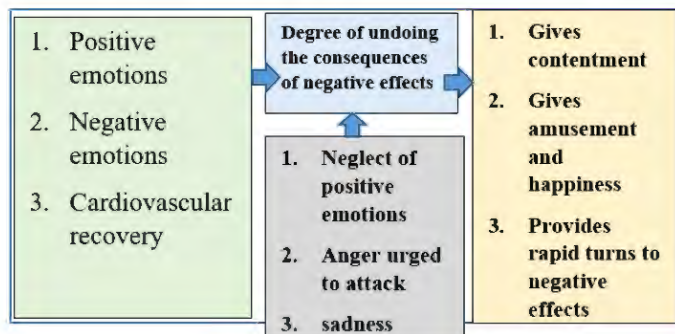
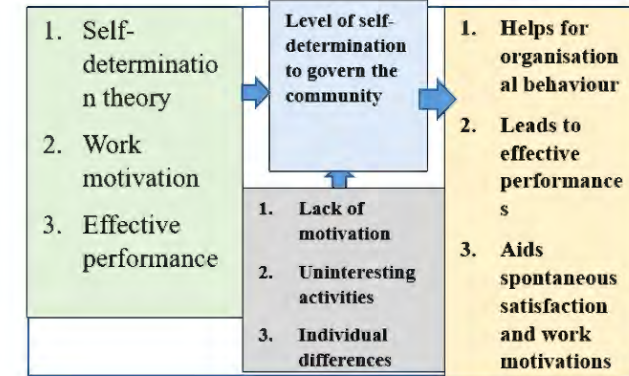
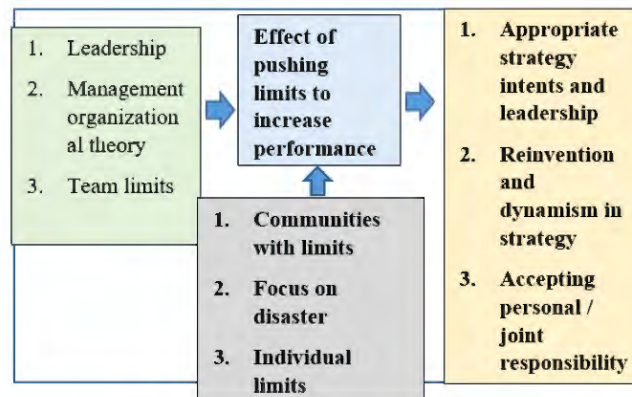
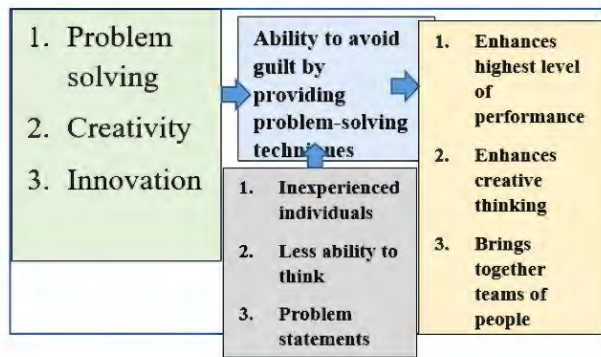
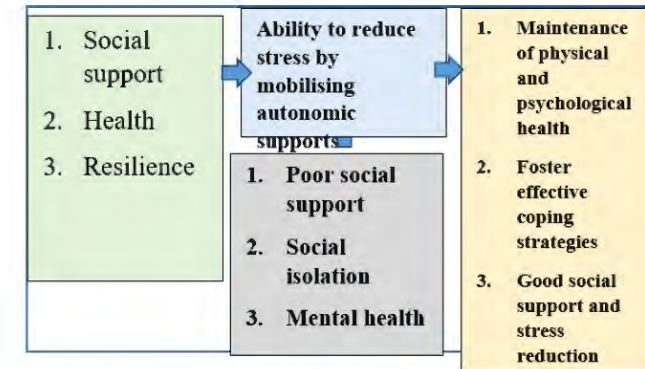
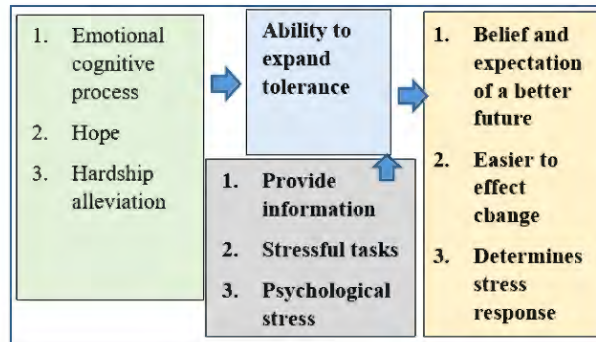
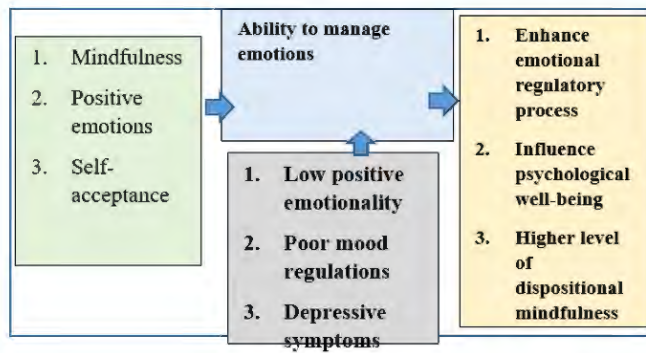
		<p>towards God and our expectations for the New Year. In this series we will cover the following areas:</p> <ol style="list-style-type: none"> 1. God has no limits – He cannot fail 2. God desires to overcome our limits with His limitless ability 3. What we believe determines what we are available to receive 4. We limit what our limitless God can do for us through our belief system 5. As we expand our capacity to believe, we release 	<p>repercussions on health. Subsequently, potential solutions are analysed. Major problems that are easy to solve with available resources will receive priority for action, while smaller problems that are not likely to have a major impact or are unlikely to be resolved quickly will receive lower priority.</p>	<p>children out of the rubble, organizing a working bee, accessing a government-funded service, or going away for a short break. Try writing your ideas down and come up with lots a range of ideas can help at this stage!</p>	<p>can use towards this effect. You need to focus on what you want to get motivated in pursuing your plan despite your imagined limits. Many times, we know where we have been and where we currently are. However, we rarely know exactly where we need to go. Take the time to imagine where you want to be by a certain time in future. Visualize this every single morning when you get up. This will motivate you to go out of your comfort zone and achieve your goals.