2014

Propositional Analysis, Policy Creation, and Complex Environments in the United States' 2009 Afghanistan-Pakistan Policy

Cris Shackelford
Walden University

Walden University

College of Social and Behavioral Sciences

This is to certify that the doctoral dissertation by

Crisanna Shackelford

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Ron Hirschbein, Committee Chairperson,
Public Policy and Administration Faculty

Dr. George Larkin, Committee Member,
Public Policy and Administration Faculty

Dr. Sylvia Gage, University Reviewer,
Public Policy and Administration Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2014

Abstract

Propositional Analysis, Policy Creation, and Complex Environments in the United States' 2009 Afghanistan-Pakistan Policy

by

Crisanna L. Shackelford

MA, Monterey Institute for International Studies, 1993

BA, Monterey Institute for International Studies, 1991

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Policy and Administration

Walden University

December, 2014

Abstract

In the very recent past, military conflicts have become increasingly nonlinear and the interrelated political and socio-economic changes evident in these conflicts have created new challenges to American policymakers. The purpose of this single case study was to determine whether Wallis' Propositional Analysis (PA) is an effective explanatory lens that adds heuristic value to complex policy decision-making. A backdrop of Wallerstein's complexity theory and complex adaptive systems (CAS) guided this study. This study examined the Obama administration's policy for the Afghanistan and Pakistan conflicts in late December 2009. Data for this study consisted of policy statements made by the Obama Administration beginning in December 2009. Data were coded analyzed using Wallis' specific methodological approach that includes a systematic analysis of the policy's propositions and complexity and robustness/systemicity. Key findings indicate that PA is an effective method of evaluating complex and nonlinear public policy environments. In addition to effectively explaining and adding predictive value to the analysis, it is consistent with the theoretical principles associated with complex adaptive systems. Finally, this study demonstrated that an interwoven PA structural approach to policy analysis, along with empirical approaches, may validate causal relationships between factors and variables that ultimately may lead to better policy development. By applying PA, policy makers can positively impact social change by exploring policy options that ultimately save lives and resources and consider a range of possible complex outcomes from the policy proposal – prior to policy implementation.

Propositional Analysis, Policy Creation, and Complex Environments in the United States' 2009 Afghanistan-Pakistan Policy

by

Crisanna L. Shackelford

MA, Monterey Institute for International Studies, 1993

BA, Monterey Institute for International Studies, 1991

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Policy and Administration

Walden University

December 2014

Acknowledgments

Reading and research, for me, have always been adventures of discovery. This study reflects yet another stay in my personal and intellectual sojourn – one which has opened yet more pathways and prompted me to ask (and try to discover) even more questions. In this study, I explored a broad range of research topics related to how one thinks about how to think about complexity, systems and their behaviors, conflict and nonlinear warfare, tradecraft skills and methodologies for such analysis, and – of course – policymaking. I have come to embrace the themes, concepts, and arguments found within the articles and pages of books on these topics, and the many personal conversations with colleagues and friends on the topics. There are many to thank. I have told most of you already, but I want to make sure that I make special mention to my dissertation chair, committee members, and team.

My Walden friends – Dr. Ron Hirschbein, Dr. Dick Larkin, Dr. Sylvia Gage, Dr. Mark Gordon and Dr. Joyce Haynes and Jeanne Ainslie – you share a special place among the many university facility and staff who influenced my decisions to take the path of study that I did – and made sure that I graduated. Also, I must note that none of this would have been possible were it not for the work of Dr. Steven Wallis and his work on social theory.

To all of my friends who encouraged me along the way – thank you. Carol, you get a special mention here. To my family – thank you. Becky, you too have a special mention here. To my daughter and granddaughter – thanks for all your love and support.

To my best friend: Thank you for giving me the words needed to move on.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction to the Study

Background of the Study

Public policies serve a critical role because they not only represent an explicit statement of how the policy problem is conceptualized and understood but they also inform how the policy issues will be addressed (Wallis, 2011). Dery (1984) argued that policy problems present themselves as requirements for change through policy action. Ackoff (1974) argued such "policy action" actually represents a series of dynamic changes whereby the scope and boundaries, the complexity and interrelatedness of a broad range of problems, must be considered at once when developing policy for such complex environments. These scholars are among those to be discussed in the present study and whose research on policymaking has been set against a backdrop of complex environments. They have examined characteristics of systems' interactions within broader systems including, for example, social systems, belief systems, and the policymaking challenges that arise as a result of dynamic behaviors.

With a recognition that policies themselves reflect how complex environments are understood, policymakers are beginning to turn to new theories that can help provide both a theoretical and methodology framework for how to analyze policies and complex policy environments. It is be argued that if policy environments are complex, then the way in which policymakers develop policy should employ rigorous methods of policy analysis derived from a rich body of research found with the domain of complexity theory (Banks, 2008; Wallis, 2011).

Complexity theory provides a conceptual framework designed to analyze complex, ill-structured, or, as they are often described, 'wicked problem' policy environments (Mitchell, 2009). As such, the theoretical framework needs further exploration with regard to its potential applications towards policymaking (Mitchell, 2009). One reason for this exploration is that current research suggests that the thinking has changed about how to fully conceptualize a policy issue and develop a subsequent policy within the realm of complex operational environments such as Afghanistan and Pakistan (Wallis, 2011). Policymakers need to consider how knowledge is generated, reflect on such epistemology and habituated methodological processes used for developing public policy, and consider how theoretical frameworks constrain how a policy issue is perceived and developed (Dent, 1999; Lakoff & Johnson, 1980; Wallis, 2011).

This charge is largely made in response to an awareness that the nation is witnessing and is part of an era of persistent complex conflict, and that the changing nonlinear nature of conflict and warfare has changed how conflict is conceptualized (Bousquet, 2011; Hall & Citrenbaum, 2013; Lawson, 2014). It is now common to read of the interrelated, intersubjective, and multifactorial aspects of political, social, and economic features of the conflict environment nested within the more traditionally understood insurgent and terrorist activity of this country's adversaries (Caldwell, 2011; Hall & Citrenbaum, 2010; Holland, 2012; Lawson, 2011; Lawson, 2014; McChrystal, 2013).

The increasingly globalized scale of dynamic factors contributing to such complex environments reveals the difficulties faced in developing robust public policies. Banks (2008), for example, has argued tools used to support decisions from policy analysis can benefit from "robust options" that are derived from a broad range of theoretic frameworks and assumptions (p. 123). Policymakers must choose the right methods and descriptive theory for the development of public policy in the context of how complex, nuanced mosaics of local events and global influences bear on how policy is developed. Too often, policy recommendations concerning complex environments are conceptualized without regard to the dynamic and interactive behavior inherent in such conflicts (Anderson, 2003; Brachman, 2008; Chapman, 2004; Dennard et al., 2008).

The time to think about complexity and change, and how change will occur in a future contested, complex policy environment, is before the policy is implemented. The time to ask the question, "What role does the policy itself play in the outcome?" should also be asked beforehand (Wallis, 2011). A body of scholarship has emerged on the systems comprised of humans and their interactions within broader systems and the problems that arise as a result of dynamic behavior (Ackoff, 1974; Dery, 1984; Dennard et al., 2008). If complex policy environments are just that, complex, then the way in which policymakers develop policy should employ rigorous methods of policy analysis derived from a rich body of research found with the domain of complexity theory (CT) (Wallis, 2011). Yet rather than adopt a holistic or systems thinking approach to the conflict and subsequent policy development, policymakers tend to disregard the complex

environment's critical systems characteristics, opting instead to apply reductionist approaches to the analysis of the problems (Marion, 1999).

A Post-Positivist Perspective

The philosophical origins about how knowledge is derived is addressed early in this study and as part of the introduction. Much of the way in which knowledge is generated, it can be argued, is currently grounded in a positivist philosophy, yet should be questioned (Wallerstein, 2001, 2004). Current and future complex environments require theoretic models that, arguably, are oriented on the complex. The positivist worldview, attributed to Auguste Comte from the 18th century, holds that an objective truth can be identified through a rigorous application of scientific methodologies. These must focus on the relationship of how to test and investigate--that is, testing, in a linear and reductionist manner, variables that would yield knowledge and provide for some explanation of behavior (Greenfield, et al., 2007; Reed, 2010). The much-championed empirical, repeatable methods of analysis, while applicable in areas of study where mechanistic principles and behaviors are present, require new frameworks for complex and dynamic conflict issues (Reed, 2010; Wallerstein, 2004). An example of reductionist approaches (positivism) would be when the policymaker focuses on governments, political structures, and adversarial groups without regard for the existing social systems within the conflict space (Bar-Yam, 2004). This example is supported by reviewing lessons learned from a decade of conflicts throughout the Middle East, Iraq, and Afghanistan whereby

> The lesson of the last decade is that failing to understand the human dimension of conflict is too costly in lives, resources, and political will for the nation to bear. Once a conflict commences, it is already too late to begin the process of learning about the population and its politics. (Flynn, Sisco & Ellis, 2012, p. 2)

This statement suggests that a postpositivist approach, whereby scholars accept multiple factors will affect how knowledge is derived, could yield more insights into the way in which policy analyst approach studies into complex environments and ensuing policy development (Jorg, 2011; Reed, 2010; Robson, 2002).

The changing nature of modern armed conflicts, nested within regional, transregional, and global complex social structures should compel a policymaker to consider also how a policy is bound. The literature within the field of public policy suggests that policymaking has been constrained by theoretic frameworks that have shaped boundary definitions (Midgley & Richardson, 2007; Tait & Richardson, 2008). Understanding the complexity of conflict boundaries must include not just physical borders, political groups, and balance-of-power boundaries; it must expand to social systems, belief systems that reach beyond traditional borders, cultural systems, weapons systems, communications systems, governance systems, cyber systems, and an ever-expanding set of systems yet to be imagined (e.g., the emergent field of robotics). In doing so it becomes apparent that policymakers must incorporate a more holistic approach to address the issues at hand (Wallerstein, 2001). Reducing a policy issue to simply borders, for example, reflects a reductionist and objective analytic framework that persists to this day and impedes understanding the emergent nature of conflict

(Wallerstein, 2004). Specifically, the prevailing reductionist approaches frame complex conflict policy issues in terms of static, mechanical metaphors such as force on force, or regular verses irregular forces (Bar-Yam, 2004; Bousquet & Curtis, 2011). Lakoff & Johnson, 1980). Such reductionist methods restrict discourse on these events to narrow boundaries that do not fit the volatile, complex, changing, interrelated, and dynamic characteristics inherent in these contemporary conflicts. For the policymaker and the policy analyst it remains imperative that complexity is aptly understood and reflected within a policy issue (Jorg, 2011).

A Systems Framework

A first step toward effective policy development and analysis is to conceptualize the multiple interconnected policy issues as holistically as *systems*. One complexity descriptor of an environment comprised of multiple systems is that the systems are made of properties not readily understood through the analysis of the parts themselves; rather, they are understood from the interconnected, interrelated dynamic changes among the parts and the systems (Barbasi, 2003). Terms such as *emergent behavior* or *emergent property* speak to the nonlinear property of change in the system and characterize many military conflicts today (Bar-Yam, 2004). In the case of war and complex conflict environments, the policy environment can be understood to comprise properties of emergent and nonlinear characteristics where multiple systems interact within the conflict environment to include social systems, belief systems, ideological systems, etc. (Bar-Yam, 2004). Such complex environments mandate using conceptual tools and analytic

methods to better understand the issues while prescribing more robust policies to redress such issues (Brachman, 2008; Wallis, 2008a, 2008b, 2010c).

Hall and Citrenbaum (2010) have argued that existing frameworks used to understand how our adversaries operate are inadequate. Their argument can apply towards policymaking as well. Accordingly, they recommend transforming how intelligence analysts conceptualize complex, conflict environments. Again, this argument holds true for a policymaker attempting to craft policy. Specifically, Hall and Citrenbaum (2010) advocated that CT-based approaches would yield better results. This argument was reflected in Stolberg's (2006) research, who argued that existing frameworks used to develop public policy could benefit from a systems or CT approach:

> For strategic leaders of the 21st century primarily concerned with the issues of foreign policy and national security, the international system with which they will be dealing is likely to reflect only partially the traditional international system. While the nation-state, first codified by the Treaty of Westphalia in 1648, remains the dominant political body in international politics, its ability to influence events and people is being challenged by an assortment of non-state actors, failed or failing states, and ungoverned regions. This is occurring in combination with the transnational threats posed by terror, the proliferation of weapons of mass destruction (WMD), crime, drugs, pandemics, and environmental degradation, as well as by elements of the *system* that also have potentially positive impacts such as globalization and the information revolution. (p. 3)

The reference by Stolberg (2006) to "the system" is a key concept to consider

when developing policy and how systems thinking can influence policy development. Stolberg (2006) argued, "The international system frames the forces and trends in the global environment; it also frames the workspace of national security policy and strategy makers" (p. 3).

Systems and the September 11th Attacks

The importance of understanding the systems at play within the policy environment relate to the attacks of September 11, 2001, nearly 13 years ago at the time of this study. These attacks underscored the behavior of a complex adversary and the multifactorial aspects of policy recommendations that needed to be considered (National Commission on Terrorist Attacks upon the United States, 2004). Considering how adversaries behave within a system of systems drives resource considerations as well. Resource coordination, such as fiscal and manpower, competes in a policy environment that may or may not fully incorporate the problem's interrelated complexities (Belasco, 2011). This issue and challenge is generalizable to public policy analysts developing an array of public policy issues. In an era of growing fiscal constraint and appreciation for the required human contribution to policy solutions, it can be argued that the time to assess a policy's consideration of all the inherent complex factors is *before* implementation. The human and financial costs associated with public policy failure are high.

When President Obama came into office in 2008, the United States had already embarked on three military operations:

1. Operation Enduring Freedom (OEF), focused on Afghanistan.

2. Operation Noble Eagle (ONE), focused on U.S. military bases and homeland security.
3. Operation Iraqi Freedom (OIF), focused on Iraq (Belasco, 2011).

These endeavors have incurred significant costs. According to Belasco (2011) more than $1 trillion in 9/11 monies has been applied to the Department of Defense (DOD), State Department/US Agency for International Development, and veterans' medical costs for the wars in Iraq and Afghanistan:

1. $806 billion for Iraq,
2. $444 billion for Afghanistan,
3. $29 billion for enhanced security, and
4. $6 billion unallocated. (p. 1)

It is argued, therefore, that, given a better understanding of such systems' complexity and applying this understanding to policy development processes, there is the opportunity to save priceless blood and treasure. How, then, can one better understand how to develop public policy when the policy's characteristics to be addressed are nested within complex, interrelated, and dynamic world systems that are constantly changing? This dissertation study explores this question.

Public Policy and Complexity Theory

There is growing recognition in the field of public policy that complexity theory may help policymakers develop a better understanding of how to analyze complex policy environments (Baumgartner & Jones, 2009; Geyer & Rihani, 2010; Holland, 2000; Morçöl, 2012; Wallis, 2010, 2010c, 2011). An emerging body of literature on

complexity theory (CT) has applied CT to analyze the complexity generally found in military conflicts and globalized conflicts (Bar-Yam, 2004; Hoffman, 2006; Jones & Rand, 2011; Simon, 2008). This theory offers a conceptual framework that facilitates a more holistic pursuit of understanding and knowledge. The body of literature suggests that the theory is particularly promising for those focusing on complex policy issues wherein social phenomena and conflicts are intertwined (Bar-Yam, 2004; Dennard et al., 2008; Sawyer, 2008).

There is no unified definition of complexity theory. Complexity theory in general acknowledges new and emerging changes and adaptation occurring within a dynamic system (Dennard et al., 2008). Acknowledging that there is no one unified theory, this study will refer to complexity theory in the singular as it is the fundamental terms and concepts inherent in complex systems salient to this study. The literature review shows that the terms *general systems theory, systems thinking, complex adaptive systems theory*, and *complexity theory* are sometimes used interchangeably (Dennard et al., 2008; Stewart & Ayres, 2001), across a range of sciences from the biological to the social. This study uses the term complexity theory to describe this larger body of related theory.

Systems analysis does not imply that there is one definition of what a system includes, or how to think about a system (Dubin, 1978). For example, Dubin (1978) defined the

> central features of systems analysis as including: (a) the analysis of multiple units, (b) with focus on their laws of interaction, (c) producing characteristics

> ["attributes" as in Chapter 3] of the systems, that (d) are different from the characteristics of the individual units composing the system. (p. 265)

Some other definitions and concepts include terms such as *nonlinear, dynamic, co-evolutionary, emergent, feedback loops, self-organizing, interrelated,* and *irreversible* [*irreducible or non-reversible*] (Axelrod & Cohen, 2000; Barabasi, 2003; Dennard et al., 2008; Gell-Mann, 2003; Prigogine & Stengers, 1997; Stacey, 2007; Waldrop, 1994). A synthesis of the complexity theory concepts could be described as follows: First, that a system is dynamic; that is, the system (or the properties) change over time. This process is not linear. As complexity theory would suggest, what the system (or properties) change into may not be anything resembling what it was at the beginning (Axelrod & Cohen, 2000; Barabasi, 2003; Dennard et al., 2008; Gell-Mann, 2003; Prigogine & Stengers, 1997; Stacey, 2007; Waldrop, 1994).

Time is a factor that plays into several concepts to describe complexity and change; thus, the concept of irreducibility (Prigogine & Stengers, 1997). Prigogine, a Nobel laureate in chemistry, suggested that complexity is characterized by co-evolution. The concept of feedback, implying learning and adaptation, is associated with co-evolution. This implies that as the components learn and adapt to each other within the system, a co-evolutionary process is also taking place (Axelrod & Cohen, 2000).

To the concept of irreducibility, complexity can be characterized by changes in the system. While it is possible to characterize components separately at a static point in time, the components will change due to their dynamic properties, making them unable to be characterized in a reduced form outside the context of time (Prigogine & Stengers,

1997). Further, complexity is characterized by its self-organizing properties. It is important to note that these characteristics provide challenges for those attempting to predict what will happen next (Axelrod & Cohen, 2000; Barabasi, 2003; Dennard et al., 2008; Gell-Mann, 2003; Prigogine & Stengers, 1997; Stacey, 2007; Waldrop, 1994). These self-organizing components co-evolve, are nonlinear, and are interrelated, irreducible learning systems, providing feedback and adapting to the environment (Axelrod & Cohen, 2000; Bar-Yam, 2004; Bousquet, 2011; Bousquet & Curtis, 2011).

With an appreciation for systems behavior, the challenge, then, is how to consider these interrelated, complex, changing, and evolving relationships during policy development. The policymaker must consider unintended or unanticipated changes.

Hinting at the value of understanding the dialectic processes for change, Morçöl (2008) asked, "What is complexity theory's contribution to our understanding of policy analysis?" (p. 24). Dennard et al, (2008) suggested real-world complexity must be addressed, and argued that "social change happens in the transition from one stage of order to another. Policies therefore that address only the past or the ideal of the future often miss or distort the evolutionary processes already afoot in society" (p. 9). Dennard (2008) argued that it is "not sufficient, however, to describe these outcomes merely as a policy failure. It is more to the point here to say that the outcomes demonstrate the effects of not understanding the dynamics of an adaptive system (p. 80). Policymakers must account for the complexities within the systems that represent the problem space (i.e., the complex environment). Morçöl (2008) stated, "Public policies emerge from the nonlinear interactions of the human and natural realms and complexity theory can make a

unique contribution to our understanding of such nonlinear and emergent phenomena" (p. 24).

As stated, there is an emerging body of scholarly research focusing on complexity and its relationship to public policy development as critical to policy development (see Anderson, 2003; Bar-Yam, 2004; Barbasi, 2003; Brachman, 2008; Caldwell, 2011; Dennard, 208; Dye, 1992; Fuchs, 2002; Hajer, 2006; Jorg, 2011; Kauffman, 2010; Kilkullen, 2011; Morçöl, 2002, 2008, 2010, 2012; Prigogine & Stengers, 1997; Wallis, 2008a, 2010a, 2013a). Denhardt (2011) supported the theme, suggesting that theory and practice are disconnected within the public policy by stating:

> A theory is not simply an arrangement of facts or values but a thoughtful reconstruction of the way we see ourselves and the world around us. It is a way of making sense of a situation. Theories may then be evaluated in terms of their capacity to help us see our world more clearly and to act more effectively in that world. (p. 10)

Denhardt's (2011) statement is powerful. A theory reconstructs our understanding of our world (Denhardt, 2011). By rephrasing Denhardt (2011), Morçöl (2008), Wallis (2013a) and others researching policymaking issues, one could assert that that the policy text itself can be described as a policy (theory) being nested in a (complex) system or environment interrelated to two sides. On one side is a theoretic framework that helps to inform and shape one's level of understanding about the environment and the issue; on the other side are the decisions or strategies wherein to commit blood and

treasure toward the problem (Birkland, 2011; Clausewitz, Howard, Paret, & Brodie, 1984; Denhardt, 2011; Dennard et al., 2008; Dubin, 1978; Wallis, 2010c).

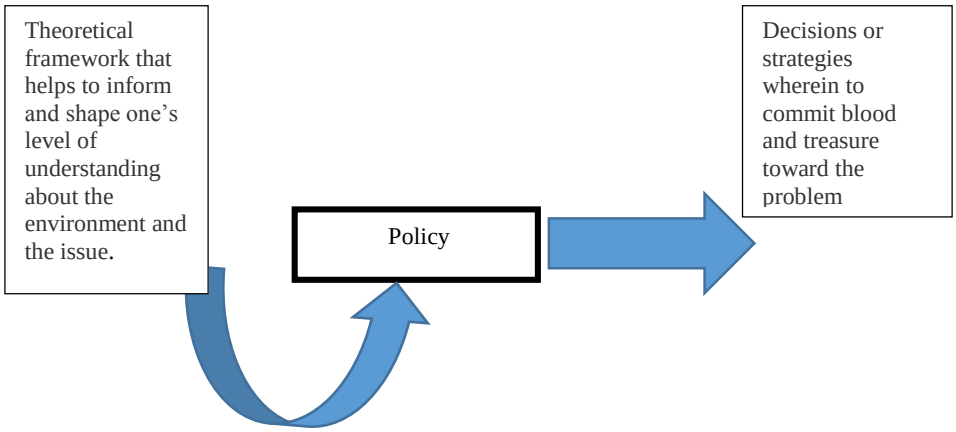

Figure 1. A graphical representation of the progression from theoretical framework to policy (as a theory) to decision making (strategy).

One can contend that scholars generally agree that complexity theory responds to these exigencies (Dennard et al., 2008). Such thinking reveals how conceptions are formed, and advances methods for fashioning and implementing more effective policy. However, policymakers find it difficult to incorporate these theoretic constructs and methods (Jorg, 2011). Complex systems thinking represents a paradigm shift for policymakers addressing conflict and policy development. The complexity theory's core premise is that the underlying nature of many phenomena, including conflict, can be characterized by its complex, emergent, robust, nonlinear or systems behavior (Bar-Yam, 2004; Jorg, 2011). Complexity theory presupposes that conflict is rooted in complex, robust, nonlinear behavioral patterns. This theoretic perspective contradicts established approaches such as classical or neorealism, which define conflicts in terms of predictable

outcomes, and therefore amendable to redress through linear, reductionist methods of analysis (Bar-Yam, 2004).

Complex Adaptive Systems (CAS)

It remains relevant to this portion of the introduction to delve deeper into the discussion of complex adaptive systems (CAS) as part of the complex systems thinking discussion. CAS, as a term found in complexity theory, is also a term used to describe U.S. adversaries (Bousquet, 2011; Kilkullen, 2003). The conflict and complex environment that the 2009 U.S. Obama administration's Afghanistan and Pakistan (hereafter referred to as AfPak) policy sought to address regarding al-Qaida has been described also as a CAS (Bar-Yam, 2004; Bousquet, 2011; Gerges, 2009; Hall & Citrenbaum, 2010; Jones & Rand, 2011; Kilkullen, 2003; Lacey, 2008; Lia, 2008, 2009). Additionally, the AfPak environment was described as a complex environment based on President Obama's 2009 policy, amalgamating both Afghanistan and Pakistan into one policy (Fitzgerald & Gould, 2011; Obama, 2009; "White Paper," n.d.) thereby presenting new challenges to the policymaker .

Simply stated, the term CAS is used to described complex military environments and our adversaries such as al-Qaida and affiliated groups and adversaries operating within Afghanistan and Pakistan (Bar-Yam, 2004; Bousquet, 2011; Gerges, 2009; Hall & Citrenbaum, 2010; Jones & Rand, 2011); Kilkullen, 2003; Lacey, 2008; Lia, 2008, 2009; The Situation in Afghanistan, 2011; U.S. Government Accountability Office, 2009). The CAS description and characteristics are relevant to this study as policy recommendations

concerning Afghanistan and Pakistan continue to present unique challenges to policymakers and analysts alike (Connable & Rand, 2012; Kilkullen, 2003).

The complexity-theoretic framework and the related CAS theories have a broad following. Research has emerged from a wide range of academic disciplines, focusing on the ever-changing, dynamic processes and larger patterns that frequently emerge from individual systems components to form larger collective interactions within a system (e.g. Bousquet, 2011; Cartwright, 1991; Cilliers, 2002; Gell-Mann, 2003; Holland, 1995, 2000). CAS theory and complex adaptive problem analysis focuses on the nonlinear, interactive dynamic processes that adapt, emerge, and change from systems interactions of both its individual components and the systems components that it forms (Connable & Rand, 2012; Holland, 1995, 2000; Kilkullen, 2003).

Newton, Reductionism, 19th-Century Social Science Theory, and Systems Thinking

To recognize and conceptualize where the research and practical applications of policymaking could be made more effective, it is necessary to ask the following question: What does complexity theory stand in contrast to? It is necessary to introduce a brief discussion on the holistic verses reductionist methods of conceptualizing and analyzing an issue. The term reductionist or reductionism is often conflated with the term "Newton-era thinking" in this context (Geyer & Rihani, 2010). Geyer and Rihani (2010) associated the pursuit of order or, as they call it, "Newton-era thinking," with what they call the Newtonian "paradigm of order" that has foreshadowed public policy analysis advancements with the following four golden rules:

1. *Order*: given causes lead to knowing effects at all times and places.

2. *Reductionism*: a system's behavior could be understood in clockwork fashion by observing the behavior of its parts. There are no hidden surprises; the whole is the sum of the parts, no more and no less.
3. *Predictability*: once global behavior is defined, the future course of events could be predicted by applying the appropriate inputs to the model.
4. *Determinism*: processes flow along orderly and predictable paths that have clear beginnings and rational ends. (p. 13)

Those who point to an absence of positive social changes from such Newtonian or linear thinking are critical of these "golden rules." For example, Dennard et al. (2008) argued, "Policy analysts can point to social programs that have survived and complexified and budgets that are balanced, but not necessarily to the alleviation of poverty, the end to traffic congestion, pollution, crime or even effective and 'cost-efficient' warfare" (p. 8). The premise that change can be understood absent a systems-thinking perspective is a recurring theme within this body of research.

From Reductionism to Complexity

Within public policy, scholars have observed the epistemological limits of Newtonian-thinking as not showing much utility for current (and future) emerging complex conflicts (Abraham, 2001; Lee & Wallerstein, 2010; Wallerstein, 2001; Wallis, 2013a). The Newtonian framework suggests that social issues and conflict are framed around a construct of balance of power, with actors as variables interacting within a more static power struggle and clearly defined boundaries. Policies resulting from this framework will not have considered the more nuanced complexity of the issues

(Wallerstein, 2001). An analytic framework employing such a linear cause-and-effect type approach does not adequately account for what happens between entities. More precisely, it does not account for those interdependencies or interactions that happen between entities and the social systems wherein they reside (Donnelly, 2000; Jorg, 2011). The suggestion, derived from linear approaches informed by Newtonian thinking, is that a policy can be developed absent the context of the systems within which they reside. These ideas have compelled analysts and policymakers to look to new theories that take on a more multidimensional approach (Cilliers, 2002; Dennard et al., 2008; Jorg, 2011).

The present research focused on the 2009 Obama administration policy toward Afghanistan and Pakistan. The regional conflict that the Obama Administration attempted to mitigate through policy, represent a continuum of change, evolution, adaptation, and learning from among and between systems that can be described as complex (McChrystal, 2013; Obama, 2009; U.S. Government Accountability Office, 2009; "White Paper," n.d.). Events that play out on and within this metaphoric stage have come to be described more aptly as a sequence of complex, adaptive, and changing variables. It is those human interactions set amongst the systems of culture, politics, economics and values that add an aspect of nonlinear processes that shape the conflicts and security challenges that our nation faces (Bar-Yam, 2004). A linear view of the conflict could be posed as a stability to conflict and back to stability model. This would represent a Newtonian-type reductionist approach to how the policy problem is conceptualized and constructed (Bar-Yam, 2004). A nonlinear set of descriptors to describe the model would reflect a constant state of change whereby new events (stimuli)

change the original aspect of stability and learned lessons are incorporated into the cycle of change (adaptation). It is therefore nearly, if not, impossible to return to the original state (Baumgartner & Jones, 2009; Dennard et al., 2008; Geyer & Rihani, 2010; Holland, 2000; Morçöl, 2012; Wallis, 2010a).

The Limits of Nineteenth-Century Paradigms: Unthinking Social Science

Wallerstein (2001) argued social scientists should consider new evidence that "undermines old theories and predictions" (p. 4). He advanced the idea that a world-systems analytic framework would enable "a contemporary perspective on the social world, one that makes central the study of long-term, large-scale social change" (p. 4). He rejected the Newton-informed paradigm or theoretic framework that largely informed the social sciences (Wallerstein, 2001). Wallerstein (2001) argued that rational, scientific explanation, based on reductionist and linear views of how social constructs could be analyzed, was not able to address matters of changing dynamics in a holistic, long-term systems sense. He added that the "the holy trinity of politics/economics/ society-culture has no intellectual heuristic value today" if viewed as separate fields of study (as they have been historically studied), with little thought given as to how to thinking holistically about issues nested in the systems wherein they reside, are related (p. 264). Wallerstein's (2001) dialectical model presented the proposition's and counter-proposition's opposing ideas and the transition of those ideas from thesis to antithesis (implying change over time) and argued that social systems' realities compete and interact with the real world systems of ideology, beliefs, culture, and economics. They all intersect, interact, and co-evolve into the need to become the dominate way of thinking (Wallerstein, 2001).

Wallerstein (2001) suggested that a concatenated or dialectic model enabling the conceptualization of change is needed whereby social change emerges in a nonlinear way, reflecting the dialectic process between competing systems. More pithily, Wallerstein (2004) argued, the behavioral and social scientists failed to recognize "the possibility that their poor results in the public policy arena resulted not from the failing of the social scientists as empirical researchers, but from the methods and theoretical assumptions they had taken over from Newtonian mechanics" (p. 23). With regard to theoretical frameworks and the field of social sciences, Wallerstein (2004) was not alone in this charge (Flood & Carson, 1993). Jorg (2011) also argued that there was a crisis within the social sciences. He advanced the idea that complexity inherent with the social systems needs to be better understood if social scientists are to effect positive changes (Jorg, 2011).

Newton-era thinking and 19th century social science conceptual frameworks of how to understand and make sense of the world are two centuries removed from the world today. This topic will be discussed in more detail in Chapter 2.

The present study emerged from the intersection of two areas: public policy analysis exploring the applications of complexity theory toward policy development, and the study of complexity theory and complex environment characteristics and concepts. While a growing number of studies have employed complexity-based approaches to policy analysis, a large portion of such studies focused on post-policy outcomes instead of how the conceptualizing of the policy issue itself and the written policy reflect upon the policy outcome. A considered review of public policy theories, models, methods, and

theoretical frameworks applied toward making public policy yields few insights into how to analyze a policy prior to its implementation.

One notable exception stands out, however: propositional analysis, developed by Wallis (2011). Wallis's (2011) empirically grounded research incorporated complexity theory principals with the role of the policy text itself as a linchpin in successful policy development and policy outcomes. Wallis determined that there is a correlation to the complexity and robustness/systemicity of the actual policy text to that of the policy's success or failure. Wallis's studies were informed by his literature review "questioning the usefulness of theory" in the social sciences and policy formation. He found that complexity theory yields insights into how to develop public policy (p. 19). Wallis (2011) then developed a policy analysis method that shows promising results.