</p>	<p>and society. The necessity to build or rebuild a flourishing community is therefore very urgent in times of natural disasters and emergencies. It brings people together in difficult and often unsafe circumstances, helps them overcome ethnic, religious and cultural barriers, and makes an important contribution to the empowerment of those people in rebuilding their lives and</p>	<p>Fredrickson’s (1998, 2001) broaden-and-build theory. Under stressful conditions, PA broaden ones thought action repertoire by undoing the cardiovascular reactivity caused by the negative emotions while preparing the body for specific action. Because of broadening of thoughts and actions, PA build the personal resources to effectively regulate negative emotions.</p>	<p>bouncy and full of flexibility; endurance is characterized by stiffness, survival, cutting off from oneself to get through it. That is not the act of a Challenger Leader; it is the act of someone dominated by the need to survive and to cling on.</p> <p>He had become a fortress; if you are going to be a successful challenger leader you need to become a river. You need to be able to flow with the currents and not cling to the sides.</p>
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		God to freely operate in our lives				that of them communities.		
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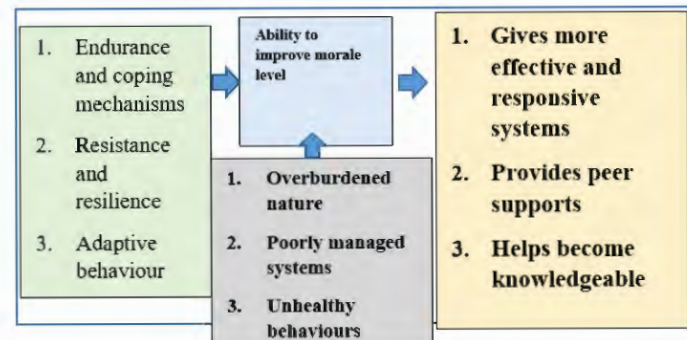
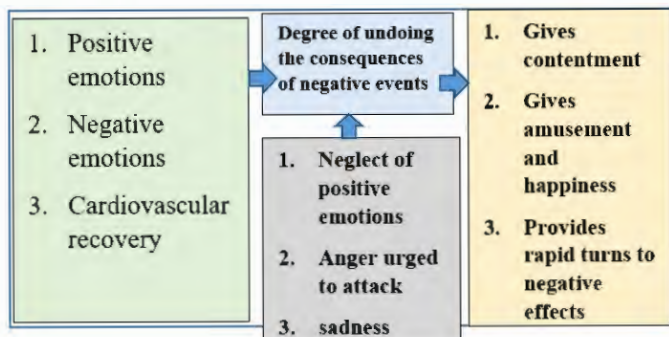
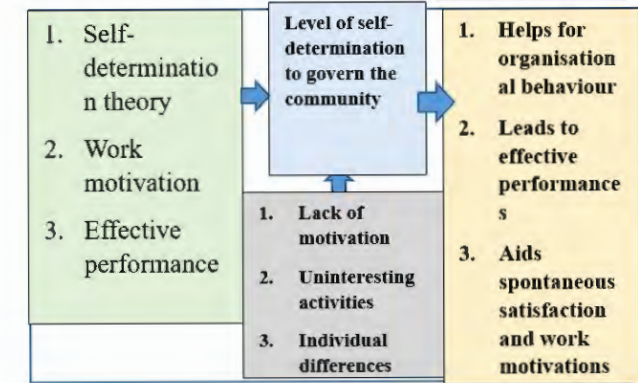
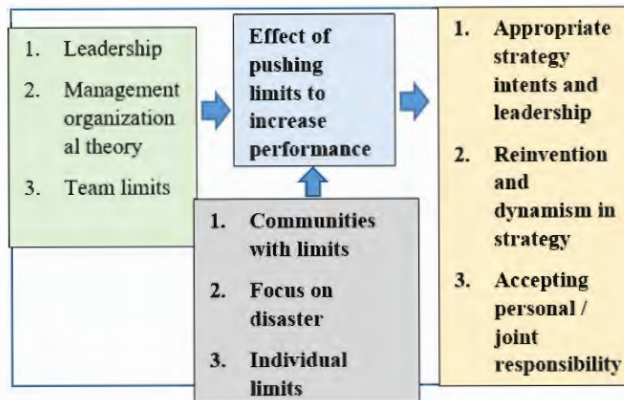
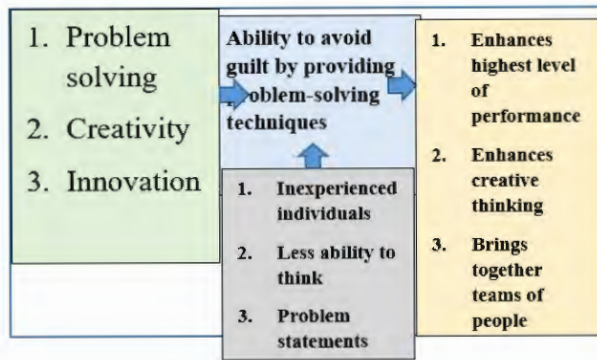
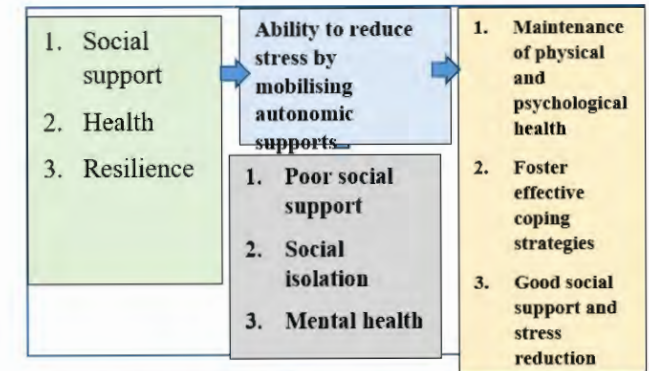
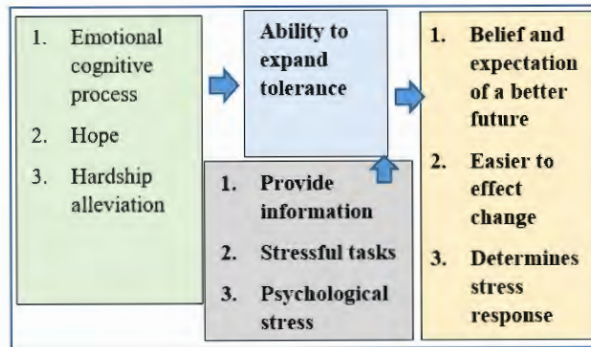
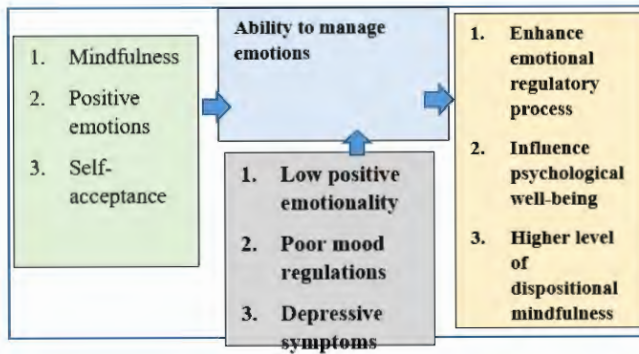
RESEARCH CIRCLES 4.5, STEP 2 (CONCEPT ANALYSIS)

	Manage emotions	Tolerance	Stress management	Avoid guilt	Pushing limits	Self-determination	Undoing the consequences of negative events	Morale level
ATTRIBUTES	Mindfulness	Emotional cognitive process	Social support	Problem solving	Leadership	Self-determination theory	Positive emotions	Endurance and coping mechanisms
	Positive emotions	Hope	Health	Creativity	Management organizational theory	Work motivation	Negative emotions	Resistance and resilience
	Self-acceptance	Hardship alleviation	Resilience	Innovation	Team limits	Effective performance	Cardiovascular recovery	Adaptive behaviour
ANTECEDENTS	Low positive emotionality	Provide information	Poor social support	Inexperienced individuals	Communities with limits	Lack of motivation	Neglect of positive emotions	Overburdened nature
	Poor mood regulations	Stressful tasks	Social isolation	Less ability to think	Focus on disaster	Uninteresting activities	Anger urged to attack	Poorly managed systems

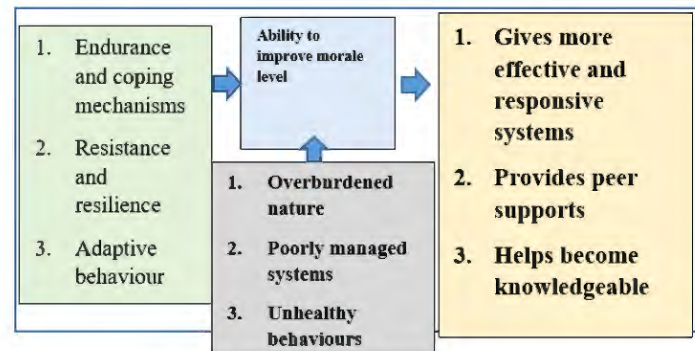
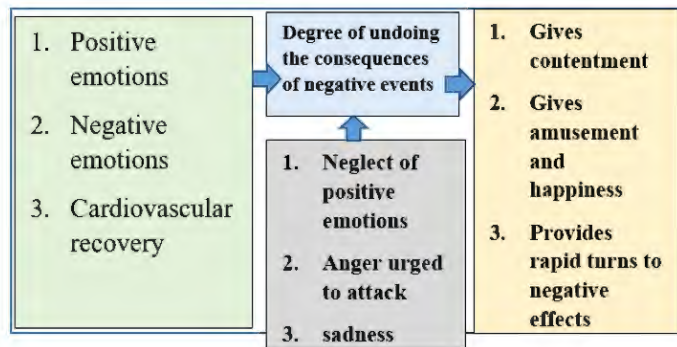
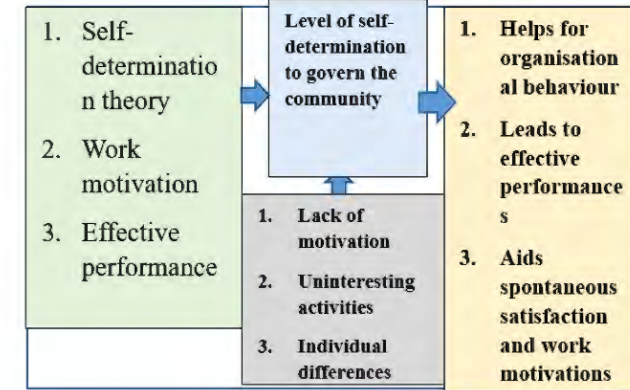
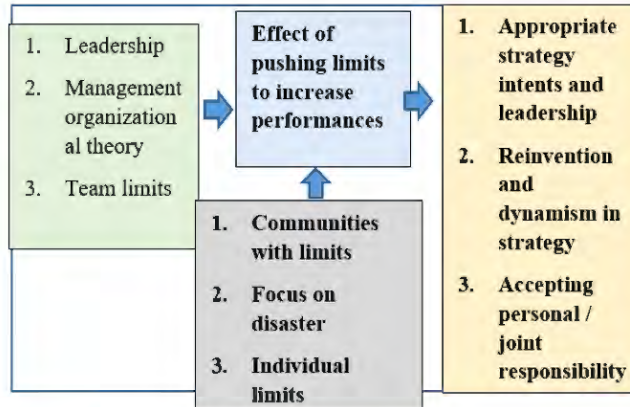
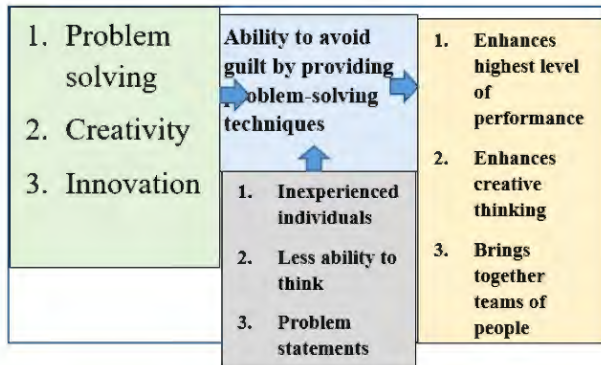
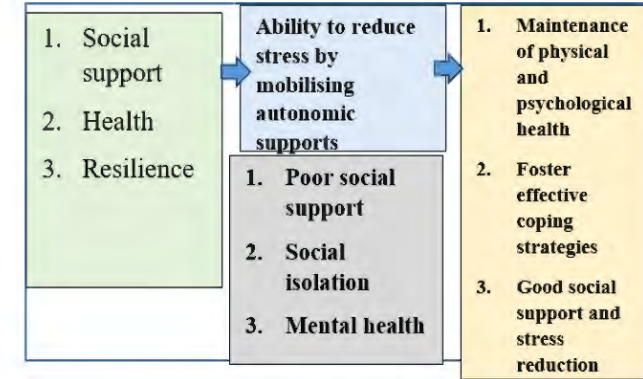
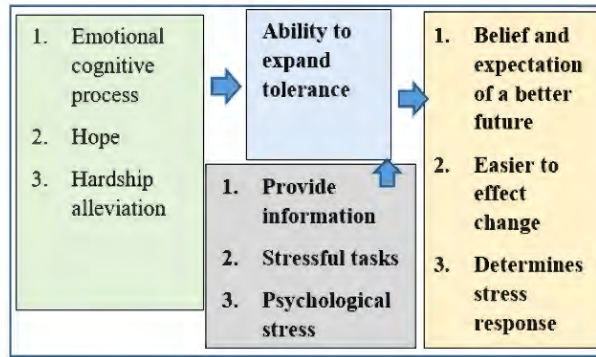
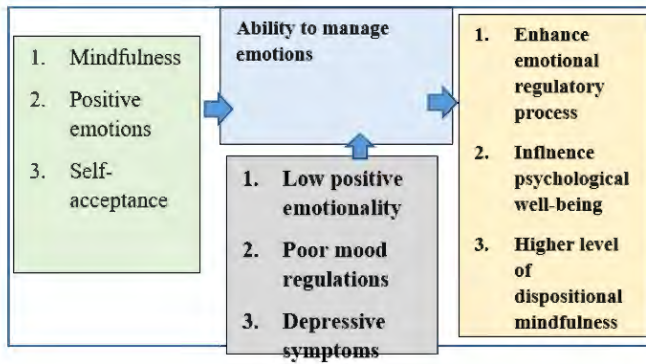
	Depressive symptoms	Psychological stress	Mental health	Problem statements	Individual limits	Individual differences	sadness	Unhealthy behaviours
CONSEQUENCES	Enhance emotional regulatory process	Belief and expectation of a better future	Maintenance of physical and psychological health	Enhances highest level of performance	Appropriate strategy intents and leadership	Helps for organizational behaviour	Gives contentment	Gives more effective and responsive systems
	Influence psychological well-being	Easier to effect change	Foster effective coping strategies	Enhances creative thinking	Reinvention and dynamism in strategy	Leads to effective performances	Gives amusement and happiness	Provides peer supports
	Higher level of dispositional mindfulness	Determines stress response	Good social support and stress reduction	Brings together teams of people	Accepting personal / joint responsibility	Aids spontaneous satisfaction and work motivations	Provides rapid turns to negative effects	Helps become knowledgeable