Propositional Analysis and Complexity Theory: Toward Policy Analysis

Propositional analysis is a method derived from complexity theoretic concepts (Wallis, 2013). It is paradigmatic in its own right as it applies to thinking about how to conceptualize a policy. The topic of this study is public policy analysis using complexity theory, specifically, Wallis's (2011) method of public policy analysis, termed propositional analysis (PA). More precisely, this study focuses on PA's heuristic value as a paradigm and its application to better public policy development.

For this study, the PA paradigm is thinking about complexity and robustness/ systemicity when drafting public policy. Wallis (2008) argued,

> A policy is better understood as a cognitive structure representing how we understand the world so that we know what to do to achieve our goals. Policy

> analysis is important because each policy serves as a guide for decisions of organizational, corporate, community, national, and global importance (p. 13).

Public policy also informs decisions on issues ranging from resource allocation to monetary and human treasure; in other words, the "text of the public policy, itself, may be seen as a 'lynchpin' in the process of research and practice that determines the effectiveness, efficiency, and the validity of decisions" (Wallis, 2011, p. 13).

Propositional analysis, as applied by Wallis (2008c, 2011), is a public policy analysis method incorporating systems thinking (complex systems) to examine the internal structure of the policy text (the discourse or narrative). PA is focused on the textual policy propositions and their co-causal relationships. The PA method identifies the policy's propositions and concepts and the text's "relationships between co-causal aspects," the causal propositions within the text, and their linked propositions to determine those aspects that are "concatenated" (p. 85). The numbers of concatenated aspects within the policy are quantified, resulting in an overall score of complexity to robustness/systemicity (interrelatedness) (Wallis, 2008c, p. 85). Wallis (2011) viewed concatenation as "one that is influenced, caused, or understood by two or more other aspects." The PA tool as a method will be described in greater detail in the Chapter 2 literature review, and in the methods section of Chapter 3. To support the statement earlier that few policy analysis approaches focus on the policy itself, Wallis (2011) argued that policy studies "have focused on the goals, reasons, actions, and results of policy" (p. 13). Tying this statement to conflict analysis, one example can be found within the homeland security and intelligence communities. The 9/11 attacks, conducted

by al Qaeda, led to charges that the intelligence communities failed to connect the dots that could have indicated that the specific attack would take place (Marion, 2011; National Commission on Terrorist Attacks Upon the United States, 2004). Critics of that charge argued that the alleged "failures" resulted from the policies in place at the time (National Commission on Terrorist Attacks

Upon the United States, 2004). Marrin (2011) argued, "Contrary to conventional wisdom, the description of 9/11 as an intelligence failure may be misplaced" and that "more important are the strategic policy failures that preceded the tactical intelligence failures" (p. 1). Marrin (2011) suggested that rather than focus on

> the failure of decision-makers to respond effectively to early warning from intelligence agencies about the threat from al-Qaeda, one must start with the policy environment at the time rather than the adequacy or sufficiency of the intelligence that they were provided with. One cannot understand the influence, or lack of influence, of intelligence analysis on policy by studying intelligence. Instead, one must study policy. (p. 200)

In other words, studies focused on policy *outcomes* overlook the critical linchpin that shaped those outcomes, that is, the *policy itself*. The point is made that one must look to policy. The distinction is important. Wallis (2010) argued a policy's text itself is analogous to "a mental model, a schema, a theory, or, more colloquially, a lens or point of view. The policy model acts as a computer program, metaphor, filter, or sense-making device." (p. 161). Policy, therefore, can be seen as a theory about how a problem is understood. This theory and understanding thereby shapes policy and thus informs how

agencies and organizations respond (Wallis, 2010c). Birkland (2011) also suggested that a policy is generally understood to be a representative model or statement of our understanding of an issue or situation. Understanding this difference enables objective policy analysis. Such analysis will result in public policy development in a complex environment prior to having to learn from failures, mistakes, and unintended consequences that the policy had not considered (i.e., the complexity within the problem prior to implementation) (Wallis, 2008a, 2013a).

While Wallis's (2011) studies are significant, there is still a knowledge gap in using PA in public policy development. The present research picked up where Wallis left off, suggesting that more studies are needed using the PA method. Wallis applied his PA method to compare and analyze policy results, whereby the outcome was clear.

This study expanded Wallis's approach to policy analysis, yet it does so with the intent to learn more about the PA paradigm, as it applied to a complex policy problem. This is an important distinction. Policy results are seldom foreseen when the policy is implemented. Policy results, such as those concerning conflict and wars, cannot be known for a long time. The PA paradigm suggests that important insights into the public policy-making process can be learned. By applying these preliminary findings toward another policy study, the research question for this study is as follows:

Study Research Question

RQ: By applying the PA policy analysis approach to the December 1, 2009, U.S. Obama administration's AfPak policy, how can following the PA paradigm lead policymakers to discover how to better develop a policy?

The PA paradigm argues that thinking about complexity and robustness/ systemicity in a policy will lead to better policy development practices.

Policy Background

This study proposed that Wallis's (2011) PA policy analysis method and thinking about complexity and robustness/systemicity within the policy would lead to better policy development. The PA paradigm consists of thinking about a policy's *complexity* and *robustness/systemicity*. The policy under study is the December 1st 2009 U.S. Obama administration AfPak policy. The natural setting begins with the complex environment facing General Stanley McChrystal in 2009. General McChrystal, Commander, International Security Assistance Force (ISAF), and Commander, U.S. Forces Afghanistan, stated that the Afghanistan conflict was a "uniquely complex environment" (McChrystal, 2009a, Redefining the Fight section, para. 1). McChrystal was faced with the tasks of supporting the Obama administration's 2009 policy review of the situation, providing an accurate environmental assessment, and also of implementing a strategy based on the policies set forth by the U.S. government toward that environment (McChrystal, 2009a; McChrystal, 2013; Obama, 2009).

Many complex issues were contributing to the environment of the 2009 Afghanistan conflict, including regional, transregional, transnational actors, nonstate actors, and others (Pillar, 2009). An appreciation for how complex, interconnected, and interrelated these issues can be found in the McChrystal (2009a) document known as the Commander ISAF (COMISAF) Initial Assessment which detailed a range of variables that impacted the complex policy environment. General McChrystal's central theme was

the need to better understand the problem as a system of causal relationships (McChrystal, 2009a). McChrystal (2009a) argued:

> While not a war in the conventional sense, the conflict in Afghanistan demands a similar focus and an equal level of effort, and the consequences of failure are just as grave. The fight also demands an improved and evolved level of understanding (COMISAF Initial Assessment, Nature of the Conflict section, para. 1).

The demand that General McChrystal was speaking to, was in part, to understand

> The most important implication of this view is that no element of the conflict can be viewed in isolation - a change anywhere will affect everything else. This view implies that the system must be understood holistically, and while such understanding is not predictive, it will help to recognize general causal relationships (COMISAF Initial Assessment, Redefining the Fight section, para. 1).

It will be the theme of recognizing causal relationships that become central to this study and evidenced specifically in chapter 4.

Theory and Policy in a Complex Environment: The Nexus

Context of the AfPak Policies Analysis

The National Commission on Terrorist Attacks Upon the United States (2004) concluded,

> The attacks revealed four kinds of failures: in imagination, policy, capabilities, and management. If the government's leaders understood the gravity of the threat they faced and understood at the same time that their policies to eliminate it were

> not likely to succeed any time soon, then history's judgment will be harsh. Did they understand the gravity of the threat? (p. 340)

The study also linked policy failures to redress the complexity of the issues presented to the "government's leaders" ability to understand those issues (National Commission on Terrorist Attacks Upon the United States, 2004, p. 340). Of the four failures noted, this research study particularly focuses on how to improve policy making. The charge of policy failure referenced in the study makes a direct reference to a need to improve how a policymaker conceptualizes how the issues could be framed, and how they are described. This is further supported in the literature by Benjamin and Simon (2006), who highlighted how "the United States, and certainly its leadership, appear not to have comprehended the dynamic, ideologically driven insurgency whose heralds were four hijacked commercial jets" (p. xiv). The charge is critical; however, the statement's salient word is "dynamic," a term that has meaning within the complexity-theoretic framework. These concepts become relevant as the case is made that the ability to account for complexity and robustness/systemicity in the policy narrative is both necessary and required to avoid such mistakes as the National Commission on Terrorist Attacks Upon the United States (2004) referenced.

In October 2001, the United States began military operations in Afghanistan in response to the 9/11 attacks (National Commission on Terrorist Attacks Upon the United States, 2004). The Bush Administration's central goals were to compel the Taliban to turn over al-Qaeda leaders hiding within Afghanistan and to ensure that al-Qaeda and its operatives were not able to train and operate within Afghanistan (H. Res. 107-131, 2001;

Woodward, 2002). President Bush's policy as articulated in his address to the nation on 9/11, stated in part that "We will make no distinction between the terrorists who committed these acts and those who harbor them" (Bush & Dietrich, 2005). President Bush signaled that his policy understood the conflict to mean that al-Qaeda, with the Taliban providing a support base, was attempting to utilize the sanctuary it found within Afghanistan to plan, train, and carry out future attacks (H. Res. 107-131, 2001).

The United States embarked on a campaign in Afghanistan, Operation Enduring Freedom (OEF), with two purposes: to defeat al-Qaeda, and to remove the Taliban from power (H. Res. 107-131, 2001; Jones & Rand, 2011; Lacey, 2008). Resources, including troops, and significant monetary commitments were made to OEF (Katzman & Library of Congress, 2005; United States; Bush & United States). However, shortly thereafter, many of those same troop resources were diverted to Iraq to support Operation Iraqi Freedom (OIF) (The Situation in Afghanistan, 2011). A statement by General McChrystal in 2009 echoed the sentiment that resources "have been historically under-resourced and remain so today" (McChrystal, 2009, p. 26). The situation in Afghanistan rapidly deteriorated from 2003 to 2009 (Caldwell, 2011). Shortly after his election, President Obama reviewed the situation and devised a new policy to redress the issues (Caldwell, 2011; Cordsman, 2002; Dale & Library of Congress, 2012; Obama, 2009).

Following a considered review of the issues, in early March 2009, President Obama presented the December 1, 2009 AfPak policy, resulting from the administration's review of the Afghanistan conflict. One noted focus from the administration towards the conflict was the amalgamation of the two countries into one

theater of military operations (White Paper, n.d., p. 1). With specific reference to Pakistan, the President stated, "After escaping across the border into Pakistan in 2001 and 2002, al Qaeda's leadership established a safe haven there" (Obama, 2009, para. 8).

Al-Qaeda as a Complex Adaptive System (CAS)

The characteristics of one portion of the environment that of the al-Qaeda movement operating among and within the conflict environment, will be explored. Policy analysts must consider the characteristics of the al-Qaeda (AQ) problem in the AfPak conflict as central to the policy statements. Complex adaptive systems (CAS) and complexity theory were discussed earlier. The CAS connection is expanded here because the al-Qaeda problem has also been described as a CAS with an informal global network of actors nested within larger systems that shape the environment (Bousquet, 2011; Kilcullen, 2005, 2009; Jones & Rand, 2011). Beyond al-Qaeda having physical presence in both Afghanistan and Pakistan, scholars have examined the complexity of the larger informal and formal networks of global factors, variables, actors, policy systems, other social systems, and belief systems that contribute to the CAS descriptor (Bar-Yam, 2004; Gerges, 2009; Hall & Citrenbaum, 2010; Kilkullen, 2003; Lacey, 2008; Lia, 2008, 2009; New Strategy, 2009; Situation in Afghanistan, 2011). As will be discussed in Chapter 2, Lia (2009) focused on the theoretical framework, doctrine, and strategies advanced by Abu Mus'ab al-Suri, one of al-Qaeda's more prolific writers and senior strategist.

In at least three ways a lesson can be learned by adopting a systems perspective towards such an adversary. First, the systems approach enabled al-Qaeda to achieve "success" in terms of their 9/11 attack. Second, their "success" highlights the

opportunity, if not necessity, for us to adopt a systems perspective within the realm of policymaking and three, to explore new and more useful effective ways to develop policy that could attempt to mitigate such adversarial successes. To summarize the implications, those attempting to wage a global jihad have adopted a systems approach to how they intend to wage their jihad. The al-Qaeda phenomena itself has been described as a CAS (Kilkullen, 2005; Marion & Uhl-Bein, 2003).

Problem Statement

Increasingly, complexity-based thinking is finding its way into the public policy domain, challenging the more prevalent approaches to disaggregate and reduce policy problems into linear cause and effect problems. Yet there is still much work to be done to explore how complexity-based analytic tools can serve the policy practitioners. Public policymakers still struggle to make good policy that accounts for the increasing complexities of our public policy problems. Dennard et al. (2008) and Wallis (2011), among others, have embraced new and emergent tools and methods adapted from insights already gained from the complexity sciences and incorporated into the social sciences and public policy arena. Much work remains to be done to test and advance the potential that these applications grounded in complexity theory's promise to deliver. As some scholars would agree, the key to shaping better public policy is rooted in applying complexity-theoretic frameworks to policy development. The specific key lies in the methods applied to policy development prior to policy implementation.

Public policymakers today must learn to rapidly grasp the complexities of the public policy issues. The key to understanding such complexities rests with the

paradigms used to inform the view of such complexity and changes in the environment. Paradigms provide the lenses that shape one's view of their world. Not only do paradigms provide the theoretical framework for how a problem is understood; they, in turn, inform the methods used for the problem analysis. Social scientists and scholars in public policy have increasingly criticized paradigms, policy processes, and theories based on linear (mechanistic) thinking that have failed to account for the real world complexities existing in social issues (Jorg, 2011). Public policy and administration scholars are looking to new theories to help better understand the complexities of problems inherent in public policy (Dennard et al., 2008). A public policy, more specifically, a public policy's *text,* serves as the critical statement of how a problem is understood (Wallis, 2011). This text informs, if not directly, the strategies that will be required to carry out the policy. One area largely overlooked in policy research and analysis is the role that the actual public policy text plays in framing the problem to be addressed (Wallis, 2008b).

Wallis (2008) suggested that the "text of the policy, itself may be seen as a lynchpin in the process of research and practice that determines the effectiveness, efficiency, and the validity of decisions" (p. 13). Propositional analysis, a relatively new methodology for analyzing public policy, is a way to measure a policy's complexity and robustness/systemicity *(*Wallis, 2011). To develop robust public policies for complex and adaptive environments, the critical waypoint must not only account for the environment's complex characteristics, but also reflect the complex environment within

the policy to ensure those charged with the strategy development have a more holistic view of the problem and can array resources and tasks appropriately.

An increasingly complex, chaotic, fast-paced, and unstable environment is changing how policymakers must think about such dynamics and how to account for these dynamics in a policy (Jorg, 2011; Morel & Ramanujam, 1999). A policymaker must quickly grasp the characteristics of such dynamics in order to develop better policies wherein the problems are increasingly interconnected, interrelated, and complex. Further, a policymaker must understand the policy text itself, represents how the problem is understood and drives resources and decisions based on how the issue is framed and conceptualized (Dennard et al., 2008; Wallis, 2011, 2013a).

While there are studies that apply complexity theory to a policy problem (Mischen & Jackson, 2008), there are no applications beyond the PA tool that take into account complexity as a theoretic framework towards the analysis of the policy itself. Such studies are needed in order to learn more about how to aid policymakers in developing policy that actually reflects the nuanced aspects of complexity within the problem's environment.

Analytic policy tradecraft skills, based on linear and mechanistic frameworks for how things work, are not suitable for such complex emergent phenomena. Complexity theory, in contrast to linear and mechanistic theoretical frameworks and methods, will enable decision makers to (a) broadly consider the complex and interrelated issues within the system; and (b) facilitate a better descriptive statement (the public policy text) of how

the system looks, thus, influencing decision makers (strategists) on a positive way forward.

In sum, complexity theory is an overarching theoretic framework beginning to be embraced within public policy and administration. The PA paradigm suggests that accounting for complexity and robustness/systemicity within a policy will lead to better public policy development. Public policy research on a range of complex social problems has included comparatively little critical research on applying PA in a complex environment.

Specifically, in an era marked by complexity, there has been comparatively little research and tool development based on a complexity theoretical framework. There are no analytic tools demonstrating how one could analyze a policy and determine if it was complex enough to address the complex environment.

This dissertation will explore the heuristic value of the PA paradigm and its contributions towards policy development, as developed by Wallis (2011)

Definition of Terms

*Aspect: "*The part of a policy representing a concept, idea, or notion. The aspect may be as concrete as in "apple," or as abstract as in "truth." An aspect is typically detectable, that it to say empirically measurable, but that is not an absolute standard" (Wallis, 2011, p. 99).

Atomistic logic: "A kind of logical structure found within a proposition that is reductionist such as "A is valid" or "A is true." Or, more concretely, "Apples are important" (Wallis, 2011, p. 99).

Branching logic: "A logical structure found within causal propositions including three or more aspects where a change in one aspect causes a change in two or more aspects. For example, a branching proposition might say that changes in A will cause changes in B and C. A more concrete example might be, "More teamwork will lead to more cohesion, *and* more results, *and* more frustration" (Wallis, 2011, p. 99).

Complexity: "A measure representing the number of aspects within a policy; the calculated diversity of ideas within a policy document. For an abstract example, consider a policy containing the propositions: A is true, more B causes more C, more B causes more D. In such a model, there are four aspects (A, B, C, & D). Therefore, the policy's complexity is C=4" (Wallis, 2011, p. 99).

*Concatenated Logic: "*A logical structure found within a causal proposition including three or more aspects where changes in two or more aspects cause change in another aspect" (Wallis, 2011, p. 100).

Integrative analysis: "Combined process of qualitative and quantitative analysis involving rigorous hermeneutic deconstruction of text and rigorous re-integration of multiple texts following a structured methodology" (Wallis, 2011, p. 101).

Linear logic: "A logical structure found within a proposition describing simple causal relationship between two aspects. Such as, "More A causes more B." Both A and B exist in a linear relationship to each other" (Wallis, 2011, p. 101).

Logic model: "A set of interrelated logic statements such as a theory or a policy model" (Wallis, 2011, p. 101).

Policy: "A cognitive structure (like a theory) representing how a community or organization understands the world, thus enabling them to take specific actions to achieve their goals" (Wallis, 2011, p. 101).

Policy model: "Concise representation of a relatively complete policy. May be explicit – as in a diagram or it may be relatively implicit as found in a set of causal propositions" (Wallis, 2011, p. 103).

Proposition: "A proposition is a declarative sentence expressing a relationship among some terms" (Wallis, 2011, p. 103).

Robustness/systemicity: "A ratio describing the interrelatedness between aspects of a policy on a scale of one to zero. Robustness is calculated by dividing the number of concatenated aspects by the total number of aspects in a policy. Robustness is a measure of how well integrated the propositions of a policy are, to the degree to which they are understood as existing in a systemic relationship, and the level of co-causality between the aspects. Robustness is also related to the effectiveness of the policy in practical application" (Wallis, 2011, p. 104).

Assumptions

I made the following assumptions as I undertook this research study:

1. The documents and testimony provided to the Obama administration supporting the 2009 administration's AfPak issues review were considered and based on significant experience on such matters.
2. General McChrystal (now retired) and the ISAF staff at the time (2009) fairly represented the complex Afghanistan and Pakistan environment as

they saw it, and that they credibly and reliably documented that complex environment before Congress and the public.

3. The key assumption concerning General McChrystal's 2009 reference to the Afghanistan and Pakistan conflict as a "uniquely complex environment" is credible.
4. The propositional analysis method and paradigm (Wallis, 2011), based on the complexity theory principals, will provide insights into how to develop policy in a complex environment.
5. Documents provided to the administration, as a matter of public record, were included in the policy development.
6. The exploratory mixed methods mode of analysis will provide an understanding of the issues that will advance an analysis research of policy analysis and development.
7. This study and its findings will be transferable to other policy analysis efforts, yielding more insights into how complexity theory and the PA approach can enhance credible policymaking.

Limitations

This method may not be repeatable, nor the results similar, resulting in an alternative analysis (Babbie, 2001). I chose the 2009 Obama Administration's AfPak policy because, as General McChrystal noted, it exemplifies a uniquely complex environment (McChrystal, 2013). While this case study may have similarities to many other conflicts, each conflict is different. Yet the results and findings from this research

are expected to be transferable. It is feasible, however, that this case may not be used to understand or discover how PA aids in policy making. Rather, this study may provide a context rich resource of knowledge about how to consider complex systems in the environment.

While this policy arguably represents a complex policy issue, generalizations about the findings would be appropriate and in keeping with the intent of this research to apply a newly developed tool to policy analysis writ large. The findings' generalizations should apply regardless the changes in the issues addressed. This is important to consider as the tool itself, while measuring a policy's complexity, should continue to be applicable to a variety of public policies as issues change. Additionally, it is argued that limitations can be overcome with additional study.

Scope and Delimitations

I limited the scope of this research to a single December 1, 2009, Obama Administration policy. The mixed methods mode of analysis was employed, in part, because the developer of the method of PA deemed the PA method a mixed method and therefore, it is, at once, both the tool used to conduct the analysis and represents the paradigm being explored for its heuristic value. The mixed-method approach and scope is limited within the quantitative component of this study whereby the proposition's concepts are determined by their complexity and robustness/systemicity scores. The qualitative component is comprised of the exploration of the heuristic value of the PA paradigm. It was proposed that the PA paradigm would yield insights into policy development in complex environments.

A detailed analysis of the policy execution strategy (i.e., resource application) was not part of this study. The exception to this statement appears in Chapters 4 and 5, whereby possible insights about policy development emerged from the study as to PA's contributions and significance concerning public policy development specific to possible considerations for further execution strategies. This study did not directly address other nations' policies. Globalization as it has altered and changed U.S. governance and policy development was not addressed, except to note that there are other factors to consider in policy implementation. These factors include other nations' policies concerning the AfPak conflict. These factors suggest that global governance systems impact public policy outcomes. These policies need to be considered as policy development occurs (Morçöl, 2012).

Significance of the Study

This study has implications for Americans, our Allies, and partners in global policy affairs, policymakers, and scholars who are working to learn how to advance positive changes in our world. The study yielded insights for social scientists developing public policy for homeland security and administration. Other areas are affected by the far-reaching effects of increasingly globalized systems (religious, economic, etc.), as they affect our internal homeland security policies as well as our foreign policies.

The study contributes to the body of knowledge applying complexity theory to public policy and administration towards public policy development. Exploring the PA paradigm, the study suggests that insights into this new tool's application will be beneficial to public policy and administration. Insights are significant with regard to how

much a policymaker has considered and reflected upon the complexity of the environment within the policy.

This study is particularly relevant given the continued interest in and engagement with Afghanistan and Pakistan public policy issues and other crises around the globe, including the resurgent Iraq crisis, the Russian and Ukrainian crisis, and others. At the time of writing, U.S. forces, alongside its coalition partners, had been engaged in Afghanistan for some 10 years, with the likelihood of some residual forces while the majority of combat troops pull out. Further, while there may be an end to some military engagement, it remains likely that the conflict will continue to require a thorough understanding of the conflict's intricacies as fiscal resources are contemplated and new policies emerge. There will be new requirements to engage in methods other than direct war-time engagements (Walker & Malici, 2011).

If public policymakers are able to shape a clear policy statement reflecting the issues' complexity and realities, the likelihood that the public policy outcomes and the ensuing decisions and strategies will lead to successive positive outcomes increases (Walker & Malici, 2011).

Expected Social Change

The implications for social change from this research include a better understanding and practical knowledge (scholar to practitioner) of how to apply the theoretical tenets of complexity theory to that of how to practically measure and evaluate public policies designed to solve complex problems. By embracing the theoretic concepts of complexity theory, new approaches for how to frame our social issues, to

include conflict as is the focus within the public policy in this study, both the public and policy actors can influence a more informed public debate about societal interactions and improve public policy-making. If public policies were constructed to reflect the complex nature of the problem, then appropriate means (decisions and strategies) and resources could be more effectively (fiscally) applied resulting in positive successful outcomes. Also, a much more considered debate will have taken place regarding ethical issues surrounding the consequences of such public policies. Public policies, when enacted address a wide range of social problems. Such policies are, by their nature, ethical decisions that expound the normative goals and choices articulated by the public and government. Where there are value-judgments with regard to a policy response or where there are considered economic implications inherent within a policy, complexity theory can help to consider the wide range of intended and unintended effects within the system wherein the problem exists and ethical choices will be made. Better public policies can also save lives, in terms of the human costs expended towards public policy solutions.

Further, the complexity of the issues that public policy addresses can have impacts around the world (Chapman, 2004; Cochran, 2012). A quick check of a local news channel can highlight how a local problem can have far reaching consequences at a global scale (see, e.g., Straubhaar, 2007). Straubhaar (2007) explored how globalization impacts world news reporting and subsequently, local culture via television using terms such as hybridization or globalization in order to describe how a mix of global forces combined with local culture produce new norms, adding that "each global force combined with a local cultural produces unique changes as the local regions evolve" (p.

6). Global to local interactions and interconnections will require acute attention to policy formation—for example, the global financial markets meltdown and its impact of local economies, phenomena characterized by the societal uprisings across the Middle East, characterized by the term Arab Spring, and its resultant new forms of governance. Policies must be written to account for such powerful social network complexities and how policy written by one nation can have a global effect (Chapman, 2004; Straubhaar, 2007).

The ripple effect of such phenomena, from the global to the local level, brings about new challenges and uncertainties. In a time of great fiscal constraints for many trying to effect positive social changes and apply resources to such complex, interconnected challenges, the theoretical underpinnings of complexity theory and the use of the PA paradigm promise a renewed understanding of our actions as implemented through public policies. The ability to measure a policy in advance of a policy enactment would yield positive benefits by having considered, with academic rigor how the characteristics of complexity behave and how to consider and think about change in our environments.

This study began with the literature-supported premise that complexity and change are a state of norm within a conflict public policy environment. Complexity theory appeared to yield great potential for how to understand, analyze, and improve the human and social conditions in an era of persistent conflict. By exploring the methods of policy evaluation through the lens of the PA paradigm, with its roots in complexity theory, new opportunities exist to expand the public policy analysts' tool-kit and continue

to add to the body of knowledge. The study was intended to highlight the importance of measuring the complexity of public policy text as just one tool, of many, in the practice of public policy. This study strongly supports the significant role that public policy administrators play in their roles as social change agents. Public policy seeks to influence positive social change with the emphasis on the term *social,* understood to embrace the complexities of the human social networks nested within the realm of a multivariate, interconnected range of systems.

Summary

This study was conducted to explore the heuristic contributions of the PA paradigm, specifically; one set against a backdrop of a complex environment, namely, was came to be known as the AfPak problem in 2009. Chapter 1 addressed the challenges posed by complex conflicts and complex environments to that of public policy development. Chapter 1 also characterized complexity and complex adaptive systems. The argument is made that the theoretical underpinnings of complexity theory and the PA tool and paradigm, as applied to the field of public policy and administration, will aid in both measuring a policy and gaining a greater understanding of the complexities of the problem the policy was developed for.

Chapter 2 reviews the literature on complexity theory, public policy models and theories, complex conflicts and environments and implications for advancing the field of behavioral and social sciences practicing in an era of complexity and change. Chapter 3 describes the research design and methodology, the new methodology developed to measure the complexity and robustness/systemicity of a policy, namely that of the PA

methods, and describes how the data generated from the PA tool yields heuristic insights into how better to develop policy.

In Chapter 4, a synthesis and interpretation of the data is advanced, with added perspective for how the PA paradigm does or does not advance the development of public policy development. Chapter 5 advances a holistic summary of the results and findings of the study and provides implications for social change.

Chapter 2: Literature Review

The study is focused on PA's heuristic value as a new way of thinking about policy development and its application to develop better public policies. For this study, the PA paradigm means thinking about the concepts of complexity and robustness/systemicity when drafting a public policy.

This literature review is divided broadly into the following major sections: propositional analysis, complexity theory: implications for the social sciences, complexity and public policy, complex environments, policy models, Afghanistan and Pakistan as a complex adaptive system, and 2009 U.S. Administration policy reviews towards Afghanistan and Pakistan. Due to the complex nature of this study, public policy and complexity theory applications will be necessarily nested within each section.

A number of library databases and search engines were used to obtain material for this research including but not limited to Academic Search Premier, Business Source Premier, Walden Dissertation Abstracts, Sage Journals Online, and the WorldCat online search engine. The WorldCat search engine resource facilitated access to and helped point the literature search towards additional relevant materials from across a worldwide network of libraries and literature sources. The keywords included *propositional analysis (PA), complex policy environments, complexity and public policy, public policy as systems, 2009 Obama Administration policy towards Afghanistan, nonlinear frameworks* and *policy models.*

Propositional Analysis

This study uses Wallis's (2011) propositional analysis (PA) method for analyzing the "logical structures of policies to determine what percent of the concepts in a policy are well understood." This literature review begins with a discussion of the theoretical underpinnings that inform Wallis's methodological advances in policy analysis (Wallis, 2011, p. 5).

Conceptual Roots of Propositional Analysis

The conceptual roots of PA may be found in Bateson's (1979) so-called double description metaphor, and method for how to understand the interconnected, interrelated systems that inform one's understanding of evolution and further enable one's understanding of how to conceptualize the systemic nature of patterns and relationships within the system. Bateson was an anthropologist, biologist, and social scientist whose work in the field of systems theory, biology, and cybernetics advanced the body of literature on how to think about what is broadly defined as our world. Bateson (1979) proposed an analytic framework analogous to the value a binocular brings to a viewer called the double description, as a way to explain how "seeing" complexity is a factor in the additive value of "lens." This observation is based on how the binocular image presents a complex synthesis of what each individual eye could not see alone, including a finer grain resolution of the boundaries and a closer examination of the details (Bateson, 1979). Propositional analysis also draws on Bateson's work on narration of experience or observation. Bateson's interest in narrative used to describe experience influenced the thinking behind the PA model. Wallis (2008b) also wanted to better understand how the

narratives one uses within a policy reflect a complex image of the policy environment and bring about a change in the environment.

Wallis's (2011) hermeneutic approach considered Bateson's (1979) theory of how narrative reflects the complexity of an observation and is part of the thinking that informed his development of the PA model. Wallis (2008b) argued that the roles a policy's concepts or narrative propositions play in framing the nature of the problem to be addressed are largely overlooked. While numerous references cited by Wallis (2011) informed his lifework on theory development and policy analysis, for the purpose of this study two other key references stand out from his research, Goertz (2006) and Dubin (1978):

1. Concepts and their interrelated propositions combine to form a statement of one's understanding about a problem or phenomena (Goertz, 2006).
2. Theory building or the relationship between systems theory and the empirical world yields insights into new ways to analyze a policy (Dubin, 1978)

Goertz (2006) suggested that the construction of concepts and propositions implicitly defined through discussion can lead to "important methodological implications for the construction of quantitative measures" (p. 3). Goertz's (2006) concept suggests that there are approximately three levels to concept building:

1. the "basic level," whereby the concept is used as to provide the overall theoretical propositions (p. 5),

2. the "indicator/data level," where the concept is operationalized (p. 5), and
3. the "indicator/data level," where it is possible to determine empirical indicators for analysis (p. 6).

Goertz (2006) used the theoretical proposition of democracy as an example. Democracy represents the first level. The second level adds descriptors such as civil rights to form the ontological layer. The third layer adds to the other two in a multidimensional manner, for example, adding voting rights or participation to the overall concept (p. 6). Goertz (2006) stated that "these indicators are the variables that are actually coded for and form the bases of quantitative measures" (p. 7). Goertz's argued that each layer within the text or statement of understanding about phenomena is "really a theory about the interrelationships of the parts of the conceptual whole" (p. 7).

Wallis's (2011) method is also partially informed by the work of Dubin's (1978) study of theory building. Dubin (1978), who linked the concept of propositional analysis and theory together in his own work on theory building, argued that propositions are statements of value in relation to other propositions and together combine to form a theory about the nature being described. Dubin (1978) argued that propositions within a theory or model act to describe the "conjoined" relationships between all the elements of the system's behavior (p. 166), and concluded that understanding how text serves to inform one's understanding of an issue is tied to how one analyzes an issue.

Dubin (1978) stated, "If the empirical world is viewed as complex, and our theoretical models of it are intended to reflect that complexity, then theorists need to be self-conscious of the manner in which their models are made more complex" (p. 255).

These two points relate to the broader issue of how to analyze a policy using PA and why complex systems thinking serve as the conceptual framework for such analysis, and formed the basis of Wallis's (2011) PA methodology premise.

Propositional Analysis Applied to Policy

Propositional analysis, as applied by Wallis (2008c, 2010b, 2011), is a method of analysis that incorporates systems thinking (complex systems) to examine the internal structure of a policy text (the discourse or narrative). Using PA to analyze a policy yields two separate measures of the text: complexity and robustness/systemicity (Wallis, 2011). The concept of complexity and robustness/systemicity as the two components of PA are expanded in this portion of the literature review.

Wallis (2011) defined complexity as the "calculated diversity of ideas within a policy document" and the robustness/systemicity metric "is a specific and objective measure of the relatedness between propositions" (p. 31). Propositional analysis allows for the public policy analyst to consider and quantify the concepts within the public policy's propositions as they are "well understood" (their interrelated parts) compared with the total number of aspects in the policy" (p. 32). The PA method analyzes the "relationships between co-causal aspects" of the text, the causal propositions within the text, and their linked propositions to determine "the total number of aspects (or concepts) to "those aspects that are "concatenated" (p. 85). The numbers of concatenated aspects within the policy text are also quantified, resulting in an overall score of complexity to robustness/systemicity (Wallis, 2008c, p. 85).

Complexity Theory: Implications for the Social Sciences

Ideas from complexity theory have demonstrated a significant impact of the hard sciences from where much of the work of systems theory, cybernetics, artificial intelligence, dynamic systems theory, agent-based modeling, chaos theory, and more originated. These ideas have contributed to advances in the analysis of complex characteristics in a wide range of problems, but applications and research of complexity theory toward the social sciences is relatively new (Stacey, 2007). In 1996, the Gulbenkian Commission on the Restructuring of the Social Sciences (1996) reviewed how the social sciences addressed societal challenges, specifically global issues, with the goal to provide a better future via the contributions made by the social sciences. While complexity theory was not central to the discussion, a rejection of a Newtonian framework that had influenced the field of social science was central. The commission members began their review with an historical summary of where the social sciences took its cues from the 16th century forward with attempts to build a "secular knowledge about reality that is somehow validated empirically" (p. 2).

The Gulbenkian Commission on the Restructuring of the Social Sciences (1996) determined that the Newtonian framework based on "symmetry" and "Cartesian dualism, the assumption that there is fundamental distinction between nature and humans, between matter and mind, between physical world and the social/spiritual world" dominated how knowledge was understood (p. 2). The commission determined that this framework led to the reasons why social scientists became separated from real complexity and analytic methods that would address real world complexity.

The charge is further supported in the literature by authors, such as Jorg (2011). Jorg (2011) challenged concepts such as deterministic, reductionist, and dualist that he found failed the social science community. His research suggested that the concepts became intertwined with methodological constructs and analytic output, resulting in what he argued was an "incapacity to deal with the real complexity as a serious topic of study" (p. 1). As a way to counter what he saw as a crisis in the behavioral and social sciences he argued for a "different language" (p. 7), and that complexity "can be taken as an *integrative* science, because the same tools of thinking may be of use for the tackling of complexity in the variety of scientific realms and disciplines (p. 7). Jorg suggested generative mechanism, generative spaces and generative power as new terms in the social scientist tool kit because they reflected a deeper understanding of the realities of the real world (p. 8).

In a further review of the literature and Newton's impact on the social sciences, Fuchs (2002) summed up the shift away from a linear, Newtonian paradigm as follows:

> There is a shift from predictability to nonpredictability; from order and stability to instability, chaos, and dynamics; from control and steering to self-organization of systems; from linearity to complexity and multidimensional causality; from reductionism to emergentism; from being to becoming; and from fragmentation to interdisciplinarity. (p. 7)

The predictable, ordered, reductionist view, an analytic process whereby the system is broken down into its smallest elements, trends toward a more narrowly defined examination of issues (Fuchs, 2002). Thus, what is missing from the analysis process of

complex issues is the consideration of the behavioral characteristics also found with the social sciences and within the systems. Social issues reside within complex issues and themselves include behavioral concepts of self-organizing, co-evolving, adapting, learning, and emergent behavior, all concepts embraced within a nonlinear analytical perspective (Checkland, 2005; Geyer & Rihani, 2010; Harrison, 2006; Holland, 2000; Jorg, 2011). A charge levied against the linear analytic approaches was summarized by Harrison (2006), who stated, "The shadow of Newton's universe continues to obfuscate knowledge in the social science" (p. 6).

Geyer and Rihani (2010) also challenged the social science community with their work on complexity and public policy, arguing, "The success of the orderly paradigm in the natural sciences had a profound effect on attitudes and practices in all sectors of human activity and the social sciences were no exception" (p. 20). Geyer and Rihani (2010) pointed to "a Newtonian vision of an orderly, clockwork universe driven by observable and immutable laws" as an example of how the linear analytic approaches toward an orderly social science approach negatively influenced public policy analysis (p. 20). Their research related how the concepts of an ordered, reductionist, predictable, and deterministic mindset influenced public administration. They argued that phenomena or problems, when viewed through the lens of public administration, assuming organizational and centralized hierarchy, with clear lines of authority and responsibility, and when coupled with the idea that methods derived from linear analytic techniques would yield repeatable and verifiable analysis missed the contested, complex and unpredictable nature of social systems (Byrne, 1998; Geyer & Rihani, 2010).

Beyond Newton: Toward Concepts Grounded in Complexity Theory

Complexity theory rejects the dominant concept of reductionism and the concepts that informed the Newtonian metaphor that the world could be understood as a machine, and analyzing its parts would aid in understanding the whole (Checkland, 2005; Jorg, 2011; Prigogine & Stengers, 1997). It also rejects the deterministic, ordered, linear, mechanistic, analytic approach that prescribes a solution based on that premise that once a problem is identified (and described by its parts), it can then be solved by reducing the problem to its individual parts. By examining those parts, analytic findings will apply back to the initial problem (Checkland, 2005; Hajer, 2006; Jorg, 2011; Prigogine & Stengers, 1997).

The literature review demonstrates the transdiciplinary use of complexity theory across a range of disciplines. Prigogine and Stengers (1997) argued that complexity is distinguished by its absence of a temporal framework, whereby evolution and changes in the behaviors of the parts are not considered as these parts. Individually reduced aspects of the problem cannot be reduced back from their newly changed state back to their original form upon initial analysis therefore the "past and the future no longer play symmetrical roles" (p. 3). Reductionism's deterministic, liner, symmetrical analytic frameworks have been largely attributed to Sir Isaac Newton. They give rise to a statement that complexity theory is a rejection of Newtonian paradigm (Checkland, 2005; Marion, 1999; Prigogine & Stengers, 1997; Waldrop, 1994). Prigogine and Stengers argued instead for a complexity analytic approach advancing the idea that analysis of

events that considers that a "future [is] no longer determined by the present, and the symmetry between past and future is broken" (p. 6).

Its significance relates to the issue of how new emergent forms are generated from change within complexity theory. Prigogine and Stengers (1997) added the concept of irreversibility (or the ability to reduce to its prior form), stating, "Irreversibility leads to a host of novel phenomena. Figuratively speaking, matter at equilibrium, with no arrow of time, is 'blind,' but with the arrow of time, it begins to 'see'" (p. 3).

Marion (1999), whose work can be found within the field of management and organizational sciences, also addressed the challenges of how to conceptualize and frame the basic understanding of management. Marion (1999) found that although theories and the models developed to explain a behavior is useful for the development of some variable analysis, it does not serve to describe reality well. He argued that models generated from theories were only as good as the perspective used to generate the version of reality that one perceived, and that "model building is a lot like the folk tale of three blind men describing an elephant" (p. 11). Each blind man touches a part of the elephant and generates different descriptions of the elephant. Marion further argued that the case is often made that since the elephant is so large it must be divided into its constituent parts, yet this is "problematic because they do not impart a full sense of elephant, and the blind scientists will inevitably be bothered by the lack of connection among the theories" (p. 12).

Marion (1999) also referred to the analytic process as the "garbage can model" of analysis, a term used to describe how "humans make decisions randomly," focusing on

the solutions prior to a clear determination of what the issues were in advance. Kingdon (2011), whose work can be found with the field of political science and public policy, applied a "garbage can model" analogy to the policymaking process, describing how disconnected policy efforts occur when problems, solutions, participants, and opportunities unfold independent of each other. Kingdom (2011) suggested that decision makers drift in and out of the issues. Kingdon concluded that the policymaking process is described as a more haphazard occurrence of events via rational planned activity.

These perspectives can be found within the literature whereby a complexity-informed view of how things work is described by terms such as *complex systems at the edge of chaos* (Bay-Yam, 2004; Fuchs, 2002; Holland, 2000; Kauffman, 2010; Prigogine and Stengers, 1997; Waldrop, 1994). Prigogine and Stengers (1997) argued that "classical science" provides a framework for analysis that focuses on order and stability. However, "in contrast, we see fluctuations, instability, multiple choices, and limited predictability at all levels of observation" (p. 4). Kauffman (2010) is a theoretical biologist focused on observations drawn from the biological sciences and complexity theory applications and insights. He argued, "Late-eighteenth and early nineteenth-century biology was faced with the concept of fixed, unchanging species" (p. 4). Kauffman expanded on this problem, arguing that biologists rejected the linear, ordered approaches to science that were shaped and influenced by Newton's ordered rational approach to evolution.

The emerging science of complexity and research on this topic can also be traced back to the work at the Santa Fe Institute (SFI). The Santa Fe Institute advances the study of complexity within a multidisciplinary environment. Many SFI founders are and

were physicists, including Nobel Prize winner Gell-Mann (2003), who won the prize for his work in physics and work on the theory of elementary particles. Gell-Mann (2003) argued that by bringing together "in a new way material from a great number of different fields in physical, biological, and behavioral sciences and even in the arts and humanities" can broaden the knowledge base for complexity and how to understand complexity and apply such knowledge to new and emerging issues for study (p. ix).

It is also relevant to look to other sources of support to demonstrate the connective or linked characteristics of seemingly unrelated academic disciplines. For example, Gell-Mann (2003) argued "the preservation of biological diversity is inseparable from concern about the future of the biosphere as a whole." (p. 345) Gell-Mann (2003) added, "People must therefore get away from the idea that serious work is restricted to beating to death a well-defined problem in a narrow discipline" (p. 346). Kuhn (2009) supported this reasoning, arguing an awareness of new changes (for example, in a social system) or anomalies within an already preconceived understanding of how things should work or function are often overlooked due to entrenched theoretical frameworks that disallow for new paradigms or analytic methods used to explore and observe new changes within a research topic.

Jorg (2011), sharply critical of the current state of the behavioral and social sciences with regard to how our complex social issues are framed and analyzed, argued against linear thinking. He advanced the necessity to "think in terms of possibilities: that is, of coming into existence, of realizing the living of systems with the hitherto unknown generative spaces of the possible" (p. 254). Bertanlanffy (2001), a biologist, reflected

these same concerns. He reflected on how one could come to blame and relate actions that have not yielded the desired results as a consequence of linear thinking. Bertanlanffy (2001) argued, "Earlier periods of history may have consoled themselves by blaming atrocities and stupidities on bad kings, wicked dictators, ignorance, superstition, material want and related factors," but those days are long gone (p. 8). Relevant factors to consider when attempting to understand unintended outcomes or simply bad outcomes should be understood through other factors that shape social-cultural systems such as, "prejudices, ideologies, pressure groups, social trends, growth and decay of civilizations, or what not" (p. 8).

The literature supports the claim that Newtonian science introduced a linear perspective which is grounded on a reductionist, deterministic and objective approach that focuses on the assumption that an orderly clockwork-like set of processes would yield insights into how something could be understood. To use the clockwork metaphor, systems are more machine like, rending ordered logical results, yet lending little to the understanding of complex issues whereby individual agents act in way wholly unpredictable ways (Bousquet & Curtis, 2011; Cilliers, 2002; Checkland, 2005; Geyer & Rihani, 2010; Holland, 2000; Jorg, 2011; Morçöl, 2012).

Complexity and Public Policy

Complexity theory and its application in the field of public policy analysis and decision making is growing, but the body of literature is small, and much of the literature is focused on emerging methods of analysis towards the issues rather than development methods for the policy.

A small group of scholars (e.g., Dennard et al., 2008) is advancing new and emergent tools and methods embracing complexity and complexity theory in public policy. Dennard et al. (2008) suggested policymakers need more studies to advance complexity-theoretic applications that account for such complexities. A diverse range of public policy scholars contributed to the literature on why and how to apply complexity theory to public administration. This is supported by Mischen and Jackson (2008), who argued that policy implementation is a reflection of both an appreciation of the socially networked constructs within the policy environment and the complexity of the policy issues.

The characteristics of concepts within CT, while not exhaustive, include nonlinear, dynamic, co-evolutionary, feedback loops, tipping points, self-organizing, interrelated, and irreversible (Axelrod & Cohen, 2000; Barabasi, 2003; Checkland, 2005; Dennard et al., 2008; Gell-Mann, 2003; Prigogine & Stengers, 1997; Stacey, 2007; Waldrop, 1994). These terms have become increasingly incorporated into the field of public policy studies and are important for policy analyst to consider in policy analysis efforts.

Bar-Yam (2004), a physicist and systems scientist scholar in the field of dynamic complex systems, multiscale variation and adaptation in warfare, also has contributed to the literature on how to solve societal problems. Bar-Yam (2004) stated, "Everything we do and everything that works and doesn't work around us is embedded in the complex system of our social context and our society" (p. 10). Bar-Yam (2004) "developed an approach to understanding complex systems based on a few fundamental ideas:

1. The mechanisms of collective behavior (patterns).
2. A multiscale perspective (the way different observers describe a systems).
3. The evolutionary process that creates complex systems.
4. The nature of purposive or goal-directed behavior. (p. 16)

Bar-Yam's (2004) studies addressed characteristics of warfare and applications of complexity theory to the social sciences and policymakers. Bar-Yam's (2004) work on wars and the military solutions often applied to wars and societal conflicts. In his analysis of how to think in complex systems terms and warfare, Bar-Yam (2004) drew distinctions in warfare methods, whereby a direct force-on-force confrontation of relative size and scale could foretell an outcome and the associated strategy and policy could be synthesized into one. Bar-Yam (2004) argued that complex wars will not allow for such thinking, nor does a study of social behavior suggest a reductionist approach would work to solve societal concerns and conflicts absent consideration of the multiple and diverse systems in play in a conflict or complex environment.

Bar-Yam (2004) argued instead that warfare must be understood through the lens of complexity as emergent forms of warfare may include a battlefield that can be fought in a virtual cyber space, or found within political and social and belief systems cannot be understood through reductionist analytic tradecraft approaches.

Wallerstein (2001) also acknowledged that an alternative way of thinking should be adopted when it comes to warfare or antisystemic movements, stating, "There has been uprising after uprising, mobilization after mobilization, victory after victory of

antisystemic movements for the whole of the twentieth century" (p. 27). Yet Wallerstein suggested that systems thinking acknowledges that antisystemic movements "are themselves institutional products of the capitalist world-economy, formed in the crucible of its contradictions, permeated by its metaphysical presuppositions, constrained by the working of its other institutions" (p. 27). In this case, Wallerstein (2001) is suggesting that is it the policies themselves that have created both a dependent and independent relationship that produces such systems movements.

Complex Environments

Broadly, there is a growing recognition that the principles of complex systems may help to aid in understanding complex environments. As discussed earlier, although there is no single definition of a complex environment, one was the conflict in Afghanistan in 2009. The ISAF Commander, General McChrystal, argued that the conflict was "uniquely complex" and suggested that a successful outcome would be the result of how well U.S. policy and strategy were able to respond to such a complex problem (McChrystal, 2009, p. 3). Afghanistan and Pakistan represent an amalgamation of competing patronage ethnic groups, diverse political goals from among the players within the environment, varied international involvement with varied coalition capabilities to assist along with dissimilar priorities. The two countries present an interrelated set of social constructs embedded in economic and social dynamics with ties to a global narcotic system, insurgent activities, complex social networks tied into local corruption and state governance, and diverse ideological and belief systems--all forming a complex environment (Caldwell, 2011; McChrystal, 2009).

An additional perspective on complex environments is found in Hall and Citrenbaum (2010), specifically, their research on advanced analytic tradecraft skills in intelligence analysis for complex environments. Hall and Citrenbaum researched analytic methodologies and discussed how to think about complex warfare environments. This body of literature is relevant to analysts in the field of intelligence studies; however its contribution to the discussion of how to think about complex environments and warfare is applicable to the broader body of public policy and policy development. Hall and Citrenbaum (2010) argued:

> Those of us who have engaged in the function of "analysis" – working to determine the nature and imminence of threats to our nation and to our forces and capabilities that go in harm's way – know that the quality of thought and the application of sound reasoning applied to the complex and dynamic conditions we encounter are the most important variables in the work of describing, characterizing, anticipating, and forecasting what has happened and will happen next. (p. vii)

Policy Models: Process and Theories

This literature review includes a review of policy models advanced within the field of public policy as they relate to the development and analysis of public policy. There are very few bodies of work on how to develop a public policy while viewed through the lens of complexity theory and almost no literature on how to analyze a policy using PA with the noted exception of Wallis (2010c; 2011; 2013). With this stated, the public policy process itself (policy models), within the field of public policy and

administration, were considered, to include research from Lindblom (2010), Anderson (2003), Dunn, 2011; Baumgartner & Jones, (2009); and Sabatier, (2007) and Kingdon, (2011). It is important to note, however, that none of these authors presented a method for how to analyze a policy itself. This did not negate the requirement to review the literature within the field of public policy for tools and applications within the field of public policy that might be amenable to this study.

In one seminal work, Sabatier (2007) compiled an assessment of several models that capture the complexity of the policy process, provided rational for why it is important to understand the pros and cons of each model, and suggested insights into the policy theories varying theoretical perspectives. They are as follows: the stages heuristic, international rational choice, multiple streams, punctuated-equilibrium framework, the advocacy coalition framework, the policy diffusion framework, and the funnel of causality and other frameworks in large-n comparative studies. Each model suggests that while the public policymaking process is messy, as Lindblom (2010) noted, a policy method of "muddling through" and Kingdon's (2011) "policy soup" analogy demonstrated. One policy model is expanded below in order to highlight how the models considered by Sabatier (2007) yielded little insight into how complexity and the theoretical underpinnings of complexity theory serve the policymaking process. Sabatier (2007), critical of the policy model, termed stages heuristic, argued the model is overly simplistic, and the stages of "agenda setting, policy formulation and legitimation, implementation, and evaluation" approach a "top-down bias" neglecting the interrelated cycles of the policy process (pp. 6-7). Sabatier argued, "The stages heuristic has outlived

its usefulness and needs to be replaced with better theoretical frameworks" (p. 7) and suggested that that "scientists should be aware of, and capable of applying, several different theoretical perspectives" (p. 6).

To recap, a review of the literature yielded no insights into how to analyze the text of a policy within a framework or paradigm of PA, except for Wallis (2011). Critics of the policy models cited a need for a more instructive approach to policymaking (Sabatier, 2007) because these approaches no longer meet the needs of contemporary policy issues (John, 2003).

This literature review also considered how the term policy was used. Cochran (2012) stated that the term public policy itself "refers to a set of actions by the government that includes, but is not limited to, making laws and is defined in terms of a common goal or purpose" (p. 1). Dunn (2011) described policy as a process "of multidisciplinary inquiry, policy analysis seeks to create, transform, and communicate knowledge about and in the policy-making process (p. 33). Dunn (2004) added that "policy-relevant knowledge was ultimately judged according to its success (or failure) in shaping better policies, not simply because special methods were used to produce it" (p. 35). Kingdon (2011) argued that within the policy process, it is the analysis of the knowledge brought to bear on the problem, which results in a policy. According to Wallis (2013), "Policies (policy models) are an important type of conceptual system because they help us to understand the complex and systemic world in which we live and work" (p. 3). Smith and Larimer (2009) suggested "multiple actors will tend to view a particular policy through multiple lenses" (p.42).

Rhodes (2008) suggested that policymakers are finding it increasing difficult to formulate effective policy and link theory to application. The literature suggests that multiple public policy models for how the policymaking process works as well as an understanding of theoretical underpinnings are sometimes absent. Denhardt (2011) suggested that while there has been a disconnect between theory and practice within the realm of public policy:

> A theory is not simply an arrangement of facts or values but a thoughtful reconstruction of the way we see ourselves and the world around us. It is a way of making sense of a situation. Theories may then be evaluated in terms of their capacity to help us see our world more clearly and to act more effectively in that world (p. 10).

Policy analysts benefit from an ability to understand the policy environment through the deliberate theorizing about the complex environment within which the issue resides (Dennard et al., 2008, 2011; Miller, 2002; Morçöl, 2012). However, while social and behavioral scientists have put forth considerable time and resources in analyzing public policy, applying new and emerging theoretical frameworks in the field of social sciences has been met with some resistance. Moreover, theoretical underpinnings derived from complexity theory are remarkably absent (Jorg, 2011).

Critics of ways in which the behavioral and social sciences have been traditionally approached also exist. Jorg (2011) argued there was a crisis in the field of the behavioral and social sciences. Specifically, Jorg concluded social scientists need to "recognize the hidden agenda of these sciences, and see how they operate in our society at large, with

the blind alleys and blind spots, fostered by the blinding of paradigms 'in use' by scientists" (p. 39). Against a backdrop of some criticism vis-à-vis how theoretical frameworks have been applied within the field of the behavioral and social sciences and policy analysis, complexity theory has been suggested as a useful theoretical framework to examine policy issues (Dennard et al., 2008; Jorg, 2011; Morçöl, 2012). The thematic assessment from among these authors is that there are many policy models on how the policy process works. However, methods and tools to help develop public policy focused on the text of the public policy using a complexity-ground approach remain elusive. There are few practical applications grounded in complexity-theoretic principals, such as the emerging PA paradigm offered by Wallis (2011).

Afghanistan and Pakistan as a Complex Adaptive System

The final portion of this literature review is focused on the conflict in Afghanistan and Pakistan and how it was characterized leading up to the late 2009 Obama administration policy. Expanding on the topic of what is a complex environment, on May 3, 2011, Jones and Rand (2011) testified before the Subcommittee on Counterterrorism and Intelligence, Committee on Homeland Security Foreign Affairs

> A current understanding of the threat to the U.S. homeland from Pakistan requires a nuanced appreciation of al Qa'ida and its allies. With a leadership structure still in Pakistan, al Qa'ida is a notably different organization than a decade ago and can perhaps best be described as a "complex adaptive system." (p. 1)

CAS was introduced in Chapter 1 and it remains important to consider that policy experts reinforced the theme that the AfPak situation was poorly understood. Significant

to this literature review is the recurring theme that policymakers, and strategists, need to better understand how to conceptualize the policy issue (Caldwell, 2011).

The 2009 U.S. Obama Administration Policy Review Toward Afghanistan and Pakistan

In mid-2009, following a considered review of the issues of the Afghanistan conflict, President Obama (2009) presented his administration's policy regarding the conflict (Obama, 2009). To address the issues facing the nation with regard to Afghanistan in March 2009, the White House issued a policy statement calling for the United States, in part, "to disrupt, dismantle and defeat al-Qaeda in Pakistan and Afghanistan, and to prevent their return to either country in the future" ("White Paper," n.d., p. 1). In order to reach the policy goals, the president asked for another re-assessment. General McChrystal, Commander, International Security Assistance Force (ISAF) and Commander, U.S. Forces Afghanistan in 2009, proved to be a significant contributor to the president's assessment, calling the conflict in Afghanistan a "uniquely complex environment" (McChrystal, 2009a). His challenge from the president was to gain an understanding of the conflict environment, provide an assessment, and execute a strategy based on the policy goals put forth by the Obama administration (Obama, 2009). General McChrystal's (2009b) assessment included a key finding that described the conflict as it relates to how to understand causal relationships within the complex environment. He argued

> The conflict in Afghanistan can be viewed as a set of related insurgencies, each of which is a complex system with multiple actors and a vast set of interconnecting

> relationships among those actors. The most important implication of this view is that no element of the conflict can be viewed in isolation - a change anywhere will affect everything else. This view implies that the system must be understood holistically, and while such understanding is not predictive, it will help to recognize general causal relationships (McChrystal, 2009b, Nature of the Conflict, papa. 1).

From the literature review emerged select testimonies, books, and documents that described the central tenets or characteristics of the policy issue. The central tenet that emerged within the literature addressing characteristics within the policy issue is best summarized with the 2009 Obama administration policy review that there were inextricably linked actors shaping the security environment ("White Paper," n.d., p. 1). The principle goals of the administrations' policy were to devise goals to address

1. Terror networks spanning both Afghanistan and Pakistan.
2. Promotion of a more capable government in Afghanistan.
3. Development of increasingly self-reliant Afghan security forces.
4. Enhancement of Pakistan support via economic measures.
5. United Nations and international community involvement. (Obama, 2009)

Caldwell (2011) suggested that policy analysts must consider that the al-Qaeda problem in the AfPak conflict is central to the policy statements. It has been described as a CAS with an informal global network of actors nested within larger systems that shape the environment (Bousquet, 2011; Kilcullen, 2005, 2011). Beyond al-Qaeda having physical presence in both Afghanistan and Pakistan, the literature also identified broader

characteristics within the policy environment. The larger informal and formal networks of global factors, variables, actors, policy systems, other social systems, and belief systems are assessed to contribute to the CAS descriptor.

Lia (2009) described perspectives from the adversary and how the adversary addresses complexity and complex adaptive systems. Lia focused on the theoretical framework, doctrine, and strategies advanced by Abu Mus'ab al-Suri, one of al-Qaeda's more prolific writers. Lia documented the global reach of al-Suri's writings, highlighting highlighted how Abu Mus'ab al-Suri advocated for and taught that a global jihad should be decentralized in nature. Lia documented how al Qaeda adopted a systems approach within its jihad doctrine to serve as its theoretic framework. The research from his studies showed that al Qaeda strategists were teaching systems behavior as a way to combat and counter outside efforts to disrupt the group. Lia's (2009) research documented that a central theoretic framework emerging from al-Suri's writing can be found directly from al-Suri's slogan, stating al Qaeda is "a system of action: not a secret organization for action': *nizam al-'amal, wa laysa tanzim lil-'amal"* (p. 440).

Summary

After reviewing the literature, it is apparent that existing scholars, practitioners, and researchers have identified the relationship to complexity theory, its ability to inform the characterization of how the complex policy environment works, how useful complexity theory is to the public policy community, and how emergent methodologies to conduct policy analysis could be performed. The literature review also demonstrated how the body of work on complexity theory has become a more transdisciplinary

endeavor, yet its applications to public policy are still somewhat stratified (Jorg, 2011). This is understandable given the wide range of academic disciplines that often embrace unique or preferred methods of analysis. Complexity theory, with its origins in physics and biology, has been not been well integrated into the field of social sciences, but it is making strides.

The literature reviewed and synthesized key works reflecting a relationship to policy analysis and new ways to explore research methods in this arena.

Finally, with regard to the topic of complexity and how our adversaries operate within a complex environment, the literature reviewed and synthesized key works reference those attempting to wage a global jihad who have adopted a systems approach to how they intend to wage their jihad, namely al-Qaeda. More specifically, one of the primary issues addressed in the 2009 Obama administration policy, the al-Qaeda phenomena itself, has been described as a CAS (Bousquet, 2011; Kilkullen, 2005; Marion & Uhl-Bein, 2003). This is key for policymakers considering dynamic and emergent behaviors of terrorist and insurgent groups and the complex operational environments wherein such conflict resides and requires a keen appreciation of a wide range of factors that will contribute to the conflict of today and into our future.

Chapter 3: Research Method

This chapter begins with the rationale for utilizing the integrated mixed-method single-case study research design. It then describes the reasons for selecting the policy. This is followed by my description of the process for data collection and analysis. Finally, in this chapter, I describe my preliminary approach for how I describe the findings in Chapter 4. The approval to conduct this study was provided by the University and the following number references this approval: # 06-03-14-0052106.

Research Design and Approach

Design

This study used an integrated mixed-methods case study approach, within the mixed-methods research paradigm. Yin (1994) described a case study as a method of inquiry that "investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (p. 13). This study gathered data from a range of sources. It specifically reviewed data that related to assessments that were publicly submitted for use in consideration of the Obama administration December 1, 2009, policy. No interviews, surveys, or other forms of personal contact were conducted.

The integrated mixed-methods study of research design serves to describe both the research strategy and the object of the study. It remains important to underscore here that the PA paradigm is at once both the subject and study of inquiry and is integral to the methodology used in this study. Propositional analysis itself is described as a mixed-

methods research design by the developer of this analytic approach (Wallis, 2011). Therefore, assessments of other methodologies for a portion of the research design on the policy itself, while considered, were not included because it is the PA method that informs the PA paradigm (thus the mode of policy analysis) that informed the research design.

Four quality control indicators were included in the research design, as suggested by Yin (2004, p. 33): Construct validity, internal validity, external validity, and reliability.

To achieve construct validity, multiple data sources were included and collected in a manner reflecting the multiple ranges of themes and topics. Yin (1994) argued that data collected must be well documented to establish a "chain of evidence" (p. 34). External validity, which refers to a study's generalizability, was addressed in two ways. The study expands on previous studies that used the PA method and replicated their results. This was accomplished through the data analysis process and documenting the findings. Finally, Wallis (2011) argued policymakers, researchers, and analysts working on policy issues have an ethical responsibility to explore new methods of policy analysis in order to better understand how to develop better policy. The PA method facilitates responsible research following clear steps that scholars and practitioners can use to advance knowledge on this important subject of research.

Alternative Methods Considered for a Research Design

The research design process for this study considered several methodologies. Quantitative methods were considered, in part, because the PA methodology itself has a

quantitative component. However, the research data and the study's more hermeneutic, heuristic, and interpretive components suggested that a qualitative approach would yield thick interpretive findings (Bryman, 2011). Further, quantitative approaches tend to be derived from the positivist paradigm (i.e., the epistemological orientation) and the realist ontological orientation (Tashakkori & Teddlie, 2003). The research question itself suggests learning through heuristic and exploration processes. This orientation towards research tend to be derived from the postpositivist paradigm and is in keeping with the complexity theory and PA paradigm. This suggestion focused the research design search to qualitative methods, ultimately resting on a terming this study a mixed-methods approach incorporating both quantitative and qualitative approaches as it was suggested by Wallis (2011). This method was employed, despite some literature that suggested some contention over the value of qualitative studies in general, and case study methods specifically (Creswell, 2009; Yin, 1994).

Nonetheless, when considering this study's research design complexity as a phenomenon, the term used to describe the complex environment that was/is the Afghanistan and Pakistan conflict and policy propositions were considered. Creswell (2008) argued, "The research design process in qualitative research begins with philosophical assumptions that the inquirers make in deciding to undertake a qualitative study" (p. 15). The philosophical assumption for this study is that complexity and systems theory provides insights into how to understand and make sense of our world. The research questions drove the decision for the case study; however, other forms of research designs were considered.

The narrative research design approach considers the data derived from the interpretations, representations, and observations from those whose perspectives about an observed phenomenon are shared perhaps, as an example, through interviews or documents (Creswell, 2008, 2011; Miller & Salkind, 2002; Yin, 2011). The storyteller is the primary focus in a narrative research design (Creswell, 2008; Miller & Salkind, 2002; Yin, 2011). While rich, contextual data relayed in stories by those on the ground in Afghanistan and Pakistan likely informed the policy review process, typical narrative studies are inherently limited to one or two persons. This study does consider the narrative (the storytelling) as a conceptual strategy for sensemaking. This study also relied on available assessments of the policy environment. Policymakers consider the observations of those on the ground, as in the case of official testimony provided to Congress; therefore, there is a narrative element to the research. However, for this study, it is the intersection of complexity theoretic methods and the PA method of policy analysis, using the specific text of the policy under exploration and of interest to the researcher.