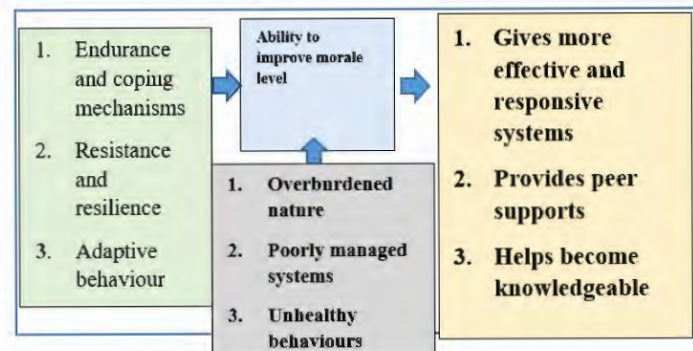
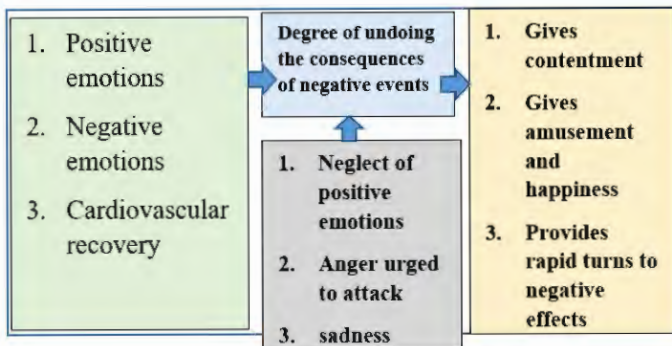
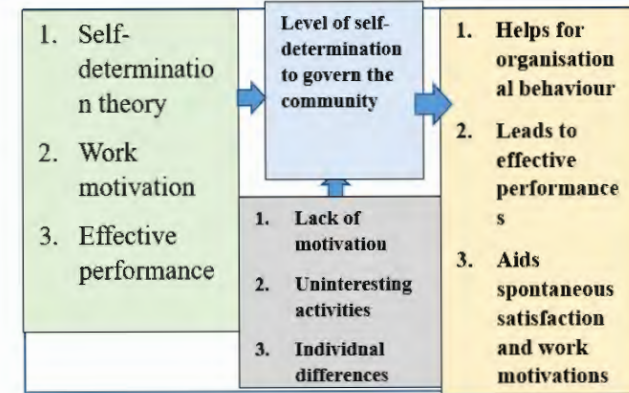
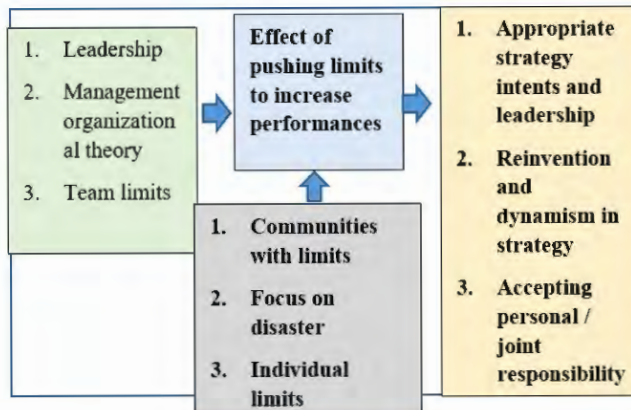
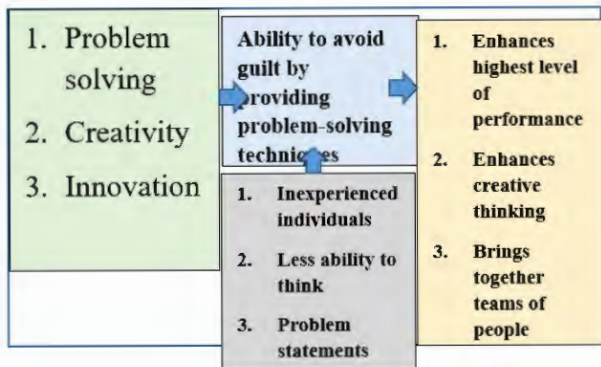
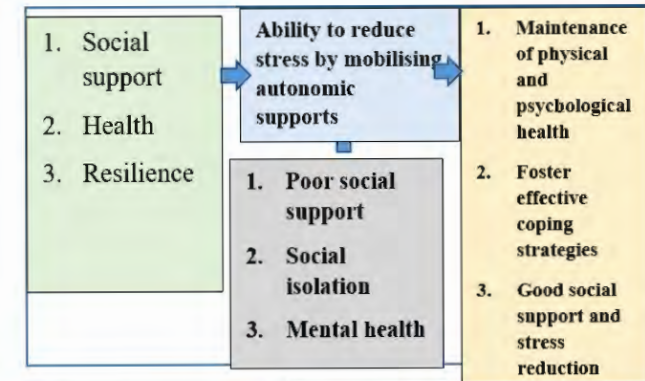
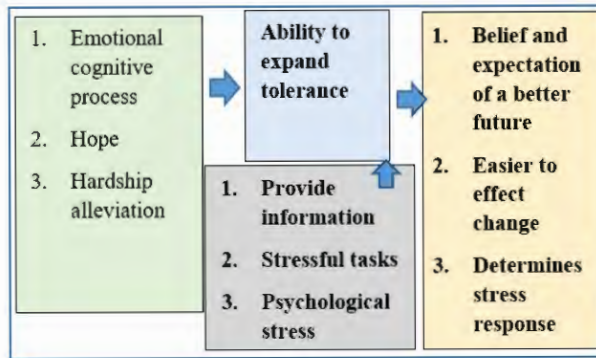
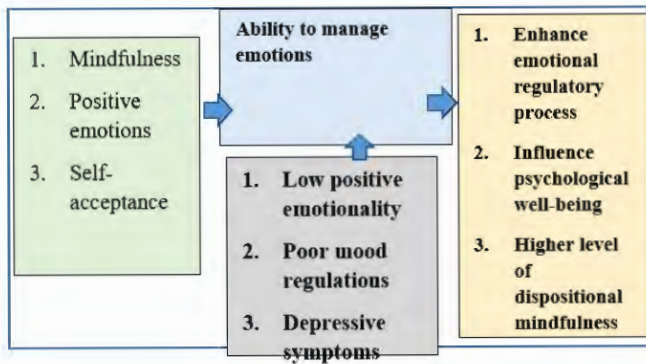
*Concept Analysis
of my Core Variables*