Phenomenology suggests the object of study is related to the descriptions of experiences that people in cultural or organizational settings relay (Merriam, 2009). This is often done through survey questions. The distinction between the narrative design approach and the phenomenology approach is nuanced. The narrative approach suggests that the storyteller or the narrator details rich contextual knowledge, as seen through one or two storytellers. The phenomenology approach captures the experiences as they were gained in their own natural setting (Merriam, 2009). Neither approach proved useful for

this case study's analysis, partially because the information used to develop the policy addressed in this study is largely derived from official documents known to be part of the Obama administrations review of the Afghanistan and Pakistan issue.

Data Collection

The PA Methodology

I obtained a letter of acknowledgment from Dr. Steven Wallis citing his approval to use his developed PA methodology.

The December 1, 2009, Obama Administration AfPak policy was the policy that was analyzed. It is a published and posted document and is included in the appendix.

Preliminary Data Analysis Process

Three analytic processes were conducted:

1. Purposefully selected the Obama administration Dec 1, 2009, policy as the policy to be used. The specific steps for PA are described below.
    a. Identified a specific policy text.
    b. Identified all causal propositions within the text (preferably a specific policy model or similar concise, yet authoritative, representation of the policy).
    c. Linked propositions according to related aspects.
    d. Quantified the total number of aspects to find the complexity.
    e. Identified and quantify the concatenated aspects.
    f. Divided the number of concatenated aspects by the total number of aspects to find the Robustness/systemicity (a ratio between zero and

one). (Wallis, 2010, pp. 32-33)

g. The first six steps describe the methodology of propositional analysis (PA), whereby the structure of the policy is analyzed "to objectively determine its complexity and formal robustness/systemicity" (Wallis, 2010b, p. 153). Wallis described how complexity is determined "by quantifying the concepts and connections within" each policy statement (p. 153). The robustness/systemicity of the policy is "a measure of its internal integrity, based on the ratio between the total number of aspects and the number of concatenated aspects" (p. 153).

2. Employed a systematic search for relevant documents, using multiple sources of evidence that helped develop a rich descriptive study to describe how complexity and propositional analysis support effective policymaking. This process, referred to as the process of triangulation for this particular study (which includes the variety of data sources, the diversity of sources that contributed to the Obama 2009 AfPak policy review, and the use of both the PA method and the exploratory case study) defines the integrated mixed-methods single-case study approach. Data collection (the policy) was derived from publically available documents that can be reviewed repeatedly. A chain of evidence was maintained to further establish the reliability of the sources used within this study (Yin, 2011).

3. The analytic strategy comprised several analysis techniques. The theoretical propositions and orientation of complexity theory guided the effort. The

proposition that complexity and systems are a natural part of the policy environment informed the organization of the data. The other technique used comprised a descriptive approach to explain or describe the phenomenon that has come to be described as the AfPak policy issue.

The triangulation process within this research design was used to explore the validity of the PA paradigm. This descriptive process of assessing the empirical research methods of the PA paradigm was provided in the analytical conclusions found in chapter 5.

Much of the overall study is recursive and circular (Maxwell, 2005). Maxwell (2005) argued that "qualitative research design is recursive and circular and not sequential and linear. It involves cycles of reflection and refinement" (p. 2). Maxwell (2005) referred to this research process as "tacking," whereby the study consists of many processes that are more reflexive in nature "assessing the implications of goals, theories, research questions, methods and validity threats for one another" (p. 3). Here Maxwell stressed that qualitative research is an interactive process absent a more stringent set of steps. Maxwell argued that the qualitative research design defines a study whereby the "components of the study interact with one another" much like real world complexity behaves as a system with interrelated and changing characteristics forming the whole of the environment. In this study, the analytical conclusions in chapter four and the findings in chapter five reflect the "tacking process" that took place whereby both the policy was analyzed and assessments were made as to the heuristic value of the PA paradigm.

The research design aimed to be instructive in two ways. It was intended to provide insight into the emergent intellectual tools necessary to help policymakers

understand, identify, and specify public policy problems. It helped to develop policies that better serve the changes desired. This study also intended to provide insights into how social changes can be made positive by being able to better understand how to craft policy in such a way as to consider and provide foresight into future outcomes (Lawson, 2013). A policymaker must endeavor to understand the policy issue's depth and breadth, as without this understanding, poorly developed policies could be made which, over time, could be nearly impossible to change. In the context of a complex conflict environment, poorly developed policy can lead to an incalculable loss of lives and resources. The first step toward saving lives is to determine the complex and nonlinear nature of the policy.

Chapter 4: Results

This chapter presents the results of the policy analysis that made up the focus of this study. The following abstract example from Wallis (2011) is meant to orient the reader to the policy analysis process. Wallis (2011) accepts that propositions could contain more than one type of a logic structure. They include atomistic, linear, circular and concatenated logics. Below is an example of a proposition and how the methodology will work, as follows:

> A is true, B is true: more A causes more C; more B causes more D; more D and more C cause more E. In such a model, there are five aspects (A, B, C, D, and E). Therefore the Complexity of the policy is C = 5. Of those five, only E is concatenated (increases in D and increases in C cause increases in E). This allows us to find the ratio of well-understood aspects to poorly understood aspects of R = 0.20 (the results of one concatenated aspect divided by five total aspects). (p. 33)

Wallis (2011) noted that his previous studies using PA his research suggested that the robustness/systemicity of the policy provides "some indicators" of a policy's effectiveness (p. 33). As Wallis (2013) continued to refine his research into the heuristic value of PA, he suggested that more policies should be analyzed using this approach in order to add to the body of knowledge for those seeking to learn more from the applications of complexity-based approaches to policy analysis. This study picks up on the recommendation for more research.

This study used Propositional Analysis to analyze the US foreign policy articulated in the "Remarks by the President in Address to the Nation on the Way Forward in Afghanistan and Pakistan" speech delivered December 1, 2009 (Obama, 2009). This speech announced a major new policy of the U.S. Obama administration that reflected a new way forward for the administration and, perhaps more importantly, that it would address Afghanistan and Pakistan as separate sovereign states, but together would be considered as one overarching complex challenge (Obama, 2009). The president's policy included a key focus for the United States to "set a goal that was narrowly defined as disrupting, dismantling, and defeating al Qaeda and its extremist allies, and pledged to better coordinate our military and civilian efforts (Obama, 2009, para. 10).

Succinctly, the PA paradigm is used to provide an understanding of what can be learned when developing a public policy. Still, newer policies can signal changes in the environment. By utilizing the PA method as a systems-based method of analysis, new insights into how to develop and understand the policy environment can enhance the effectiveness of the policies (Wallis, 2014).

Applying the Propositional Analysis Method

The propositional analysis used to examine the 2009 Obama administration policy followed a six-step approach. Each step of the methodology and subsequent policy is graphically depicted in a figure followed by a listing of the analytical conclusions and an aggregate of the analytic conclusions President Obama's AfPak policy expressed in the analyzed speech can be divided roughly into three primary policy goals. Each goal is supported by propositions within the policy reflecting input from the 2009 policy review

process, and is a series of propositions about how the environment is understood and how it is expected to change. Each of the three primary policy goals consists of a set of interrelated propositions that are amenable to the use of the PA method (Wallis, 2011).

For example, the policy states that disrupting terrorists' networks in Afghanistan and Pakistan will degrade the terrorists' ability to plan and conduct attacks abroad. The PA method suggests that the model developed from an analysis of the propositions and concepts provides a conceptual frame for how the complex environment wherein the policy issue resides is understood. The PA method suggests that a policymaker will have an improved understanding of the complex environment and the systems "through diagramming, identifying structures of logic, finding formal measure of Complexity, and finding formal measure of robustness/systemicity (which indicates the potential usefulness of that conceptual system)" (Wallis, 2014, p. 7).

The analysis began with identifying the primary policy themes within the policy. The text of the policy is presented as it was represented originally "followed by a diagram of the conceptual logic model that reflects the anticipated changes and an analysis of the diagram" (Wallis, 2011, p. 100). It is important to note that President Obama stated that "our overarching goal remains the same: to disrupt, dismantle, and defeat al Qaeda in Afghanistan and Pakistan, and to prevent its capacity to threaten America and our allies in the future" (Obama, 2009, para. 20). These goals and the subsequent policy analysis using PA are presented below.

Analysis of Policy Goal 1

Policy goal 1 was, "We must deny al Qaeda a safe haven" (United States, 2009, para. 21).

Expected change within the policy environment for goal one: If terrorist networks in Afghanistan and Pakistan are denied a safe haven there will be decreased threat to America and our allies in the future.

> But while we've achieved hard-earned milestones in Iraq, the situation in Afghanistan has deteriorated. After escaping across the border into Pakistan in 2001 and 2002, al Qaeda's leadership established a safe haven there. Although a legitimate government was elected by the Afghan people, it's been hampered by corruption, the drug trade, an under-developed economy, and insufficient security forces. (Obama, 2009, para. 8) (See Figure 3.)

To begin the analysis, some step-by-step analysis is in order to orient the policymaker to the PA method. In the statement above, and in the first proposition, initial analysis suggests that there is an implied causal relationship. However, in the first sentence of this portion of the policy (sentence 1, para. 8) there appears to be an atomistic logic structure, as seen in Figure 2.

Figure 2. Too atomistic. (Obama, 2009, para. 8)

Wallis (2011) defined "atomistic" as a "kind of logical structure found within a proposition that is reductionist, such as "A is valid" or "A is true," or more concretely, "Apples are important" (p. 99). Also, recall that a circular logic, is where a change in one aspect to another leads back to the first, for example "More A causes more B causes more C causes more A) (Wallis, 2014, p.4) (see Figure 3 below). PA suggests a causal relationship is "where two or more aspects are related so that a change in one causes a change in one or more others" (Wallis, 2011, p. 100).

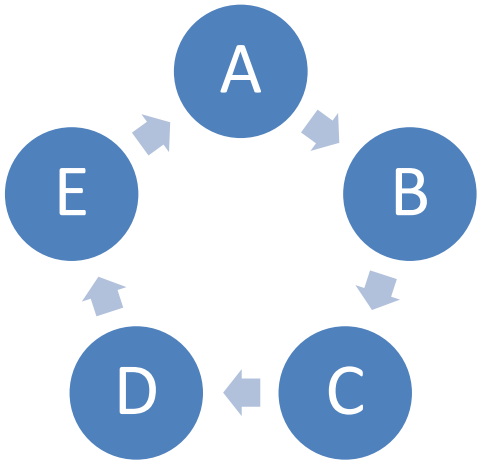

Figure 3. Example of Circular Logic.

What might be implied is a time element, something like more time causes more deterioration, but this is still an inferred assumption (for example, see Figure 4 below).

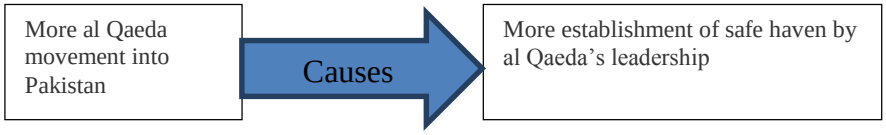

Figure 4. Example of linear logic. (Obama, 2009, para. 8)

After escaping across the border into Pakistan in 2001 and 2002, al Qaeda's leadership established a safe haven there. (Obama, 2009, para. 8). (See Figure 4.)

In the statement above, an example of linear logic is apparent. Wallis (2011) defined linear logic is "a logical structure found within a proportion describing simple causal relationship between two aspects such as more A causes more B. Both A and B exist in a linear relationship to one another" (p. 101).

To better understand how and why al Qaeda were able to establish a safe haven, something else needs to be added to better diagram the complexity and systemicity of the policy environment (i.e., needs to be concatenated). Systems theory and complexity theory provide a research framework (as does this PA model) to model phenomena from an integrated lens. The lens moves beyond analytic frameworks or models that are reductionist, linear, and present challenges to a critical inquiry of "what changes" could occur.

Moving to the next section of propositions within the policy:

"Although a legitimate government was elected by the Afghan people, it's been hampered by corruption, the drug trade, an under-developed economy, and insufficient security forces. (Obama, 2009, para. 8). (See Figure 5.)

The effects on effectiveness are more clear, and the legitimacy seems more implied (but reasonably so). Putting the concepts together as they are presented within this portion of the policy it can be seen that there are seven concepts.

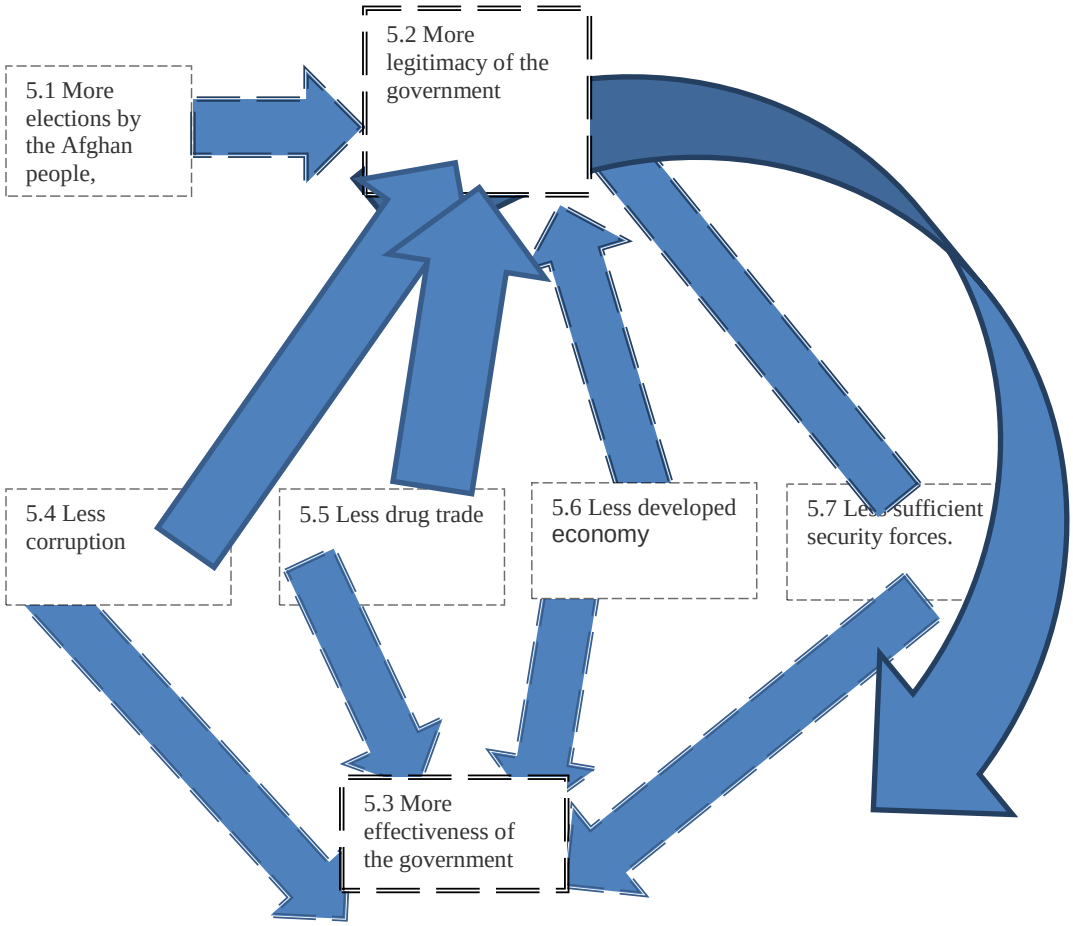

Figure 5. Obama, 2009, para. 8.

As shown in Figure 5, where each box represents one concept, it may be seen that there are seven concepts total. Therefore, the Complexity of the figure is C = 7. The darker dashed box represents a causal relationship. For this portion of the policy diagram it should be noted that there are two concatenated concepts (2- 7); therefore, the Robustness/systemicity is 0.25 (the result of two concatenated concepts divided by seven total concepts).

The model, therefore, has a low level of complexity and the same for the robustness/systemicity score, or referring to the overall systemicity, a low systemicity score. The relationship between 5.2 and 5.3 however, suggests a more reasonable indication of complex changes based on this portion of the policy. For Figure 5, and this portion of the policy model analysis, PA would suggest that this portion of the policy would be less effective in practical application. For a policymaker, each of the systems or concepts is an opportunity for more research. It could be more likely that other factors or behaviors in systems not considered, such as belief systems or economic systems, could impact the other already cited causal factors, creating more changes in the future complex environment.

Moving to the next section of propositions within the policy:

> Yet huge challenges remain. Afghanistan is not lost, but for several years it has moved backwards. There's no imminent threat of the government being overthrown, but the Taliban has gained momentum. Al Qaeda has not reemerged in Afghanistan in the same numbers as before 9/11, but they retain their safe havens along the border. And our forces lack the full support they need to effectively train and partner with Afghan security forces and better secure the population. Our new commander in Afghanistan -- General McChrystal -- has reported that the security situation is more serious than he anticipated. In short: The status quo is not sustainable. (Obama, 2009, para. 12) (See Figure 6.)

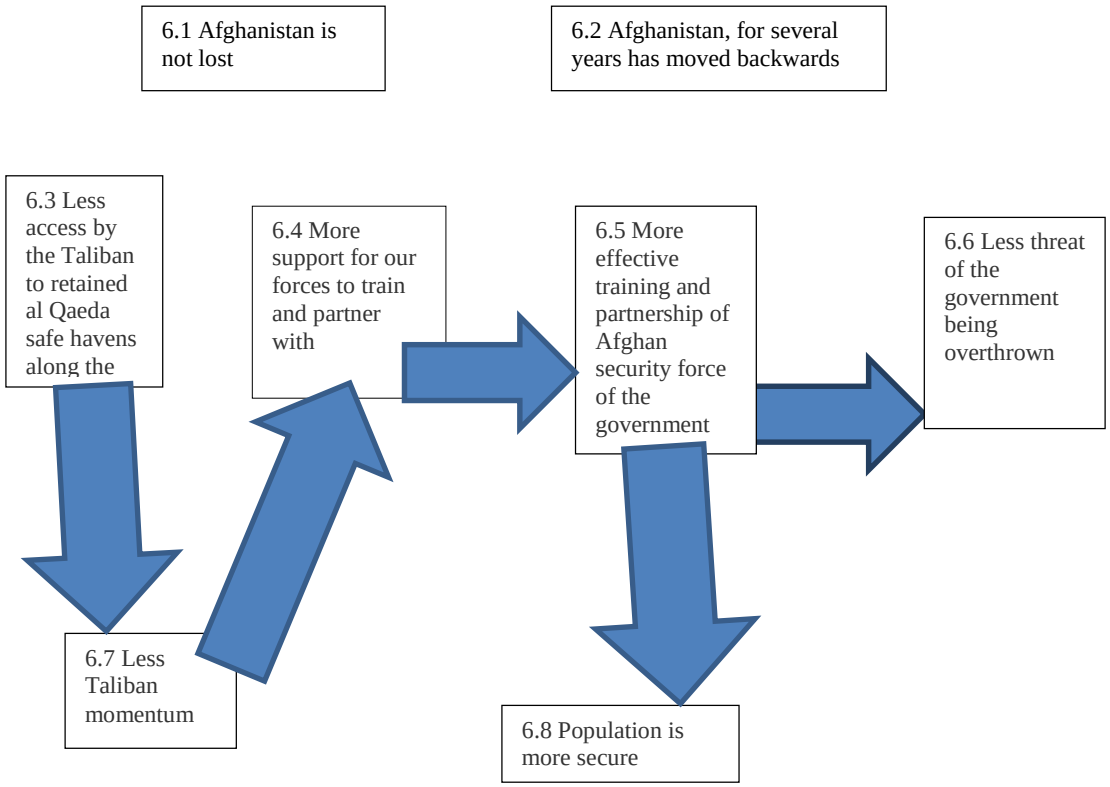

Figure 6. Obama, 2009, para. 12.

This diagram suggests government security is better understood than the security of the population. Also, in the portion of the policy diagram there are two atomistic diagrams. From Figure 6, where each box represents one concept, it may be seen that there are eight concepts. Therefore, the Complexity of the figure is C = 8. There are no darker dashed boxes as there are no concateanteded concepts. So, it may be seen that there are zero concatenated concepts (0 - 8), and the robustness/systemicity is 0.0 (the result of no concatenated concepts divided by eight total concepts).

The model, therefore, has a fairly low level of complexity and robustness /systemicity score, or denoting the overall systemicity, a low systemicity score. For

Figure 6, and this portion of the policy model analysis, PA would suggest that this portion of the policy would be less effective in practical application.

If policymakers were to take from this finding that the complex environment and its complexity needed to be considered further, they could include more concepts, thus creating a more complex model. Also, policymakers should consider conducting more analysis of the relationships and dynamic changes that occur between currently unconneted propositions and concepts. For example, there may be a causal link between 6.3 and 6.5.

For Figure 6 there are six separate groupings of causally related concepts. To impove the overall coherence of the model, these six could be linked by more causal relationships to help the policymaker better understand the complex, dynamic, and interrelated nature of the environment. For example, a policymaker should also consider how the currently causal relationship between the concepts might show a causal relationship between 6.1 and 6.3 and 6.5. That would link the concepts together in a way that both explaines the relational concepts of the policy, signaling a better undertanding of the complexity of the environment and it would also raise concept 6.5 to a more complex, (concatenated) concept, thus improving the overall robutness and systemicity of the policy model.

Moving to the next section of propositions within the policy:

> So, no, I do not make this decision lightly. I make this decision because I am convinced that our security is at stake in Afghanistan and Pakistan. This is the epicenter of violent extremism practiced by al Qaeda. It is from here that we were

attacked on 9/11, and it is from here that new attacks are being plotted as I speak. This is no idle danger; no hypothetical threat. In the last few months alone, we have apprehended extremists within our borders who were sent here from the border region of Afghanistan and Pakistan to commit new acts of terror. And this danger will only grow if the region slides backwards, and al Qaeda can operate with impunity. We must keep the pressure on al Qaeda, and to do that, we must increase the stability and capacity of our partners in the region. (Obama, 2009, para. 17) (See Figure 7.)

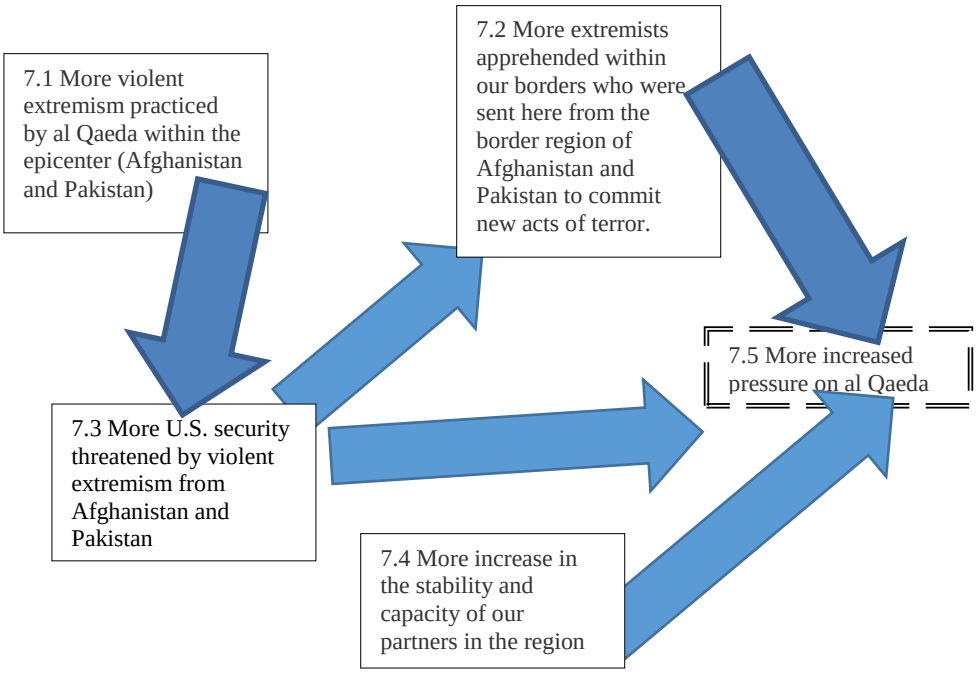

Figure 7. Obama, 2009, para. 17.

Each box represents one concept; thus, it may be seen there are five concepts. Therefore, the Complexity of the figure is C = 5. The darker dashed box represents a concateanted concept. So, it may be seen that there is one concatenated concept (1-5);

therefore, the robustness/systemicity is 0.2 (the result of one concatenated concept divided by five total concepts).

The model, therefore, has a fairly low level of complexity and the same for the robustness/systemicity score, or refereing to the overall systemicity, a low systemicity score. For Figure 6, and this portion of the policy model analysis, PA would suggest that this portion of the policy would be less effective in practical application.

If policymakers were to take from this finding, they would conclude that the complex environment and its complexity needed to be considered further. For example, there may be more causal links between 7.2 and 7.5. A better undertanding of the complexity of the environment could be reflected if there were a clearer complex relationship reflected between 7.2 and 7. 5, thus raising concept 7.3 to a more complex, (concatenated) concept and improving the overall robutness and thereby the systemicity of the policy model.

Moving to the next section of propositions within the policy:

> We're in Afghanistan to prevent a cancer from once again spreading through that country. But this same cancer has also taken root in the border region of Pakistan. That's why we need a strategy that works on both sides of the border. (Obama, 2009, para. 29). (See Figure 8.)

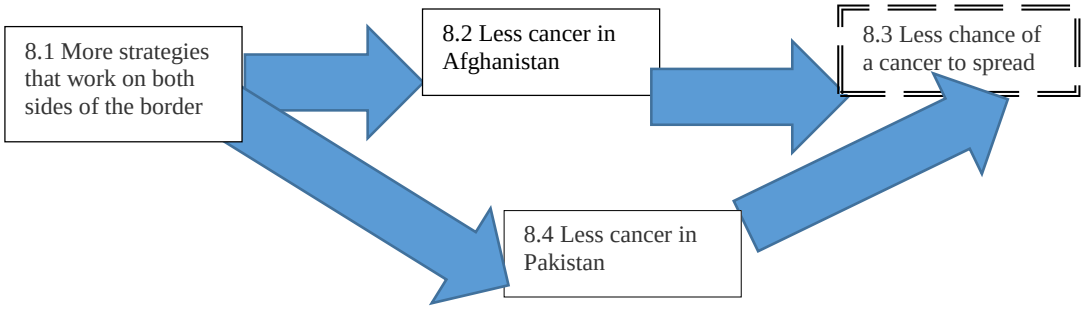

Figure 8. Obama, 2009, para. 29.

Each box represents one concept; thus, it may be seen that there are four concepts. Therefore, the Complexity of the figure is C = 4. The darker dashed box represents a causal relationship. So, it may be seen that there is one concatenated concept (1- 4), therefore the Robustness/systemicity is 0.25 (the result of one concatenated concept divided by four total concepts).

The model, therefore, has a fairly low level of complexity and the same for the robustness/systemicity score, or referring to the overall systemicity, a low systemicity score. For Figure 8 and this portion of the policy model analysis, PA would suggest that this portion of the policy would be less effective in practical application.

For Figure 8, a policymaker should consider how the currently causal relationship between the concepts might show a more complex relationship or a complex concatenated logic model between 8.2 and 8.4. Recall, with a causal relationship, "it is not useful to state (for example) that 'A and B are interrelated' or 'more A may cause more B' because the nature of the relationship is not causally defined" (Wallis, 2011, p. 100). If a policymaker considered and moved beyond a cognitive framwork that focuses

on the "what is" and moved to the "what could be" within the dynamic complex environment, more concatenated or systemic propostions would link the concepts. Doing so would both explain the relational concepts of the policy, thus signaling a better undertanding of the complexity of the environment. It would also raise concept 8.3 to a more complex (concatenated) concept, thus improving the overall robustness and thereby the systemicity of the policy model.

Moving to the next section of propositions within the policy:

> In the past, there have been those in Pakistan who've argued that the struggle against extremism is not their fight, and that Pakistan is better off doing little or seeking accommodation with those who use violence. But in recent years, as innocents have been killed from Karachi to Islamabad, it has become clear that it is the Pakistani people who are the most endangered by extremism. Public opinion has turned. The Pakistani army has waged an offensive in Swat and South Waziristan. And there is no doubt that the United States and Pakistan share a common enemy. (Obama, 2009, para. 30) (See Figure 9)

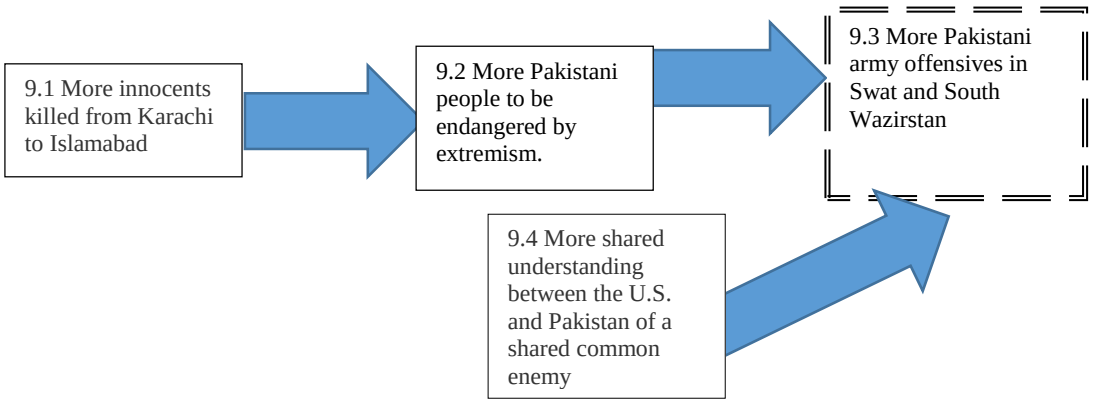

Figure 9. Obama, 2009, para. 30.

Each box represents one of four concepts. Therefore, the Complexity of the figure is C = 4. The darker dashed box represents a causal relationship. There is one concatenated concept (1- 4); therefore, the robustness/systemicity is 0.25 (the result of one concatenated concept divided by four total concepts).

The model, therefore, has a fairly low level of complexity and robustness/systemicity score, or a low systemicity score. For Figure 9, and this portion of the policy model analysis, PA suggests that this portion of the policy is less effective in practical application.

For Figure 9, a policymaker should consider how the currently causal relationship between the concepts might show a more complex relationship or a complex concatenated logic model between 9.3 and 9.4.

Moving to the next section of propositions within the policy:

> In the past, we too often defined our relationship with Pakistan narrowly. Those days are over. Moving forward, we are committed to a partnership with Pakistan that is built on a foundation of mutual interest, mutual respect, and mutual trust. We will strengthen Pakistan's capacity to target those groups that threaten our countries, and have made it clear that we cannot tolerate a safe haven for terrorists whose location is known and whose intentions are clear. America is also providing substantial resources to support Pakistan's democracy and development. We are the largest international supporter for those Pakistanis displaced by the fighting. And going forward, the Pakistan people must know

America will remain a strong supporter of Pakistan's security and prosperity long after the guns have fallen silent, so that the great potential of its people can be unleashed. (Obama, 2009, para. 31) (See Figure 10.)

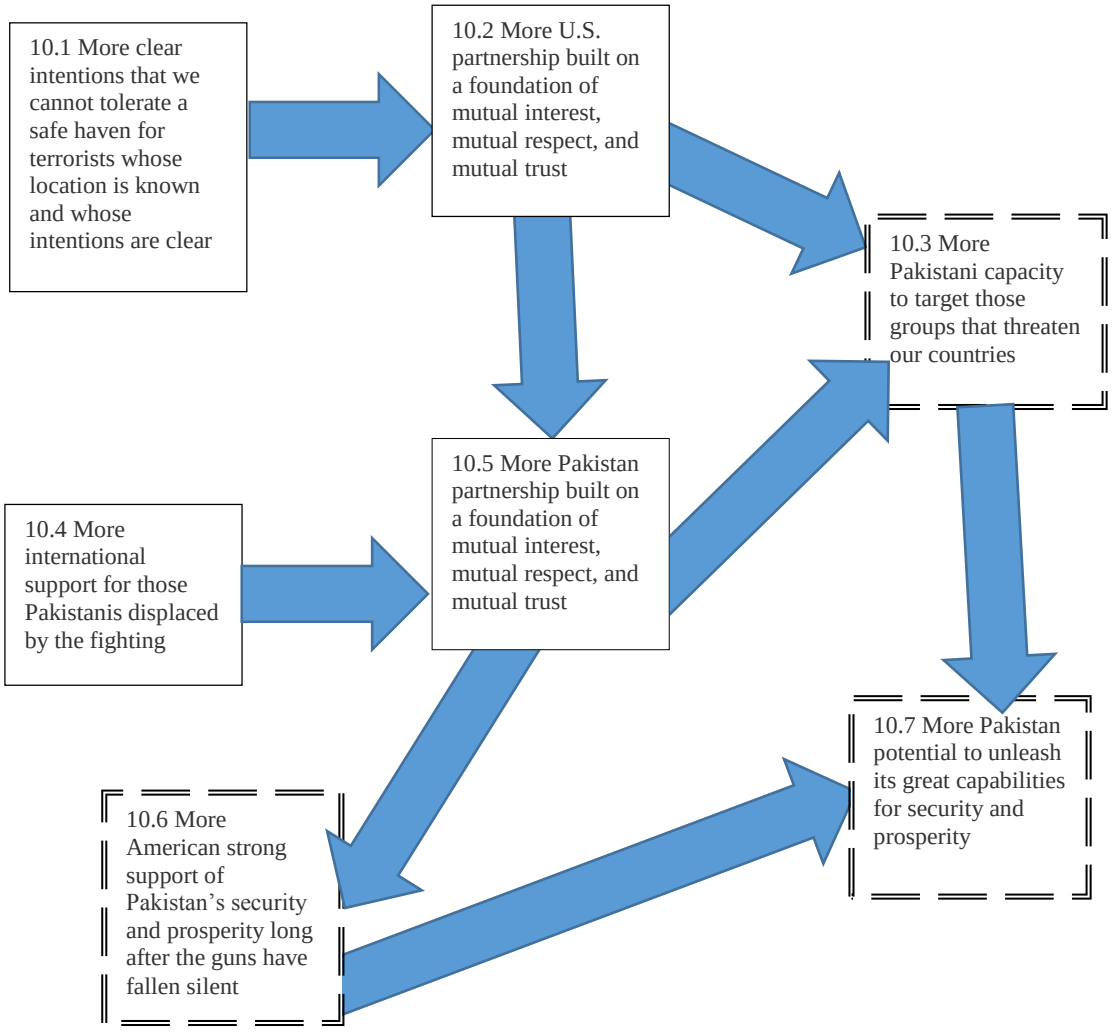

Figure 10. Obama, 2009, para. 31.

Each box represents one of seven concepts. Therefore, the Complexity of the figure is C = 7. The darker dashed box represents a causal relationship. There are three

concatenated concept (10.3, 10.6, 10.7, therefore 3 - 7). The Robustness/systemicity is 0.42 (the result of three concatenated concepts divided by seven total concepts).

The model, therefore, has a low level of complexity and robustness/systemicity score, or referring to the overall systemicity, a low systemicity score. For Figure 10, and this portion of the policy model analysis, PA suggests that this portion of the policy is less effective in practical application.

For Figure 10, a policymaker should consider how the currently causal relationship between the concepts might show a more complex relationship or a complex concatenated logic model between 10.3 and 10.4.

Moving to the next section of propositions within the policy:

> Because this is an international effort, I've asked that our commitment be joined by contributions from our allies. Some have already provided additional troops, and we're confident that there will be further contributions in the days and weeks ahead. Our friends have fought and bled and died alongside us in Afghanistan. And now, we must come together to end this war successfully. For what's at stake is not simply a test of NATO's credibility -- what's at stake is the security of our allies, and the common security of the world. (Obama, 2009, para. 23) (See Figure 11.)

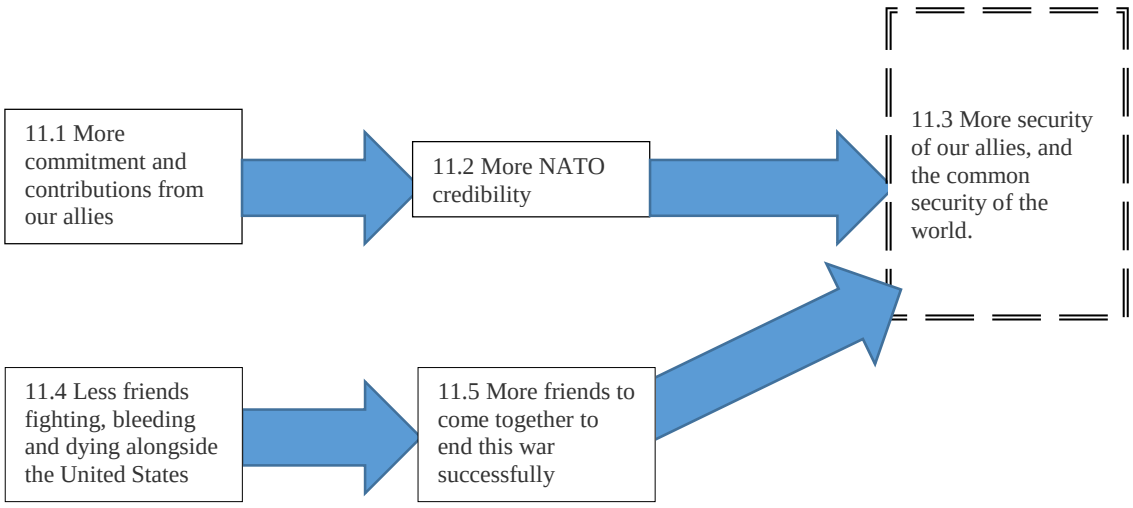

Figure 11. Obama, 2009, para. 23.

Each box represents one of five concepts. Therefore, the Complexity of the figure is C = 5. The darker dashed box represents a causal relationship. There is one concatenated concept (1- 5); therefore, the Robustness/systemicity is 0.2 (the result of one concatenated concept divided by five total concepts).

The model, therefore, has a fairly low level of complexity and robustness/systemicity score, or referring to the overall systemicity, a low systemicity score. For Figure 10, and this portion of the policy model analysis, PA suggests that this portion of the policy would be less effective in practical application.

For Figure 11, a policymaker should consider how the currently causal relationship between the concepts might show a more complex relationship or a complex concatenated logic model between 11.4 and 11. 2.

Moving to the next section of propositions within the policy:

But taken together, these additional American and international troops will allow us to accelerate handing over responsibility to Afghan forces, and allow us to begin the transfer of our forces out of Afghanistan in July of 2011. Just as we have done in Iraq, we will execute this transition responsibly, taking into account conditions on the ground. We'll continue to advise and assist Afghanistan's security forces to ensure that they can succeed over the long haul. But it will be clear to the Afghan government -- and, more importantly, to the Afghan people -- that they will ultimately be responsible for their own country. (Obama, 2009, para. 24) (See Figure 12.)

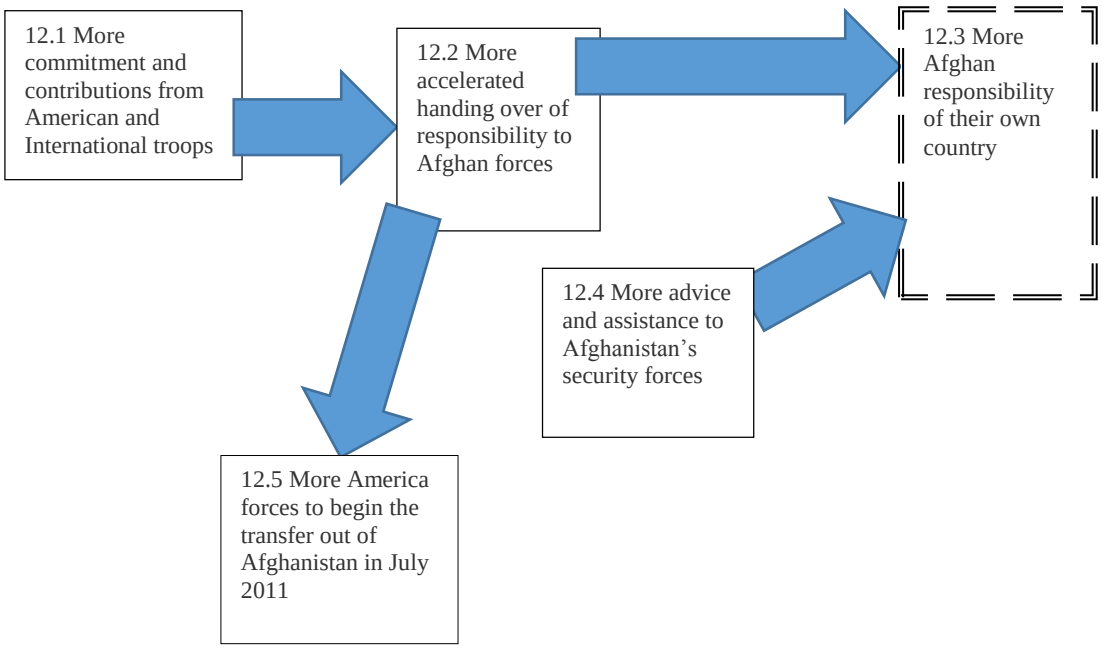

Figure 12. Obama, 2009, para. 24.

Each box represents one of five concepts. Therefore, the Complexity of the figure is

C = 5. The darker dashed box represents a causal relationship. There is one concatenated concept (1- 5); therefore, the Robustness/systemicity is 0.2 (the result of one concatenated concept divided by five total concepts).

The model, therefore, has a fairly low level of complexity and robustness/systemicity score, or referring to the overall systemicity, a low systemicity score. For Figure 12, and this portion of the policy model analysis, PA suggests that this portion of the policy would be less effective in practical application.

Moving to the next section of propositions within the policy:

> Now, let me be clear: None of this will be easy. The struggle against violent extremism will not be finished quickly, and it extends well beyond Afghanistan and Pakistan. It will be an enduring test of our free society, and our leadership in the world. And unlike the great power conflicts and clear lines of division that defined the 20th century, our effort will involve disorderly regions, failed states, diffuse enemies. (Obama, 2009, para. 41). (See Figure 13.)

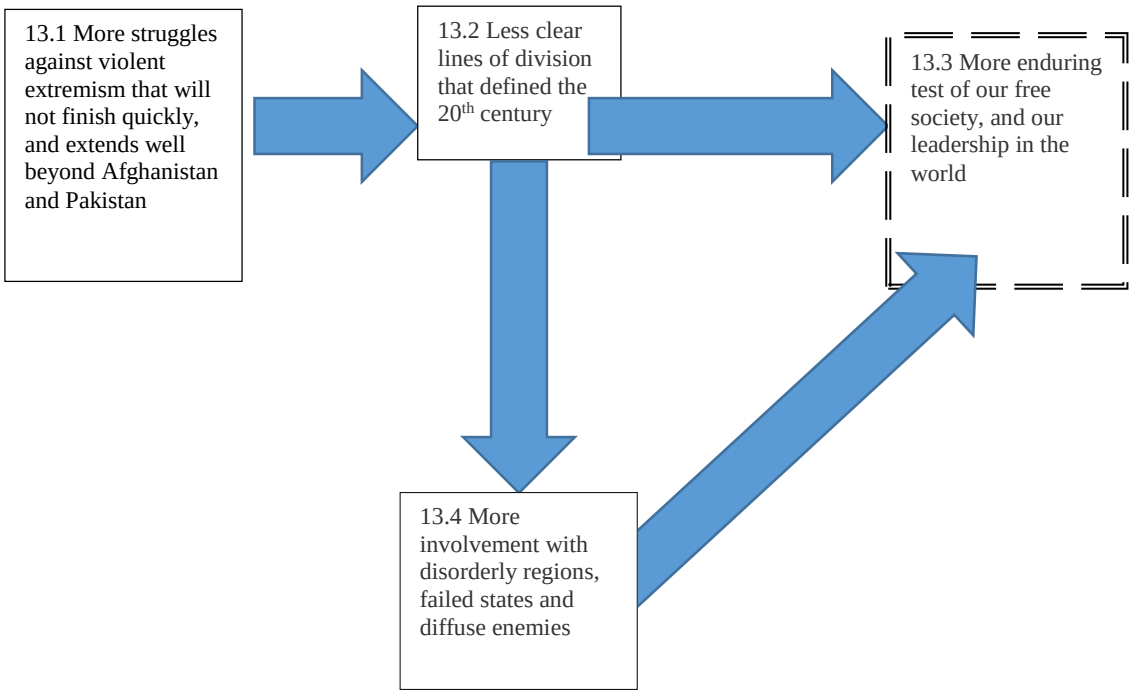

Figure 13. Obama, 2009, para. 41.

Each box represents one of four concepts. Therefore, the Complexity of the figure is C = 4. The darker dashed box represents a causal relationship. There is one concatenated concept (1- 4); therefore, the Robustness/systemicity is 0.25 (the result of one concatenated concept divided by four total concepts).

The model, therefore, has a fairly low level of complexity and robustness/systemicity score, or referring to the overall systemicity, a low systemicity score. For Figure 12, and this portion of the policy model analysis, PA suggests that this portion of the policy would be less effective in practical application.

Moving to the next section of propositions within the policy:

So as a result, America will have to show our strength in the way that we end wars and prevent conflict -- not just how we wage wars. We'll have to be nimble

and precise in our use of military power. Where al Qaeda and its allies attempt to establish a foothold -- whether in Somalia or Yemen or elsewhere -- they must be confronted by growing pressure and strong partnerships. (Obama, 2009, para. 42) (See Figure 14).

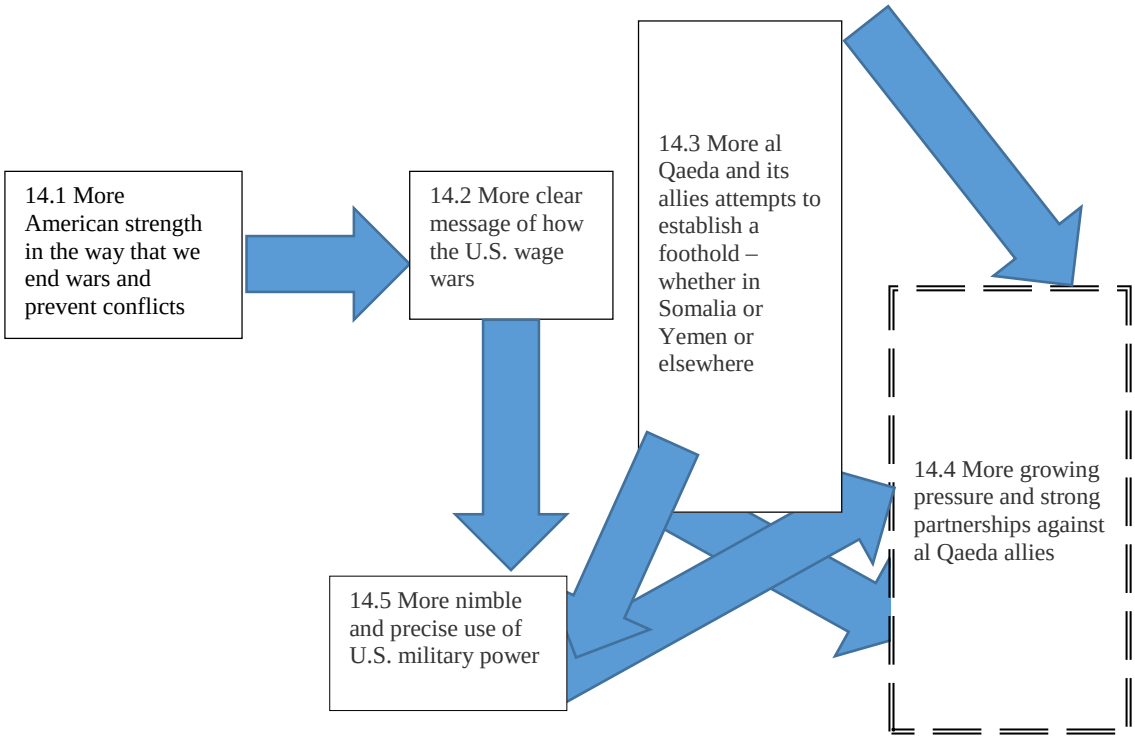

Figure 14. Obama, 2009, para. 42.

Each box represents one of five concepts. Therefore, the Complexity of the figure is C = 5. The darker dashed box represents a causal relationship. There is one concatenated concept (1- 5); therefore, the robustness/systemicity is 0.2 (the result of one concatenated concept divided by five total concepts). The model, therefore, has a fairly low level of complexity and robustness/systemicity score, or referring to the overall systemicity, a low systemicity score. For Figure 14, and this portion of the policy model

analysis, PA suggess that this portion of the policy would be less effective in practical application.

Moving to the next section of propositions within the policy:

> And we can't count on military might alone. We have to invest in our homeland security, because we can't capture or kill every violent extremist abroad. We have to improve and better coordinate our intelligence, so that we stay one step ahead of shadowy networks. (Obama, 2009, para. 43) (See Figure 15).

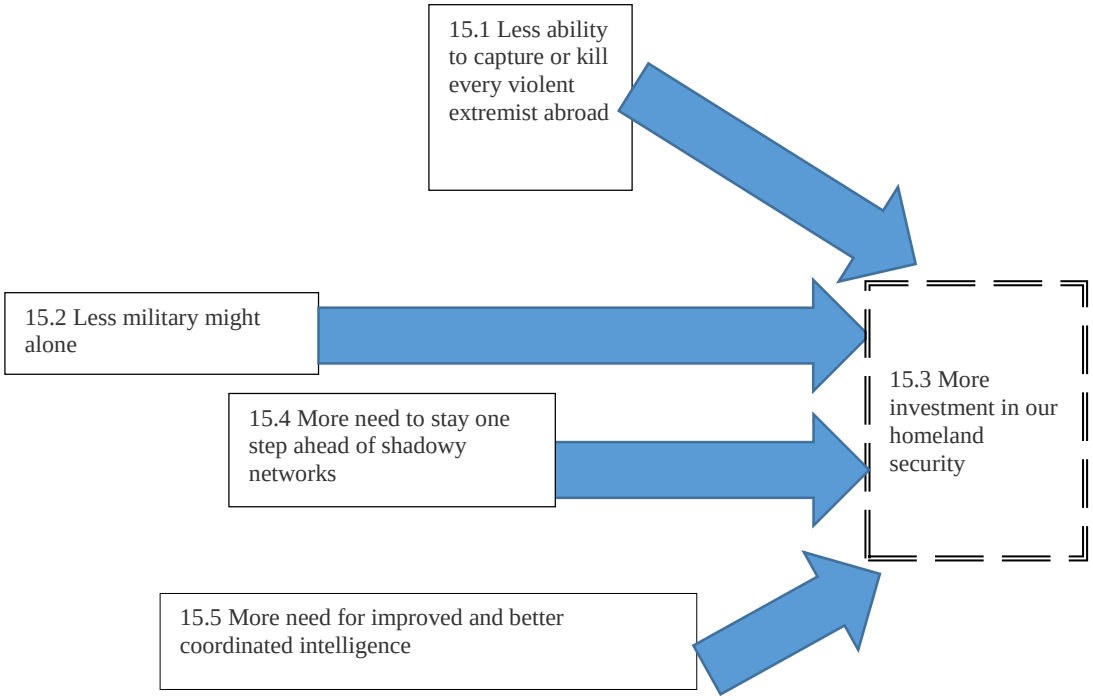

Figure 15. Obama, 2009, para. 43.

Each box represents one of five concepts. Therefore, the Complexity of the figure is C = 5. The darker dashed box represents a causal relationship. There is one concatenated concept (1- 5); therefore, the Robustness/systemicity is 0.2 (the result of one concatenated concept divided by five total concepts).

The model, therefore, has a fairly low level of complexity and robustness/systemicity score, or referring to the overall systemicity, a low systemicity score. For Figure 15, and this portion of the policy model analysis, PA suggests that this portion of the policy would be less effective in practical application.

Moving to the next section of propositions within the policy:

> We will have to take away the tools of mass destruction. And that's why I've made it a central pillar of my foreign policy to secure loose nuclear materials from terrorists, to stop the spread of nuclear weapons, and to pursue the goal of a world without them -- because every nation must understand that true security will never come from an endless race for ever more destructive weapons; true security will come for those who reject them. (Obama, 2009, para. 44) (See Figure 16.)

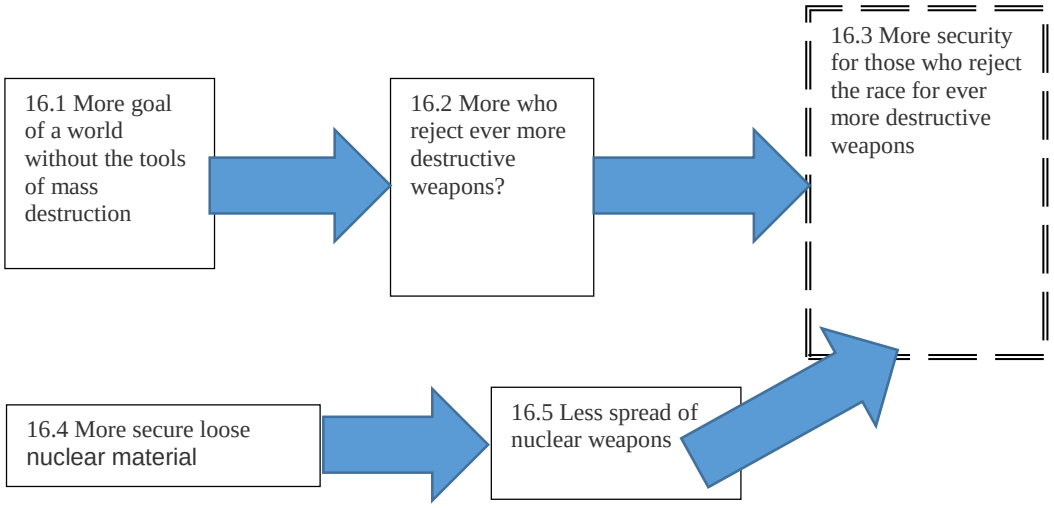

Figure 16. Obama, 2009, para. 44.

Each box represents one of five concepts. Therefore, the Complexity of the figure is C = 5. The darker dashed box represents a causal relationship. There is one

concatenated concept (1- 5); therefore, the Robustness/systemicity is 0.2 (the result of one concatenated concept divided by five total concepts).

The model, therefore, has a fairly low level of complexity and robustness/systemicity score, or referring to the overall systemicity, a low systemicity score. For Figure 16, and this portion of the policy model analysis, PA suggests that this portion of the policy would be less effective in practical application.

Similarily to Figure 15 and the suggestion that, once integrated into the whole model, the model in Figure 16 may demonstrate more robustness/systemicity than one integrated with Figure 15.

Moving to the next section of propositions within the policy:

> We'll have to use diplomacy, because no one nation can meet the challenges of an interconnected world acting alone. I've spent this year renewing our alliances and forging new partnerships. And we have forged a new beginning between America and the Muslim world -- one that recognizes our mutual interest in breaking a cycle of conflict, and that promises a future in which those who kill innocents are isolated by those who stand up for peace and prosperity and human dignity." (Obama, 2009, para. 45) (See Figure 17.)

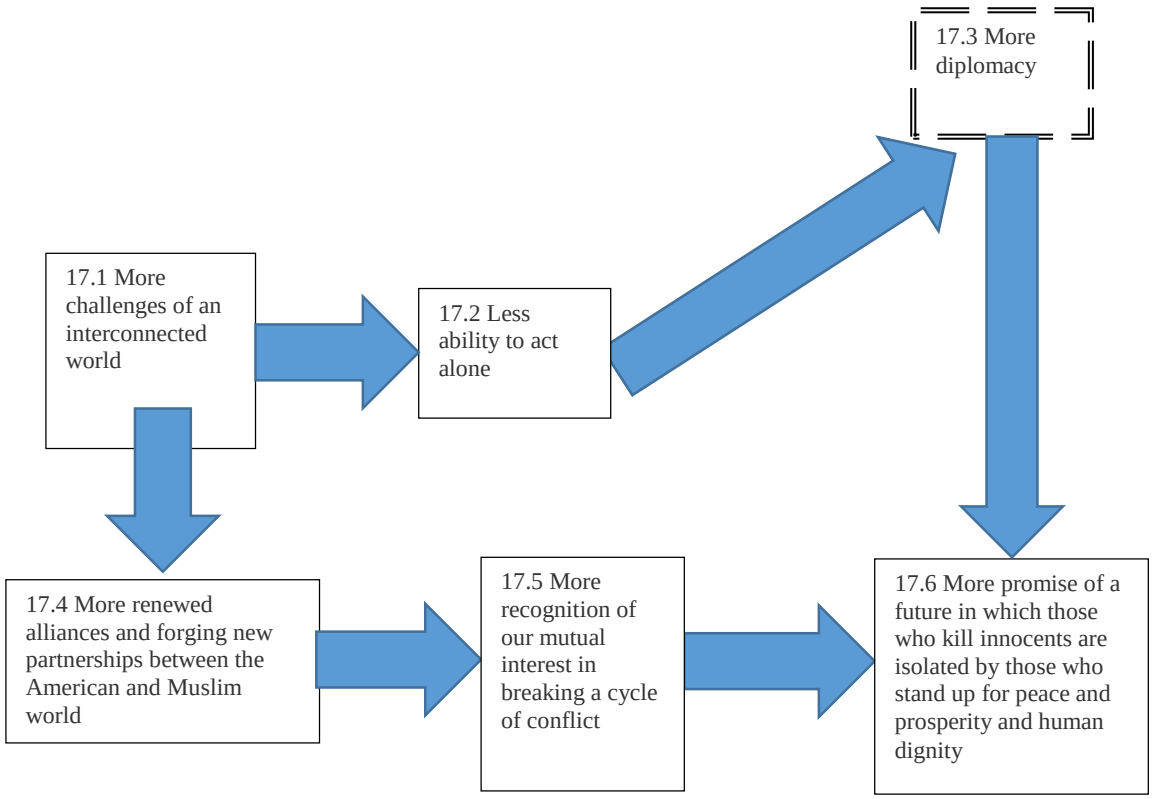

Figure 17. Obama, 2009, para. 45.

Each box represents one of six concepts. Therefore, the Complexity of the figure is C = 6. The darker dashed box represents a causal relationship. So, it may be seen that there is one concatenated concept (1- 6); therefore, the Robustness/systemicity is 0.16 (the result of one concatenated concept divided by six total concepts).

The model, therefore, has a fairly low level of complexity and the same for the robustness/systemicity score, or referring to the overall systemicity, a low systemicity score. For Figure 17, and this portion of the policy model analysis, PA would suggest that this portion of the policy would be less effective in practical application.

Moving to the next section of propositions within the policy.

And finally, we must draw on the strength of our values -- for the challenges that we face may have changed, but the things that we believe in must not. That's why we must promote our values by living them at home -- which is why I have prohibited torture and will close the prison at Guantanamo Bay. And we must make it clear to every man, woman and child around the world who lives under the dark cloud of tyranny that America will speak out on behalf of their human rights, and tend to the light of freedom and justice and opportunity and respect for the dignity of all peoples. That is who we are. That is the source, the moral source, of America's authority. (Obama, 2009, para. 46) (See Figure 18.)

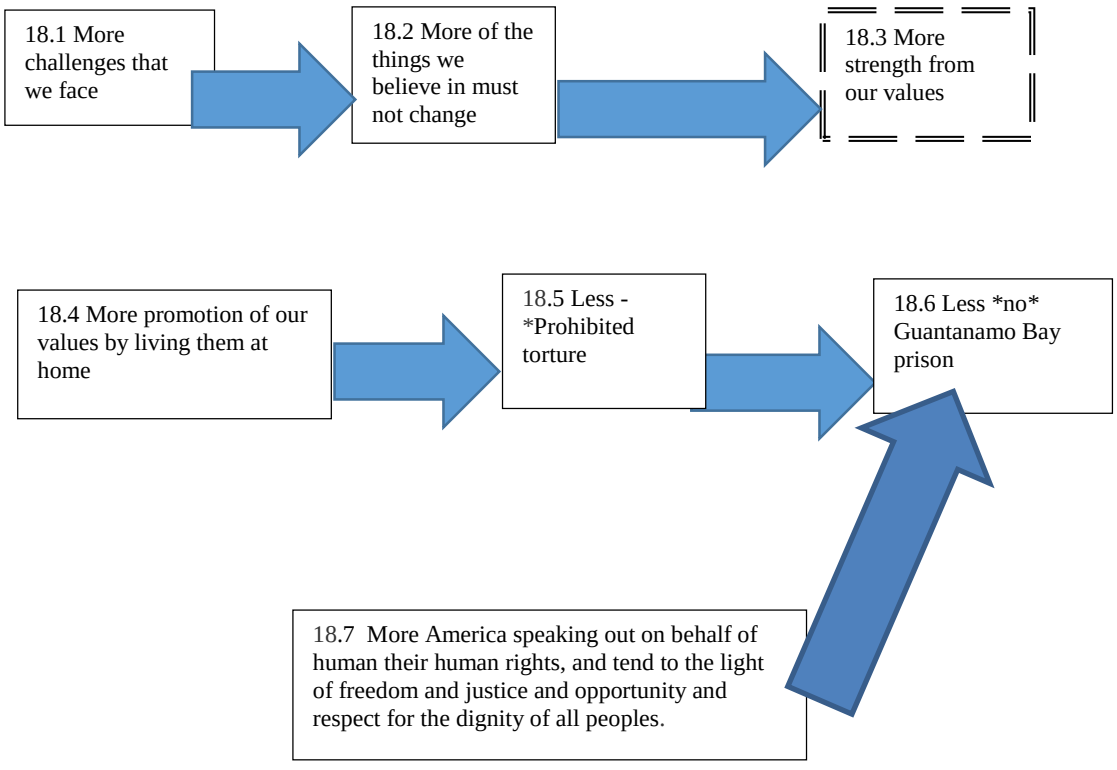

Figure 18. Obama, 2009, para. 46.

From this diagram, where each box represents one concept, it may be seen that there are seven concepts. Therefore, the Complexity of the figure is C = 7. The darker dashed box represents a causal relationship. So, it may be seen that there is one concatenated concept (1- 7); therefore, the Robustness/systemicity is 0.14 (the result of one concatenated concept divided by seven total concepts).

The model, therefore, has a fairly low level of complexity and the same for the robustness/systemicity score, or referring to the overall systemicity, a low systemicity score. For Figure 18, and this portion of the policy model analysis, PA would suggest that this portion of the policy would be less effective in practical application.

Analysis of Policy Goal 2

Policy Goal 2 was, "We must reverse the Taliban's momentum and deny it the ability to overthrow the government" (Obama, 2009, para. 20).

Expected Change within the Policy Environment for goal two: If the Taliban's momentum is reversed then the Afghanistan government will not be overthrown.

> "Over the last several years, the Taliban has maintained common cause with al Qaeda, as they both seek an overthrow of the Afghan government. Gradually, the Taliban has begun to control additional swaths of territory in Afghanistan, while engaging in increasingly brazen and devastating attacks of terrorism against the Pakistani people. (Obama, 2009, para. 9) (See Figure 19).

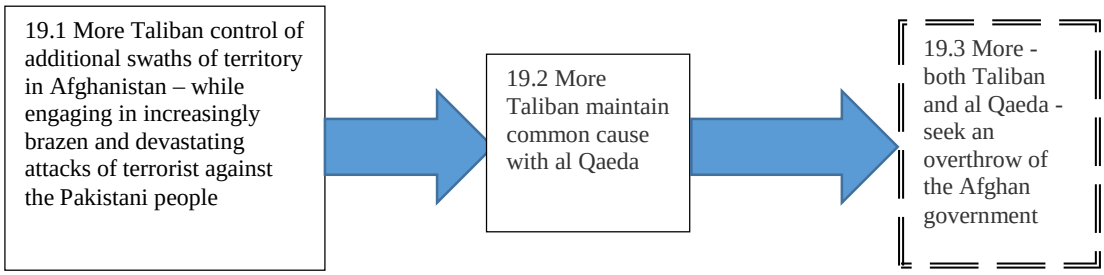

Figure 19. Obama, 2009, para. 9.

From this diagram, where each box represents one concept, it may be seen that there are three concepts. Therefore, the Complexity of the figure is C = 3. The darker dashed box represents a causal relationship. So, it may be seen that there is one concatenated concept (1- 3); therefore, the robustness/systemicity is 0.3 (the result of one concatenated concept divided by three total concepts).