I Choose the relationship between a consequence and antecedent



I Choose the 14 of all relationship between a consequence and antecedent



It linked the variables:

The consequence-antecedent relationship between 2 variables provides the argument for the causal relationship between the variables

A7: List of reference (cycle four)

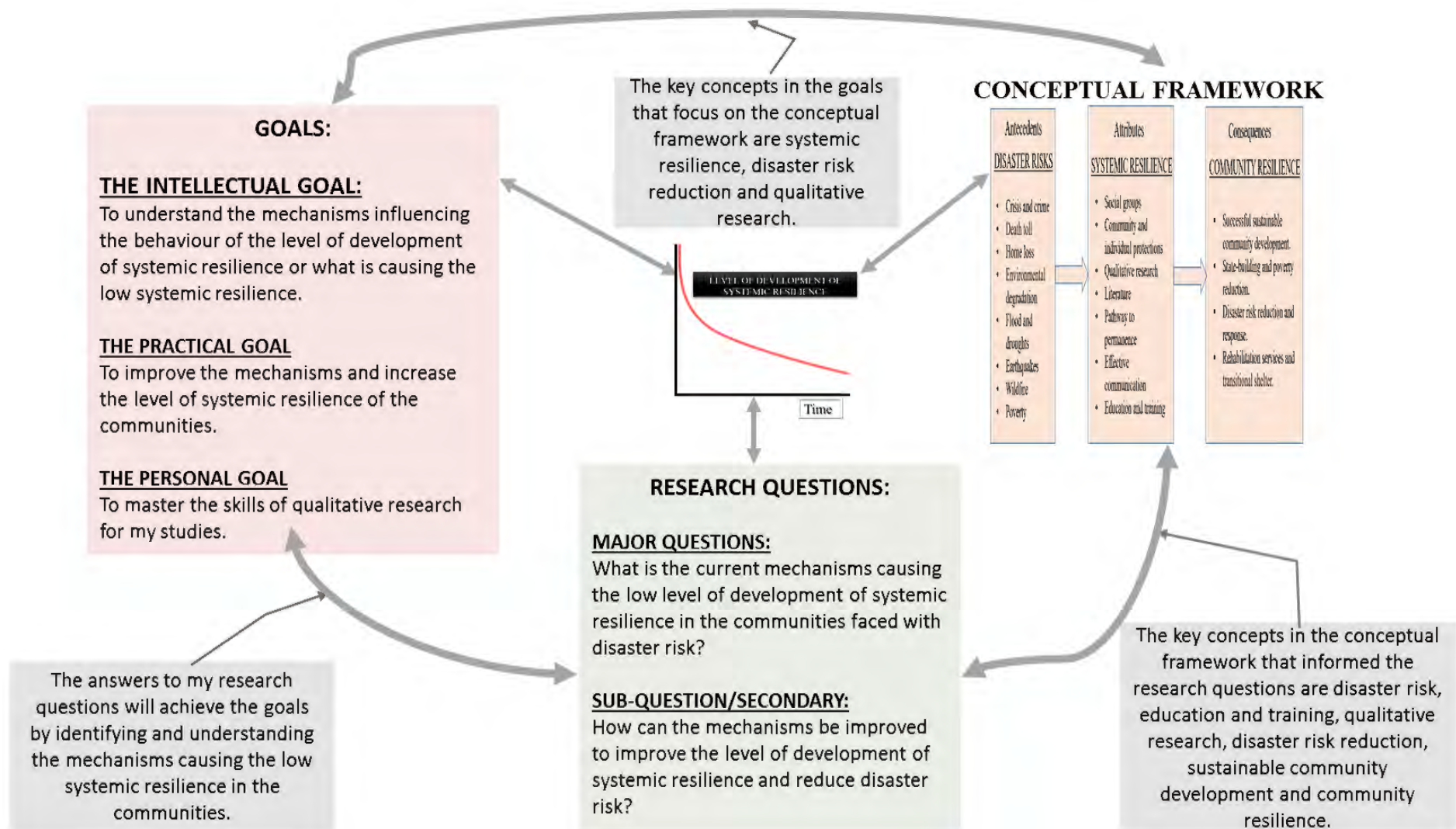
1. Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American psychologist*, 56(3), 218.
2. Linda Graham. Positive emotions build resilience. Resource for recovering resilience. <https://lindagraham-mft.net/positive-emotions-build-resilience/> [accessed 12 April 2019].
3. Interviews .2019. number 3-7.
4. Fredrickson, B. (2009). Positivity. Harmony.
5. Fredrickson, B. L. (2004). The broaden-and-build theory of positive emotions. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 359(1449), 1367.
6. J Pers Soc Psychol. PMC 2011. Resilience individuals use positive emotions to bounce back from negative emotional experiences. US national library of medicine national institutes of health. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3132556/> [accessed 02 May 2019].
7. Jeanne S. 2018. Help Guide. Improving emotional intelligence (EQ). key skills for managing your emotions and improving your relationships. <https://www.helpguide.org/articles/mental-health/emotional-intelligence-eq.htm/> [accessed 02 May 2019].
8. Mind Tools Cooperate (2014). Essential Skills for Your Organization. Broaden and Build Theory. Your 10-Minute Guide to Using Positive Emotions to Build a Successful Team. www.mindtools.com/corporate.
9. Fredrickson, B. L. (1998). What good are positive emotions? *Review of general psychology*, 2(3), 300.
10. Fredrickson, B. L., & Joiner, T. (2002). Positive emotions trigger upward spirals toward emotional well-being. *Psychological science*, 13(2), 172-175.
11. SAHMRI. The wellbeing and resilience centre. PERMA + positive emotion. South Australian Health & Medical Research Institute. <https://www.wellbeingandresilience.com/positive-emotion> [Accessed 04 May 2019].
12. Fredrickson, B. L., Tugade, M. M., Waugh, C. E., & Larkin, G. R. (2003). What good are positive emotions in crisis? A prospective study of resilience and emotions following the terrorist attacks on the United States on September 11th, 2001. *Journal of personality and social psychology*, 84(2), 365.
13. Alina V (2012). Positive emotions, coping strategies and ego-resiliency: A mediation model. *Procedia social and behavioural sciences*. ELSEVIER.
14. Tugade, M.M. and Fredrickson, B.L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. *Journal of personality and social psychology*, 86(2), p.320.
15. Nadine B (1983). Emotional effects of natural disasters. *The New York Times*. <https://www.nytimes.com/1983/06/27/style/emotional-effects-of-natural-disasters.html> [Accessed 08 May 2019].
16. Stewart C (2008). Social workers, resilience, positive emotions and optimism. *Practice Social Work in Action*. <https://www.tandfonline.com/doi/full/10.1080/09503150701728186> [Accessed 08 May 2019].
17. Pillay S (2016). Greater Self-acceptance Improves Emotional Well-being. Trusted Advice for a Healthier Life. Harvard Medical School. Harvard Publishing. <https://www.health.harvard.edu/blog/greater-self-acceptance-improves-emotional-well-201605169546> [Accessed, 29 May 2019].
18. Edelman B (2012). Self and Self-Discovery. Who am I, really? Authentic Engagement. *Psychology Today*. <https://www.psychologytoday.com/us/blog/authentic-engagement/201207/self-and-self-discovery> [Accessed, 29 May 2019].