The model, therefore, has a fairly low level of complexity and the same for the robustness/systemicity score, or referring to the overall systemicity, a low systemicity score. For Figure 19, and this portion of the policy model analysis, PA would suggest that this portion of the policy would be less effective in practical application.

Moving to the next section of propositions within the policy.

> Now, throughout this period, our troop levels in Afghanistan remained a fraction of what they were in Iraq. When I took office, we had just over 32,000 Americans serving in Afghanistan, compared to 160,000 in Iraq at the peak of the war. Commanders in Afghanistan repeatedly asked for support to deal with the reemergence of the Taliban, but these reinforcements did not arrive. And that's why, shortly after taking office, I approved a longstanding request for more troops. After consultations with our allies, I then announced a strategy

recognizing the fundamental connection between our war effort in Afghanistan and the extremist safe havens in Pakistan. I set a goal that was narrowly defined as disrupting, dismantling, and defeating al Qaeda and its extremist allies, and pledged to better coordinate our military and civilian efforts. (Obama, 2009, para. 10) (See Figure 20).

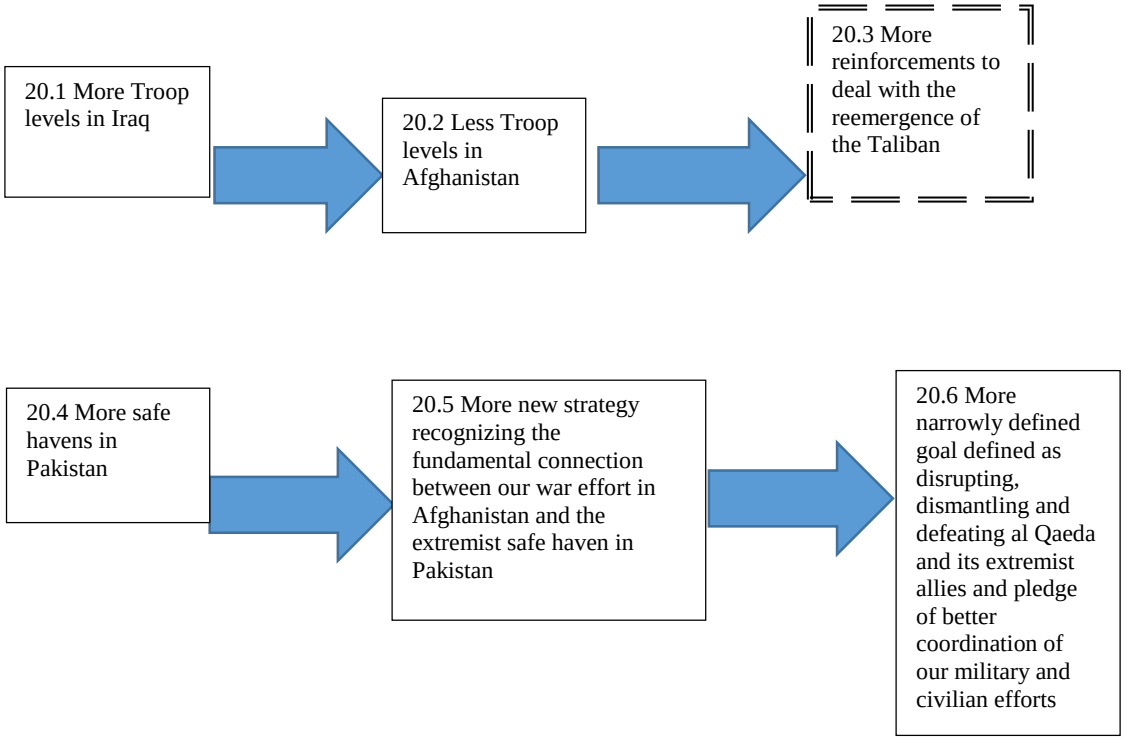

Figure 20. Obama, 2009, para. 10.

From this diagram, where each box represents one concept, it may be seen that there are six concepts. Therefore, the Complexity of the figure is C = 6. The darker dashed box represents a causal relationship. So, it may be seen that there is one concatenated concept (1- 6); therefore, the Robustness/systemicity is 0.16 (the result of one concatenated concept divided by six total concepts).

The model, therefore, has a fairly low level of complexity and the same for the robustness/systemicity score, or referring to the overall systemicity, a low systemicity score. For Figure 20, and this portion of the policy model analysis, PA would suggest that this portion of the policy would be less effective in practical application.

Moving to the next section of propositions within the policy:

> The 30,000 additional troops that I'm announcing tonight will deploy in the first part of 2010 -- the fastest possible pace -- so that they can target the insurgency and secure key population centers. They'll increase our ability to train competent Afghan security forces, and to partner with them so that more Afghans can get into the fight. And they will help create the conditions for the United States to transfer responsibility to the Afghans. (Obama, 2009, para. 22) (See Figure 21)

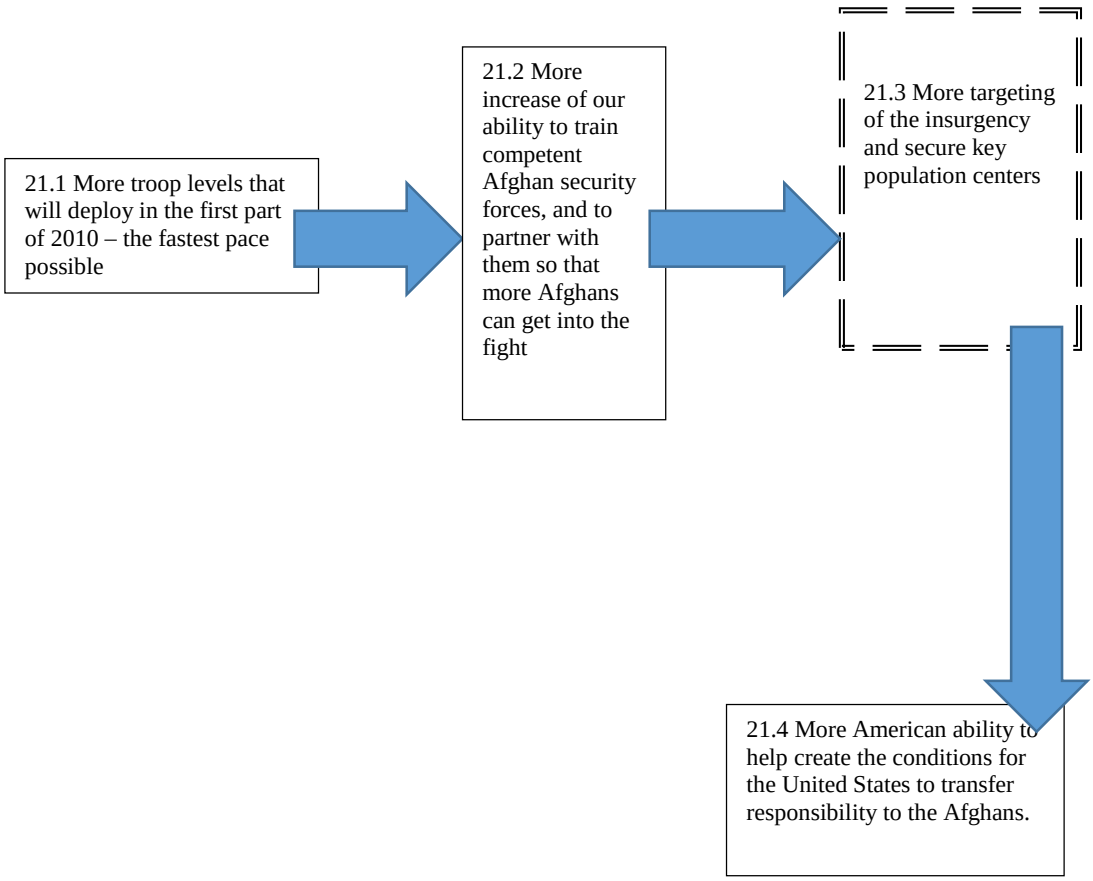

Figure 21. Obama, 2009, para. 22.

From this diagram, where each box represents one concept, it may be seen that there are four concepts. Therefore, the Complexity of the figure is C = 4. The darker dashed box represents a causal relationship. So, it may be seen that there is one concatenated concept (1- 4); therefore, the Robustness/systemicity is 0.25 (the result of one concatenated concept divided by four total concepts).

The model, therefore, has a fairly low level of complexity and the same for the robustness/systemicity score, or referring to the overall systemicity, a low systemicity score. For Figure 21, and this portion of the policy model analysis, PA would suggest that this portion of the policy would be less effective in practical application.

Moving to the next section of propositions within the policy.

Analysis of Policy Goal 3

Policy Goal 3 was, "We must strengthen the capacity of Afghanistan's security forces and government so that they can take lead responsibility for Afghanistan's future" (Obama, 2009).

Expected Change within the Policy Environment for Goal Three: If the capacity of Afghanistan' security forces and government are strengthened then they can take the lead in Afghanistan's future and American troops can come home.

> This review is now complete. And as Commander-in-Chief, I have determined that it is in our vital national interest to send an additional 30,000 U.S. troops to Afghanistan. After 18 months, our troops will begin to come home. These are the resources that we need to seize the initiative, while building the Afghan capacity that can allow for a responsible transition of our forces out of Afghanistan. (Obama, 2009, para. 14) (See Figure 22)

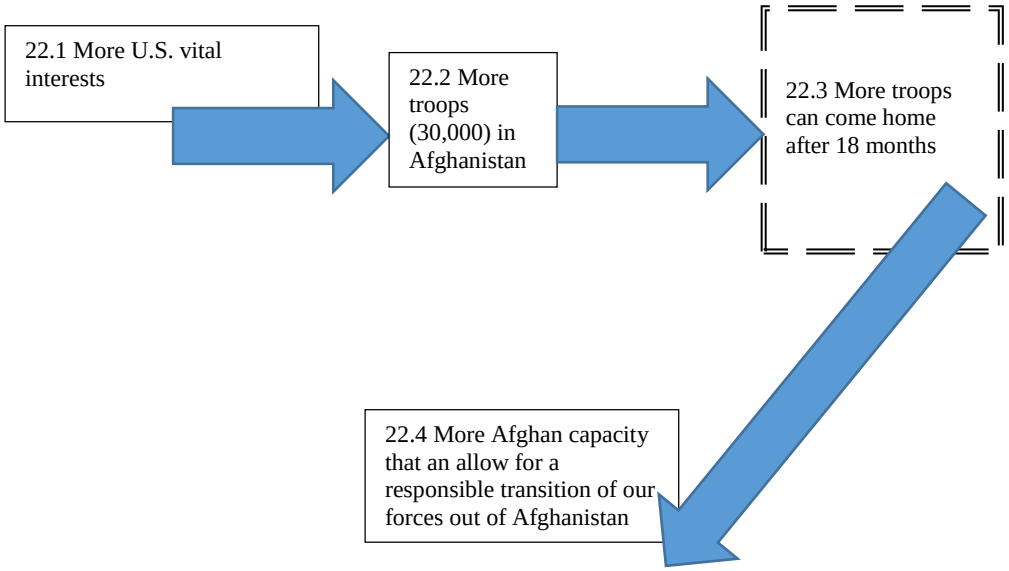

Figure 22. Obama, 2009, para. 14.

From this diagram, where each box represents one concept, it may be seen that there are four concepts. Therefore, the Complexity of the figure is C = 4. The darker dashed box represents a causal relationship. So, it may be seen that there is one concatenated concept (1- 4); therefore, the Robustness/systemicity is 0.25 (the result of one concatenated concept divided by five total concepts).

The model, therefore, has a fairly low level of complexity and the same for the robustness/systemicity score, or referring to the overall systemicity, a low systemicity score. For Figure 22, and this portion of the policy model analysis, PA would suggest that this portion of the policy would be less effective in practical application.

Moving to the next section of propositions within the policy.

We will support efforts by the Afghan government to open the door to those Taliban who abandon violence and respect the human rights of their fellow

citizens. And we will seek a partnership with Afghanistan grounded in mutual respect -- to isolate those who destroy; to strengthen those who build; to hasten the day when our troops will leave; and to forge a lasting friendship in which America is your partner, and never your patron. (Obama, 2009, para. 27) (See Figure 23)

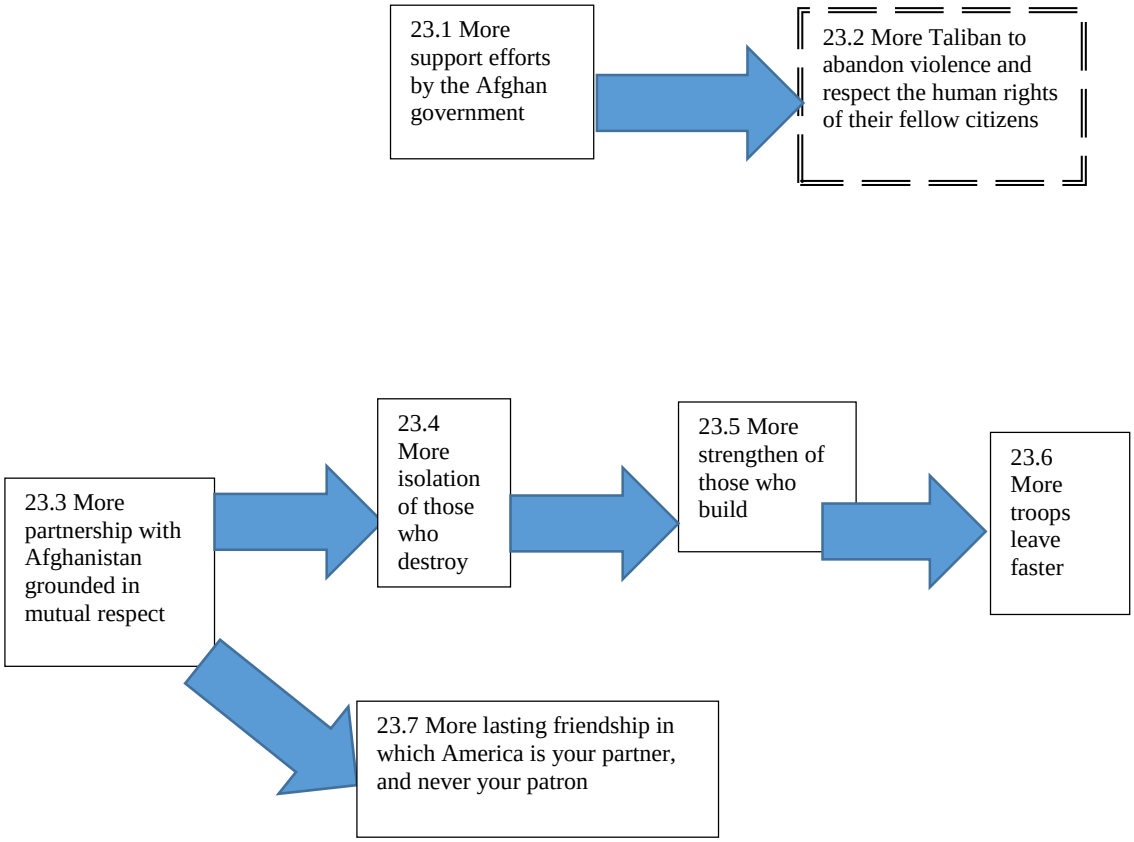

Figure 23. Obama, 2009, para. 27.

From this diagram, where each box represents one concept, it may be seen that there are seven concepts. Therefore, the Complexity of the figure is C = 7. The darker dashed box represents a causal relationship. So, it may be seen that there is one

concatenated concept (1- 7); therefore, the Robustness/systemicity is 0.14 (the result of one concatenated concept divided by five total concepts).

The model, therefore, has a fairly low level of complexity and the same for the robustness/systemicity score, or referring to the overall systemicity, a low systemicity score. For Figure 23, and this portion of the policy model analysis, PA would suggest that this portion of the policy would be less effective in practical application.

Moving to the next section of propositions within the policy:

> Second, we will work with our partners, the United Nations, and the Afghan people to pursue a more effective civilian strategy, so that the government can take advantage of improved security. This effort must be based on performance. The days of providing a blank check are over. President Karzai's inauguration speech sent the right message about moving in a new direction. And going forward, we will be clear about what we expect from those who receive our assistance. We'll support Afghan ministries, governors, and local leaders that combat corruption and deliver for the people. We expect those who are ineffective or corrupt to be held accountable. And we will also focus our assistance in areas -- such as agriculture -- that can make an immediate impact in the lives of the Afghan people. (Obama, 2009, para. 25) (See Figure 24)

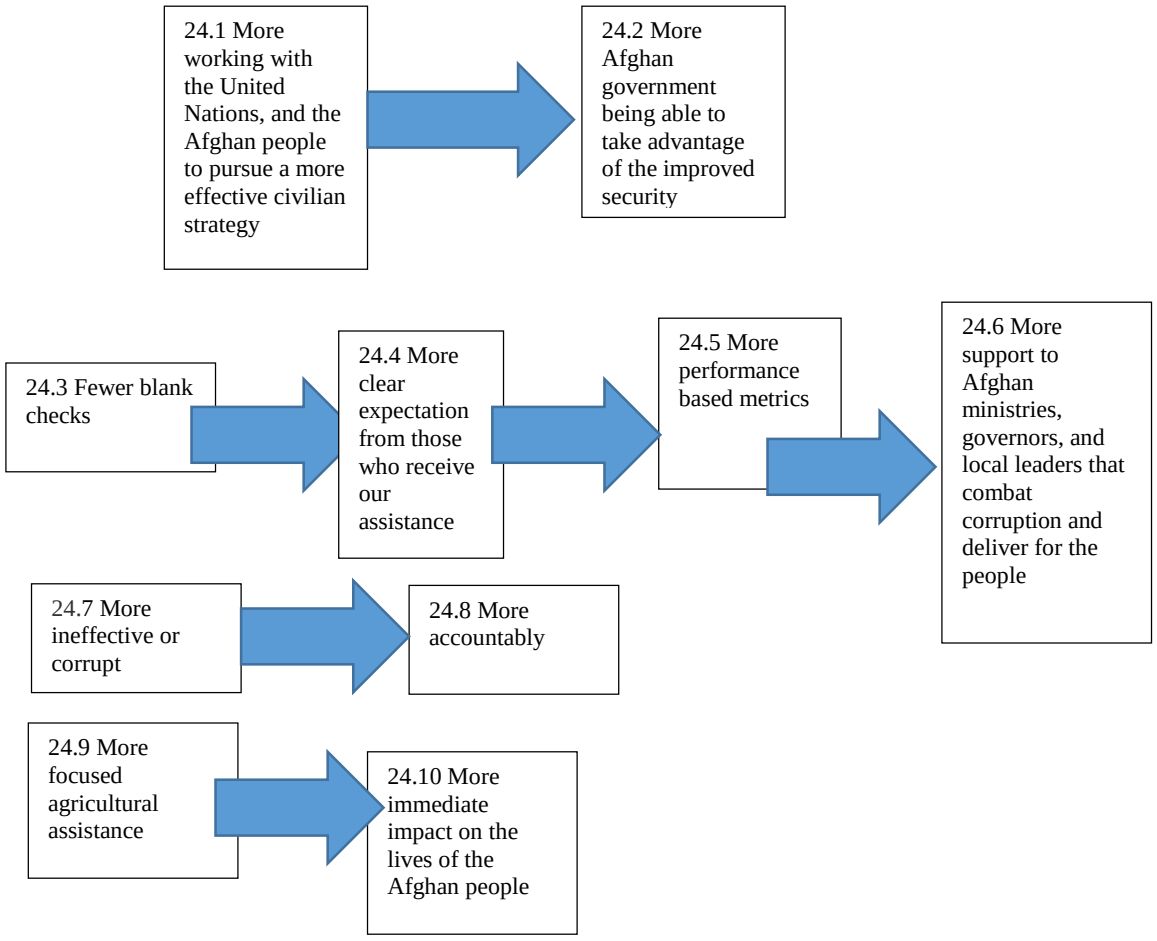

Figure 24. Obama, 2009, para. 25.

From Figure 24, where each box represents one concept, it may be seen that there are 10 concepts. Therefore, the Complexity of the figure is C = 10. There are no darker dashed boxes representing any concateanted concepts. So, it may be seen that there is zero concatenated concept (0- 10); therefore, the Robustness/systemicity is 0. (the result of zer concatenated concept divided by ten total concepts).

The model, therefore, has a fairly low level of complexity and the same for the robustness/systemicity score, or refereing to the overall systemicity, a low systemicity

score. For Figure 24, and this portion of the policy model analysis, PA would suggest that this portion of the policy would be less effective in practical application.

If policymakers were to take from this finding that the complex environment and its complexity needed to be considered further, they could include more concepts, thus creating a more complex model. Also, policymakers should consider conducting more analysis of the relationships and dynamic changes that occur between currently unconneted propositions and concepts. For example, there may be a causal link between 24.1 and 24.4.

For Figure 24 there are four separate groupings of causally related concepts. To impove the overall coherence of the model, these four should be linked by more causal relationships to help the policymaker better understand the complex and dynamic, interrelated nature of the environment. For example, a policymaker should consider how the currently causual relationship between research might show a causal relationship between 24.1 and 24.2 and 24.6. That would link the concepts together in a way that both explaines the relational concepts of the policy, signaling a better undertanding of the complexity of the environment and it would also raise concept 24. 6 to a more complex, (concatenated) concept, thus improving the overall robutness and thereby the systemicity of the policy model.

Integrated Concatenated Policy Goals Combined

The AfPak policy model, itself, when all the propositions were analyzed, yielded a total of 111 concepts. For Policy Goal 1 the total was seventy-seven. For Policy Goal 2 the total was 13. For Policy Goal 3 the total number of concepts was 21. See Table 1 for a

comparison of the complexity and robustness/systemicity scores for each AfPak policy model (proposition).

Wallis (2012) suggests "complexity (has more conceptual breadth) and more robustness (has more conceptual depth)" therefore it can be understood that the AfPak policy model has a total of 111 concepts reflecting conceptual breadth (p. 16). However, the PA method results indicated that many of the concepts are linear. In the previous subsections, each part of the policy model was diagrammed by a policy goal. Each section addressed some weaknesses and suggested some opportunities for how the propositions could reflect a more robust set of relationships between the concepts and the policy goals. The model showed that figure 10, para, 31 is the most robust/systemic with a score of 0.42. This portion of the policy described a robust relationship about how changes in U.S. policy towards Pakistan could result in "Pakistan's security and prosperity long after the guns have fallen silent" (Obama, para. 31, 2009). More exploration of the interconnected causal relationships of the remanding policy propositions would be needed to bring the conceptual depths scores higher. Wallis, (2014) suggests "another useful approach to improving models is to integrate multiple models to create a larger model that is more complex and more comprehensive" (p. 15). Continuing to explore the heuristic value of the PA paradigm, and incorporating the suggesting from Wallis, (2014) all of the concatenated concepts are pulled into one diagram (see figure 25). The new integrated model shows all the concatenated concepts.

Table 1. Comparison of Complexity and Robustness/Systemicity Scores

AfPak Proposition	Complexity	Robustness
Figure 5. Obama, 2009, para. 8.	7	0.25
Figure 6. Obama, 2009, para. 12.	8	0.00
Figure 7. Obama, 2009, para. 17.	5	0.20
Figure 8. Obama, 2009, para. 29.	4	0.25
Figure 9. Obama, 2009, para. 30.	4	0.25
Figure 10. Obama, 2009, para. 31.	7	0.42
Figure 11. Obama, 2009, para. 23.	5	0.20
Figure 12. Obama, 2009, para. 24.	5	0.20
Figure 13. Obama, 2009, para. 41.	4	0.25
Figure 14. Obama, 2009, para. 42.	5	0.20
Figure 15. Obama, 2009, para. 43.	5	0.20
Figure 16. Obama, 2009, para. 44.	5	0.20
Figure 17. Obama, 2009, para. 45.	6	0.16

Figure 18. Obama, 2009, para. 46.	7	0.14
Figure 19. Obama, 2009, para. 9.	3	0.30
Figure 20. Obama, 2009, para. 10.	6	0.16
Figure 21. Obama, 2009, para. 22.	4	0.25
Figure 22. Obama, 2009, para. 14.	4	0.25
Figure 23. Obama, 2009, para. 27.	7	0.14
Figure 24. Obama, 2009, para. 25.	10	0.00

Table 1. Comparison of Complexity and Robustness/Systemicity Scores

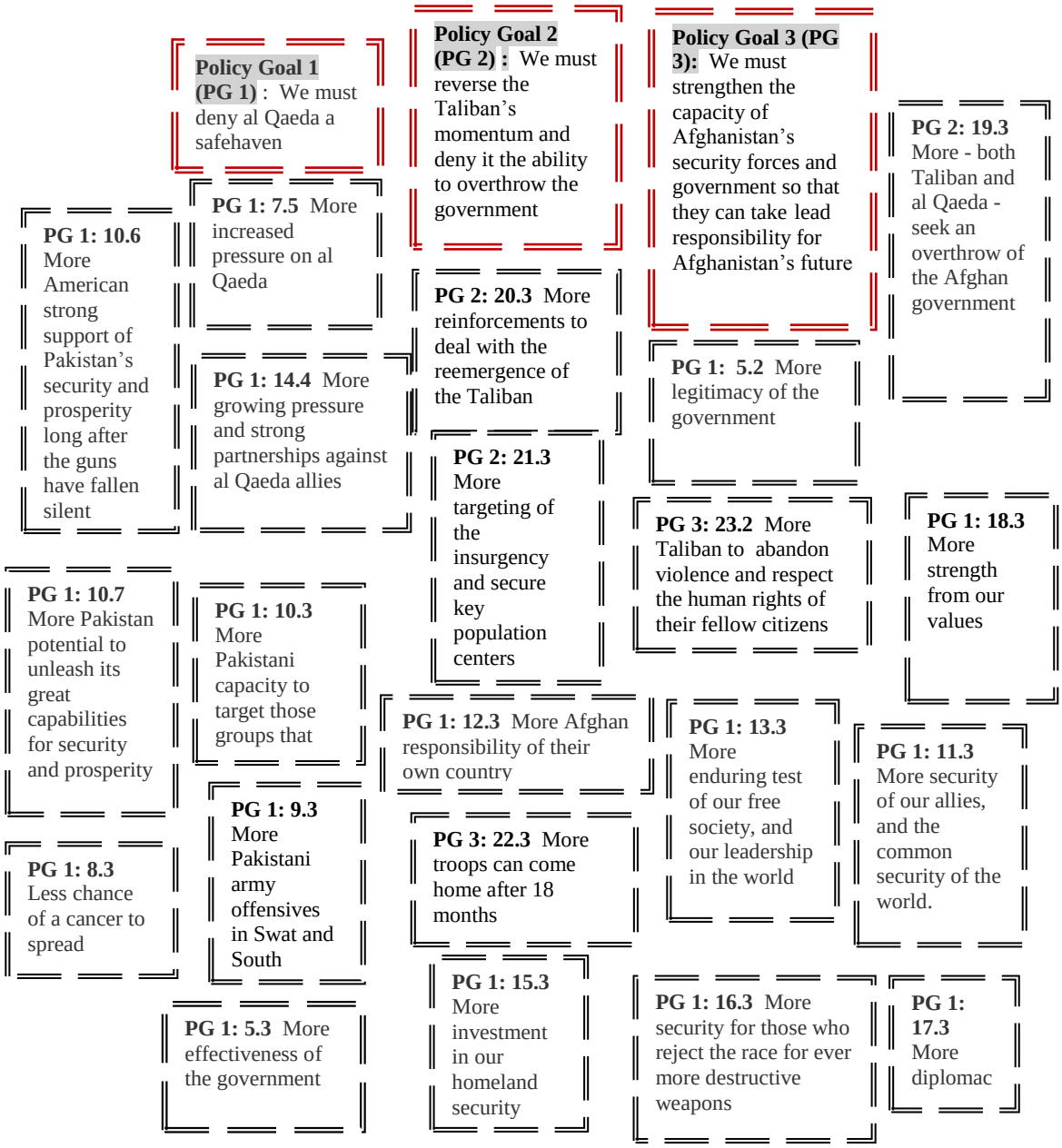

Figure 25. Combined concepts. (Obama, 2009).

For Figure 25, the depiction of the 21 concatenated concepts combined allows for continued exploration of how the policy models' concepts, overall, reflect the complex environment. A review suggests that more consideration of the interrelatedness of the propositions needs to be explored. For example, PG 1, 7.5 and PG 1, 14.4 both suggest that they could bring about changes reflected in PG 1, 10.3 and PG 1, 9.3. Further PG 1, 8.3 could be the resultant causal change from the four stated concatenated concepts. The causal relationships and changes that could occur between each policy statement, if further developed, could suggest alternative policy considerations. The combination of the individual models however does yield insights into the 'whole' of the policy model. This view allows for a holistic consideration of all the policies' concatenated concepts. Complexity theory suggests that a holistic perspective is better than framing the issues per the parts within the systems (Cilliers, 2002). As a heuristic tool the PA paradigm allows for and facilitates such thinking through both this type of visual reference and methodology.

Analytic Conclusions

The research question is as follows:

RQ: By applying the PA policy analysis approach to the December 1, 2009, U.S. Obama administration's AfPak policy; how can following the PA paradigm lead policymakers to discover how to better develop a policy?

The question was framed in the context of the theoretical framework of complexity theory and systems behavior and the setting for this research was framed within the context of a complex environment, namely that of the Afghanistan and Pakistan conflict of 2009 and the December 1, 2009, Obama Administration policy towards the conflict. The argument was made that developing effective policy is very difficult (Dennard et al. 2008; Wallis, 2008a, 2013). The United States has arguably considered resources and the benefit of focused practical and academic application to the topic of public policy, yet policies continue to either fail, not reach their intended goals or achieve less-than positive results (Wallis, 2011). Within the social sciences community there has emerged a body of literature that suggests that systems thinking and complexity theory provides a framework for analysis that is suited to the public policy domain. Meeting the challenges identified in the literature, one new approach to answering the question of how to avoid policy failures was the PA paradigm and method of policy analysis developed by Wallis (2011). The PA paradigm provides a new way to understand how one can understand changes that could occur within the policy environment (Wallis, 2011). With new insights, policymakers could expect to achieve more reliable policy.

The PA paradigm compels a policymaker to consider moving beyond a cognitive framework that focuses on the "what is" and move to the "what could be" within the dynamic complex environment. This study determined to explore the heuristic value of using the PA paradigm. This exploratory research sought to learn more about the PA paradigm where the PA paradigm argues that thinking about complexity and

robustness/systemicity in a policy will lead to better policy development practices. Exploratory research is necessary where there are relatively few studies about a theory or method of analytic research on a topic. Exploratory research attempts to provide an objective description of the research question and learn more about it (Babbie, 2001, Yin, 2011).

The requirement to re-think our analytic frameworks of our emergent and adaptive adversaries extends to both our homeland security challenges and those security concerns around the world that affect our homeland. In order to describe and understand with conceptual clarity, how current and future conflicts are emerging it is necessary to look to theories that look at those interactions among and between entities within a conflict environment and also to then attempt to describe how those interactions change, will change again, interact, change over time, evolve, learn, and adapt.

For this study the December 1, 2009, Obama policy was used to learn more about the heuristic value of the PA paradigm. The AfPak policy came to be recognized as particularly difficult and presented what has been termed "n-body problems" (Walker & Malici, 2011, p. 276). Recall, the number of concepts within the AfPak policy was 111. More research on the n-body of causal concepts that could be further explored (for more concepts that would increase the robustness/systemicity score) would likely yield even more concepts. This analysis was beyond the scope of this study as this study focused on the concepts that were clearly presented within the current policy. By applying the conceptual underpinnings of the PA paradigm it became clear that the thinking about concepts within a policy could affect how a policy is developed. For this policy, the

analytic results suggest the Obama administration envisioned a policy environment that could not only be addressed by the United States but also a broader range of regional and transregional actors. The Obama administration policy chose to frame, or conceptualize, the "problems" as explicitly regional and transregional and viewed successful policy changes as those that utilized alternative methods of power, as opposed to a heavy focus on military strength (Obama, 2009; Walker & Malici, 2011).

This was reflected in Policy Goal 1, *We must deny al Qaeda a safehaven* (Obama, 2009, para. 21). Within Policy Goal 1 there were 14 concatenated aspects out of the 20 for the overall policy. There were 74 concepts overall for this goal of the policy. The number of concatenated numbers within this section of the policy goals were conceptualized as a complex and co-evolving policy problem. Wallis (2011) concluded some concepts are linear in nature, or phrased differently, causal policy propositions are understood as "simplistic cause and effect mechanisms" (p. 80). With 14 concatenated concepts, PA suggests Policy Goal 1 could be more effective. Without a well-developed body of policies from which to compare findings, the use of PA as a paradigm did prompt the researcher to consider the "what could be" questions and think about a broader range of occurrences that could occur between policy execution and a potential changed state.

Specific to Policy Goal 1, Figure 11, for example, more analysis could be done that would yield insights into that the future complex environment where other actions among the allies could potentially work against each other to create less security around the world. The PA method suggests that "tacit assumptions that are in opposition to (or in concert with) the explicit policy" could hinder the functionality of that policy (Wallis,

2011, p. 101). More research would be needed to explore self-reinforcing assumptions about the future complex environment and its behavioral characteristics or concepts. The use of PA would be to ask how many results may be achieved through the single causal action? And, what types of concatenated propositions would inform a strategist charged with aliging resources and capactiy towards the problem? A policymaker would need to explore this relationship more. The analysis of this structure found in Figure 10 infers that Pakistan would be able to target "those groups that threaten our country" thus, the causal relationships of "clear intentions," "partnerships based on respect," "more international support for those Pakistanis displaced by the fighting," "refugees," and "American strong support of Pakistan's security an prosperity long after the guns have fallen silent" would merit a more detailed analysis of the logic structures behind the policy and a clearer understanding of how so many outcomes would be achieved from few initial actions (Obama, 2009; Wallis, 2014). For a policymaker it remains important to understand how the systems could behave in order to inform how strategies and resources would be developed for this policy statement.

To help explain more, in 11.2 the concept is that the system that is the NATO alliance will naturally maintain NATO alliance credibility (Obama, 2009). A policy that assumes that "more commitment from our allies" will make NATO stable might miss the systems of competing local goals that are not compatible with U. S. interests. One consideration, for example could be that the policy could lead to the undoing of the NATO alliance and result in instability in other nations. This consideration would likely result in a re-framing of the policy.

For Figure 12, the PA method would suggest that a policymaker should consider how the currently causal relationship between the concepts might show a more complex relationship or a complex concatenated logic model between 12.5 and 12.3. For example, more analysis could yield that an American force transfer from Afghanistan combined with limited forces from NATO could create a new system or complex environment. Where, combined, they could create a change that runs counter to the policy model currently which suggest that the future would be a more effective Afghanistan population that is more responsible for its own future. The PA method would suggest that a consideration of the systems as they could behave would influence the analysis of the policymaker and would prompt the further research of how to tell if the policy reflects the change states intended.

Figure 13 did present a clear set of concepts that articulate the future complex environment within the policy. However, a policymaker would need to refine the concepts in order to allow for the development of plans and resources to account for such interrelated change in the systems. In other words, and as stated in Chapter 3, a policy lives in a space bounded on one side by the theory of how an issue is understood and on the other by the action or strategy (Wallis, 2011). Wallis (2011) suggested that the "text of the policy, itself may be seen as a 'lynchpin' in the process of research and practice that determines the effectiveness, efficiency, and the validity of decisions" (p. 13). Because the systems of failed states and diffuse actors as concepts present a wide range of causal concepts that impact on the overall whole of the concept or system, enacting a policy based on such concepts will also be likely difficult to implement.

For example, that violent extremism beyond the borders of Afghanistan and Pakistan will exist leaves open a broad range of policy administration functions that would then need to be considered. The concepts of what those policy administration functions would be, such as more increase in "homeland security funding to secure the borders would lead to more monitoring of individuals within U.S. borders," would need to be explored for their relationship to the desired changes that the policy is directed towards (Obama, 2009, para. 43). Without an explicit concept for how the divergent Departments (such as the Department of Homeland Security or the Justice Department) would be integral to the overall dynamic and complex environment, from a policy implementation perspective, an unintended consequence of the policy could be that the policy would fail on economic grounds.

The model in Figure 15 suggests that it could be integrated into Figure 13 where there was presented a conceptual model of the future and its causal relationships. By reviewing the combined total diagram it is clear that the policy did not explicitly account for a concatenated concept. Applying PA, as a paradigm, a policymaker could address the question of how the Department of Homeland Security would behave in the systems of sytems, if delienated with more concatenated propositions and reflecting the complex robustness/systemicity of the policy, suggests that the policy could be improved. Again, further analysis on this concept might revel considered economic considerations that could negativly impact the policy changes desired due to fiscal challenges within the United States, and among partner nations that may be called on to share the economic burden.

There were 13 total concepts for Policy Goal 2, of which only three were concatenated concepts. The expected change within the policy environment for Policy Goal 2: If the Taliban's momentum is reversed then the Afghanistan government will not be overthrown is reflective of a possible concatenated structure; however, the policymaker would need to clarify the changes that could occur as a result of the stakeholders being able to reverse the Taliban's momentum.

There were 21 total concepts for Policy Goal 3. There were two concatenated concepts. The expected change within the policy environment for Goal 3: If the capacity of Afghanistan' security forces and government are strengthened then they can take the lead in Afghanistan's future and American troops can come home is determined to not be very effective (Obama, 2009).

For Policy Goal 3, Figure 24, there are four separate groupings of causally related concepts. To impove the overall coherence of the model, these four should be linked by more causal relationships to help the policymaker better understand the complex and dynamic, interrelated nature of the environment. For example, a policymaker should consider how the currently causual relationship between research might show a causal relationship between 24.1 and 24.2 and 24.6. This would link the concepts together in a way that both explaines the relational concepts of the policy, signaling a better undertanding of the complexity of the environment and it would also raise concept 24.6 to a more complex, (concatenated) concept, thus improving the overall robutness and thereby the systemicity of the policy model.

Chapter 5: Discussion, Conclusions, and Recommendations

Interpretations of Findings

The purpose of this study was to develop a deeper understanding of and learn more about the heuristic contributions of the Propositional Analysis paradigm to policymaking and policy analysis. Policy models, theories, analysis, and development must adapt to and account for the inherent complexity and change that exists within a complex policy environment (Banks, 2008; John, 2003; Morçöl, 2012; Sabatier, 2007; Wallis, 2011). A thorough understanding of complexity theory and nonlinear behavior within systems suggests that nonlinear behaviors within policy environments, and generally to the nature on nonlinear conflict, or warfare, will demand new approaches to policymaking that are informed from a broad range of disciplines (Bar-Yam, 2004; Lawson, 2011; Lawson, 2014). Propositional analysis suggests that such discourse within the policy is amenable to analysis and that propositions within the policy are amenable to analytic efforts to determine a policy's complexity and systemicity and thereby think about possible changes that could occur within the policy environment (Wallis, 2011). This was borne out by this research.

This study considered how rigorous scientific methods of research could be applied by considering the PA paradigm towards policy development. The research design for this study was developed to explore the heuristic value of the PA paradigm. This methodology was used because it provided a comprehensive description of how both the PA tool (PA as a method of policy analysis) and the implied paradigm could support effective policymaking. A detailed understanding of how to think about change in a

future policy environment would not have been possible if a less rigorous research design had been used. The PA paradigm is about finding structure and with structure, it is possible to assess and consider causal relationships that could impact the outcome of the policy and suggest improvements.

The data set for this study consisted entirely of the December 1, 2009 presidential policy toward the Afghanistan and Pakistan conflict. It was purposefully selected, in part, because the policy environment represented a complex and dynamic environment (Obama, 2009). The analysis was completed by assessing the heuristic value of the PA paradigm.

Perhaps, however before the remainder of this chapter concludes it should be stated that most salient finding from this was that policy problems characterized by complex, nonlinear environments and their solutions are in a perpetual state of change; hence, as Lawson (2014) argued, policy issues do not stay solved.

The first section of this chapter includes an interpretation of the findings. The second section discusses implications for social change. The chapter concludes with recommendations for future research.

Interpretation of the Findings

This study set out to answer the following research question: By applying the PA policy analysis approach to the December 1, 2009, Obama administration AfPak policy, how can following the PA paradigm lead policymakers to discover how to better develop a policy? This study demonstrated from the findings that any policy might be improved by more analysis. The PA paradigm is different because it uses the structure within a

policy itself to show where research should be directed, suggesting where to focus on making better policy. It was learned that increasing the number of concepts (in general) and increasing the number of concatenated concepts (in particular) serves as an indicator showing where research might be accomplished to enhance the effectiveness of the policy. Using the PA paradigm will benefit policymakers as it indicates a path for analysts to do better work at lower cost. It was noted earlier that the time to evaluate policy alternatives is before a policy is implemented as it could save lives, and resources. The PA paradigm suggests that a policymaker can accelerate their ability to create more agile policy in response to rapidly changing conditions (Wallis, 2013).

Responsible researchers also need to evaluate the method of conducting and analyzing the research. While the research question was not directed at how to evaluate the PA tool, Babbie (2001) suggested evaluating whether the study was replicable, falsifiable, precise, and parsimonious. Yin (2011) also emphasized the importance of evaluating the study's reliability and validity. With this consideration of what should be addressed within a study these questions are addressed.

This study demonstrated that the method identified in PA is replicable. A policymaker could follow the steps taken in this study, as identified in the PA method, and derive an understanding about how the concepts (propositions) within a policy help shape and communicate one's understanding of the policy environment.

The question of falsifiable was evidenced in the analytic research findings, whereby the research demonstrated that it was possible to evaluate the reliability of the

study as the measures used to identify the complexity and robustness/systemicity score can be consistently observed. This gives an objective value to the study.

The research analytic findings also addressed preciseness. By stating the research question precisely, policymakers can ensure that they can conduct their own and this research would yield similar results.

Finally, to address parsimony, the PA method demonstrated that the principle of parsimony as providing simplicity to the methodological process under study was achieved. The results of the analysis (referencing PA as a tool) are straightforward. A sound understanding of how the research could yield insights into the heuristic value of the PA paradigm was achieved. Previous research suggests that a policymaker would be prompted to consider the behavioral characteristics between existing relationships (i.e., adaptive, co-evolving) within the policy environment and how change, both within the policy environment and external to the policy environment (for example, U.S. economic impacts), would occur once the policy was implemented.

Propositional Analysis is a rigorous method that leads policymakers to understand how the concepts within a policy shape policy outcomes. Propositional Analysis offers the advantage of multiple forms of analysis that can be used to help triangulate research methods focused on better outcomes of the policy. This study demonstrated how an interwoven PA structural approach along with empirical approaches used to validate the causal relationships serves to develop better policy.

The findings from this study, while heuristic, contribute to the body of knowledge on policymaking towards future complex environments. If a policymaker wants to better

understand how to develop effective policy, this study serves to inform the process before another policy is developed. Another important outcome was this study's demonstration that policymakers must monitor causal relationships between a policy's intentions and changes that need to occur while the environment unfolds.

A final finding is a caution about trying to infer that a greater number of concepts leads to a more robust policy. An analysis of the president's AfPak policy suggests this is not necessarily the case. Using PA as a paradigm serves to prompt a policymaker, prior to policy execution, to consider change as a behavioral characteristic within the policy environment. Using PA as a tool would prompt a policymaker to work through how well the policy environment could be better reflected within the propositions of the policy. Robustness, in a more traditional sense, and as it applies to policy outcomes and this study would mean that policy change (the goal of the policy) would necessarily need to consider how to develop rigorous, resilient, and robust policy goals that address the emergent characteristics within the policy. Morçöl (2012) summarized this best: "The problem is whether and to what extent emergent system properties can remain robust when changes take place at a micro level" (p. 269).

The challenge for the policymaker is to consider a broad range of complex, interrelated, adaptive, co-evolving characteristics within the policy environment and how best to develop a policy that would both achieve a successful and positive change–while not failing. Related to this finding, the research suggests that while the nature of such causal relationships could prove difficult to explore, every effort should be made to fall

back to the PA paradigm and the characteristics of complexity to inform the process of developing a policy.

Those involved in the policymaking process–stakeholders, other nations, and those charged with providing input into the policy should understand how change as a concept inherent in the theory of complexity presents unique opportunities to effect positive changes. Policymakers must be able to learn from such studies, as this one, to better understand how the cognitive and narrative communicative components of policy words impact policy outcomes. Policymakers need to pay attention to how policy issues are conceptualized as systems of systems. This aspect of conceptualizing a future, with a marked consideration of how change occurs, underscores this study.

Implications for Positive Social Change

Early in this study I quoted an important question: "What is complexity theory's contribution to our understanding of policy analysis?" (Morcol, 2008, p. 24). Dennard et al. (2008) hinted at the value of understanding the dialectic processes for change. They suggested real-world complexity must be addressed, arguing that "social change happens in the transition from one stage of order to another. Policies therefore that address only the past or the ideal of the future often miss or distort the evolutionary processes already afoot in society" (p. 9). If policy remains a central feature in shaping a positive future and impact on the need for improved social well-being, policymakers must determine how the complexity of our environment impacts the policy-making process to effect positive social change.

Throughout this study the evidence suggested this nation continues to be engaged across a complex, dynamic, and ambiguous world in which complex environments are not well considered and policy solutions are difficult to develop. Moreover, policymakers are often challenged to understand the interrelated systemic nature of the policy environment whereby only symptoms of the policy are readily apparent but the underlying and more complex symptoms are masked. All this should concern the social science community. To bring about a positive social change through more effective policy, policymakers must recognize and embrace the world's complexity. The literature for this study highlighted some of the causes of the complexity: technological changes and conflict boundaries, which include not just physical borders, political groups, and balance-of power boundaries. These changes expand to social systems, belief systems that reach beyond traditional borders, cultural systems, weapons systems, communications systems, governance systems, cyber systems, and an expanding set of systems yet to be imagined (e.g., the emergent field of robotics). Thus, our public policies must incorporate a more holistic approach to address the issues at hand (Bar-Yam, 2004).

This study helps a policymaker better understand how such dynamic complex factors affect existing cognitive processes and policymaking approaches, which at times have proved to inadequate for 21st century complex policymaking efforts (Dennard et al., 2008). These continually emerging realities require a more considered application of the policymaking tools that have been informed by complexity and systems thinking that has conceptualized the policy environment as being systemic. A more clear understanding of

the heuristic value of such applications as PA can effect positive social change for this nation.

Recommendations Future Research

This study was framed within the argument that complexity theory serves a useful theoretic framework for policymakers to effect better policies towards complex environments. The PA paradigm suggests that thinking about change within the policy environment is a significant part of the policymaking process. Throughout the study it became clear that public policy toward complex and nonlinear environments, such as the Afghanistan and Pakistan war, and the current conflict in Russian and the Ukraine as of 2014 (described by Pomerantzev [2014] as Putin's nonlinear war) will significantly challenge the field of public policy and the social sciences community writ large. Research toward the causal events between a policy's proposed outcomes and the causal behaviors of, perhaps, competing systems with the policy environment needs to be explored. While this study suggests that the PA paradigm provides a more objective tool and paradigm for thinking about how to conceptually represent change within a policy, future policy studies could help compare or contrast the results and findings from such research. This is a limitation within the current policy study.

Limitations within the study findings are a significant consideration for future research. For example, while the policy models within this study suggest a low robustness/systemicity scale (between 0.0 and 0.42), without more policy studies there remains a limitation to advance comparative findings. Future studies could include more policies, such as policies directed toward the 2014 Russian-Ukrainian or Iraq and Syria

crises. With a more developed understanding of the nature of warfare and conflict, as systems, and more policies analyzed using PA, policymakers could more quickly find the results of this type of research applicable to current policy development.

Future research could also ask a new research question. For example: How would the results of the PA method, as a tool, be useful for the general public to open the debate to the public on the potential effectiveness of the policy? Wallis (2011) suggested, "When faced with two competing policies, the best idea would be to choose the policy that has the highest level of complexity and robustness" (p. 89). A participatory public, engaged on the topic of advancing a policy position and positive outcomes, would benefit from tools such as PA to aid in deciding alternatives to competing policies and "robust options" (Banks, 2008, p. 123).

Summary

The attacks of September 11, 2001, marked a new era of threats on U.S. soil. Policymakers' intent to address the attack put forth a broad range of policies intent to change the future environment (Gardner, 2008; H. Res. 107-131, 2001). The literature, however, suggests that a partial reason for why the attacks happened was that there were previously failures, namely policy failures, in part, attributed to the failure connect the dots within the myriad of interconnected networked actors across a diffuse battlespace (Gardner, 2008; Walker & Malici, 2011). The implicit logical conclusion would be that with clarity of the connected dots, policymakers would then be armed with a total picture of the issues, which in turn would better shape policies to secure the national defense (Gardner, 2008). It is a perspective that continues. The point is understood that the

language used to describe how one understands a situation matters. In this case a metaphor. For example, President Obama stated, in reference to the failed "Christmas Day" bomber plot of 2010, that "the government had sufficient information to uncover the terror plot to bring down a commercial jetliner on Christmas Day, but that intelligence officials had 'failed to connect those dots'" (Obama, 2010). The metaphor is used to convey a sense that if all manner of disparate information, from different data sources, etc. were somehow connected, sensemaking would ensue and the picture would be clear (Taleb, 2007, 2012). The problem with this metaphoric reasoning is that it leads an analyst (policymaker or otherwise) to presuppose that answer could have been known. This is not the case. The so-called answer or the picture is not already pre-cut and determined beforehand. Have you ever been asked to look to the stars to find the astrological sign of Leo or Aries in the sky? It would be interesting to note that in order to see the astrological signs, a stargazer would have first been amenable to altering their analytic perspectives as to what to look for among the stars, then be able to assemble as many of those stars as were visible to describe the facsimile of the image known as Leo or Aries. A construct in and of itself that would need to be understood. The challenge for such star gazers or dot-connectors then would be to find a way to array all the stars in such a way as to determine which ones will yield the 'whole picture' – from all the stars and then to decide which ones are relevant to form the picture, which ones are not, and what is still missing. As more and more data (dots and stars to continue with this metaphor analogy) becomes available, the picture becomes crowded and it's harder, not easier to see a larger picture. The dots that might have been important are not necessarily

any clearer, even though they may have been there all along, they are simply still there as part of the larger constellation (Lakoff & Johnson, 1980; Wallis, 2013).

To describe and understand how current and future complex policy environments are changing, it is first necessary to look theoretically at the interactions among entities within a complex policy environment. One must then describe how multiple actors in systems interactions change, will change again, interact, change over time, evolve, learn, and adapt (Smith & Larimer, 2009). Those challenged to analyze complex policy issues and develop policies, are challenged to think about how to think about what is known, knowable, and unknown, and unknowable and to understand how the changes within the environment are occurring (Taleb, 2012). It is more than just connecting the dots. New metaphors, in part, can create the conditions for thinking about change (Bousquet & Curtis, 2011; Lakoff & Johnson, 1980). With unprecedented challenges such as complex, ambiguous, or diffuse (Obama, 2009) threats, environments new methods of knowledge production need to be introduced into both the academic and practical domains of public policy. Public policy has been one of the principal means by which societies effect social change, to include social behaviors, and social institutions. With public policy agreements and arrangements, a relative type of stability can be conferred upon those who enter into such arrangements or policy agreements (Banks, 2008; Morçöl 2012).

The challenges of today, however, require that public policies pertaining to war and peace, conflicts and security arrangements, and strategy agreements should be developed in such a way that will help yield positive changes in a complex, interconnected globalized world. The more ambitious and complex the security

arrangements, strategies, and public policies become, the more complex the demands are on those formulation the public policies to incorporate the multifactorial characteristics of the systems (Banks, 2008).

Effectual policy necessitates a considered understanding of the causally-related challenges that that the nation faces in an era of persistence change. For the policymakers, whether intently focused on the current policy challenge of the day, or tomorrow, those that strive to effect positive social change must be able to think about the complexities of change within the policy environment. They must remain aware that the words within the policy reflect one's understanding of the future complex environment. Both the academic and practical domain of public policy have begun to embrace the science of complexity and analytic methodologies derived from the theoretical framework. Still, more research is needed into how the policy narrative serves as that critical linchpin between the actual policy environments and how it shapes the policy outcomes envisaged, and narrated with the policy (Wallis, 2011).

Words convey meaning. Schlesinger (2008) summarizes the relationship of policies and their content where he stated "Policies and words are inextricably linked – the former cannot be conjured in the absence of the latter" (Schlesinger, 2008, p. 10).

Those who do not endeavor to understand how complexity is manifested within our increasingly complex environments, such as warfare, nor why the nonlinear nature of our policy environments demands alternative analytic methodologies run the risk of falling back on institutionally approved and habituated analytic processes rooted in 19th century paradigms (Wallerstein, 2001, 2004). Social scientists within the realm of public

administration have an ethical duty to seek out every possible analytic methodology that accounts for how a desired change in the future unfolds and changes.

In conclusion, the PA paradigm, complexity theory and propositional analysis methods are vitally important to the field of public policy. Change makers must be able to change the way they play the game.

References

Abraham, M. (2001). What is complexity science? Toward the end of ethics and law parading as justice. *Emergence: Complexity and Organization, 3*,169-174. doi:10.1207/S15327000EM0301_11

Ackoff, R. L. (1974). *Redesigning the future: a systems approach to societal problems*. New York, NY: Wiley.

Anderson, J. E. (2003). *Public policymaking: An introduction* (5th ed.). Boston, MA: Houghton-Mifflin.

Axelrod, R., & Cohen, M. D. (2000). *Harnessing complexity: Organizational implications of a scientific frontier*. New York, NY: Basic Books.

Babbie, E. (2001). *The practice of social research* (9th ed.). Belmont, CA: Wadsworth/Thomson Learning.

Banks, S. C. (2008). Robust policy analysis for complex open systems. In L. Dennard, K.A. Richardson, and G. Morçöl (Eds.), *Complexity and policy analysis: Tools and methods for designing robust policies in a complex world* (pp. 117-130). Goodyear, AZ: ISCE Publishing.

Barabasi, A. (2003). *Linked: How everything is connected to everything else and what it means for business, science, and everyday life*. New York, NY: Penguin.

Bar-Yam, Y. (2004). *Making things work: Solving complex problems in a complex world*. Cambridge, MA: NECSI: Knowledge Press

Bateson, G. (1979). *Mind and nature: A necessary unity*. New York, NY: Dutton.

Baumgartner, F. R., & Jones, B. D. (2009). *Agendas and instability in American politics* (2nd ed.). Chicago, IL: The University of Chicago Press.

Belasco, A. (2011, March 29). *The cost of Iraq, Afghanistan, and other global war on terror operations since 9/11* (Congressional Report No. RL33110). Washington DC: Library of Congress Congressional Research Service. Retrieved from http://assets.opencrs.com/rpts/RL33110_20110329.pdf

Benjamin, D., & Simon, S. (2006). *The next attack: The failure of the war on terror and a strategy for getting it right*. New York, NY: Owl Books.

Bertalanffy, L. (2001). *General system theory: Foundations, development, applications*. New York, NY: Braziller.

Birkland, T. A. (2011). *An introduction to the policy process: Theories, concepts, and models of public policy making*. Armonk, NY: M.E. Sharpe.

Bousquet, A. (November 04, 2011). Complexity theory and the War on Terror: understanding the self-organising dynamics of leaderless jihad. *Journal of International Relations and Development*. doi:10.1057/jird.2011.24

Bousquet, A., & Curtis, S. (March 23, 2011). Beyond models and metaphors: complexity theory, systems thinking and international relations. *Cambridge Review of International Affairs*, *24*, 43-62.

Brachman, J. M. (2008). *Global jihadism: Theory and practice*. New York, NY: Routledge.

Bryman, A. (2011). *Business research methods*. Oxford, UK: Oxford University Press.

Bush, G. W., & Dietrich, J. W. (2005). *The George W. Bush foreign policy reader: Presidential speeches and commentary*. Armonk, NY: M. E. Sharpe.

Byrne, D. S. (1998). *Complexity theory and the social sciences: An introduction*. London, England: Routledge.

Caldwell, D. (2011). *Vortex of conflict: U.S. policy toward Afghanistan, Pakistan, and Iraq*. Stanford, CA: Stanford Security Studies.

Chapman, B. (2004). *Researching national security and intelligence policy*. Washington, DC: CQ Press.

Checkland, P. (2005). *Systems thinking, systems practice: Includes a 30-year retrospective*. Chichester, England: John Wiley & Sons.

Cilliers, P. (April 01, 2000). What can we learn from a theory of complexity?. *Emergence, 2*(1), 23-33.

Cilliers, P. (2002). *Complexity and postmodernism: Understanding complex systems*. London¸ England: Routledge.

Clausewitz, C., Howard, M., Paret, P., & Brodie, B. (1984). *On war*. Princeton, NJ: Princeton University Press.

Cochran, C. E. (2012). *American public policy: An introduction*. Sydney, Australia: Wadsworth/Cengage Learning.

Connable, B., & Rand Corporation. (2012). *Embracing the fog of war: Assessment and metrics in counterinsurgency*. Santa Monica, CA: Rand.

Cordesman, A. H., & Center for Strategic and International Studies (Washington, DC). (2011). *Afghanistan win or lose: Transition and the coming resource crisis*. Washington, DC: Center for Strategic and International Studies.

Creswell, J. W. (2008). *Research design: Qualitative, quantitative and mixed methods approaches*. Thousand Oaks, CA: Sage.

Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. Los Angeles, CA: Sage.

Creswell, J. W. (2011). *Research design: Qualitative, quantitative, and mixed methods approaches*. New Delhi, India: Sage.

Dale, C., & Library of Congress. (2012). *"Surge recovery" and next steps in the war in Afghanistan: In brief*. Washington, DC: Congressional Research Service.

Denhardt, R. B. (2011). *Theories of public organization*. Boston, MA: Wadsworth Cengage Learning.

Dennard, K.A. (2008) A complexity theory for policy analysis. In L. Dennard, K. A. Richardson, & G. Morçöl (Eds.), *Complexity and policy analysis: Tools and methods for designing robust policies in a complex world* (p. 80). Goodyear, AZ: ISCE Publishing.

Dennard, L. F., Richardson, K. A., & Morçöl, G. (2008). *Complexity and policy analysis: Tools and concepts for designing robust policies in a complex world*. Goodyear, AZ: ISCE.

Dent. E. B. (1999). Complexity science: A worldview shift. *Emergence* 1(4), 5-19.

Denzin, N. K., & Lincoln, Y. S. (2011). The SAGE handbook of qualitative research. Los Angeles, CA: Sage.

Dery, D. (1984). *Problem definition in policy analysis*. Lawrence, KS: University Press of Kansas.

Dubin, R. (1978). *Theory building*. New York, NY: The Free Press.

Dunn, W. N. (2004). *Public policy analysis: An introduction*. Upper Saddle River, NJ: Pearson Prentice Hall.

Dunn, W. N. (2011). *Public policy analysis: An introduction*. Upper Saddle River, NJ: Pearson.

Dye, T. R. (1992). *Understanding public policy*. Englewood Cliffs, NJ: Prentice Hall.

Fitzgerald, P., & Gould, E. (2011). *Crossing zero: The AFPAK war at the turning point of American empire*. San Francisco, CA: City Lights.

Flood, R. L., & Carson, E. R. (1993). *Dealing with complexity: An introduction to the theory and application of systems science*. New York, NY: Plenum Press.

Flynn. M., Sisco, J., & Ellis, D. (2012, July). *National security challenges: Insights from social, neurobiological, and complexity sciences*. Retrieved from http://cco.dodlive.mil/files/2014/02/prism12-21_flynn-sisco-ellis.pdf

Fuchs, C. (2002). Some Implications of Anthony Gidden's works for a theory of social self-organization. *Emergence: Complexity and Organization*, 4(*3*): 7-35.

Gardner, L. C. (2008). *The long road to Baghdad: A history of U.S. foreign policy from the 1970s to the present*. New York, NY: New Press.

Gell-Mann, M. (2003). *The quark and the jaguar: Adventures in the simple and the complex*. London: Abacus.

Gerges, F. A. (2009). *The far enemy: Why Jihad went global*. Cambridge, England: Cambridge University Press.

Geyer, G. & Rihani, S. (2010) Complexity *and Public Policy: A new approach to 21st century politics, policy and society*. New York, NY: Routledge.

Goertz, G. (2006). *Social science concepts: A user's guide*. Princeton, NJ : Princeton University Press.

Greenfield, B. H., Greene, B., & Johanson, M. A. (2007). The use of qualitative research techniques in orthopedic and sports physical therapy: Moving toward postpositivism. *Physical Therapy in Sport, 8*(1), 44-54.

Gulbenkian Commission on the Restructuring of the Social Sciences. (1996). *Open the social sciences: Report of the Gulbenkian Commission on the Restructuring of the Social Sciences*. Stanford, CA: Stanford University Press.

Hajer, M. (2006). *Deliberative policy analysis: Understanding governance in the network society*. Cambridge, UK: Cambridge University Press.

Hall, W. M., & Citrenbaum, G. (2010). *Intelligence analysis: How to think in complex environments*. Westport, CT: Praeger Security International.

Harrison, N. E. (2006). *Complexity in world politics: Concepts and methods of a new paradigm*. Albany: State University of New York Press.

H. Res. 107-131, 107th Cong. (2001). Retrieved from http://www.gpo.gov/fdsys/pkg/CDOC-107hdoc131/html/CDOC-107hdoc131.htm

Hoffman, B. (2006). *Inside terrorism*. New York, NY: Columbia University Press.

Holland, J. H. (1995). *Hidden order: How adaptation builds complexity*. Reading, MA: Addison-Wesley.

Holland, J. H. (2000). *Emergence: From chaos to order*. Oxford, UK: Oxford University Press.

Holland, J. H. (2012). *Signals and boundaries: Building blocks for complex adaptive systems.* Cambridge, MA: MIT Press.

McChrystal, S. A. (2009). *Commander's initial assessment*. Kabul, Afghanistan: Headquarters, International Security Assistance Force. Retrieved from http://www.washingtonpost.com/wp-dyn/content/article/2009/09/21/AR2009092100110.html

John, P. (2003). Is there life after policy streams, advocacy coalitions, and punctuations: Using evolutionary theory to explain policy change? *Policy Studies Journal, 31*(4): 481-498.

Jones, S. G., & Rand Corporation. (2011). *The Al Qa'ida threat in Pakistan*. Santa Monica, CA: Rand. Retrieved from http://homeland.house.gov/sites/homeland.house.gov/files/Revised%20Jones%20Testimony%20Pakistan%20May%202011%20PDF%20(8)[1].pdf

Jorg, T. (2011). *New thinking in complexity for the social sciences and humanities: A transdisciplinary approach*. Dordrecht, Germany: Springer.

Katzman, K., & Library of Congress. (2005). *Afghanistan: Post-war governance, security, and U.S. policy*. Washington, DC: Congressional Research Service.

Kauffman, S. (2010). *The origins of order: Self-organization and selection in evolution*. New York, NY: Oxford University Press

Kilcullen, D. (2005). Countering global insurgency. *Journal of Strategic Studies*, 28(4)

Kilcullen, D. (2009). *The accidental guerrilla: Fighting small wars in the midst of a big one*. Oxford, UK: Oxford University Press.

Kingdon, J. W. (2011). *Agendas, alternatives, and public policies*. Boston, MA: Longman.

Kuhn, T. S. (2009). *The structure of scientific revolutions*. Chicago, IL: University of Chicago Press.

Lacey, J. (2008). *A terrorist's call to global Jihad: Deciphering Abu Musab al-Suri's Islamic Jihad manifesto*. Annapolis, MD: Naval Institute Press.

Lakoff, G., & Johnson, M. (1980). *Metaphors we live by*. Chicago, IL: University of Chicago Press.

Lawson, S. (January 01, 2011). Cold War military systems science and the emergence of a nonlinear view of war in the U.S. military. *Cold War History*, *11*(3), 421-440.

Lawson, S. T. (2014). *Nonlinear science and warfare: Chaos, complexity and the U.S. military in the information age*. Milton Park, Abington, Oxon: Routledge.