19. Mestre, J. M., Núñez-Lozano, J. M., Gómez-Molinero, R., Zayas, A., & Guil, R. (2017). Emotion Regulation Ability and Resilience in a Sample of Adolescents from a Suburban Area. *Frontiers in psychology*, 8, 1980. doi:10.3389/fpsyg.2017.01980.
20. Frank M.A (2016). Developing Emotional Tolerance. Pursuing Excellence in Life, Relationships, Sports and Career. Excel At Life. <https://www.excelatlife.com/blog/48/1.htm> [Accessed, 29 May 2019].
21. Lief J (2014). Expanding Your Capacity to Love. OMEGA. Rhinebeck, NY 12572 <https://www.eomega.org/article/expanding-your-capacity-to-love> [Accessed, 29 May 2019].
22. Today's Word Blog (n.d). Expanding your Capacity to Believe God! Rick Pina Ministries. Rick Pina's Blog. <http://todaysword.org/teaching-series/faith/expanding-capacity-to-believe/> [Accessed, 29 May 2019].
23. Mental Health Foundation Blog. How to Manage and Reduce Stress. God Mental Health for all. <https://www.mentalhealth.org.uk/publications/how-manage-and-reduce-stress> [Accessed, 29 May 2019].
24. World Health Organisation Blog. Mobilizing for Emergency and Disasters. Knowledge Center on Public Health and Disasters. Pan American Health Organization. http://www.saludydesastres.info/index.php?option=com_content&view=category&layout=blog&id=126&lang=en [Accessed, 29 May 2019].
25. University of South Africa Blog. Coping with Natural Disasters. Metropolitan campuses/Unisa Online students 1300 301 703. <https://i.unisa.edu.au/students/student-support-services/counselling/self-help-resources/coping-with-natural-disasters/> [Accessed, 29 May 2019].
26. Australian Psychological Society (2019). Useful Skills for Disaster Recovery: Problem Solving. Believe in Change. <https://www.psychology.org.au/for-the-public/Psychology-topics/Disasters/Bushfires/Recovering-from-bushfires/Useful-skills-disaster-recovery-problem-solving> [Accessed, 29 May 2019]. Melbourne VIC.
27. Amanda K (2015). 7 Ways to Improve Team Performance. <https://www.liquidplanner.com/blog/7-ways-to-improve-team-performance/> [Accessed, 30 May 2019]. Liquid Planner Blog.
28. Great Performers Blog. How to Push Beyond Your Limits and Achieve Your Biggest Goals. Motivation. <https://greatperformersacademy.com/motivation/how-to-push-beyond-your-limits-and-achieve-your-biggest-goals> [Accessed, 30 May 2019].
29. Luts E (2005). Self-Determination: The Most Effective Way To Improve Indigenous Quality. <https://www.culturalsurvival.org/publications/cultural-survival-quarterly/self-determination-most-effective-way-improve-indigenous> [Accessed, 30 May 2019]. Cultural Survival Quarterly Magazine.
30. Cordaid. Building Flourishing Communities. Cordaid's Mission in the World of Today and Tomorrow. https://www.cordaid.org/en/wp-content/uploads/sites/3/2013/05/Building_flourishing_communities.pdf [Accessed, 30 May 2019].
31. Khosla, M. (2006). Positive affect and coping with stress. *Journal of the Indian Academy of Applied Psychology*, 32(3), 185-192.
32. Zidle M (n.d). Improving Morale and Overcoming Negativity. <https://managementhelp.org/leadingpeople/improving-morale.htm> [Accessed, 30 May 2019]. Free Management Library.
33. Breeze C (2015). Resilience Not Endurance. The Life Adventure. <https://thelifeadventure.co/resilience-not-endurance/> [Accessed, 30 May 2019]. The Life Blogs.
34. Jimenez, S.S., Niles, B.L. and Park, C.L., 2010. A mindfulness model of affect regulation and depressive symptoms: Positive emotions, mood regulation expectancies, and self-acceptance as regulatory mechanisms. *Personality and individual differences*, 49(6), pp.645-650.
35. Breznitz, S., 1999. The effect of hope on pain tolerance. *Social Research*, pp.629-652.

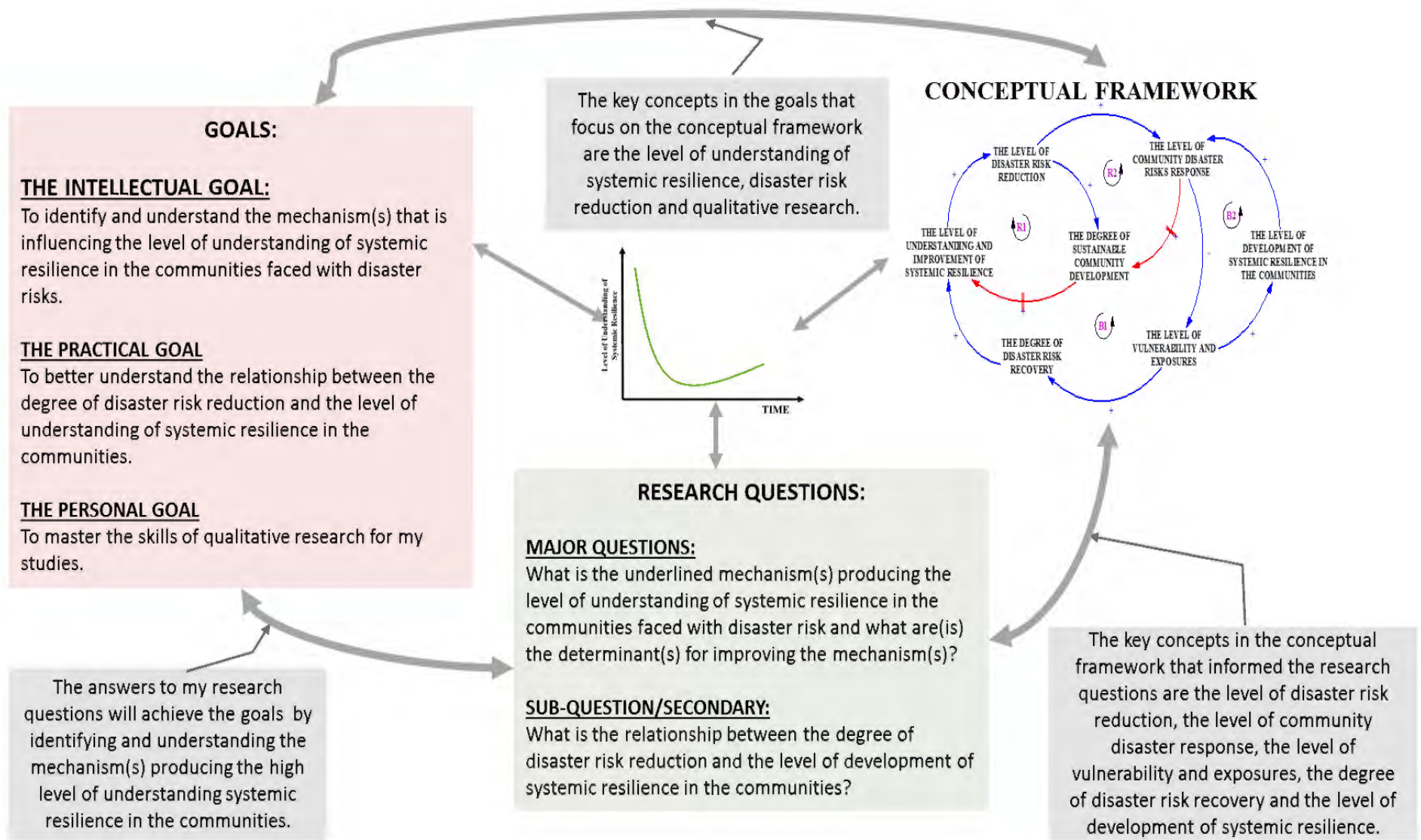
36. Ozbay, F., Johnson, D.C., Dimoulas, E., Morgan III, C.A., Charney, D. and Southwick, S., 2007. Social support and resilience to stress: from neurobiology to clinical practice. *Psychiatry (Edgmont)*, 4(5), p.35.
37. McFadzean, E., 1998. The creativity continuum: Towards a classification of creative problem-solving techniques. *Creativity and Innovation Management*, 7(3), pp.131-139.
38. Tempest, S., Starkey, K. and Ennew, C., 2007. In the Death Zone: A study of limits in the 1996 Mount Everest disaster. *Human Relations*, 60(7), pp.1039-1064.
39. Gagné, M. and Deci, E.L., 2005. Self-determination theory and work motivation. *Journal of Organizational behavior*, 26(4), pp.331-362.
40. Barbara L. Fredrickson & Robert W. Levenson (1998) Positive Emotions Speed Recovery from the Cardiovascular Sequelae of Negative Emotions, *Cognition & Emotion*, 12:2, 191-220, DOI: 10.1080/026999398379718
41. Eyles, J., Harris, B., Fried, J., Govender, V. and Munyewende, P., 2015. Endurance, resistance and resilience in the South African health care system: case studies to demonstrate mechanisms of coping within a constrained system. *BMC health services research*, 15(1), p.432.

Appendix B: Evolution of the Research Focus

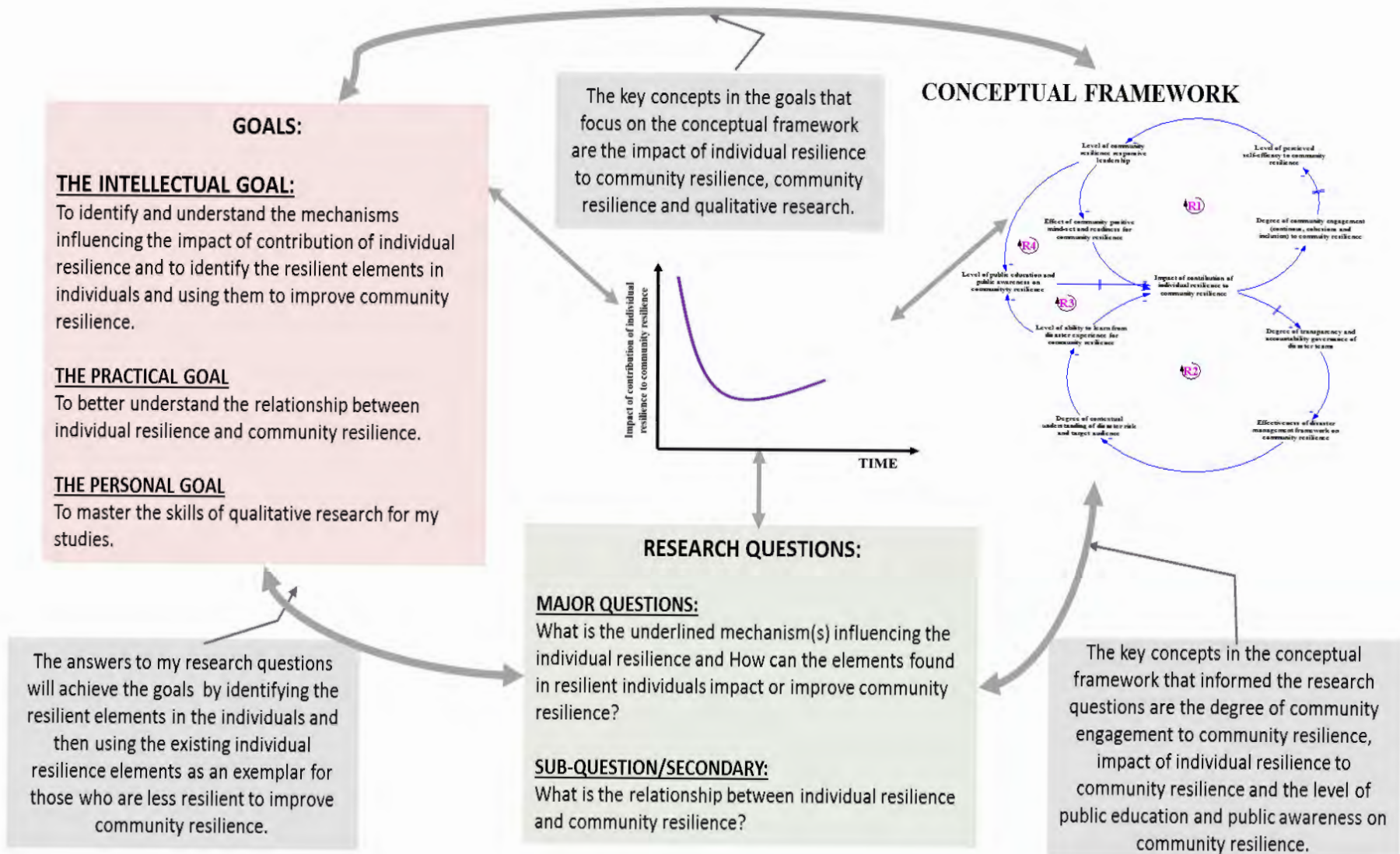
B1: Research cycle one: Establishing the relevance of the research and behaviour of the concern variable