Lee, R. E., & Wallerstein, I. M. (2010). *Questioning nineteenth-century assumptions about knowledge*. Albany: State University of New York Press.

Lia, B. (October 01, 2008). Doctrines for jihadi terrorist training. *Terrorism and Political Violence,* 20(4), 518-542.

Lia, B. (2009). *Architect of global jihad: The life of al-Qaeda strategist Abu Mus'ab al-Suri*. New York, NY: Columbia University Press.

Lindblom, C. E. (2010). The science of "muddling" through. In J.W. Meek (Ed.), Complexity theory for public administration and policy (pp. 70-80). Litchfield Park, AZ: Emergent Publications.

Marion, R. (1999). *The edge of organization: Chaos and complexity theories of formal social systems*. Thousand Oaks, CA: Sage.

Marion, R., & Uhl-Bien, M. (March 01, 2003). Complexity theory and Al-Qaeda: Examining complex leadership. *Emergence, 5*(1), 54-76.

Marrin, S. (2011). The 9/11 terrorist attacks: A failure of policy not strategic intelligence analysis. *Intelligence and National Security, 26*(2-3), 182-202.

Maxwell, J. A. (2005). *Qualitative research design: An interactive approach*. Thousand Oaks, CA: Sage Publications.

McChrystal, S. (2009a, September 21). COMISAF initial assessment. *The Washington Post.* Retrieved from http://www.washingtonpost.com/wp-dyn/content/article/2009/09/21/AR2009092100110.html

McChrystal, S. (2009b, October 1). General Stanley McChrystal, commander ISAF, speech to the international institute for strategic studies. *Council on Foreign Relations*. Retrieved from http://www.cfr.org/afghanistan/general-stanley-mcchrystal-speech-international-institute-strategic-studies/p20354

McChrystal, S. A. (2013). *My share of the task: A memoir*. New York, NY: Portfolio/Penguin.

Merriam, S. B., & Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation*. San Francisco, CA: Jossey-Bass.

Midgley, G., & Richardson, K. A. (2007). Systems thinking for community involvement in policy analysis. *Emergence: Complexity and Organization, 9*(1), 167-183. Retrieved from http://search.proquest.com/docview/214148033?accountid=14872

Miller, H. T. (2002). *Postmodern public policy*. Albany: State University of New York Press.

Miller, D. C., & Salkind, N. J. (2002). *Handbook of research design and social measurement*. London: Sage.

Mischen, P. A., & Jackson, S. K. (2008). Connecting the dots: Applying complexity theory, knowledge management and social network analysis to policy implementation. *Public Administration Quarterly, 32*(3), 314-338.

Mitchell, M. (2009). *Complexity: A guided tour*. Oxford England: Oxford University Press.

Morçöl, G. (2002). *A new mind for policy analysis: Toward a post-Newtonian and postpositivist epistemology and methodology*. Westport, CT: Praeger.

Morçöl, G. (2008). A complexity theory for policy analysis. In L. Dennard, K. A. Richardson, & G. Morçöl (Eds.), *Complexity and policy analysis: Tools and methods for designing robust policies in a complex world* (pp. 24-36). Goodyear, AZ: ISCE Publishing.

Morçöl, G. (2010). Issues in reconceptualizing public policy from the perspective of complexity theory. *Emergence: Complexity and Organization, 12*(1), 52-60.

Morçöl, G. (2012). *A complexity theory for public policy*. New York, NY: Routledge.

Morel, B., & Ramanujam, R. (1999). Through the looking glass of complexity: The dynamics of organizations as adaptive and evolving systems. *Organization Science,* 10(3), 278-293.

National Commission on Terrorist Attacks upon the United States. (2004). *The 9/11 Commission report: Final report of the National Commission on Terrorist Attacks upon the United States*. New York, NY: Norton.

Obama, B. (2009). Remarks by the president in address to the nation on the way forward in Afghanistan and Pakistan. (2009, December 1) Retrieved from http://www.whitehouse.gov/the-press-office/remarks-president-address-nation-way-forward-afghanistan-and-pakistan

Obama, B. (2010, January 5). Obama cites intelligence failures, steps to improve security [video file]. Retrieved from http://www.washingtonpost.com/wp-dyn/content/video/2010/01/05/VI2010010502801.html?sid=ST2010010504392 .

Pillar, P. R. (2009). Afghanistan and Pakistan: Understanding the complex threat environment. Testimony to the House of Representatives Committee on Oversight and Government Reform Subcommittee on National Security and Foreign Affairs. Retrieved from http://ndu.libguides.com

Pomerantsev, P. (2014, May 5). How Putin is reinventing warfare. *Foreign Policy*. Retrieved from

http://www.foreignpolicy.com/articles/2014/05/05/how_putin_is_reinventing_warfare

Prigogine, I., & Stengers, I. (1997). *The end of certainty: Time, chaos, and the new laws of nature*. New York, NY: Free Press.

Reed, I. A. (2010). Epistemology contextualized: Social-scientific knowledge in a postpositivist era. *Sociological Theory, 28*(1), 20-39,127.

Rhodes, (2008). A complexity theory for policy analysis. In L. Dennard, K. A. Richardson, & G. Morçöl (Eds.), *Complexity and policy analysis: Tools and methods for designing robust policies in a complex world* (pp. 357-376). Goodyear, AZ: ISCE Publishing.

Robson, C. (2002). *Real world research: A resource for social scientists and practitioner-researchers.* Oxford, UK: Blackwell Publishers.

Sabatier, P. A. (2007). *Theories of the policy process*. Boulder, CO: Westview.

Sawyer, R. K. (2008). *Social emergence: Societies as complex systems*. Cambridge, UK: Cambridge University Press.

Schlesinger, R. (2008). *White House ghosts: Presidents and their speechwriters*. New York, NY: Simon & Schuster.

Simon, H. A. (2008). *The sciences of the artificial*. Cambridge, MA: MIT Press.

Smith, K. B., & Larimer, C. W. (2009). *The public policy theory primer*. Boulder, CO: Westview.

Straubhaar, J. D. (2007). *World television: From global to local*. Los Angeles: Sage.

Stacey, R. (2007). *Strategic management and organisational dynamics* (5th ed.). London, England: Pearson Education.

Stewart, J., & Ayres, R. (January 01, 2001). Systems theory and policy practice: An exploration. *Policy Sciences, 34*(1), 79-94.

Stolberg, A.G. (2006). The international system in the 21st century. In J. Bartholomees, Jr (Ed), *U.S. Army war college guide to national security policy and strategy* (pp. 3-14). Carlisle, PA: Strategic Studies Institute, U.S. Army War College.

Tait, A., & Richardson, K. A. (2008). Confronting complexity. *Emergence: Complexity and Organization, 10*(2), 27-40. Retrieved from http://search.proquest.com/docview/214156598?accountid=14872

Taleb, N. N. (2007). *The black swan: The impact of the highly improbable*. New York, NY: Random House.

Taleb, N. N. (2012). *Antifragile: Things that gain from disorder*. New York, NY: Random House.

Tashakkori, A., & Teddlie, C. (2003). *Handbook of mixed methods in social & behavioral research*. Thousand Oaks, CA: Sage.

Teisman, G., Buuren, A., & Gerrits, L. (2009). *Managing complex governance systems: Dynamics, self-organization and coevolution in public investments*. New York, NY: Routledge.

Teisman, G. R., & Klijn, E. (2008). Complexity theory and public management: An introduction. *Public Management Review, 10*(3), 287-288.

The new strategy for Afghanistan and Pakistan and developments in U.S. central command and special operations command: Hearing before the Committee on Armed Services, House of Representatives, 111th Cong. 1 (2009). Retrieved from http://www.gpo.gov/fdsys/pkg/CHRG-111hhrg53056/pdf/CHRG-111hhrg53056.pdf

The Situation in Afghanistan: Hearing before the Committee on Armed Services, Senate, 112th Cong. 1 (2011). Retrieved from http://www.gpo.gov/fdsys/pkg/CHRG-112shrg72295/html/CHRG-112shrg72295.htm

United States Government Accountability Office. (2009). *Securing, stabilizing, and developing Pakistan's border area with Afghanistan: Key issues for Congressional oversight* (Report No. GAO-09-263SP). Washington, DC: Author. Retrieved from http://www.gao.gov/products/GAO-09-263SP

Walker, S. G., & Malici, A. (2011). *U.S. presidents and foreign policy mistakes*. Stanford, CA: Stanford University Press.

Waldrop, M. M. (1994). *Complexity: The emerging science at the edge of order and chaos*. London: Penguin.

Wallerstein, I. (2001). *Unthinking social science: The limits of nineteenth-century paradigms*. Philadelphia, PA: Temple University Press.

Wallerstein, I. M. (2004). *The uncertainties of knowledge*. Philadelphia, PA: Temple University Press.

Wallis, S. E. (2008a). From reductive to robust: Seeking the core of complex adaptive systems theory. In A. Yang & Y. Shan (Eds.), *Intelligent complex adaptive systems* (pp. 1-25). Hershey, PA: IGI Global

Wallis, S. E. (2008b). *The integral puzzle: Determining the integrality of integral theory*. Retrieved from http://www.integralworld.net/wallis.html

Wallis, S. E. (2008c). Validation of theory: Exploring and reframing Popper's worlds. *Integral Review, 4*(2), 71-91.

Wallis, S. E. (2010a). The structure of theory and the structure of scientific revolutions: What constitutes an advance in theory? In S. E. Wallis (Ed.*), Cybernetics and systems theory in management: Views, tools, and advancements*). Hershey, PA: IGI Global.

Wallis, S. E. (2010b). Toward a science of metatheory. *Integral Review*, *6*(3) (Special Issue: Emerging Perspectives of Metatheory and Theory).

Wallis, S. E. (2010c). Towards the development of more robust policy models. *Integral Review*, *6*(1), 153-160. Retrieved from http://www.integral-review.org/documents/Wallis,%20Toward%20More%20Robust%20Policy%20Models%20Vol.%206%20No.%201.pdf

Wallis, S. E. (2011). *Avoiding policy failure: A workable approach*. Litchfield Park, AZ: Emergent.

Wallis, S.E. (2012, July 22). *Critical integrative metatheory: New methods to evaluate psychological theories and models for review.* Paper for the Psychology Serving

Humanity, 30th International Congress of Psychology, Cape Town, South Africa. Retrieved from http://projectfast.org/category/research/articles/page/2/

Wallis, S. E. (2013). How to choose between policy proposals: A simple tool based on systems thinking and complexity theory. *Emergence: Complexity and Organization,* (In Press).

Wallis, S. E. (2014). Using integrative propositional analysis (IPA) to study the USAID/PERU country development cooperation strategy. Manuscript submitted for publication.

White paper of the Interagency Policy Group's report on U.S. policy toward Afghanistan and Pakistan. (n.d.). Retrieved from http://www.whitehouse.gov/assets/documents/Afghanistan-Pakistan_White_Paper.pdf

Woodward, B. (2002). *Bush at war*. New York, NY: Simon and Schuster.

Yin, R. K. (1994). *Case study research: Design and methods*. Thousand Oaks, CA: Sage.

Yin, R. K. (2011). *Qualitative research from start to finish*. New York, NY: Guilford.

Appendix A: AfPak Policy Speech Transcript

Remarks by President Obama in an Address to the Nation on the Way Forward in Afghanistan and Pakistan

December 9, 2009

1. THE PRESIDENT: Good evening. To the United States Corps of Cadets, to the men and women of our Armed Services, and to my fellow Americans: I want to speak to you tonight about our effort in Afghanistan -- the nature of our commitment there, the scope of our interests, and the strategy that my administration will pursue to bring this war to a successful conclusion. It's an extraordinary honor for me to do so here at West Point -- where so many men and women have prepared to stand up for our security, and to represent what is finest about our country.

2. To address these important issues, it's important to recall why America and our allies were compelled to fight a war in Afghanistan in the first place. We did not ask for this fight. On September 11, 2001, 19 men hijacked four airplanes and used them to murder nearly 3,000 people. They struck at our military and economic nerve centers. They took the lives of innocent men, women, and children without regard to their faith or race or station. Were it not for the heroic actions of passengers onboard one of those flights, they could have also struck at one of the great symbols of our democracy in Washington, and killed many more.

3. As we know, these men belonged to al Qaeda -- a group of extremists who have distorted and defiled Islam, one of the world's great religions, to justify the slaughter of innocents. Al Qaeda's base of operations was in Afghanistan, where they were harbored by the Taliban -- a ruthless, repressive and radical movement that seized control of that country after it was ravaged by years of Soviet occupation and civil war, and after the attention of America and our friends had turned elsewhere.

4. Just days after 9/11, Congress authorized the use of force against al Qaeda and those who harbored them -- an authorization that continues to this day. The vote in the Senate was 98 to nothing. The vote in the House was 420 to 1. For the first time in its history, the North Atlantic Treaty Organization invoked Article 5 -- the commitment that says an attack on one member nation is an attack on all. And the United Nations Security Council endorsed the use of all

necessary steps to respond to the 9/11 attacks. America, our allies and the world were acting as one to destroy al Qaeda's terrorist network and to protect our common security.

5. Under the banner of this domestic unity and international legitimacy -- and only after the Taliban refused to turn over Osama bin Laden -- we sent our troops into Afghanistan. Within a matter of months, al Qaeda was scattered and many of its operatives were killed. The Taliban was driven from power and pushed back on its heels. A place that had known decades of fear now had reason to hope. At a conference convened by the U.N., a provisional government was established under President Hamid Karzai. And an International Security Assistance Force was established to help bring a lasting peace to a war-torn country.

6. Then, in early 2003, the decision was made to wage a second war, in Iraq. The wrenching debate over the Iraq war is well-known and need not be repeated here. It's enough to say that for the next six years, the Iraq war drew the dominant share of our troops, our resources, our diplomacy, and our national attention -- and that the decision to go into Iraq caused substantial rifts between America and much of the world.

7. Today, after extraordinary costs, we are bringing the Iraq war to a responsible end. We will remove our combat brigades from Iraq by the end of next summer, and all of our troops by the end of 2011. That we are doing so is a testament to the character of the men and women in uniform. (Applause.) Thanks to their courage, grit and perseverance, we have given Iraqis a chance to shape their future, and we are successfully leaving Iraq to its people.

8. But while we've achieved hard-earned milestones in Iraq, the situation in Afghanistan has deteriorated. After escaping across the border into Pakistan in 2001 and 2002, al Qaeda's leadership established a safe haven there. Although a legitimate government was elected by the Afghan people, it's been hampered by corruption, the drug trade, an under-developed economy, and insufficient security forces.

9. Over the last several years, the Taliban has maintained common cause with al Qaeda, as they both seek an overthrow of the Afghan government. Gradually, the Taliban has begun to control additional swaths of territory in Afghanistan, while engaging in increasingly brazen and devastating attacks of terrorism against the Pakistani people.

10. Now, throughout this period, our troop levels in Afghanistan remained a fraction of what they were in Iraq. When I took office, we had just over 32,000 Americans serving in Afghanistan, compared to 160,000 in Iraq at the peak of the war. Commanders in Afghanistan repeatedly asked for support to deal with the reemergence of the Taliban, but these reinforcements did not arrive. And that's why, shortly after taking office, I approved a longstanding request for more troops. After consultations with our allies, I then announced a strategy recognizing the fundamental connection between our war effort in Afghanistan and the

extremist safe havens in Pakistan. I set a goal that was narrowly defined as disrupting, dismantling, and defeating al Qaeda and its extremist allies, and pledged to better coordinate our military and civilian efforts.

11. Since then, we've made progress on some important objectives. High-ranking al Qaeda and Taliban leaders have been killed, and we've stepped up the pressure on al Qaeda worldwide. In Pakistan, that nation's army has gone on its largest offensive in years. In Afghanistan, we and our allies prevented the Taliban from stopping a presidential election, and -- although it was marred by fraud -- that election produced a government that is consistent with Afghanistan's laws and constitution.

12. Yet huge challenges remain. Afghanistan is not lost, but for several years it has moved backwards. There's no imminent threat of the government being overthrown, but the Taliban has gained momentum. Al Qaeda has not reemerged in Afghanistan in the same numbers as before 9/11, but they retain their safe havens along the border. And our forces lack the full support they need to effectively train and partner with Afghan security forces and better secure the population. Our new commander in Afghanistan -- General McChrystal -- has reported that the security situation is more serious than he anticipated. In short: The status quo is not sustainable.

13. As cadets, you volunteered for service during this time of danger. Some of you fought in Afghanistan. Some of you will deploy there. As your Commander-in-Chief, I owe you a mission that is clearly defined, and worthy of your service. And that's why, after the Afghan voting was completed, I insisted on a thorough review of our strategy. Now, let me be clear: There has never been an option before me that called for troop deployments before 2010, so there has been no delay or denial of resources necessary for the conduct of the war during this review period. Instead, the review has allowed me to ask the hard questions, and to explore all the different options, along with my national security team, our military and civilian leadership in Afghanistan, and our key partners. And given the stakes involved, I owed the American people -- and our troops -- no less.

14. This review is now complete. And as Commander-in-Chief, I have determined that it is in our vital national interest to send an additional 30,000 U.S. troops to Afghanistan. After 18 months, our troops will begin to come home. These are the resources that we need to seize the initiative, while building the Afghan capacity that can allow for a responsible transition of our forces out of Afghanistan.

15. I do not make this decision lightly. I opposed the war in Iraq precisely because I believe that we must exercise restraint in the use of military force, and always consider the long-term consequences of our actions. We have been at war now for eight years, at enormous cost in lives and resources. Years of debate over Iraq and terrorism have left our unity on national

security issues in tatters, and created a highly polarized and partisan backdrop for this effort. And having just experienced the worst economic crisis since the Great Depression, the American people are understandably focused on rebuilding our economy and putting people to work here at home.

16. Most of all, I know that this decision asks even more of you -- a military that, along with your families, has already borne the heaviest of all burdens. As President, I have signed a letter of condolence to the family of each American who gives their life in these wars. I have read the letters from the parents and spouses of those who deployed. I visited our courageous wounded warriors at Walter Reed. I've traveled to Dover to meet the flag-draped caskets of 18 Americans returning home to their final resting place. I see firsthand the terrible wages of war. If I did not think that the security of the United States and the safety of the American people were at stake in Afghanistan, I would gladly order every single one of our troops home tomorrow.

17. So, no, I do not make this decision lightly. I make this decision because I am convinced that our security is at stake in Afghanistan and Pakistan. This is the epicenter of violent extremism practiced by al Qaeda. It is from here that we were attacked on 9/11, and it is from here that new attacks are being plotted as I speak. This is no idle danger; no hypothetical threat. In the last few months alone, we have apprehended extremists within our borders who were sent here from the border region of Afghanistan and Pakistan to commit new acts of terror. And this danger will only grow if the region slides backwards, and al Qaeda can operate with impunity. We must keep the pressure on al Qaeda, and to do that, we must increase the stability and capacity of our partners in the region.

18. Of course, this burden is not ours alone to bear. This is not just America's war. Since 9/11, al Qaeda's safe havens have been the source of attacks against London and Amman and Bali. The people and governments of both Afghanistan and Pakistan are endangered. And the stakes are even higher within a nuclear-armed Pakistan, because we know that al Qaeda and other extremists seek nuclear weapons, and we have every reason to believe that they would use them.

19. These facts compel us to act along with our friends and allies. Our overarching goal remains the same: to disrupt, dismantle, and defeat al Qaeda in Afghanistan and Pakistan, and to prevent its capacity to threaten America and our allies in the future.

20. To meet that goal, we will pursue the following objectives within Afghanistan. We must deny al Qaeda a safe haven. We must reverse the Taliban's momentum and deny it the ability to overthrow the government. And we must strengthen the capacity of Afghanistan's security forces and government so that they can take lead responsibility for Afghanistan's future.

21. We will meet these objectives in three ways. First, we will pursue a military strategy that will break the Taliban's momentum and increase Afghanistan's capacity over the next 18 months.

22. The 30,000 additional troops that I'm announcing tonight will deploy in the first part of 2010 -- the fastest possible pace -- so that they can target the insurgency and secure key population centers. They'll increase our ability to train competent Afghan security forces, and to partner with them so that more Afghans can get into the fight. And they will help create the conditions for the United States to transfer responsibility to the Afghans.

23. Because this is an international effort, I've asked that our commitment be joined by contributions from our allies. Some have already provided additional troops, and we're confident that there will be further contributions in the days and weeks ahead. Our friends have fought and bled and died alongside us in Afghanistan. And now, we must come together to end this war successfully. For what's at stake is not simply a test of NATO's credibility -- what's at stake is the security of our allies, and the common security of the world.

24. But taken together, these additional American and international troops will allow us to accelerate handing over responsibility to Afghan forces, and allow us to begin the transfer of our forces out of Afghanistan in July of 2011. Just as we have done in Iraq, we will execute this transition responsibly, taking into account conditions on the ground. We'll continue to advise and assist Afghanistan's security forces to ensure that they can succeed over the long haul. But it will be clear to the Afghan government -- and, more importantly, to the Afghan people -- that they will ultimately be responsible for their own country.

25. Second, we will work with our partners, the United Nations, and the Afghan people to pursue a more effective civilian strategy, so that the government can take advantage of improved security.

26. This effort must be based on performance. The days of providing a blank check are over. President Karzai's inauguration speech sent the right message about moving in a new direction. And going forward, we will be clear about what we expect from those who receive our assistance. We'll support Afghan ministries, governors, and local leaders that combat corruption and deliver for the people. We expect those who are ineffective or corrupt to be held accountable. And we will also focus our assistance in areas -- such as agriculture -- that can make an immediate impact in the lives of the Afghan people.

27. The people of Afghanistan have endured violence for decades. They've been confronted with occupation -- by the Soviet Union, and then by foreign al Qaeda fighters who used Afghan land for their own purposes. So tonight, I want the Afghan people to understand -- America seeks an end to this era of war and suffering. We have no interest in occupying your

country. We will support efforts by the Afghan government to open the door to those Taliban who abandon violence and respect the human rights of their fellow citizens. And we will seek a partnership with Afghanistan grounded in mutual respect -- to isolate those who destroy; to strengthen those who build; to hasten the day when our troops will leave; and to forge a lasting friendship in which America is your partner, and never your patron.

28. Third, we will act with the full recognition that our success in Afghanistan is inextricably linked to our partnership with Pakistan.

29. We're in Afghanistan to prevent a cancer from once again spreading through that country. But this same cancer has also taken root in the border region of Pakistan. That's why we need a strategy that works on both sides of the border.

30. In the past, there have been those in Pakistan who've argued that the struggle against extremism is not their fight, and that Pakistan is better off doing little or seeking accommodation with those who use violence. But in recent years, as innocents have been killed from Karachi to Islamabad, it has become clear that it is the Pakistani people who are the most endangered by extremism. Public opinion has turned. The Pakistani army has waged an offensive in Swat and South Waziristan. And there is no doubt that the United States and Pakistan share a common enemy.

31. In the past, we too often defined our relationship with Pakistan narrowly. Those days are over. Moving forward, we are committed to a partnership with Pakistan that is built on a foundation of mutual interest, mutual respect, and mutual trust. We will strengthen Pakistan's capacity to target those groups that threaten our countries, and have made it clear that we cannot tolerate a safe haven for terrorists whose location is known and whose intentions are clear. America is also providing substantial resources to support Pakistan's democracy and development. We are the largest international supporter for those Pakistanis displaced by the fighting. And going forward, the Pakistan people must know America will remain a strong supporter of Pakistan's security and prosperity long after the guns have fallen silent, so that the great potential of its people can be unleashed.

32. These are the three core elements of our strategy: a military effort to create the conditions for a transition; a civilian surge that reinforces positive action; and an effective partnership with Pakistan.

33. I recognize there are a range of concerns about our approach. So let me briefly address a few of the more prominent arguments that I've heard, and which I take very seriously.

34. First, there are those who suggest that Afghanistan is another Vietnam. They argue that it cannot be stabilized, and we're better off cutting our losses and rapidly withdrawing. I believe this argument depends on a false reading of history. Unlike Vietnam, we

are joined by a broad coalition of 43 nations that recognizes the legitimacy of our action. Unlike Vietnam, we are not facing a broad-based popular insurgency. And most importantly, unlike Vietnam, the American people were viciously attacked from Afghanistan, and remain a target for those same extremists who are plotting along its border. To abandon this area now -- and to rely only on efforts against al Qaeda from a distance -- would significantly hamper our ability to keep the pressure on al Qaeda, and create an unacceptable risk of additional attacks on our homeland and our allies.

35. Second, there are those who acknowledge that we can't leave Afghanistan in its current state, but suggest that we go forward with the troops that we already have. But this would simply maintain a status quo in which we muddle through, and permit a slow deterioration of conditions there. It would ultimately prove more costly and prolong our stay in Afghanistan, because we would never be able to generate the conditions needed to train Afghan security forces and give them the space to take over.

36. Finally, there are those who oppose identifying a time frame for our transition to Afghan responsibility. Indeed, some call for a more dramatic and open-ended escalation of our war effort -- one that would commit us to a nation-building project of up to a decade. I reject this course because it sets goals that are beyond what can be achieved at a reasonable cost, and what we need to achieve to secure our interests. Furthermore, the absence of a time frame for transition would deny us any sense of urgency in working with the Afghan government. It must be clear that Afghans will have to take responsibility for their security, and that America has no interest in fighting an endless war in Afghanistan.

37. As President, I refuse to set goals that go beyond our responsibility, our means, or our interests. And I must weigh all of the challenges that our nation faces. I don't have the luxury of committing to just one. Indeed, I'm mindful of the words of President Eisenhower, who -- in discussing our national security -- said, "Each proposal must be weighed in the light of a broader consideration: the need to maintain balance in and among national programs."

38. Over the past several years, we have lost that balance. We've failed to appreciate the connection between our national security and our economy. In the wake of an economic crisis, too many of our neighbors and friends are out of work and struggle to pay the bills. Too many Americans are worried about the future facing our children. Meanwhile, competition within the global economy has grown more fierce. So we can't simply afford to ignore the price of these wars.

39. All told, by the time I took office the cost of the wars in Iraq and Afghanistan approached a trillion dollars. Going forward, I am committed to addressing these costs openly and honestly. Our new approach in Afghanistan is likely to cost us roughly $30 billion for the military

this year, and I'll work closely with Congress to address these costs as we work to bring down our deficit.

40. But as we end the war in Iraq and transition to Afghan responsibility, we must rebuild our strength here at home. Our prosperity provides a foundation for our power. It pays for our military. It underwrites our diplomacy. It taps the potential of our people, and allows investment in new industry. And it will allow us to compete in this century as successfully as we did in the last. That's why our troop commitment in Afghanistan cannot be open-ended -- because the nation that I'm most interested in building is our own.

41. Now, let me be clear: None of this will be easy. The struggle against violent extremism will not be finished quickly, and it extends well beyond Afghanistan and Pakistan. It will be an enduring test of our free society, and our leadership in the world. And unlike the great power conflicts and clear lines of division that defined the 20th century, our effort will involve disorderly regions, failed states, diffuse enemies.

42. So as a result, America will have to show our strength in the way that we end wars and prevent conflict -- not just how we wage wars. We'll have to be nimble and precise in our use of military power. Where al Qaeda and its allies attempt to establish a foothold -- whether in Somalia or Yemen or elsewhere -- they must be confronted by growing pressure and strong partnerships.

43. And we can't count on military might alone. We have to invest in our homeland security, because we can't capture or kill every violent extremist abroad. We have to improve and better coordinate our intelligence, so that we stay one step ahead of shadowy networks.

44. We will have to take away the tools of mass destruction. And that's why I've made it a central pillar of my foreign policy to secure loose nuclear materials from terrorists, to stop the spread of nuclear weapons, and to pursue the goal of a world without them -- because every nation must understand that true security will never come from an endless race for ever more destructive weapons; true security will come for those who reject them.

45. We'll have to use diplomacy, because no one nation can meet the challenges of an interconnected world acting alone. I've spent this year renewing our alliances and forging new partnerships. And we have forged a new beginning between America and the Muslim world -- one that recognizes our mutual interest in breaking a cycle of conflict, and that promises a future in which those who kill innocents are isolated by those who stand up for peace and prosperity and human dignity.

46. And finally, we must draw on the strength of our values -- for the challenges that we face may have changed, but the things that we believe in must not. That's why we must promote our values by living them at home -- which is why I have prohibited torture and will close

the prison at Guantanamo Bay. And we must make it clear to every man, woman and child around the world who lives under the dark cloud of tyranny that America will speak out on behalf of their human rights, and tend to the light of freedom and justice and opportunity and respect for the dignity of all peoples. That is who we are. That is the source, the moral source, of America's authority.

47. Since the days of Franklin Roosevelt, and the service and sacrifice of our grandparents and great-grandparents, our country has borne a special burden in global affairs. We have spilled American blood in many countries on multiple continents. We have spent our revenue to help others rebuild from rubble and develop their own economies. We have joined with others to develop an architecture of institutions -- from the United Nations to NATO to the World Bank -- that provide for the common security and prosperity of human beings.

48. We have not always been thanked for these efforts, and we have at times made mistakes. But more than any other nation, the United States of America has underwritten global security for over six decades -- a time that, for all its problems, has seen walls come down, and markets open, and billions lifted from poverty, unparalleled scientific progress and advancing frontiers of human liberty.

49. For unlike the great powers of old, we have not sought world domination. Our union was founded in resistance to oppression. We do not seek to occupy other nations. We will not claim another nation's resources or target other peoples because their faith or ethnicity is different from ours. What we have fought for -- what we continue to fight for -- is a better future for our children and grandchildren. And we believe that their lives will be better if other peoples' children and grandchildren can live in freedom and access opportunity. (Applause.)

50. As a country, we're not as young -- and perhaps not as innocent -- as we were when Roosevelt was President. Yet we are still heirs to a noble struggle for freedom. And now we must summon all of our might and moral suasion to meet the challenges of a new age.

51. In the end, our security and leadership does not come solely from the strength of our arms. It derives from our people -- from the workers and businesses who will rebuild our economy; from the entrepreneurs and researchers who will pioneer new industries; from the teachers that will educate our children, and the service of those who work in our communities at home; from the diplomats and Peace Corps volunteers who spread hope abroad; and from the men and women in uniform who are part of an unbroken line of sacrifice that has made government of the people, by the people, and for the people a reality on this Earth. (Applause.)

This vast and diverse citizenry will not always agree on every issue -- nor should we. But I also know that we, as a country, cannot sustain our leadership, nor navigate the momentous challenges

of our time, if we allow ourselves to be split asunder by the same rancor and cynicism and partisanship that has in recent times poisoned our national discourse.

52. It's easy to forget that when this war began, we were united -- bound together by the fresh memory of a horrific attack, and by the determination to defend our homeland and the values we hold dear. I refuse to accept the notion that we cannot summon that unity again. (Applause.) I believe with every fiber of my being that we -- as Americans -- can still come together behind a common purpose. For our values are not simply words written into parchment -- they are a creed that calls us together, and that has carried us through the darkest of storms as one nation, as one people.

53. America -- we are passing through a time of great trial. And the message that we send in the midst of these storms must be clear: that our cause is just, our resolve unwavering. We will go forward with the confidence that right makes might, and with the commitment to forge an America that is safer, a world that is more secure, and a future that represents not the deepest of fears but the highest of hopes. (Applause.)

54. Thank you. God bless you. May God bless the United States of America. (Applause.) Thank you very much. Thank you. (Applause.)

Curriculum Vitae

Crisanna L. Shackelford

Recent Career and Education Highlights:

- 4 years (to current) Office of Intelligence Integration, Warfighter Engagements to include Chief Customer Engagements, AMMO and PM Training Development; Senior Production Office, and NGIC Regional Support Operations Officer
- PhD studies in the field of complex operational environments, public policy analysis, organizational management and futures research/strategic planning.
- University of St. Andrews, Scotland: Center for the Study of Terrorism and Political Violence Certificate.
- Monterey Institute International Studies, MA, 1993, International Policy Studies, Monterey Institute of International Studies (MIIS), Monterey, California. Extensive dual focus on counter terrorism, futures wargaming and strategic planning.
- Monterey Institute International Studies, BA, 1991, Russian Studies, International Policy Studies. Monterey Institute of International Studies (MIIS), Monterey, California.
- Defense Language Institute: Russian and Ukrainian