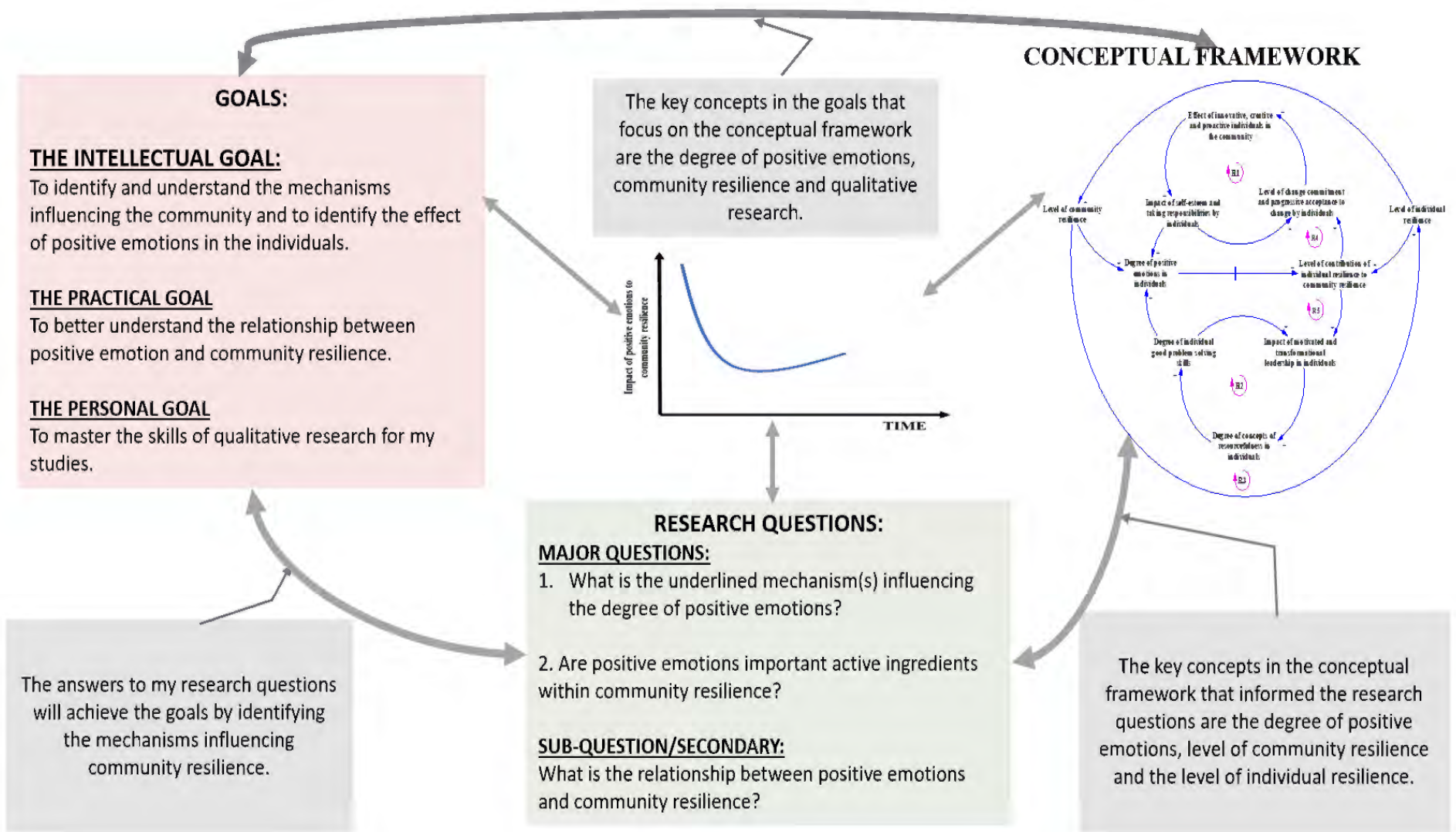
B2: Research cycle two: Establishing the relevance of the research and behaviour of the concern variable



B3: Research cycle three: Establishing the relevance of the research and behaviour of the concern variable



B4: Research cycle four: Establishing the relevance of the research and behaviour of the concern variable



Appendix C: University of Cape Town's Ethics Approval

Application for Approval of Ethics in Research (EIR) Projects Faculty of Engineering and the Built Environment, University of Cape Town

APPLICATION FORM

Please Note:

Any person planning to undertake research in the Faculty of Engineering and the Built Environment (EBE) at the University of Cape Town is required to complete this form before collecting or analysing data. The objective of submitting this application prior to embarking on research is to ensure that the highest ethical standards in research, conducted under the auspices of the EBE Faculty, are met. Please ensure that you have read, and understood the EBE Ethics in Research Handbook (available from the UCT EBE, Research Ethics website) prior to completing this application form: <http://www.ebe.uct.ac.za/usr/ebe/research/ethics.pdf>

APPLICANT'S DETAILS		
Name of principal researcher, student or external applicant	ONYEAGOZIRI JOHN ONYEKACHI	
Department	MECHANICAL ENGINEERING	
Preferred email address of applicant:	Onyekaboy2013@yahoo.com	
If a Student	Your Degree: e.g., MSc, PhD, etc.,	MPHIL
	Name of Supervisor (if supervised):	DR CORRINNE SHAW
If this is a research contract, indicate the source of funding/sponsorship	Click here to enter text.	
Project Title	Development of Systemic Resilience of Communities to Disaster Risk Reduction and Response in South Africa: Determinants for Community Development	

I hereby undertake to carry out my research in such a way that:

- there is no apparent legal objection to the nature or the method of research; and
- the research will not compromise staff or students or the other responsibilities of the University;
- the stated objective will be achieved, and the findings will have a high degree of validity,
- limitations and alternative interpretations will be considered;
- the findings could be subject to peer review and publicly available; and
- I will comply with the conventions of copyright and avoid any practice that would constitute plagiarism.

SIGNED BY	Full name	Signature	Date
Principal Researcher/ Student/External applicant	ONYEAGOZIRI JOHN O		08 Nov 2017

APPLICATION APPROVED BY	Full name	Signature	Date
Supervisor (where applicable)	DR CORRINNE SHAW		08 Nov 2017
HOD (or delegated nominee) Final authority for all applicants who have answered NO to all questions in Section 1; and for all Undergraduate research (including Honours).	Click here to enter text.		Click here to enter a date.
Chair : Faculty EIR Committee For applicants other than undergraduate students who have answered YES to any of the above questions.	Click here to enter text.		Click here to enter a date.